Education and ICT (E-Learning) Doctoral Programme
Open University of Catalonia

Teaching and learning about the Holocaust on social media: A learning ecology perspective

Doctoral Thesis

presented as a

Collection of Publications

by

Stefania Manca

Thesis supervisors: Prof. Albert Sangrà, Dr. Juliana Elisa Raffaghelli

Barcelona, 2023

Abstract

This thesis investigates the lifelong learning ecologies that combine formal, non-formal, and informal learning to foster understanding and participation in the new Holocaust memory landscapes shaped by digital technologies. Stemming from an analysis of the relationships between post-witness historical memory and the emerging media ecosystems that transmit and share these memories, the dissertation deepens its exploration of educational approaches and places the focus on lifelong learning ecologies as an effective approach for both the general public and teachers' professional learning on the topic. The historical focus of this study is on the Holocaust and the Second World War as two of the most prominent collective memories that have continued to shape Western and European identity, since the early 1990s. While digital technologies have played an increasingly important role in the globalisation and internationalisation of Holocaust remembrance, they are also reconfiguring the construction of collective and individual memory, leading to new forms of Holocaust education. As digital media, technology and culture continue to evolve, the participatory culture of social media has permeated the digital practices of many Holocaust organisations and other content creators. However, little is known about the potential of social media for Holocaust education and lifelong learning ecologies. While most educational materials are still geared towards traditional educational settings, there is limited research on how people engage with Holocaust-related content on social media and the impact of this engagement on their understanding of the Holocaust. This dissertation addresses these gaps by investigating two parallel streams of research: the (social) media ecosystems of Holocaust memory as deployed on social media by Holocaust organisations such as museums and memorials, and the learning ecologies of online users who seek to create meaningful learning experiences related to the Holocaust. In this sense, this study aims to build a bridge between the theoretical and methodological orientations of media and cultural studies and those of education and learning technologies. In this light, the study uses several research methods borrowed from social media research and educational science to integrate contributions from the two different research fields.

The thesis is presented as a compendium of seven papers and one supplementary study: (1) a systematic review of the literature to map how cultural studies and learning sciences have investigated the use of social media for Holocaust memory and education, and to analyse the research gaps; (2) the development of an analytical methodology based on social media analysis; (3) the development of a conceptual framework relating the field of digital Holocaust memory to the learning ecologies approach; (4) the study of how Holocaust museums and memorials are developing practices of digital Holocaust remembrance on social media; (5) the study of how the four main Italian Holocaust museums and memorials use social media for educational and commemorative purposes; (6) the study of how Italian adult learners develop their learning ecologies through the use of social media; (7) the analysis of the learning ecologies of a group of Italian Holocaust educators to understand their motivation for initial and lifelong learning and their learning practices. The supplementary study is focused on qualitative content analysis of social media sites.

The results show that Holocaust museums have an overall positive attitude towards social media. They tend to use Facebook, Instagram and YouTube in particular, and to share educational content and information about the museum's activities but interaction with users remains generally limited. In the case of Italian museums, they tend to use Facebook and Instagram in particular, with a preference for a target audience over 25 years of age. Overall, the social media pages of museums and memorials are seen as important and trustworthy sources of information about the Holocaust. Users are particularly interested in topics related to the intertwining of transnational and national memory and express a sense of civic responsibility regarding the legacy of the Holocaust. However, components of the learning process show proactive behaviour and a preference for individual learning, while interaction with peers is considered less important. As for Holocaust educators the results highlight that there is still a limited use of digital technologies and social media in Holocaust education and in the professional development of educators.

These integrative findings suggest that there is a need to understand how learners' preferences influence the development of their learning ecologies. In addition to providing opportunities for learners to critically reflect on their own learning practices, museum staff need to provide opportunities for learners to interact with each other. Finally, to reach younger audiences, Holocaust museums and memorials should invest in social media platforms that are most appropriate for the younger generation (e.g., TikTok).

Keywords: Learning ecologies, Social media, Informal learning, Teachers' professional learning, Holocaust education, Holocaust memory, Holocaust museums and memorials, Italy.

Resumen

Esta tesis investiga las ecologías de aprendizaje a lo largo de la vida que combinan el aprendizaje formal, no formal e informal para fomentar la comprensión y participación en relación con la memoria del Holocausto moldeada por tecnologías digitales. Partiendo de un análisis de las relaciones entre la memoria histórica en una era que podemos denominar "post-testigo" (*post-witness*) y de los ecosistemas mediáticos emergentes que transmiten y comparten estos recuerdos, este trabajo de tesis profundiza en la exploración de enfoques educativos y centra la atención en las ecologías de aprendizaje como un método efectivo tanto para el aprendizaje profesional de los docentes como para el del público general sobre el tema. El enfoque histórico de este estudio se centra en el Holocausto y la Segunda Guerra Mundial en tanto que hechos mayormente destacados respecto de la memoria colectiva, que han continuado moldeando la identidad occidental y europea desde principios de la década de 1990. Aunque las tecnologías digitales han desempeñado un papel cada vez más importante en la globalización e internacionalización de la memoria del Holocausto, también están reconfigurando la construcción de la memoria colectiva e individual, dando lugar a nuevas formas de educación sobre el Holocausto. A medida que los medios digitales, la tecnología y la cultura continúan evolucionando, la cultura participativa de las redes sociales ha permeado las prácticas digitales de muchas organizaciones del Holocausto como creadoras de contenido. Sin embargo, se conoce poco sobre el potencial de las redes sociales para la educación sobre el Holocausto y las ecologías de aprendizaje. Aunque la mayoría de los materiales educativos todavía están orientados hacia entornos de aprendizaje tradicionales, hay una investigación limitada sobre cómo las personas interactúan con el contenido relacionado con el Holocausto en las redes sociales, así como del impacto de esta interacción en su comprensión del Holocausto. Por lo tanto, este trabajo doctoral aborda estas lagunas focalizando dos corrientes paralelas de investigación: los ecosistemas mediáticos (sociales) de la memoria del Holocausto según lo implementado en las redes sociales por organizaciones del Holocausto como museos y monumentos conmemorativos, y las ecologías de aprendizaje de los usuarios en línea que buscan crear experiencias de aprendizaje significativas relacionadas con el Holocausto. En este sentido, este estudio pretende construir un puente entre los enfoques teórico-metodológicos de los estudios culturales y de medios, y los de la educación y tecnologías del aprendizaje. Así, el estudio utiliza una variedad de métodos tomados de la investigación en redes sociales y ciencias de la educación para integrar contribuciones los dos diferentes ámbitos de estudio, antes mencionados.

La tesis se presenta como un compendio de siete artículos y un estudio complementario. Cada artículo tiene sus propios objetivos y enfoques, que se relacionan con los temas principales de esta tesis: (1) una revisión sistemática de la literatura para mapear cómo los estudios culturales y de ciencias de la educación han investigado el uso de las redes sociales en relación a la memoria y educación sobre el Holocausto, apuntando a analizar las lagunas en la investigación; (2) el desarrollo de una metodología analítica de redes sociales; (3) el desarrollo de un marco conceptual que relaciona el campo de la memoria digital del Holocausto con el enfoque de ecologías de aprendizaje; (4) el estudio de cómo los museos y memoriales del Holocausto en todo el mundo están desarrollando prácticas digitales en relación a la memoria del Holocausto en redes sociales, en términos de contenido generado, interactividad, popularidad y tipo de contenido; (5) el estudio de cómo los cuatro principales museos y memoriales del Holocausto en Italia utilizan las redes sociales con fines educativos y conmemorativos; (6) el estudio de cómo los adultos italianos desarrollan sus ecologías de aprendizaje mediante el uso de redes sociales para el aprendizaje informal sobre el Holocausto; (7) el análisis de las ecologías de aprendizaje de un grupo de educadores italianos sobre el Holocausto para comprender su motivación para el aprendizaje inicial y continuo y sus prácticas de aprendizaje. El estudio complementario se centra en el análisis de contenido cualitativo de sitios de redes sociales.

Los resultados muestran que los museos del Holocausto tienen una actitud generalmente positiva hacia las redes sociales. Tienden a usar Facebook, Instagram y YouTube en particular, y a compartir contenido educativo e información sobre las actividades del museo, pero la interacción con los usuarios sigue siendo generalmente limitada. En el caso de los museos italianos, tienden a usar Facebook e Instagram en particular, con una preferencia por un público objetivo mayor de 25 años. En general, las páginas de redes sociales de museos y monumentos conmemorativos se ven como fuentes de información importantes y confiables sobre el Holocausto. Los usuarios están particularmente interesados en temas relacionados con la interconexión de la memoria transnacional y nacional y expresan un sentido de responsabilidad cívica con respecto al legado del Holocausto. Sin embargo, las y los participantes del proceso de aprendizaje muestran un comportamiento proactivo y una preferencia por el aprendizaje individual, mientras que la interacción con otros participantes se considera menos importante. En cuanto educadores expertos en el tema del Holocausto, los resultados destacan que todavía hay un uso limitado de las tecnologías digitales y las redes sociales en la educación sobre el Holocausto y en el desarrollo profesional docente.

Estos hallazgos integradores sugieren que es necesario comprender cómo las preferencias las personas influyen en el desarrollo de sus ecologías de aprendizaje. Además de proporcionar oportunidades para que los sujetos reflexionen críticamente sobre sus propias prácticas de aprendizaje, el personal involucrado en acciones formativas y comunicativas de los museos necesita proporcionar oportunidades para que las personas en situación de aprendizaje interactúen entre sí. Finalmente, para llegar a audiencias más jóvenes, los museos y monumentos conmemorativos del Holocausto deberían invertir en plataformas de redes sociales que sean más adecuadas para la generación más joven (por ejemplo, TikTok).

Palabras clave: Ecologías de aprendizaje, Redes sociales, Aprendizaje informal, Aprendizaje profesional de los docentes, Educación sobre el Holocausto, Memoria del Holocausto, Museos y memoriales del Holocausto, Italia.

Resum

Aquesta tesi investiga les ecologies de formació permanent que combinen l'aprenentatge formal, no formal i informal per fomentar la comprensió i la participació en els nous escenaris de memòria de l'Holocaust modelats per les tecnologies digitals. Sorgint d'una anàlisi de les relacions entre la memòria històrica post-testimoni i els ecosistemes mediàtics emergents que transmeten i comparteixen aquests records, la dissertació aprofundeix en la seva exploració d'enfocaments educatius i posa l'èmfasi en les ecologies de formació permanent com un enfocament efectiu tant per al públic en general com per a l'aprenentatge professional dels docents sobre el tema. El focus històric d'aquest estudi és sobre l'Holocaust i la Segona Guerra Mundial com a dues de les memòries col·lectives més destacades que han continuat modelant la identitat occidental i europea des de principis dels anys 90. Tot i que les tecnologies digitals han jugat un paper cada vegada més important en la globalització i internacionalització del record de l'Holocaust, també estan reconfigurant la construcció de la memòria col·lectiva i individual, conduint a noves formes d'educació sobre l'Holocaust. A mesura que els mitjans digitals, la tecnologia i la cultura continuen evolucionant, la cultura participativa de les xarxes socials ha impregnat les pràctiques digitals de moltes organitzacions de l'Holocaust i altres creadors de contingut. No obstant això, es coneix poc sobre el potencial mitjans de les xarxes socials per a l'educació sobre l'Holocaust i les ecologies de formació permanent. Encara que la majoria dels materials educatius encara estan orientats cap a entorns educatius tradicionals, hi ha una recerca limitada sobre com la gent interactua amb el contingut relacionat amb l'Holocaust a les xarxes socials, i sobre l'impacte d'aquesta interacció en la seva comprensió de l'Holocaust. Aquesta dissertació aborda aquests buits investigant dos corrents paral·lels de recerca: els ecosistemes mediàtics (socials) de la memòria de l'Holocaust tal com s'implementen en les xarxes socials per organitzacions de l'Holocaust com museus i monuments, i les ecologies d'aprenentatge dels usuaris en línia que busquen crear experiències d'aprenentatge significatives relacionades amb l'Holocaust. En aquest sentit, aquest estudi pretén construir un pont entre les orientacions teòriques i metodològiques dels estudis mediàtics i culturals, i les tecnologies d'educació i aprenentatge . Partint d'aquí, l'estudi utilitza diversos mètodes de recerca provinents de la recerca en xarxes socials i la ciència educativa per integrar aportacions dels dos camps de recerca diferents.

La tesi es presenta com un compendi de set articles i un estudi suplementari: (1) una revisió sistemàtica de la literatura per com els estudis culturals i les ciències de l'aprenentatge han investigat l'ús de les xarxes socials per a la memòria i educació sobre l'Holocaust, i per analitzar les mancances en la recerca; (2) el desenvolupament d'una metodologia analítica basada en l'anàlisi de xarxes socials; (3) el desenvolupament d'un marc conceptual que relacioni el camp de la memòria digital de l'Holocaust amb l'enfocament de les ecologies d'aprenentatge; (4) l'estudi de com els museus i monuments de l'Holocaust estan desenvolupant pràctiques de record digital de l'Holocaust en les xarxes socials; (5) l'estudi de com els quatre principals museus i monuments de l'Holocaust a Itàlia utilitzen les xarxes socials amb finalitats educatives i commemoratives; (6) l'estudi de com els aprenents adults italians desenvolupen les seves ecologies d'aprenentatge a través de l'ús de les xarxes socials; (7) l'anàlisi de les ecologies d'aprenentatge d'un grup d'educadors de l'Holocaust a Itàlia per entendre la seva motivació per l'aprenentatge inicial i la formació permanent, i les seves pràctiques d'aprenentatge. L'estudi suplementari se centra en l'anàlisi qualitatiu de contingut de pàgines de xarxes socials.

Els resultats mostren que els museus de l'Holocaust tenen una actitud generalment positiva vers les xarxes socials. Tendeixen a utilitzar especialment Facebook, Instagram i YouTube, i a compartir contingut educatiu i informació sobre les activitats del museu, però la interacció amb els usuaris roman generalment limitada. En el cas dels museus italians, tendeixen a utilitzar especialment Facebook i Instagram, amb una preferència per un públic objectiu de més de 25 anys. En general, les pàgines de xarxessocials dels museus i monuments es consideren fonts d'informació importants i fiables sobre l'Holocaust. Els usuaris estan particularment interessats en temes relacionats amb l'entrellaçament de la memòria transnacional i nacional i expressen un sentit de responsabilitat cívica respecte al llegat de l'Holocaust. No obstant això, els components del procés d'aprenentatge mostren un comportament proactiu i una preferència per l'aprenentatge individual, mentre que la interacció amb els companys es considera menys important. Pel que fa als educadors de l'Holocaust, els resultats destaquen que encara hi ha un ús limitat de les tecnologies digitals i les xarxes socials en l'educació sobre l'Holocaust i en el desenvolupament professional dels educadors.

Aquests resultats integradors suggereixen que cal entendre com les preferències dels aprenents influeixen en el desenvolupament de les seves ecologies d'aprenentatge. A més de proporcionar oportunitats perquè els aprenents reflexionin críticament sobre les seves pròpies pràctiques d'aprenentatge, el personal del museu ha de proporcionar oportunitats perquè els aprenents interactuïn entre ells. Finalment, per arribar a un públic més jove, els museus i monuments de l'Holocaust haurien d'invertir en plataformes de xarxes socials més apropiades per a la generació més jove (per exemple, TikTok).

Paraules clau: Ecologies d'aprenentatge, Xarxes socials, Aprenentatge informal, Aprenentatge professional dels docents, Educació sobre l'Holocaust, Memòria de l'Holocaust, Museus i monuments de l'Holocaust, Itàlia.

Index

1. General introduction 14
1.1 A European dimension of Holocaust memory 14
1.2 The role of education 15
1.3 The last frontier of digital Holocaust memory and education 18
1.4 Social media as a space for negotiating participatory practices about the Holocaust 19
1.5 Holocaust museums and social media 22
1.6 Significance and relevance of the research 23
1.7 Organization of the chapters 24
1.8 References 26

2. Theoretical background 34
2.1 The socio-cultural system of collective memory 34
2.2 Social media as socio-technical systems for the transmission of collective memory 36
2.3 The individual learning ecology 39
2.4 References 42

3. Research design: Methods, context and coherence of articles 49
3.1 Introduction 49
3.2 Research problem, aims and questions 49
3.3 Methodological approaches 50
4.4 Ethical compliance 52
3.5 Context of the research 53
3.5.1 The state of Holocaust education in Italy 53
3.5.1.1 The selected museums and memorials 56
3.5.2 The state of social media use in Italy 57
3.6 Presentation of publications: Coherence and relevance 58
3.6.1 Contribution 1 60
3.6.2 Contribution 2 61
3.6.3 Contribution 3 61
3.6.4 Contribution 4 62
3.6.5 Contribution 5 62
3.6.6 Contribution 6 63
3.6.7 Contribution 7 63
3.6.8 Supplementary contribution 64
3.7 References 65

4. Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age 68
4.1 Introduction 68
4.2 Theoretical background 69
4.2.1 Digital memory and Holocaust remembrance 69
4.2.2 Teaching and learning about the Holocaust 71
4.3 Methodology 72
4.3.1 Research aims 72
4.3.2 Methods and procedures 73

4.3.3 Procedure and data analysis 74
4.4 Results 76
4.4.1 Study characteristics 76
4.4.2 Topic analysis 77
4.4.2.1 Holocaust remembrance 77
4.2.2.2 Holocaust education 79
4.4.2.3 Holocaust denial or distortion 80
4.4.3 Keywords map 80
4.4.4 Cross-citation analysis 81
4.4.5 Co-citation analysis 82
4.5 Discussion 84
4.6 Conclusion 87
4.7 Funding 88
4.8 Acknowledgments 88
4.9 Data availability statement 88
4.10 Notes on contributors 88
4.11 References 88
5. Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies 97
5.1 Introduction 97
5.2 Related Literature 100
5.3. Rationale of the Study 101
5.4. Methods and Procedure 102
5.5 Results 104
5.5.1 Content 106
5.5.2. Interactivity 107
5.5.3. Popularity 108
5.5.4. Topic Content and Hashtag Analysis 109
5.6 Discussion 112
5.7. Limitations and Conclusions 115
5.8 Funding 115
5.9 Informed Consent Statement 115
5.10 Data Availability Statement 116
5.11 Acknowledgments 116
5.12 Conflicts of Interest 116
5.13 References 116
5.14 Author Biography 120
6. A learning ecology-based approach for enhancing Digital Holocaust Memory in European cultural heritage education 121
6.1 Introduction 121
6.2 Methodological approach 124
6.3 Holocaust education and its complexity 125
6.4 The educational media ecology of Digital Holocaust Memory 127
6.5 Commemorative and educational participatory practices in social media 128

6.6 Learning ecologies in (digital) practices of Holocaust education 130
6.7 A case study: Learning about the Holocaust informally on social media 133
6.8 Recommendations to develop educational activities that facilitate powerful learning experiences related to Holocaust memory 135
6.9 Conclusion 137
6.10 Statement of ethics 139
6.11 Author contribution statement 139
6.12 Data availability statement 140
6.13 Additional information 140
6.14 Declaration of competing interest 140
6.15 Acknowledgements 140
6.16 References 140

7. Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media 149
7.1 Introduction 149
7.2 Theoretical background 151
7.2.1 Social media as socio-technical-ecological systems 151
7.2.2 The connected museum and the tensions that arise 153
7.3 Rationale and research questions 155
7.4 Methods 155
7.4.1 Sampling and procedures 155
7.4.2 Instruments and analysis 157
7.5 Results 160
7.5.1 Attitudes and patterns of use 160
7.5.2 Content published, interaction and popularity 163
7.6 Discussion 169
7.7. Limitations and conclusions 173
7.8 Credit author statement 174
7.9 Funding 174
7.10 Declaration of competing interest 174
7.11 Acknowledgments 174
7.12 References 174

8. Digital Holocaust Memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and remembrance practice 181
8.1 Introduction 181
8.2 Related literature 185
8.2.1 Digital Holocaust memory on social media 185
8.2.2 The connected museum 186
8.3 Research aims and questions 188
8.4 Methods 189
8.4.1 The investigated museums 189
8.4.2 Preliminary analysis 191
8.4.3 Instruments and analysis 191
8.5 Results 194

8.5.1 Social media metrics of content, interactivity and popularity 195
8.5.2 Content categories 196
8.5.2.1 Facebook 197
8.5.2.2 Twitter 199
8.5.2.3 Instagram 200
8.5.2.4 YouTube 202
8.6 Discussion 203
8.7 Limitations and conclusions 206
8.8 Acknowledgments 207
8.9 Disclosure statement 207
8.10 Funding 207
8.11 Notes on contributor 207
8.12 References 207

9. An examination of learning ecologies associated with the Holocaust: The role of social media 217
9.1 Introduction 218
9.2 Conceptual framework 220
9.3 Methods 222
9.3.1 Participant recruitment and procedure 222
9.3.2 Instruments and analysis 223
9.4 Results 225
9.4.1 Profiles of learners 225
9.4.2 Learning dispositions 226
9.4.3 Learning process 228
9.5 Discussion 230
9.5.1 The demographic profile of learners 232
9.5.2 Learning dispositions 232
9.5.3 Learning processes 233
9.5.4 Limitations 235
9.6 Conclusion 235
9.7 Acknowledgments 236
9.8 Conflict of interest statement 237
9.9 Peer review 237
9.10 Data availability statement 237
9.11 ORCID 237
9.12 References 237

10. Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators 244
10.1 Introduction 245
10.2 Context of the research 246
10.3 Conceptual framework and related literature 247
10.3.1 The learning ecology approach 247
10.3.2 Learning interests and motivations of Holocaust educators 248
10.3.3 Resources, activities, and relationships of Holocaust educators 249

10.3.4 Research objectives and questions 250
10.4 Methods 250
10.4.1 Procedure and analysis 250
10.4.2 Participants 254
10.5 Results 256
10.5.1 Interest and motivations of Holocaust educators 256
10.5.2 Learning process of Holocaust educators 258
10.5.2.1 How to become a Holocaust educator 258
10.5.2.2 Continuous learning of Holocaust educators 259
10.5.3 Use of digital resources and social media 261
10.6 Discussion 262
10.7 Conclusions and recommendations 266
10.8 Acknowledgments 267
10.9 Conflict of interest statement 267
10.10 Data availability statement 267
10.11 Ethical guidelines 267
10.12 References 267

11. Integrated discussion of research findings 276
11.1 Summary of the results of the empirical studies 277
11.1.1 Contribution 2 (chapter 5): Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies 277
11.1.2 Contribution 4 (chapter 7): Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media 278
11.1.3 Contribution 5 (chapter 8): Digital Holocaust memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and commemorative practice 280
12.1.4 Contribution 6 (chapter 9): An examination of learning ecologies associated with the Holocaust: The role of social media 281
11.1.5 Contribution 7 (chapter 10): Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators 282
11.1.6 Supplementary contribution (Appendix): A framework for analysing content on social media profiles of Holocaust museums. Results of a Delphi Study 284
11.2 Integrated discussion 284
11.2.1 RQ1 and RQ2: The social media ecosystems of Holocaust museums and memorials 285
11.2.2 RQ3 and RQ4: The learning ecologies of social media users 289
11.2.3 Advancing theoretical knowledge in the field of digital Holocaust education 293
11.2.4 Expanding social media research methodologies 296
11.3 Recommendations for practice 298
11.3.1 Recommendations for Holocaust museums and memorials 298
11.3.2 Recommendations for informal learners 299
11.3.3 Recommendations for Holocaust educators 300
11.3.4 Recommendations for policy makers 301
11.4 Limitations 301
11.5 References 303

12. Conclusions and further research: An update 311

12.1 References 316

13. Appendix. A framework for analysing content on social media profiles of Holocaust museums. Results of a Delphi Study 321

13.1 Executive summary 321

13.2 Introduction 321

13.3 Methods and procedure 322

13.4 Results 325

13.5 Conclusions and open issues 333

13.6 References 335

13.7 Definitions and examples 338

13.8 List of experts that participated in the study 379

13.9 Acknowledgments 380

1. General introduction

This section provides a clear sense of the broader context in which the research is situated and briefly outlines the main areas of investigation. It provides a coherent framework for understanding the relevance, importance and direction of research focused on the lifelong learning ecologies, bringing together formal, non-formal and informal learning, to enhance understanding and engagement with the digital landscapes of Holocaust memory.

Beginning with an analysis of the relationships between post-witness historical memory and the emerging media ecosystems that transmit and share these memories, the dissertation deepens its exploration of educational approaches, focusing on lifelong learning ecologies as an effective approach for both the general public and teachers' professional learning on the topic. It also presents the specific problem or challenge that the research seeks to address and clarifies why this problem is significant and worthy of investigation.

1.1 A European dimension of Holocaust memory

The European Union (EU) views the Holocaust as a formative event in European history that laid the foundation for the development of shared values such as democratic principles, equality and human rights (Sierp, 2014). This understanding has influenced the EU's goal of forging a global European identity based on shared history and culture, as well as its more recent goal of embracing multiculturalism and diversity (Assmann, 2010; Levy & Sznaider, 2002). The EU perspective on Holocaust remembrance can be seen in the mainstreaming of the fight against antisemitism in all policy areas[1], and the EU actively participates in Holocaust commemoration through various programmes and partnerships, including its permanent international partnership with the International Holocaust Remembrance Alliance (IHRA)[2]. The Council of Europe also established a Holocaust Remembrance Day in 2002[3], which was later adopted by the UN in 2005[4].

The memory of the Holocaust is important both for understanding history and for examining how it continues to influence contemporary society. "Relationing to the Holocaust"[5] (Novis-Deutsch et al., 2023) is often used to express political views, social identities and cultural concerns (Diner, 2003; Neiger et al., 2023). In public and political discourse, which includes political speeches, parliamentary debates and traditional media coverage, the media and political leaders can shape and manipulate the memory of the Holocaust to suit their own agendas (Subotić, 2023). Analysing this can help us understand how the past is used strategically in the present even in national contexts, where Holocaust memory is shaped by politics and the media, with politicians and the media often using it to fit their own ideas about national identity and priorities[6] (Novis-Deutsch et al., 2023).

---

[1] https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_20_2290

[2] https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/614662/EPRS_BRI(2018)614662_EN.pdf

[3] https://www.coe.int/en/web/holocaust/holocaust-remembrance-day

[4] UN resolution 60/7 designated January 27 – the anniversary of the 1945 liberation of Auschwitz- Birkenau – as Holocaust Remembrance Day, https://news.un.org/en/story/2005/11/158642

[5] "Relationing to the Holocaust" is understood as "making the Holocaust relevant and connected to people's lives and times and serves several psychological processes, including analogy-making, the human need for connection and relationships, and meaning-making" (Novis-Deutsch et al., 2023, p. 16).

With the increasing mediatisation of historical memories (Hjarvard, 2017), Holocaust memory is influenced by both a transnational framework of a globalised and collective memory of the Holocaust (De Cesari & Rigney, 2014) and a national or local memory (Assmann, 2017). Although national memories are being transformed by globalisation (Hoskins, 2011), they are not completely overshadowed by transnational connections. In fact, while national identities are being redefined as inherently relational, contextualised and connected to a larger whole, Holocaust memory is still primarily viewed through a national lens (Niven & Williams, 2020), leading to tensions between different European countries and between Western and Eastern Europe (Kucia, 2016; Subotić, 2019).

Today, although it remains an important part of the European collective consciousness, the memory of the Holocaust is undergoing change and diversification in various fields, leading to a major crisis of European integration identity (Sierp & Karner, 2019; Van der Poel, 2019). Despite its importance as a historical and moral turning point, current remembrance is often contradictory (de Smale, 2020; Katz, 2016) and multidirectional (Rothberg, 2009). The changes reflect the history of different European countries during and after the Second World War, the evolution of Holocaust remembrance over time, and current internal and external political developments. In fact, there are two parallel forms of Holocaust memory in Central and Eastern Europe: a local form of remembrance (Kovács, 2016) and a global form (which is "expected" by Western countries). In order to strengthen political legitimacy in contemporary Europe, Holocaust memory is increasingly used to promote current national narratives and identities. It also serves to build new coalitions and partnerships at home and abroad, and to meet the specific foreign policy needs of individual countries (Subotić, 2023). As such, the conscious and public remembrance of the Holocaust has become a tool to reinforce political legitimacy and build relationships between countries.

1.2 The role of education

The shaping of European nations around shared values is reflected not only in public policy discourse, but also in educational programmes. The education sector plays a crucial role in transmitting Holocaust remembrance to the younger generation, as it encompasses both historical education and the cultivation of values, morals and identity (UNESCO,

---

[6] Public-political discourse on Holocaust memory can vary between conservative-nationalist voices promoting competitive victimhood, centrist voices emphasising universal lessons, and leftist voices critiquing hegemonic memory cultures. Political position seems to be more important than geographical location in its use. All political camps tend to use Holocaust memory to construct and negotiate national identity, including within the EU. The presence of Holocaust memory in public-political discourse shows that it is deeply rooted in the collective consciousness of Western Europe, even if it is often used instrumentally to promote social and political views (Novis-Deutsch et al., 2023).

2014). Educating about the Holocaust[7] serves as an important means of shaping and transmitting memory. The role of the teacher as an agent of memory is not only to convey information about the Holocaust, but also to provide students with contemporary messages and values (Novis-Deutsch et al., 2023). Consequently, the field of educating about the Holocaust has become an important area of research, with data being collected from various educational settings (Carrier et al., 2015; Eckmann et al., 2017a; 2017b; Foster et al., 2020; Gross & Stevick, 2015; Nesfield, 2015). These studies demonstrate that it is essential for teachers to be well-versed in the history and memory of the Holocaust in order to create meaningful learning experiences for their students. Moreover, an effective Holocaust education should be engaging, empowering, and relevant to current events.

Educating about the Holocaust takes place in both public and personal spheres, with local classroom teaching reflecting both national and personal agendas (Plessow, 2017). While the national element is seen in the curriculum, teacher training and supervision, and standardised testing, the personal aspect is found in the students and their teachers, who bring their own beliefs and attitudes to the classroom. In addition, professional expertise based on educational theories, research, and teachers' identities also shape how they teach about the Holocaust (Novis-Deutsch et al., 2023). This means that each teacher has their own unique understanding of the Holocaust and its implications, which adds an important layer of complexity to the teaching of this subject. This individual experience is essential to creating an effective Holocaust education curriculum. For instance, a teacher's own family history may provide a personal connection to the subject matter, which they can use to encourage students to reflect on the human stories behind the Holocaust and consider its legacy in the present (Novis-Deutsch et al., 2023).

In this light, educational organisations are not immune to political agendas, and Holocaust educators are influenced by their national contexts, personal beliefs and family memories, resulting in complex and diverse approaches to Holocaust education (Foster et al., 2020). The moderating role of the geopolitical context also influences the attitudes of teachers and educators (Stevick & Michaels, 2012). For example, while teachers' attitudes towards the Holocaust in Western Europe are more in line with those of their political establishment, this is less the case in Eastern Europe (Novis-Deutsch et al., 2023). In addition, depending on whether the Holocaust is considered a compulsory subject in the school curricula of different countries, and how long it has been part of global education programmes[8], it will have a different place in the curriculum as well as in the initial and in-service training of teachers[9]. Notwithstanding national differences, the mapping of

---

[7] Although they are not meant to be synonymous, in this study we use Educating about the Holocaust, Holocaust Education, or Teaching and Learning about the Holocaust depending on the specific focus of the discourse.

[8] In the UK, the Centre for Holocaust Education at UCL's Faculty of Education and Society has been monitoring the development of teaching and learning about the Holocaust in England's secondary schools for over 20 years, examining teachers' aims, definitions, content, pedagogy, assessment, knowledge, understanding, curriculum planning, challenges and training experiences. The latest report is available at https://holocausteducation.org.uk/research/continuity-and-change-10-years-of-teaching-about-2/

[9] As of June 2022, laws requiring Holocaust education were in force in Austria, France, Germany, Hungary, Israel, the Netherlands, Poland, Switzerland, Sweden, the United Kingdom, Canada, Australia, and New Zealand (Novis-

Holocaust education at the country level can be represented by a two-dimensional space that takes into account two factors: 1) the distance in time and space between each country and the events of the Holocaust, and 2) the country's approach to public reflection on the Second World War and the Holocaust period in history (Novis-Deutsch et al., 2023).

In addition to the factors highlighted above, the Holocaust is a difficult topic to teach (Salinas, 2022) because it touches on sensitive issues such as national and historical controversy (Goldberg et al., 2019), shame and discomfort (Wrenn & Lomas, 2007), and because it is rooted in the trauma, suffering, and violent oppression of groups of people (Proske, 2012). For example, one of the key questions concerning pedagogical approaches to educating about the Holocaust is whether the aim of Holocaust education should be historical knowledge or moral lessons (Chapman, 2020). For some, the main objective should be to understand the historical context of the Holocaust and its events. Others focus on the moral implications and encourage students to reflect on the consequences of hatred and prejudice (see Gray, 2014). Ultimately, these two approaches are not mutually exclusive and can be combined to create a more holistic understanding of the Holocaust (Pellegrino & Parker, 2022).

One of the best-known pedagogical approaches to teaching about the Holocaust[10] is based on the principle that sensitivity and a deep understanding of the complexity of the subject matter are essential. Specific pedagogical principles include 1) Contextualising history: It is essential to help students understand what happened during the Holocaust in order to reinforce that it was not inevitable, but rather the result of choices and decisions made by individuals, institutions and nations over many years. 2) Humanising history: While statistics can show the scope of the tragedy, they do not capture its impact. By humanising the Holocaust, students can connect with the victims and develop empathy. 3) Create a supportive learning environment: To effectively teach about the Holocaust, it is important to build a caring and aware culture that incorporates best practices for social-emotional learning. 4) Making the Holocaust relevant: Connecting the history of the Holocaust, its impact, and how it is remembered and commemorated to students' understanding of contemporary society can help them better understand the significance of this historical event[11].

Deutsch et al., 2023). As for Spain, its integration into the globalised and collective memory of the Holocaust began in the 2000s (Baer, 2011; Baer & Sznaider, 2020), and it was only in 2008 that the government declared the Holocaust a compulsory subject in the social sciences curriculum (Novis-Deutsch et al., 2023). However, the recent addition to the global framework of countries committed to investing in Holocaust education is reflected in a lack of formal teacher training programmes and a lack of consistency in educational practices with students.

[10] Launched in 2005, the Echoes & Reflections education programme (https://echoesandreflections.org/) focuses on teaching about the Holocaust and its continuing impact. Designed to ensure that U.S. secondary school teachers have access to high-quality, reliable Holocaust education, the programme provides resources and professional development for educators to help them teach about this difficult subject in appropriate and meaningful ways. It draws on the expertise and resources of three world leaders in Holocaust education: the Anti-Defamation League, the USC Shoah Foundation, and Yad Vashem. Other educational programmes, such as those offered by the Centre for Holocaust Education at UCL's Faculty of Education and Society (https://holocausteducation.org.uk/), share similar pedagogical principles.

[11] These differences in purpose and scope are reflected, for example, in the educational programmes of Holocaust museums. See, for example, Maron and Curle (2018).

In summary, as reported in a recent comprehensive study conducted in five European countries (Novis-Deutsch et al., 2023), the findings suggest that Holocaust education should be factually accurate, academically grounded, and encourage critical self-reflection. It should also be interdisciplinary (Kopstein et al., 2023) and take into account the changes in students' sources of information brought about by the digital age. The authors argue that the inclusion of digital media such as video, audio and images, facilitates a better understanding of the subject, while an interdisciplinary approach helps students gain a deeper understanding of the historical context and impact of the Holocaust. In addition, critical self-reflection encourages a deeper understanding of the consequences of the Holocaust and its relevance in the present day.

1.3 The last frontier of digital Holocaust memory and education

Research has shown that the history and memory of the Holocaust is learned through a variety of sources, including film, literature, and popular and digital media (Popescu & Schult, 2015). These sources provide a way for people to gain knowledge about the Holocaust and understand how it has been remembered and commemorated over the years (Rosenfeld, 2011). As a result, individuals tend to form different ideas, beliefs and preconceptions about the topic before receiving formal education about it in history classes (Gray & Foster, 2014). Digital media has undoubtedly become an agent of memory and an important site where collective memory is played out (Garde-Hansen et al., 2009; Kligler-Vilenchik et al., 2014; Steinhauer, 2022). In a "culture of connectivity" (van Dijck, 2013), where networked technologies and social media are ubiquitous, practices of memory and media have become intimately linked, resulting in a "connective turn" (Hoskins, 2011), where networked technologies and social media are ubiquitously used, and practices of commemoration and media are intimately linked (Adams & Kopelman, 2021).

The possibilities for mediatising the past have been expanded by the rise of systematic online organisation of user-generated content, facilitated by Web 2.0 applications and applied to the memory of collective traumatic events (Pinchevski, 2019). This development has enabled new ways of formulating, reinforcing and challenging interpretations of the past (Gonzáles-Aguilar & Makhortykh, 2022; Hoskins, 2018; Walden, 2021). Walden (2022b) proposes the concept of "virtual Holocaust memory" to describe the connection between digital and non-digital memories of the Holocaust. This concept highlights the collaborative nature of contemporary forms of Holocaust memory and provides a methodology that can be applied to both digital and non-digital projects. Digital Holocaust memory is a complex and interconnected phenomenon that blurs the boundaries between remembrance, education and research. It has evolved with advances in media, from audio recordings to video and now digital media. As different environments interact, they are integrated into a digital phenomenon (Walden, 2021). Today, digital Holocaust memory encompasses a wide variety of projects currently being developed by museums, archives, corporations and educational organisations in the US and Europe. These projects include interactive video testimonies, virtual reality films, augmented reality applications, museum installations and online exhibitions, all of which aim to convey the memory of the Holocaust in new and innovative ways (Boswell & Rowland, 2023; Storeide, 2022).

The use of mobile and mixed reality technologies, for example, enables the construction of individual narratives through active exploration of physical sites related to Nazi crimes and the Holocaust (Verschure & Wierenga, 2022). Such technologies provide constructivist educational programmes and facilitate the development of learning activities that promote individual exploration and understanding of sources (Blancas et al., 2021). In addition, digital media and strategies for teaching about genocide and the Holocaust have increasingly used interactive 3D digital storytelling to replicate the meaningful learning experience of listening to live survivors. These hologram-based projects allow visitors to empathise and immerse themselves in the experience by responding to direct questions and displaying emotions and expressions (Marcus et al., 2022; Marrison, 2021).

From an educational perspective, it is increasingly important to engage the general public and younger generations in this kind of participatory practice and to foster the development of (digital) media literacy skills through media assets that include relevant visual history testimonies and other primary resources and materials (Shandler, 2017). In this way, people can learn how to critically analyse and interpret media content, as well as how to create their own digital resources in an informed and responsible way. Such practices are essential for the development of an informed, analytical and engaged citizenry.

1.4 Social media as a space for negotiating participatory practices about the Holocaust

Social media spaces have become an important digital space for the discussion of the relevance of the past in the present. As we have seen, the Holocaust has become a crucial reference point for negotiating moral values and (trans)national identity in the 21st century (Assmann, 2017; De Cesari & Rigney, 2014), as well as for building a global European identity based on shared history and culture, and promoting multiculturalism and diversity (Assmann, 2010; Levy & Sznaider, 2002). This is especially true in digital spaces such as social media, where users from different backgrounds and countries can connect and exchange ideas, allowing for a global dialogue about the meaning of the past for the present. This has the potential to create a more nuanced understanding of the Holocaust and its implications for contemporary society.

Social media have become a significant “memory ecology”, enabling “connective” memory practices (Birkner & Donk, 2020). The use of specific social media platforms has led to the emergence of a distinct form of memory that is shaped by the practices and features of these platforms. Through activities such as posting, linking and sharing content, social media provide more immediate and dynamic ways of remembering (Hoskins, 2014). The affordances of each social media platform therefore influence how it is used to negotiate, commemorate, and educate about the history of the Holocaust. These platforms allow for multiple ways of engaging with the Holocaust and participating in a process of "doing memory" that is distinct from the regulated and controlled realms of public discourse and education about the Holocaust.

However, social media is also seen as an ambiguous space for Holocaust remembrance and education, as unregulated debates often lack historical accuracy, use history for political purposes, and potentially distort historical events and spread antisemitic ideas (Hübscher & von Mering, 2022; Novis-Deutsch et al., 2023; Oboler, 2016; UNESCO, 2022). Paradoxically, the presence of Holocaust references on social media, and the emotional intensity with which users discuss them, highlights the impact of the globalisation of Holocaust memory. At the same time, in contrast to traditional commemorative practices and rituals, the debates and controversies surrounding the Holocaust on social media, including distortion and denial, actually increase its significance and uniqueness in the present, constituting a "counter-public sphere" (Birkner & Donk, 2020) that includes alternative or counter-memories to official ones (Friesem, 2018), which may result in forms of "agonistic memory" (Berger & Kansteiner, 2021; Bull & Lauge, 2016). The presence of the Holocaust on social media, characterised by its immediacy and interconnectedness, makes Holocaust remembrance a highly relational topic, naturally linked to both past and present events (Novis-Deutsch et al., 2023). This has helped to make the Holocaust a more prominent and relevant issue in the public consciousness. Through social media, the Holocaust can be seen as a shared memory that connects us to the past and to each other.

Today, there are many ways in which social media are being used to disseminate content about the Holocaust and to engage with online users:

Virtual tours: Some museums and memorials have created virtual tours of their exhibits and collections, accessible through their website or social media pages. This allows users to explore the exhibits from anywhere in the world which can be particularly useful for those who cannot physically visit the museum or memorial (Ebbrecht-Hartmann, 2021; Marrison, 2022).

Live streams and webinars: Holocaust museums and educators have used social media to offer live streams and webinars for virtual learning. These sessions provide opportunities for individuals to learn from experts, ask questions, and engage with other learners from around the world (Ebbrecht-Hartmann, 2021).

Educational resources: Holocaust museums and organisations often offer educational resources on their websites and social media pages, including lesson plans, videos, and other materials for teachers and students (Manca, 2021a). Informal resources such as online communities can be used to teach about the Holocaust in schools and other educational settings (Lazar & Hirsch, 2015).

Personal stories and testimonies: Social media platforms provide a space for survivors and their descendants to share their personal stories and testimonies of their experiences during the Holocaust. By sharing their personal stories and experiences of the Holocaust through social media platforms such as Twitter, Facebook, Instagram and TikTok, these personal accounts provide a unique and emotional insight into the lived experiences of those affected by the Holocaust (Ebbrecht-Hartmann & Divon, 2022; Manca et al., under review). Sometimes they are not directly narrated by survivors or their descendants but are fictionalised stories of victims for social media audiences based on original historical documents[12] (Henig & Ebbrecht-Hartmann, 2022; Popescu, 2019).

Remembrance campaigns: Some organisations have launched social media campaigns to raise awareness of the Holocaust and promote Holocaust education (Ebbrecht-Hartmann, 2021). For example, in spring 2020, due to the COVID-19 lockdown when a number of events could only take place online, the 75th anniversaries of the liberation of the Nazi concentration camps in Western Europe, the Victory in Europe Day[13] commemorations, as well as Yom HaShoah[14], the March of the Living[15] and other annual events[16], were commemorated using hashtags such as #RememberingFromHome (Ebbrecht-Hartmann & Divon, 2021), #ShoahNames, #DigitalMemorials, #ClosedButOpen, and #Liberation1945 (see also Manca et al., 2023).

Collaborative projects: Social media have enabled individuals and organisations to collaborate on projects related to different areas of education (Du et al., 2023; Nicholas et al., 2023; Xue et al., 2021). For example, Holocaust educators can use social media groups to connect with other teachers and share resources and ideas.

Digital archives: Many museums and archives have made their collections available online, allowing users to view documents, photographs and other materials related to the Holocaust (Bultmann et al., 2022; Lerner, 2022; Tait-Ripperdan, 2023). This provides access to primary sources and can help users better understand the historical context of the Holocaust. In some cases, grassroots initiatives have established social media pages and groups as unofficial archives of family or local memories of the Holocaust (Fritz, 2016; Menyhért, 2017; Mylonas, 2017).

Overall, scholars have emphasised that while in previous eras the construction of memory was primarily in the hands of state agents and later popular culture creators, in the Web 2.0 era anyone with an Internet connection can disseminate their own perspective widely and instantly, thus adding their own pieces of meaning to the collective puzzle (Friesem, 2018). In this study, however, we focus on a specific category of content creators - Holocaust memorials and museums engaged in Holocaust education on and through social media. As such, we do not focus on the undermining of "traditional 'top-down' models of information creation, adoption, and dissemination of collective memory" (Pfanzelter, 2017, p. 142). Rather, we explore how gatekeepers of Holocaust memory, such as museums and memorials, use social media to enhance their outreach and public communication with their audiences.

---

[12] Examples are: *eva.stories*, https://www.instagram.com/eva.stories/; *Ich bin Sophie Scholl*, https://www.instagram.com/ichbinsophiescholl/; *Anna Frank Video Diary*, https://www.youtube.com/@annefrank

[13] The *Victory in Europe Day* is the day commemorating the formal acceptance by the Allies of Germany's unconditional surrender of its armed forces on Tuesday 8 May 1945, marking the end of World War II in Europe. It is an annual public holiday in several countries and is variously known as Victory Over Fascism Day, Liberation Day or Victory Day. In the United Kingdom it is often abbreviated to VE Day, or V-E Day in the United States, a term that existed as early as September 1944 in anticipation of victory (Wikipedia, 2023).

[14] *Holocaust Martyrs' and Heroes' Remembrance Day* or *Yom HaShoah* takes place on the Hebrew date of the 27th of Nissan and may fall in April or the beginning of May. One of the key ceremonies takes place at the Yad Vashem Holocaust Museum in Jerusalem and is broadcast on TV. It is customary for the Israeli Prime Minister, President, and other national figures to give speeches.

[15] The *International March of the Living* is an annual educational program, bringing individuals from around the world to Poland and Israel to study the history of the Holocaust and to examine the roots of prejudice, intolerance and hatred (https://www.motl.org).

[16] Other important dates are the liberations of the German concentration camps (e.g., Bergen-Belsen: 15 April; Buchenwald: 11 April; Dachau: 29 April; Neuengamme: 4 May; Ravensbrück: 30 April) and the Liberation Day (Festa della Liberazione) on 25 April in Italy.

1.5 Holocaust museums and social media

Museums and memorials are spaces where individuals come together to learn about and commemorate the past and play a crucial role in shaping the collective memory of the public (Walden, 2022a). They are spaces for understanding a nation's collective memory, the lasting impact of the Holocaust and the valuable lessons that can be learned from it. By using these resources, we can gain insight into how individuals represent and remember the Holocaust and how the public perceives this tragic event (Winslow, 2023). Overall, Holocaust museums play an essential role in preserving history, educating the public, promoting awareness and remembrance of the Holocaust, fostering a culture of respect, tolerance and human rights, and encouraging dialogue and engagement (Lewe & Wszołek, 2023; Oztig, 2023). Holocaust museums are important tools for commemorating the victims of the Holocaust and raising awareness of the human rights violations that took place. They can also help promote a culture of respect and understanding, as well as foster dialogue and engagement between different communities. They can play a crucial role in educating the public about the history of the Holocaust and promoting awareness of its lessons, including among divided communities (Arieli & Abboud Armaly, 2023).

Among many other digital implementations, such as "virtual witnesses" (Marcus et al., 2022; Marrison, 2021; Schultz, 2023), interactive digital technologies to facilitate visitor/viewer engagement (Brown & Waterhouse-Watson, 2014), and augmented reality (Challenor & Ma, 2023), social media platforms have become increasingly popular for engaging with audiences and furthering the educational and commemorative missions of Holocaust museums (Najda-Janoszka & Sawczuk, 2021). For example, YouTube has seen an increase in content creators documenting their visits to Holocaust museums in the form of vlogs, allowing these influencers to take on the role of popular historians and imbue their travels with a sense of ethical obligation (Łysak, 2022). In other cases, the use of visitor-generated new media content on Instagram, such as "selfies" taken at the Auschwitz-Birkenau Memorial and Museum, serves to explore how the dichotomy between traditional institutional authority and the digital realm of online expression is challenged and beyond the control of museum authorities (Carter-White, 2018; Zalewska, 2017). This has raised ethical questions about the use of digital media for memorialisation and commemoration (Bareither, 2021; Feldman & Musih, 2023), and has sparked debates about the power of digital media to shape our understanding of history and memory

(Steinhauer, 2022). In this way, digital media has challenged the traditional institutional authority of museums.

A study conducted in 2021 (Manca, 2021b) on the extent to which Holocaust museums use social media found that although a significant proportion of Holocaust memorials and museums (39%) had never used Twitter, 25% used it daily and a further 21% weekly. On the contrary, Facebook was the social media platform most used by Holocaust memorials and museums, with 87% using it daily or weekly. As for Instagram, 79% of Holocaust memorials and museums had an Instagram account: 63% posted regularly, either daily or weekly. Finally, YouTube plays a crucial role for the audiovisual content produced and disseminated by Holocaust memorials and museums. Accordingly, memorials and museums use YouTube regularly, although just a minority of 5% engage with the platform on a daily basis, 89% use the platform and 59% at least every month. The findings suggest that Holocaust memorials and museums use social media platforms to engage with the public and share their content. Social media platforms such as Instagram, YouTube, and Twitter have become valuable tools for outreach and engagement.

TikTok deserves a discussion of its own. Following the emergence of the controversial #POVHolocaustChallenge (Divon & Ebbrecht-Hartmann, 2023), in which users portrayed fictional Holocaust victims on the platform, Holocaust survivors and memorials responded by posting their own videos in 2021. One notable example is Lily Ebert, an Auschwitz survivor from the UK, who collaborate with her great-grandson to create videos sharing her first-hand accounts and testimonies of the Holocaust (Manca et al., under review). The programme "Creating Holocaust Awareness among German and Israeli Youth on TikTok"[17], developed by Digital Visual History @HUJI[18], aimed to provide exemplary initiatives and best-practice models in the context of TikTok as a newly emerging social media environment for Holocaust commemoration. Although TikTok was not very popular among Holocaust memorials and museums in 2020, as a result of a "TikTok Shoah Commemoration & Education Initiative"[19], several concentration camp memorials in Germany and Austria joined the platform in 2021/22 and started uploading content regularly (see Steinhauer 2022). These memorials have been able to use the platform to educate audiences about the Holocaust in new and innovative ways, targeting a younger demographic. The success of this initiative has sparked a new wave of Holocaust education content on the platform (Divon & Ebbrecht-Hartmann, 2022; Ebbrecht-Hartmann & Divon, 2022).

1.6 Significance and relevance of the research

This research makes innovative contributions in four key areas. First, it pioneers a systematic exploration of the potential of social media platforms for educating about the Holocaust and the learning benefits associated with them. By examining the specific ways in which social media can facilitate Holocaust education and informal learning, this study fills a crucial gap in the existing literature.

---

[17] https://digitalvisualhistoryorg.wordpress.com/creating-holocaust-awareness-among-german-and-israeli-youth-on-tiktok/

[18] https://digitalvisualhistoryorg.wordpress.com/

[19] https://www.ajc.org/news/presentation-of-tiktok-shoah-education-and-commemoration-initiative

Secondly, it makes an important connection between social media users' learning ecologies and digital instances of Holocaust remembrance. By examining how social media users develop their lifelong learning ecologies about the Holocaust, the study sheds light on the dynamic relationship between user engagement and digital platforms.

Thirdly, this study contributes to the development of theoretical knowledge in the field. By analysing the complex interplay between social media, Holocaust memory and learning, the research advances theoretical frameworks that improve our understanding of the intricate dynamics at play.

Finally, this research contributes to the development of combined social media research methodologies. Through the use of triangulation, the integration of different data sources and disciplinary perspectives, the study offers a comprehensive and nuanced understanding of how Holocaust memory is shaped, enacted and negotiated in contemporary Europe. This interdisciplinary approach allows for a more holistic exploration of the multifaceted aspects of Holocaust memory in the digital realm.

Overall, this research not only explores the potential of social media for Holocaust education, but also bridges the gap between digital Holocaust memory and the learning ecologies of social media users. It extends theoretical knowledge and employs innovative methodologies to provide a deeper understanding of how Holocaust memory is constructed and transmitted in contemporary Europe.

1.7 Organization of the chapters

This dissertation is organised as a compendium of publications, consisting of seven scientific articles and a supplementary report. In order to present these publications effectively, the dissertation is divided into twelve chapters and an appendix. The following sections provide a summary of both the chapters and the publications, highlighting their respective aims and relevance.

Chapter 1, *General Introduction* (this chapter), introduces the research theme, namely the relevance of Holocaust memory in contemporary society and how related learning practices have been transformed by digital technologies. The specific research focus is on the potential of social media for informal learning about the Holocaust. It also highlights the interdisciplinary nature of the research, the knowledge gaps the study seeks to fill, its relevance and its rationale. The chapter concludes with an overview of the dissertation and a brief presentation of the publications.

Chapter 2, *Theoretical Background*, introduces the various theoretical approaches that underpin this study. Specifically, it explores the socio-cultural theories that guide the study of collective memory in the digital age, the socio-technical perspective used to analyse social media as transmitters of collective memory, and the learning ecology framework used to study informal learning.

Chapter 3, *Research Design: Methods, Context and Coherence of Articles*, discusses and justifies the research design and methodological approaches that guided the construction and production of the different research contributions. It then emphasises the aims and relevance of these contributions, highlighting their coherence with the overall purpose of this dissertation.

Chapter 4 contains the first article, entitled *Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age*, which constitutes the literature review of this research study.

Chapter 5 contains the second article, entitled *Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies*, which uses a mixed-methods approach combining social media analytics and latent semantic analysis to examine how three prominent Holocaust museums (Yad Vashem, the United States Holocaust Memorial Museum, and the Auschwitz-Birkenau Memorial and Museum) use social media to engage the public about the Holocaust.

Chapter 6 contains the third article, entitled *A learning ecology-based approach for enhancing Digital Holocaust Memory in European cultural heritage education*, which explores the use of digital technology in teaching and learning about the Holocaust. It proposes a conceptual framework that combines the field of Digital Holocaust Memory with the concept of learning ecologies. The proposed framework takes into account the unique characteristics of the learning environment in order to design educational interventions that meet the needs of learners, teachers and stakeholders.

Chapter 7 contains the fourth article, entitled *Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media*, which investigates the use of social media platforms as memory ecologies by 69 Holocaust museums, examining their attitudes and practices towards digital Holocaust remembrance on platforms such as Facebook, Twitter, Instagram and YouTube. The study combines quantitative methods, including surveys and social media metrics, to analyse factors such as content generated, interactivity, popularity and content types.

Chapter 8 contains the fifth article, entitled *Digital Holocaust Memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and remembrance practice*, which focuses on how four Italian Holocaust museums and memorials use social media platforms to interweave national and transnational Holocaust remembrance. Using a mixed-methods approach, the research examined the social media profiles of the selected institutions on Facebook, Twitter, Instagram and YouTube.

Chapter 9 contains the sixth article, entitled *An examination of learning ecologies associated with the Holocaust: The role of social media*, which analyses how adult learners use the social media profiles of the four Italian museums and memorials to learn informally about the Holocaust. The research, which uses a survey tool to examine the learning ecologies of online users, focuses on a group of 276 learners and analyses their interests, expectations and learning processes through an online survey.

Chapter 10 contains the seventh article, entitled *Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators*, which explores the learning ecologies of a group of Italian Holocaust educators and their motivations for initial and lifelong learning. In-depth interviews were conducted with ten teachers from different subject areas. Although digital technologies and social media were not commonly considered as learning environments, they were recognised as useful resources.

Chapter 11, *Integrated Discussion of Research Findings*, summarises the findings of the articles that attempted to answer the research questions and objectives of this dissertation. These findings are then integrated and discussed in relation to the current literature. From this comprehensive discussion, a number of recommendations for practice are proposed, supported wherever possible by references to the literature. The chapter also discusses the limitations of the study.

Chapter 12, *Conclusions and Further Research: An Update*, presents the conclusions, highlighting the most recent developments in the area under study since the start of the research work.

Appendix contains the supplementary study, entitled *A framework for analysing content on social media profiles of Holocaust museums. Results of a Delphi Study*, which aimed to develop a framework for analysing Holocaust-related content shared by museums and memorial sites on social media. Through a Delphi study with international experts, consensus was reached on a framework comprising three domains: Historical Content, Contemporary Issues and Museum Activities. The framework serves as a valuable tool for analysing and understanding the content shared by Holocaust museums on social media.

1.8 References

Adams, T., & Kopelman, S. (2022). Remembering COVID-19: Memory, Crisis, and Social Media. *Media, Culture & Society*, 44(2), 266–285.

Arieli, D., & Abboud Armaly, O. (2023). Nonviolent communication (NVC) based mediation: Practice insight. *Conflict Resolution Quarterly*, 40(3), 357–366.

Assmann, A. (2010). The Holocaust: A Global Memory? Extensions and Limits of a New Memory Community. In A. Assmann & S. Conrad (Eds.), *Memory in a Global Age* (pp. 97–117). London, UK: Palgrave MacMillan.

Assmann, A. (2017). Transnational Memory and the Construction of history through Mass Media. In L. Bond, S. Craps & P. Vermeulen (Eds.), *Memory Unbound: Tracing the Dynamics of Memory Studies* (pp. 65–82). New York and Oxford: Berghahn Books.

Baer, A. (2011). Los vacíos de Sefarad. *Política y Sociedad*, 48(3), 501–518.

Baer, A., & Sznaider, N. (2020). From 'No Pasarán' to 'Nunca Más': The Holocaust and the Revisiting of Spain's Legacy of Mass Violence. In S. J. Brenneis & G. Herrmann (Eds.), *Spain, World War II, and the Holocaust: History and Representation* (pp. 603–619). Toronto: University of Toronto Press.

Bareither, C. (2021). Difficult heritage and digital media: 'selfie culture' and emotional practices at the Memorial to the Murdered Jews of Europe. *International Journal of Heritage Studies*, 27(1), 57–72.

Berger, S., & Kansteiner, W. (2021). *Agonistic Memory and the Legacy of 20th Century Wars in Europe*. London, UK: Palgrave MacMillan.

Birkner, T., & Donk, A. (2020). Collective Memory and Social Media: Fostering a New Historical Consciousness in the Digital Age? *Memory Studies*, 13(4), 367–383.

Blancas, M., Wierenga, S., Ribbens, K., Rieffe, C., Knoch, H., Billib, S., & Verschure, P. (2021). Active Learning in Digital Heritage: Introducing Geo-localisation, VR and AR at Holocaust Historical Sites. In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 145–176). London, UK: Palgrave MacMillan.

Boswell, M., & Rowland, A. (2023). *Virtual Holocaust Memory*. Oxford, UK: Oxford University Press.

Brown, A., & Waterhouse-Watson, D. (2014). The Future of the Past: Digital Media in Holocaust Museums. *Holocaust Studies*, 20(3), 1–32.

Bull, A. C., & Lauge, H. L. (2016). On Agonistic Memory. *Memory Studies*, 9(4), 390–404.

Bultmann, D., Makhortykh, M., Simon, D., Ulloa, R., & Zucker, E. M. (2022). *Digital Archive of Memorialization of Mass Atrocities (DAMMA) Workshop Whitepaper*. Yale University Genocide Studies Program: Mass Atrocities in the Digital Era Working Paper #3.

Carrier, P., Fuchs, E., & Messinger, T. (2015). *The International Status of Education about the Holocaust. A Global Mapping of Textbooks and Curricula*. Paris: UNESCO.

Carter-White, R. (2018). Death camp heritage 'from below'? Instagram and the (re)mediation of Holocaust heritage. In H. Muzaini & C. Minca (Eds.), *After heritage: Critical perspectives on heritage from below* (pp. 86–106). Cheltenham, UK: Edward Elgar Publishing.

Challenor, J., & Ma, M. (2023). Augmented Reality in Holocaust Museums and Memorials. In A. Y. C. Nee & S. K. Ong (Eds.), *Springer Handbook of Augmented Reality*. Cham: Springer.

Chapman, A. (2020). Learning the Lessons of the Holocaust: A Critical Exploration. In S. Foster, A. Pearce & A. Pettigrew (Eds.), *Holocaust Education: Contemporary Challenges and Controversies* (pp. 50–73). London, UK: UCL Press.

De Cesari, C., & Rigney, A. (2014). *Transnational Memory: Circulation, Articulation, Scales*. Berlin and New York: de Gruyter.

de Smale, S. (2020). Memory in the Margins: The Connecting and Colliding of Vernacular War Memories. *Media, War and Conflict*, 13(2), 188–212.

Diner, D. (2003). Restitution and Memory: The Holocaust in European Political Cultures. *New German Critique*, 90, 36–44.

Divon, T., & Ebbrecht-Hartmann, T. (2022). # JewishTikTok: The JewToks' Fight against Antisemitism. In T. Boffone (Ed.), *TikTok Cultures in the United States* (pp. 47–58). London, UK: Routledge.

Divon, T., & Ebbrecht-Hartmann, T. (2023). Performing Death and Trauma? Participatory Mem(e)ory and the Holocaust in Tiktok #POVChallenges. *AoIR Selected Papers of Internet Research*, 2022. https://doi.org/10.5210/spir.v2022i0.12995

Du, H., Xing, W., & Zhu, G. (2023). Mining Teacher Informal Online Learning Networks: Insights from Massive Educational Chat Tweets. *Journal of Educational Computing Research*, 61(1), 127–150.

Ebbrecht-Hartmann, T. (2021). Commemorating from a Distance: The Digital Transformation of Holocaust Memory in Times of Covid-19. *Media, Culture & Society*, 43(6), 1095–1112.

Ebbrecht-Hartmann, T., & Divon, T. (2021). Hashtagging the Holocaust: How COVID Gave Death Camps New Life Online. *Haaretz*, January 27, 2021.

Ebbrecht-Hartmann, T., & Divon, T. (2022). Serious TikTok: Can You Learn About the Holocaust in 60 seconds? *MediArXiv*. Available at: https://doi.org/10.33767/osf.io/nv6t2

Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017a). *Research in Teaching and Learning about the Holocaust: A Dialogue Beyond Borders*. Berlin: Metropol.

Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017b). *Research in Teaching and Learning About the Holocaust: Bibliographies with Abstracts in Fifteen Languages*. Berlin: Metropol.

Feldman, J., & Musih, N. (2023). Selfies in Auschwitz: Popular and contested representations in a digital generation. *Memory Studies*, 16(2), 403–420.

Foster, S., Pearce, A., & Pettigrew, A. (2020). *Holocaust Education: Contemporary challenges and controversies*. London, UK: UCL Press.

Friesem, L. (2018). Holocaust Tweets as an Act of Resistance. *Israel Studies Review*, 33(2), 85–104.

Fritz, R. (2016). Persönliche Holocaust-Erinnerungen auf Facebook. (Private) Gegenerzählungen in Ungarn im Kontext des Holocaust-Gedenkjahres 2014 [Individual Holocaust-memory on Facebook: (Private) counter-narratives in Hungary in the context of the Holocaust-remembrance year 2014]. *Zeitgeschichte*, 43(4), 233–249.

Garde-Hansen, J., Hoskins, A., & Reading, A. (2009). *Save as. . . Digital Memories*. Berlin: Springer.

Goldberg, T., Wagner, W., & Petrović, N. (2019). From sensitive historical issues to history teachers' sensibility: a look across and within countries. *Pedagogy, Culture & Society*, 27(1), 7–38.

González-Aguilar, J. M., & Makhortykh, M. (2022). Laughing to forget or to remember? Anne Frank memes and mediatization of Holocaust memory. *Media, Culture & Society*, 44(7), 1307–1329.

Gray, M. (2014). *Contemporary Debates in Holocaust Education*. London, UK: Palgrave MacMillan.

Gray, M., & Foster, S. (2014). What do thirteen and fourteen year olds know about the Holocaust before they study it? *International Journal of Historical Teaching, Learning and Research*, 12(2), 64–78.

Gross, Z. E., & Stevick, D. D. (2015). *As the Witnesses Fall Silent: 21st Century Holocaust Education in Curriculum, Policy and Practice*. Cham: Springer.

Henig, L., & Ebbrecht-Hartmann, T. (2022). Witnessing Eva Stories: Media Witnessing and Self-Inscription in Social Media Memory. *New Media & Society*, 24(1), 202–226.

Hjarvard, S. (2017). Mediatization. In P. Rössler (Ed.), *The International Encyclopedia of Media Effects (*pp. 1–20). Hoboken, NJ: Wiley.

Hoskins, A. (2011). Media, Memory, Metaphor: Remembering and the Connective Turn. *Parallax*, 17(4), 19–31.

Hoskins, A. (2014). A New Memory of War. In B. Zelizer & K. Tenenboim-Weinblatt (Eds.), *Journalism and Memory* (pp. 179–191). London, UK: Palgrave MacMillan.

Hoskins, A. (2018). *Digital Memory Studies: Media Pasts in Transition*. London, UK: Routledge.

Hübscher, M., & von Mering, S. (2022). *Antisemitism on Social Media*. London, UK: Routledge.

Katz, D. (2016). Is Eastern European 'Double Genocide' Revisionism Reaching Museums? *Dapim: Studies on the Holocaust*, 30(3), 191–220.

Kligler-Vilenchik, N., Tsfati, Y., & Meyers, O. (2014). Setting the Collective Memory Agenda: Examining Mainstream Media Influence on Individuals' Perceptions of the Past. *Memory Studies*, 7(4), 484–499.

Kopstein, J., Subotić, J., & Welch, S. (2023). *Politics, Violence, Memory: The New Social Science of the Holocaust.* Ithaca, NY: Cornell University Press.

Kovács, M. (2016). Global and Local Holocaust Remembrance. In R. Braham & A. Kovács (Eds.), *The Holocaust in Hungary: Seventy Years Later* (pp. 231–250). Budapest and New York: Central European University Press.

Kucia, M. (2016). The Europeanization of Holocaust Memory and Eastern Europe. *East European Politics and Societies*, 30(1), 97–119.

Lazar, A., & Hirsch, T. L. (2015). An online partner for Holocaust remembrance education: Students approaching the Yahoo! Answers community. *Educational Review*, 67(1), 121–134.

Lerner, A. M. (2022). Quantifying the archives: leveraging the norms and tools of data science to conduct ethical research on the Holocaust. *Holocaust Studies*, 28(3), 358–376.

Levy, D., & Sznaider, N. (2002). Memory Unbound: The Holocaust and the Formation of Cosmopolitan Memory. *European Journal of Social Theory*, 5(1), 87–106.

Lewe, T., & Wszołek, M. (2023). Visual Perspectives in Holocaust Memory Culture: Transition of Lived to Imagined Memory. *The International Journal of Design Education*, 17(2), 95–114.

Łysak, T. (2022). Vlogging Auschwitz: new players in Holocaust commemoration. *Holocaust Studies*, 28(3), 377–402.

Manca, S. (2021a). Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies. *Information*, 12(1), 1–17.

Manca, S. (2021b). *Use of Social Media by Holocaust Museums and Memorials*. IHRA Project Report.

Manca, S., Rehm, M., & Haake, S. (2023). Holocaust Remembrance on Facebook during the Lockdown: A Turning Point or a Token Gesture? In Fridman, O. & Gensburger, S. (Eds.), *The COVID-19 Pandemic and Memory. Remembrance, commemoration, and archiving in crisis.* London, UK: Palgrave McMillan Cham.

Manca, S., Marino, F., & Taibi, D. (under review). "Could we possibly see your tattoo? If not that's totally fine!": Holocaust survivors' playful activism on TikTok. *Memory Studies.*

Marcus, A. S., Maor, R., McGregor, I. M., Mills, G., Schweber, S., Stoddard, J. & Hicks, D. (2022). Holocaust education in transition from live to virtual survivor testimony: pedagogical and ethical dilemmas. *Holocaust Studies*, 28(3), 279–30.

Maron, J., & Curle, C. (2018). Balancing the particular and the universal: examining the Holocaust in the Canadian Museum for Human Rights. *Holocaust Studies*, 24(4), 418–444.

Marrison, K. (2022). Dachau from a Distance: The Liberation during the COVID-19 Pandemic. In D. I. Popescu (Ed.), *Visitor Experience at Holocaust Memorials and Museums.* London, UK: Routledge.

Marrison, K. (2021). Virtually Part of the Family: The Last Goodbye and Digital Holocaust Witnessing. In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 15–30). London, UK: Palgrave MacMillan.

Menyhért, A. (2017). Digital trauma processing in social media groups: Transgenerational Holocaust trauma on Facebook. *Hungarian Historical Review*, 6(2), 355–376.

Mylonas, Y. (2017). Witnessing absences: social media as archives and public spheres. *Social Identities*, 23(3), 271–288.

Najda-Janoszka, M., & Sawczuk, M. (2021). Interactive communication using social media – the case of museums in Southern Poland. *Museum Management and Curatorship*, 36(6), 590–609.

Neiger, M., Meyers, O., & Ben-David, A. (2023). Tweeting the Holocaust: social media discourse between reverence, exploitation, and simulacra. *Journal of Communication*, 73(3), 222–234.

Nesfield, V. L. (2015). Keeping Holocaust Education Relevant in a Changing Landscape: Seventy Years On. *Research in Education*, 94(1), 44–54.

Nicholas, M., Rouse, E., & Garner, R. (2023). Cross-sector collaborations via Facebook: teachers' use of social media. *Australian Educational Researcher*. https://doi.org/10.1007/s13384-023-00622-y

Niven, B., & Williams, A. (2020). The Dominance of the National: On the Susceptibility of Holocaust Memory. *Jewish Historical Studies*, 51(1), 142–164.

Novis-Deutsch, N. S., Lederman, S., Adams, T. & Kochavi, A. J. (2023). *Sites of Tension: Shifts in Holocaust memory in Relation to Antisemitism and Political Contestation in Europe*. Haifa: The Weiss-Livnat International Center for Holocaust Research and Education.

Oboler, A. (2016). *Measuring the Hate: The State of Antisemitism in Social Media*. Melbourne, Australia: Global Forum for Combatting Antisemitism.

Oztig, L. I. (2023). Holocaust museums, Holocaust memorial culture, and individuals: a Constructivist perspective. *Journal of Modern Jewish Studies*, 22(1), 62–83.

Pellegrino, A., & Parker, J. (2022). *Teaching and Learning Through the Holocaust. Thinking About the Unthinkable*. London, UK: Palgrave MacMillan.

Pfanzelter, E. (2017). Performing the Holocaust on Social Networks: Digitality, Transcultural Memory and New Forms of Narrating. *Kultura Popularna*, 1(50), 136–151.

Pinchevski, A. (2019). *Transferred Wounds: Media and the Mediation of Trauma*. Oxford, UK: Oxford University Press.

Plessow, O. (2017). Agents of transnationalization in the field of "Holocaust Education": An introduction. In M. Henderson & J. Lange (Eds.), *Entangled Memories: Remembering the Holocaust in a global age* (pp. 315– 352). Heidelberg: Universitätsverlag Winter.

Popescu, D. I. (2019). Eulogy of a different kind: Letters to Henio and the unsettled memory of the Holocaust in contemporary Poland. *Holocaust Studies*, 25(3), 273–299.

Popescu, D. I., & Schult, T. (2015). *Revisiting Holocaust representation in the post-witness era*. London, UK: Palgrave MacMillan.

Proske, M. (2012). "Why Do We Always Have to Say We're Sorry?" A Case Study on Navigating Moral Expectations in Classroom Communication on National Socialism and the Holocaust in Germany. *European Education*, 44(3), 39–66.

Rosenfeld, A. H. (2011). *The End of the Holocaust.* Bloomington, IN: Indiana University Press.

Rothberg, M. (2009). *Multidirectional Memory: Remembering the Holocaust in the Age of Decolonization*. Stanford, CA: Stanford University Press.

Salinas, C. (2022). *Teaching Difficult Histories in Difficult Times: Stories of Practice*. New York, NY: Teachers College Press.

Schultz, C. K. N. (2023). Creating the 'virtual' witness: the limits of empathy. *Museum Management and Curatorship*, 38(1), 2–17.

Shandler, J. (2017). *Holocaust Memory in the Digital Age: Survivors' Stories and New Media Practices*. Stanford, CA: Stanford University Press.

Sierp, A. (2014). *History, Memory, and Trans-European Identity. Unifying Divisions*. London, UK: Routledge.

Sierp, A., & Karner, C. (2019). *Dividing United Europe. From Crisis to Fragmentation?* London, UK: Routledge.

Steinhauer, J. (2022). *History, Disrupted: How Social Media and the World Wide Web Have Changed the Past*. London, UK: Palgrave MacMillan.

Stevick, D., & Michaels, D. L. (2012). Editorial Introduction. *European Education*, 44(3), 3–12.

Storeide, A. H. (2022). "…It No Longer Is the Same Place". In D. I. Popescu (Ed.), *Visitor Experience at Holocaust Memorials and Museums*. London, UK: Routledge.

Subotić, J. (2019). *Yellow Star, Red Star: Holocaust Remembrance after Communism*. Ithaca and London, UK: Cornell University Press.

Subotić, J. (2023). Holocaust memory and political legitimacy in contemporary Europe. *Holocaust Studies*, 29(4), 502-519.

Tait-Ripperdan, R. (2023). Researching the Holocaust in a Digital World. In P. R. Bartrop (Ed.), *Sources for Studying the Holocaust. A Guide*. London, UK: Routledge.

UNESCO (2014). *Holocaust education in a global context*. Paris: UNESCO.

UNESCO (2022). *History under Attack: Holocaust Denial and Distortion on Social Media*. Paris: UNESCO.

Van der Poel, S. (2019). Memory Crisis: The Shoah within a Collective European Memory. *Journal of European Studies*, 49(3–4), 267–281.

van Dijck, J. (2013). *The Culture of Connectivity: A Critical History of Social Media*. Oxford, UK: Oxford University Press.

Verschure, P. F. M. J., & Wierenga, S. (2022). Future memory: a digital humanities approach for the preservation and presentation of the history of the Holocaust and Nazi crimes. *Holocaust Studies*, 28(3), 331–357.

Walden, V. G. (2021). *Digital Holocaust Memory, Education and Research*. London, UK: Palgrave MacMillan.

Walden, V. G. (2022a). *The Memorial Museum in the Digital Age*. REFRAME Books. https://reframe.sussex.ac.uk/the-memorial-museum-in-the-digital-age/

Walden, V. G. (2022b). What is 'Virtual Holocaust Memory'? *Memory Studies*, 15(4), 621–633.

Wikipedia (2023). *Victory in Europe Day*, https://en.wikipedia.org/wiki/Victory_in_Europe_Day

Winslow, A. (2023). Understanding Holocaust Memory Through Museums and Memorials. In P. R. Bartrop (Ed.), *Sources for Studying the Holocaust. A Guide*. London, UK: Routledge.

Wrenn, A., & Lomas, T. (2007). Music, Blood and Terror: Making Emotive and Controversial History Matter. *Teaching History*, 127(4).

Xue, S., Hu, X., Chi, X., & Zhang, J. (2021). Building an online community of practice through WeChat for teacher professional learning. *Professional Development in Education*, 47(4), 613–637.

Zalewska, M. (2017). Selfies from Auschwitz: Rethinking the relationship between spaces of memory and places of commemoration in the digital age. *Digital Icons: Studies in Russian, Eurasian and Central European New Media*, 18, 95–116.

2. Theoretical background

Several conceptual and theoretical approaches play a crucial role in shaping the overall understanding of this research project. These components encompass different aspects that are critical for analysing the dynamics of how collective memory, the transmission of historical knowledge and the role of formal and informal learning are closely intertwined in the research context. By exploring the links between these components, this theoretical background provides a comprehensive understanding of the complex mechanisms involved in the transmission and use of collective memory. It highlights the importance of the socio-cultural context, the pedagogical tools, the media systems and the learning ecologies in facilitating the sharing and interpretation of historical knowledge. This theoretical foundation provides the basis for further exploration and research into the multifaceted relationship between memory, learning, the tools and environments that support their transmission.

2.1 The socio-cultural system of collective memory

Collective memory is a fundamental conceptual component underpinning this research project. Collective memory refers to the shared recollection and interpretation of past events, experiences and cultural heritage within a community or society (Bartlett, 1932; Halbwachs, 1992). It encompasses the memories, narratives and symbolic representations that are collectively constructed, preserved and transmitted across generations (Assmann & Czaplicka, 1995; Nora, 1989). Recognising how collective memory functions and evolves is crucial to understanding the broader context in which historical knowledge is transmitted and acquired (Connerton, 1989; van Dijck, 2004).

A fundamental aspect of collective memory is its close relationship with the socio-cultural context in which it emerges and evolves. The socio-cultural context encompasses a wide range of factors, including social values, cultural beliefs and shared experiences, all of which significantly shape the construction and maintenance of understandings of the past (Confino, 1997). Shared experiences within a society or community shape the socio-cultural context of collective memory and may include traumatic events, significant historical milestones or shared historical narratives. In the case of the Holocaust, shared experiences of the Second World War, the Nazi regime and the persecution of Jews and other marginalised groups provide a foundation for collective memory, particularly in Western countries and in Europe (Probst, 2003; Sierp, 2014). These shared experiences continue to provide a common reference point for understanding the historical significance and impact of the Holocaust to this day.

Cultural beliefs, including religious, ethnic and national identities, also contribute to the socio-cultural context of collective memory (David & Bar-Tal, 2009). These beliefs provide a lens through which historical events are viewed and shape the narratives, symbols and rituals associated with remembering these events (Triandafyllidou, 1998). In the case of the Holocaust, cultural beliefs rooted in Jewish heritage, European history and national identities influence how the Holocaust is remembered and commemorated in different cultural contexts and over time (e.g., Greif, 2018; Michlic, 2021; Trachtenberg, 2023).

As noted by Assmann (2012), the socio-cultural context provides the basis for analysing and interpreting historical events and establishes a common language through which these events are contextualised and understood by a community or society. For example, in the context of contemporary Holocaust remembrance, societal values such as empathy, human rights and the rejection of discrimination play an important role in shaping the collective understanding and interpretation of the Holocaust (Novis-Deutsch et al., 2023).

Moreover, the socio-cultural context is not static but evolves over time. As social values, cultural beliefs and shared experiences change, so does the socio-cultural context of collective memory. New perspectives, social movements and historical discoveries can challenge established narratives and reshape the understanding of historical events. This dynamic nature of the socio-cultural context ensures that collective memory remains relevant and responsive to the changing needs and perspectives of society (Isurin, 2017).

In the contemporary era, collective memory has undergone remarkable changes and is characterised by several key features. One of these features is the increasing focus on transnational perspectives (Assmann, 2017). In an interconnected world, where information and ideas travel across borders with greater ease, collective memory is no longer confined to national borders. Transnational approaches to collective memory emphasise the interplay between different societies and cultures, highlighting the ways in which memories of the past are shaped by global information flows and the interconnectedness of societies (Finney, 2014).

In addition, transcultural approaches (Bond & Rapson, 2014) have gained prominence in the study of collective memory. These approaches recognise that memory is not tied to a single cultural framework but is influenced by interactions and exchanges between different cultures. They highlight how cultural interactions, encounters and exchanges shape the formation and transformation of collective memory and the multiple perspectives that emerge from such processes (Sutton, 2008).

Another notable aspect of collective memory in the new millennium is the rise of cosmopolitan approaches to memory studies (Hoskins, 2018; Levy & Sznaider, 2006). Cosmopolitanism refers to a perspective that takes a global view and recognises the interdependence of different societies and cultures (Kleingeld & Brown, 2019). In the context of collective memory, cosmopolitan approaches emphasise the importance of recognising multiple and diverse narratives and memories of the past (Goettlich, 2022). They call for an inclusive and dialogical engagement with collective memory, recognising the coexistence and mutual influence of different memories within a cosmopolitan framework.

Postcolonial (Craps, 2013) and multidirectional approaches (Rothberg, 2009) also shape contemporary understandings of collective memory. Postcolonial perspectives highlight the enduring legacies of colonialism and the ways in which memories of colonial experiences continue to influence contemporary societies. These approaches draw attention to the power dynamics and inequalities embedded in collective memory and emphasise the need to decolonise memory and recognise marginalised voices and histories, including in educational settings (Arnold & Bishoff, 2023). Multidirectional approaches, on the other hand, emphasise the interconnectedness of different historical traumas and memories. They explore the ways in which memories of different historical events, such as the Holocaust, slavery or genocide, intersect and influence each other, creating complex and multi-layered landscapes of memory (e.g., Marino, 2023).

All these different perspectives highlight the global interconnectedness of memory, the influence of cultural exchange, the need for inclusive and dialogical engagement, the recognition of post-colonial legacies, and the interplay between different historical traumas. By considering these different dimensions, a more comprehensive understanding of collective memory in the contemporary world can be achieved.

Overall, recognising the socio-cultural context is essential to understanding how collective memory is constructed and maintained. Acknowledging the socio-cultural context allows researchers and educators to better navigate the complexities of collective memory, promote a more nuanced understanding of historical events, and foster dialogue and engagement within society. Indeed, another key element of the socio-cultural system of collective memory is the development of educational tools to transmit collective memory from one generation to another (Tröhler et al., 2011). These tools include a range of pedagogical tools, materials and approaches to facilitate learning and understanding of historical events. They are developed within the education system and play a crucial role in formal educational settings such as schools and universities (Nash et al., 2014).

In formal educational settings, pedagogical tools play a crucial role in shaping the curriculum and guiding the teaching and learning process. These include textbooks, lesson plans, multimedia resources and teaching methods designed to engage students and deepen their understanding of historical events (Carretero et al., 2013). In addition, informal learning settings, such as everyday conversations and online platforms, contribute to the transmission of collective memory by fostering curiosity, personal connections to history, and the development of historical thinking skills in different contexts (Wineburg, 2001).

In the following section, we explore the socio-technical system that contributes to the transmission of collective memory through different media, with a particular focus on social media platforms. This system includes people's collective memory and the technology used to store and transmit this memory. It also includes the institutions, policies and practices that shape the way collective memory is produced, stored and disseminated, as well as the cultural, political and economic forces that influence the way collective memory is used.

2.2 Social media as socio-technical systems for the transmission of collective memory

The media ecosystem is another essential component of the theoretical background of this study. A media ecosystem is a complex and interconnected system of different media platforms, technologies and actors that produce, distribute and consume information and content (Zuckerman, 2021). As a metaphor for the dynamic and evolving relationships between different media, it includes traditional media and new digital media that enable the transmission and dissemination of collective memory (Neiger et al., 2011a). Traditional media such as newspapers, television and radio, as well as digital platforms and social media, provide channels through which historical knowledge is shared, stored and accessed by individuals. These media systems facilitate the reach and impact of educational tools and contribute to the wider dissemination of collective memory.

Traditional media have long served as important vehicles for the dissemination of historical information. Newspapers, for example, have been instrumental in reporting historical events, documenting significant moments, and providing analysis and commentary (Berkowitz, 2011; Vliet, 2022). Television and radio programmes have played a crucial role in broadcasting documentaries, interviews and discussions related to collective memory, reaching a wide audience and fostering public engagement (Ben-Amos & Bourdon, 2011; Neiger et al., 2011b).

In the digital age, the media landscape has changed significantly with the emergence of various online platforms and social media. These digital tools have transformed the way information is accessed, shared and consumed. Digital platforms, such as online news sites and digital archives, provide easily accessible repositories of historical content, allowing individuals to explore and engage with collective memory at their convenience (Neiger, 2020). In addition, digital media systems not only facilitate the transmission of collective memory, but also contribute to its preservation and storage. Digital platforms and archives provide digital preservation of historical documents, photographs, testimonies and other artefacts, ensuring their accessibility for future generations (Lerner, 2022; Bultmann et al., 2022; Tait-Ripperdan, 2023). This digital preservation allows for the protection and conservation of collective memory, preventing its loss or degradation over time.

In addition, the field of public history, which aims to make history more accessible, inclusive and relevant to the public (Cauvin, 2022), has undergone a dramatic transformation with the advent of digital media. The field, which involves collaborative efforts to engage with diverse audiences, challenge dominant narratives and promote greater understanding and appreciation of the past in society, is increasingly influenced by digital transformation in terms of user-generated content and collaborative practices (Noiret et al., 2022).

In particular, social media platforms have emerged as powerful channels for disseminating and transforming collective memory. They serve as platforms for sharing historical content and fostering discussions about shared memory. Prominent platforms such as Facebook, Twitter, Instagram and YouTube provide ample opportunities for individuals and organisations to share historical narratives, personal stories, archival material and educational resources (Steinhauer, 2022). Users actively engage with this content through features such as likes, comments and shares, fostering discussion, raising awareness and connecting with peers interested in similar topics. These interactions contribute to the construction of multifaceted memoryscapes, which can sometimes include conflicting perspectives (Van de Putte, 2021).

Social media research is characterised by different theoretical approaches that have been adopted to understand the dynamics and impact of social media on individuals and society. These theories provide frameworks for understanding different aspects of social media, including user behaviour (Katz et al., 1974), social identities (Tajfel & Turner, 1979), network dynamics (Wasserman & Faust, 1994), information diffusion (Rogers, 2003) and societal impact (Bandura, 1977; Putnam, 2000). It is important to note that the field of social media research is constantly evolving, and new theories and perspectives continue to emerge as the technology and its implications evolve.

In this study, we focus on the approach that conceives of social media as socio-technical systems. The concept of social media as a socio-technical system recognises that social media platforms are not just technological tools, but complex systems influenced by both social and technical factors (Bijker et al., 1987; Orlikowski & Scott, 2008). It emphasises the interplay between technology, users and the wider social context in shaping the operation and impact of social media (Huysman & Wulf, 2006).

Social media platforms are built on sophisticated technological infrastructures that enable users to create, share and interact with content. These platforms incorporate algorithms, data analytics, user interfaces and other technical components to facilitate communication and information dissemination. The technical aspects of social media platforms influence the user experience, the visibility of content, privacy settings and the overall functionality of the platform (van Dijck & Poell, 2013). In addition to facilitating new forms of communication, interaction and social connection, these platforms have changed the way we build and maintain relationships, share information and engage in cultural and political activities (van Dijck, 2013). Indeed, social media are not only defined by their technical characteristics, but they are deeply embedded in social structures, norms and practices. Users' behaviours, motivations and social interactions shape the content that is created and shared on these platforms. Social dynamics such as the formation of online communities, the emergence of trends and the spread of information are essential aspects of social media (Williams & Edge, 1996).

By considering social media as socio-technical systems, researchers and practitioners recognise the need to examine the interdependencies between technology, individuals and society. It highlights the importance of understanding both the technological affordances and the social dynamics that shape and are shaped by social media platforms. This perspective allows for a more comprehensive understanding of the complexities and implications of social media use in different domains, including communication, politics, commerce and culture.

As recalled several times, the rise of digital (social) media technologies has led to a transformation of cultural production, as digital platforms have become integral to the economic and infrastructural aspects of cultural industries (Nieborg & Poell, 2018). This phenomenon, known as platformisation, has not only reshaped the organisation of cultural practices around these platforms, but has also redefined how cultural production is approached (Poell et al., 2021). As a result, cultural production has been reorganised to prioritise profitability, with algorithms playing a key role in optimising the creation and distribution of content. This has led to the emergence of a new type of economic structure in which platforms are the dominant players in the global economy. This has far-reaching implications for work, production and consumption, and for the ways in which platforms shape and control the cultural landscape (Magaudda & Solaroli, 2020).

As we have seen, the media ecosystem in the field of collective historical memory encompasses both digital and non-digital tools that enable the transmission and dissemination of collective memory. Traditional media such as newspapers, television and radio, as well as digital platforms and social media, serve as channels through which historical knowledge is shared, stored and accessed by individuals. These diverse media systems play a crucial role in facilitating the reach and impact of educational tools, thereby contributing to the wider dissemination of collective memory. In the following section, our focus shifts to exploring how individual learning ecologies influence the direction and implementation of collective memory in contemporary formal and informal learning settings.

2.3 The individual learning ecology

A further theoretical underpinning of this study is the recognition of the importance of learning ecologies as a foundational element that shapes and influences the trajectory and implementation of collective memory in contemporary times. As discussed earlier, the transmission of collective memory occurs through a variety of communicative and educational interventions (Carretero & Montanero, 2008). These interventions include a wide range of activities such as official ceremonies and political speeches (Adams, 2022), tours of memorial sites (Bussu et al., 2023), visits to museums and memorials (Oztig, 2023; Popescu, 2023), travel experiences (Soulard et al., 2023) and, most importantly, educational institutions and other spaces where individuals acquire knowledge and understanding in both tangible and intangible ways (Eckmann et al., 2017a; 2017b). In this section, we focus on examining how individuals engage in both formal and informal learning, using a particular theoretical lens known as the learning ecology perspective.

Learning ecologies refer to the complex and interconnected systems and environments in which learning takes place. It encompasses a range of settings, contexts and interactions in which individuals actively engage with different subjects (Barron, 2006; Jackson, 2013). These environments can be formal, such as classrooms and educational institutions, or informal, including online communities, social networks and personal interactions (Sangrà et al., 2019b). The learning ecology perspective recognises that learning is not confined to formal educational settings, but takes place through different interactions, experiences and contexts in everyday life (Barron, 2006). In this light, a learning ecology encompasses a wide range of elements, including physical spaces, social interactions, cultural norms, technological tools and resources, with which individuals actively engage to participate in collective memory and develop historical thinking (e.g., Kessner & McArthur Harris, 2022). It emphasises the interplay between individuals, their immediate environment and the wider social and cultural contexts that shape and influence their learning experiences. Within a variety of learning ecologies, individuals discover different directions and pathways to navigate their engagement with collective memory, thereby influencing their understanding, interpretation and use of historical knowledge.

The research subject of this dissertation focuses specifically on the informal learning contexts provided by social media platforms where individuals acquire knowledge and engage in learning about the Holocaust.

In informal learning contexts, individuals take responsibility for shaping their own learning practices (OECD, 2019; Rogoff et al., 2016), in contrast to formal learning settings where institutions and teachers dictate curricula, textbooks and assessment procedures. Traditionally, out-of-school learning, work-based learning, civic associations and cultural clubs have been considered the main avenues for informal learning. However, especially in personal learning environments for lifelong learning (Dabbagh & Castañeda, 2020) and social media environments (Greenhow & Lewin, 2016), the boundaries between formality and informality should not be rigidly separated. Instead, they should be seen as a continuum or as inextricably linked. Although academic research has been exploring the incorporation of social networking sites and social media to enrich personal learning environments for over a decade (Gil-Fernández et al., 2023), the field has yet to develop clear pedagogical theories. Indeed, there is still a tendency to rely primarily on technology acceptance models rather than pedagogical models (Perez et al., 2023).

From this perspective, the learning ecologies framework allows for further theoretical elaboration on the shift from traditional teaching models to a more learner-driven and personalised learning model. Although the concept of learning ecologies has been elaborated and applied in different ways in empirical research (Sangrà et al., 2019a), in this study we refer to learning ecologies as the physical, socio-cultural and historical contexts in which learning takes place (Barron, 2006; Jackson, 2013). Learning ecologies share physical characteristics with natural ecosystems, such as easy access to schools, museums, libraries and other non-profit educational organisations, as well as non-physical characteristics, such as the digital or immaterial aspects in general (Barron, 2006). This concept encompasses the idea of learning environments where personalised and self-initiated learning can be integrated with formal instruction through multiple and non-linear pathways of reciprocal relationships and influences (Bruguera et al., 2022; Sangrà et al., 2021).

As an individual's learning ecology is primarily the result of the interrelationship of multiple contexts (Barron, 2006), the concept is useful for understanding how people activate their learning opportunities over time. Furthermore, the learning ecology approach has important conceptual value regardless of the specific characteristics that differentiate each individual learning ecology. The most important conceptual value lies in understanding learning as a process that connects learners with other people and their environment and empowers them to recognise their active role in nurturing their learning ecology (Jackson, 2013). This approach promotes personalisation, collaboration and informal learning as cornerstones of the future of learning or "learning to learn". In addition, the learning ecology lens allows for the study of independent and self-initiated learning among different audiences engaged in lifelong learning practices, highlighting the learner's ability to become proactive and empowered in orchestrating structures, processes, and resources for learning (Sangrà et al., 2019b).

A learning ecology encompasses an individual's learning processes and the interconnected contexts, relationships and interactions that provide learning opportunities and resources for personal and professional development (Jackson, 2013; Sangrà et al., 2019a). These learning ecologies have both temporal and spatial dimensions, allowing individuals to connect different spaces and contexts throughout their lives. They consist of two main dimensions: 1) the intrinsic "learning disposition", which includes individuals' beliefs, motivations and expectations about learning, and 2) the "learning processes", which include relationships, resources, activities and contexts (González-Sanmamed et al., 2019; Romeu-Fontanillas et al., 2020). Each context represents a unique combination of activities, material resources, relationships and the resulting interactions (Barron, 2006).

While learning dispositions are related to an individual's intrinsic motivation to learn, the learning process involves experiential elements that shape a person's learning trajectory throughout their lifetime (González-Sanmamed et al., 2019). Motivation, beliefs and expectations about learning play a crucial role in an individual's decision to engage in learning activities and contexts. Research shows that learners' motivation positively influences their behaviour, performance and perceptions of the learning environment (Drachsler et al., 2021). From a learning ecology perspective (González-Sanmamed et al., 2019), motivation encompasses various aspects, in particular the influence of goals and self-efficacy expectations that drive learners to engage in different types of tasks (Pintrich, 2003). Although the learning ecology framework lacks an explicit theory of motivation, it considers motivation as a personal inclination that drives individuals to seek resources and build personal and professional relationships that lead to formal, non-formal and informal learning (Romeu-Fontanillas et al., 2020). It can also be seen as an intrinsic motivational orientation that guides learners' involvement in their learning processes (Estévez et al., 2021), which is consistent with the lens of agency theory (Bandura, 2006). Agency represents the ongoing effort and driving force for self-expression and fulfilment within a specific context. Motivation is thus not solely an internal force but is deeply connected to individuals' personal narratives and social contexts (Biesta & Tedder, 2007). In this sense, in the case of the subject of our research study, informal conversations with family, friends and peers allow individuals to exchange perspectives, share personal experiences and collectively construct meaning around historical events. These interactions shape individuals' understanding and interpretation of collective memory as they are influenced by different perspectives, personal narratives and emotional connections.

In the context of this research, our primary aim is to explore the multifaceted elements that make up the learning dispositions and learning processes of online users. Specifically, we aim to examine these aspects in the context of social media profiles dedicated to Holocaust remembrance. This investigation will include exploring the motivations that drive individuals to seek information and engage in learning experiences related to the Holocaust. We will also explore the specific activities and strategies that users employ to interact with the content, such as reading textual and visual information, participating in interactive discussions, exploring digital resources, and engaging in formal or informal learning opportunities. Through this exploration, we aim to gain a comprehensive understanding of the ways in which individuals navigate their learning journeys within the specific context of Holocaust remembrance on social media.

We believe that understanding the role of learning ecologies can be crucial to understanding how individuals navigate and shape collective memory in contemporary society. By recognising the diversity of learning ecologies, researchers and educators can develop strategies and interventions that effectively engage individuals in the learning and transmission of collective memory, thereby fostering a more comprehensive and inclusive understanding of historical events such as the Holocaust.

2.4 References

Adams, T. (2022). Sharing the Same Space: How the Memory of the Holocaust Travels in Political Speech. *The Sociological Quarterly*, 63(2), 247–265.

Arnold, S., & Bischoff, S. (2023). Marginal(ized) plurality: An empirical conceptualization of Michael Rothberg's "multidirectional memory" in German educational settings. *Memory Studies*, https://doi.org/10.1177/17506980231155562

Assmann, A. (2012). *Cultural Memory and Western Civilization: Functions, Media, Archives.* Cambridge, UK: Cambridge University Press.

Assmann, A. (2017). Transnational Memory and the Construction of history through Mass Media. In L. Bond, S. Craps & P. Vermeulen (Eds.), *Memory Unbound: Tracing the Dynamics of Memory Studies* (pp. 65–82). New York and Oxford: Berghahn Books.

Assmann, J., & Czaplicka, J. (1995). Collective memory and cultural identity. *New German Critique*, 65, 125–133.

Bandura, A. (1977). *Social learning theory*. Hoboken, NJ: Prentice-Hall.

Bandura, A. (2006). Toward a Psychology of Human Agency. *Perspectives on Psychological Science*, 1(2), 164–180.

Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development*, 49, 193–224.

Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology.* Cambridge, UK: Cambridge University Press.

Ben-Amos, A., & Bourdon, J. (2011). Life History and National Memory: The Israeli Television Program Such a Life, 1972–2001. In M. Neiger, O. Meyers & E. Zandberg (Eds.), *On Media Memory. Collective Memory in a New Media Age* (pp. 132–144). London, UK: Palgrave MacMillan.

Berkowitz, D. (2011). Telling the Unknown through the Familiar: Collective Memory as Journalistic Device in a Changing Media Environment. In M. Neiger, O. Meyers, & E. Zandberg (Eds.), *On Media Memory. Collective Memory in a New Media Age* (pp. 201–212). London, UK: Palgrave MacMillan.

Biesta, G., & Tedder, M. (2007). Agency and learning in the lifecourse: Towards an ecological perspective. *Studies in the Education of Adults*, 39(2), 132–149.

Bijker, W. E., Hughes, T. P., & Pinch, T. J. (1987). *The social construction of technological systems*. Cambridge, MA: The MIT Press.

Bond, L., & Rapson, J. (2014). *The Transcultural Turn: Interrogating Memory between and beyond Borders*. Berlin and New York: de Gruyter.

Bruguera, C., Guitert, M. & Romeu, T. (2022). Social media in the learning ecologies of communications students: Identifying profiles from students' perspective. *Education and Information Technologies*, 27, 13113–13129.

Bultmann, D., Makhortykh, M., Simon, D., Ulloa, R., & Zucker, E. M. (2022). *Digital Archive of Memorialization of Mass Atrocities (DAMMA) Workshop Whitepaper*. Yale University Genocide Studies Program: Mass Atrocities in the Digital Era Working Paper #3.

Bussu, A., Leadbetter, P., & Richards, M. (2023). The Perception of Visiting Holocaust Sites on Undergraduate Students Learning Process. *Innovative Higher Education*, 48, 55–81.

Carretero, M., Asensio, M., & Rodríguez-Moneo, M. (2013). *History Education and the Construction of National Identities*. Charlotte, NC: Information Age Publishing.

Carretero, M., & Montanero, M. (2008). Teaching and learning History: Cognitive and cultural aspects. *Culture and Education*, 20(2), 133–142.

Cauvin, T. (2022). *Public History. A Textbook of Practice*. London, UK: Routledge.

Confino, A. (1997). Collective Memory and Cultural History: Problems of Method. *The American Historical Review*, 102(5), 1386–1403.

Connerton, P. (1989). *How societies remember*. Cambridge, UK: Cambridge University Press.

Craps, S. (2013). *Postcolonial Witnessing: Trauma Out of Bounds*. London, UK: Palgrave MacMillan.

Dabbagh, N., & Castañeda, L. (2020). The PLE as a framework for developing agency in lifelong learning. *Educational Technology Research and Development*, 68(6), 3041–3055.

David, O., & Bar-Tal, D. (2009). A Sociopsychological Conception of Collective Identity: The Case of National Identity as an Example. *Personality and Social Psychology Review*, 13(4), 354–379.

Drachsler, H., Jansen, J., & Kirschner, P. A. (2021), Adoption of learning technologies in times of pandemic crisis. *Journal of Computer Assisted Learning*, 37, 1509–1512.

Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017a). *Research in Teaching and Learning about the Holocaust: A Dialogue Beyond Borders*. Berlin: Metropol.

Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017b). *Research in Teaching and Learning About the Holocaust: Bibliographies with Abstracts in Fifteen Languages*. Berlin: Metropol.

Estévez, I., Souto-Seijo, A., & Romero, P. (2021). Learning Ecologies and Teacher Professional Development: opportunities and challenges in a changing educational context. *Publicaciones*, 51(3), 91–107.

Finney, P. (2014). The Ubiquitous Presence of the Past? Collective Memory and International History. *The International History Review*, 36(3), 443–472.

Gil-Fernández, R., Calderón-Garrido, D., & Martín-Piñol, C. (2023). Exploring the effect of social media in Personal Learning Environments in the university settings: analysing experiences and detecting future challenges. *RED. Revista de Educación a Distancia*, 23(71), 1–24.

Goettlich, K. (2022). Connected Memories: The International Politics of Partition, from Poland to India. *International Political Sociology*, 16(4), 1–22.

González-Sanmamed, M., Muñoz-Carril, P.-C., & Santos-Caamaño, F.-J. (2019). Key components of learning ecologies: A Delphi assessment. *British Journal of Educational Technology*, 50(4), 1639–1655.

Greenhow, C., & Lewin, C. (2016). Social media and education: Reconceptualizing the boundaries of formal and informal learning. *Learning, Media and Technology*, 41, 6–30.

Greif, G. (2018). The Evolution of Holocaust Remembrance in Israeli Society. *Témoigner. Entre histoire et Mémoire*, 126, 62–71.

Halbwachs, M. (1992). *On Collective Memory*. Chicago, IL: Chicago University Press.

Hoskins, A. (2018). *Digital Memory Studies: Media Pasts in Transition*. London, UK: Routledge.

Huysman, M., & Wulf, V. (2006). IT to support knowledge sharing in communities, towards a social capital analysis. *Journal of Information Technology*, 21(1), 40–51.

Isurin, L. (2017). *Collective Remembering: Memory in the World and in the Mind*. Cambridge, UK: Cambridge University Press.

Jackson, N. J. (2013). The Concept of Learning Ecologies. In N. J. Jackson & G. B. Cooper (Eds.), *Lifewide Learning Education and Personal Development*. Lifewide Education.

Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of mass communication by the individual. In J. G. Blumler & E. Katz (Eds.), *The uses of mass communications: Current perspectives on gratifications research* (pp. 19–32). Thousand Oaks, CA: SAGE Publications.

Kessner, T. M., & McArthur Harris, L. (2022). Opportunities to practice historical thinking and reasoning in a made-for-school history-oriented videogame. *International Journal of Child-Computer Interaction*, 34, 100545.

Kleingeld, P., & Brown, E. (2019). Cosmopolitanism. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy*, https://plato.stanford.edu/archives/win2019/entries/cosmopolitanism/

Lerner, A. M. (2022). Quantifying the archives: leveraging the norms and tools of data science to conduct ethical research on the Holocaust. *Holocaust Studies*, 28(3), 358–376.

Levy, D., & Sznaider, N. (2006). *The Holocaust and Memory in The Global Age*. Philadelphia, PA: Temple University Press.

Magaudda, P., & Solaroli, M. (2020). Platform Studies and Digital Cultural Industries. *Sociologica*, 14(3), 267–293.

Marino, G. P. (2023). Outlining the Victims of the Holocaust and the Argentinian Dictatorship: Jerzy Skąpski's Każdy Dzień Oświęcimia and Rodolfo Aguerreberry, Julio Flores, and Guillermo Kexel's "El Siluetazo". *Genealogy*, *7*(1), 1–24.

Michlic, J. B. (2021). The politics of the memorialization of the Holocaust in Poland: reflections on the current misuses of the history of rescue. *Jewish Historical Studies*, 2021, 53(1),132–168.

Nash, G. B., Crabtree, C., & Dunn, R. E. (2014). *History on Trial: Culture Wars and the Teaching of the Past*. New York, NY: Knopf.

Neiger, M. (2020). Theorizing Media Memory: Six Elements Defining the Role of the Media in Shaping Collective Memory in the Digital Age. *Sociology Compass*, 14(5), 1–11.

Neiger, M., Meyers, O., & Zandberg, E. (2011a). *On Media Memory. Collective Memory in a New Media Age*. London, UK: Palgrave MacMillan.

Neiger, M., Meyers, O., & Zandberg, E. (2011b). Tuned to the nation's mood: Popular music as a mnemonic cultural object. *Media, Culture & Society*, 33(7), 971–987.

Nieborg, D. B., & Poell, T. (2018). The platformization of cultural production: Theorizing the contingent cultural commodity. *New Media & Society*, 20(11), 4275–4292.

Noiret, S., Tebeau, M., & Zaagsma, G. (2022). *Handbook of Digital Public History*. Berlin and New York: de Gruyter.

Nora, P. (1989). Between memory and history: Les lieux de mémoire. *Representations*, 26, 7–24.

Novis-Deutsch, N. S., Lederman, S., Adams, T. & Kochavi, A. J. (2023). *Sites of Tension: Shifts in Holocaust memory in Relation to Antisemitism and Political Contestation in Europe*. Haifa: The Weiss-Livnat International Center for Holocaust Research and Education.

OECD (2019). *Recognition of non-formal and informal learning. Organisation for Economic Cooperation and Development*, http://www.oecd.org/education/skills-beyond-school/recognitionofnon-formalandinformallearning-home.htm

Orlikowski, W. J., & Scott, S. V. (2008). Sociomateriality: Challenging the separation of technology, work and organization. *The Academy of Management Annals, 2*(1), 433–474.

Oztig, L. I. (2023). Holocaust museums, Holocaust memorial culture, and individuals: a Constructivist perspective. *Journal of Modern Jewish Studies*, 22(1), 62–83.

Perez, E., Manca, S., Fernández-Pascual, R., & Mc Guckin, C. (2023). A systematic review of social media as a teaching and learning tool in higher education: A theoretical grounding perspective. *Education and Information Technologies*, 28(9), 11921–11950.

Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95(4), 667–686.

Poell, T., Nieborg, S., & Duffy, B. E. (2021). *Platforms and Cultural Production.* Cambridge, UK: Polity Press.

Popescu, D. I. (2023). *Visitor Experience at Holocaust Memorials and Museums.* London, UK: Routledge.

Probst, L. (2003). Founding Myths in Europe and the Role of the Holocaust. *New German Critique*, 90, 45–58.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community.* New York, NY: Simon & Schuster.

Rogoff, B., Callanan, M., Gutiérrez, K. D., & Erickson, F. (2016). The Organization of Informal Learning. *Review of Research in Education*, 40, 356–401.

Romeu-Fontanillas, T., Guitert-Catasús, M., Raffaghelli, J. E., & Sangrà, A. (2020). Mirroring learning ecologies of outstanding teachers to integrate ICTs in the classroom. *Comunicar*, 62, XXVIII, 31–42.

Rogers, E. M. (2003). *Diffusion of innovations (5th ed.).* New York, NY: Free Press.

Rothberg, M. (2009). *Multidirectional Memory: Remembering the Holocaust in the Age of Decolonization.* Stanford, CA: Stanford University Press.

Sangrá, A., Raffaghelli, J. E., González-Sanmamed, M., & Muñoz-Carril, P. C. (2021). Primary school teachers' professional development through the learning ecologies lens: new ways for keeping up to date in uncertain times. *Publicaciones*, 51(3), 47–70.

Sangrà, A., Raffaghelli, J. E., & Guitert, M. (2019a). Learning ecologies through a lens: Ontological, methodological and applicative issues. A systematic review of the literature. *British Journal of Educational Technology*, 50(4), 1619–1638.

Sangrà, A., Raffaghelli, J.E., & Veletsianos, G. (2019b). Lifelong learning Ecologies: Linking formal and informal contexts of learning in the digital era. *British Journal of Educational Technology*, 50, 1615–1618.

Sierp, A. (2014). *History, Memory, and Trans-European Identity. Unifying Divisions*. London, UK: Routledge.

Soulard, J., Stewart, W., Larson, M., & Samson, E. (2023). Dark Tourism and Social Mobilization: Transforming Travelers After Visiting a Holocaust Museum. *Journal of Travel Research*, 62(4), 820–840.

Steinhauer, J. (2022). *History, Disrupted: How Social Media and the World Wide Web Have Changed the Past*. London, UK: Palgrave MacMillan.

Sutton, J. (2008). Between Individual and Collective Memory: Coordination, Interaction, Distribution. *Social Research*, 75(1), 23–48.

Tait-Ripperdan, R. (2023). Researching the Holocaust in a Digital World. In P. R. Bartrop (Ed.), *Sources for Studying the Holocaust. A Guide*. London, UK: Routledge.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–37). Monterey, CA: Brooks/Cole.

Trachtenberg, B. (2023). The Holocaust in American Public Memory. In M. Blatt (Ed.), *Violence and Public Memory*. London, UK: Routledge.

Triandafyllidou, A. (1998). National identity and the 'other'. *Ethnic and Racial Studies*, 21(4), 593–612.

Tröhler, D., Popkewitz, T. S., & Labaree, D. F. (2011). *Schooling and the Making of Citizens in the Long Nineteenth Century*. London, UK: Routledge.

Van de Putte, T. (2021). Delineating memoryscapes: Auschwitz versus Oświęcim. *Holocaust Studies*, 27(1), 91–105.

van Dijck, J. (2004). Mediated memories: Personal cultural memory as object of cultural analysis. *Continuum: Journal of Media & Cultural Studies*, 18(2), 262–277.

van Dijck, J. (2013). *The Culture of Connectivity. A Critical History of Social Media*. Oxford, UK: Oxford University Press.

van Dijck, J., & Poell, T. (2013). Understanding social media logic. *Media and Communication*, 1(1), 2–14.

Vliet, D. (2022). Resisting the abolition myth: Journalistic turning points in the Dutch memory of slavery. *Memory Studies*, 15(4), 784–797.

Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications*. Cambridge, UK: Cambridge University Press.

Williams, R., & Edge, D. (1996). The social shaping of technology. *Research Policy*, 25(6), 865–899.

Wineburg, S. S. (2001). *Historical Thinking and Other Unnatural Acts: Charting the Future of Teaching the Past*. Philadelphia, PA: Temple University Press.

Zuckerman, E. (2021). Why study media ecosystems? *Information, Communication & Society*, 24(10), 1495–1513.

3. Research design: Methods, context and coherence of articles

3.1 Introduction

This chapter consists of two main parts. The first part examines and provides a rationale for the research design and overall methodological approach that guided the development and production of the publications that comprise this dissertation. It is important to note that detailed explanations of the methods and procedures used in each article, including the theoretical contributions, can be found in the articles themselves.

The second part highlights the aims and significance of the contributions made, emphasising their coherence with the overall research focus of this dissertation. It aims to establish the link between these contributions and the broader research objectives of the study.

3.2 Research problem, aims and questions

As highlighted in the Introduction, there is still limited knowledge about the potential of social media for education and informal learning about the Holocaust. While educational materials predominantly focus on traditional settings such as classrooms and libraries, there is a lack of research on how individuals engage with Holocaust-related content across multiple media sources in general, and social media in particular, and how this engagement affects their understanding of the Holocaust.

A number of specific research questions have been identified to guide the research process. These include:

- **RQ1** How do Holocaust museums and memorials use different social media platforms, such as Facebook, Twitter, Instagram and YouTube, and how does their use vary according to their target audience?
- **RQ2** What kind of information do these organisations produce and publish on their social media profiles, and how do they present it to effectively engage their audiences?
- **RQ3** In terms of learning ecology, how do users interact with the information provided by Holocaust museums and memorials on social media platforms? How do they use available resources, participate in activities or build relationships within the online Holocaust learning community?
- **RQ4** What are the potential benefits and outcomes for individuals who engage with Holocaust-related content on social media, and how does this engagement contribute to their understanding, empathy and personal growth in relation to the Holocaust?

By addressing these research questions, the project aims to contribute to a deeper understanding of the role of social media in learning about the Holocaust, to inform the development of effective educational strategies in the digital age, and to enhance the overall learning experience of individuals who engage with Holocaust remembrance on social media platforms.

In order to respond to these research questions, the research project explores two interrelated strands of inquiry:

1) The first strand analyses the (social) media ecosystems of Holocaust memory as they appear on social media platforms of Holocaust organisations, namely museums and memorials. The project aims to understand how these institutions use different social media platforms, such as Facebook, Twitter, Instagram and YouTube, to connect with and engage their target audiences. By analysing the strategies used by these organisations, the research study aims to gain a deeper understanding of their communication methods, content distribution and audience interaction on social media (**RQ1** and **RQ2**).
2) The second strand focuses on exploring the learning ecologies of online users who actively seek to create meaningful Holocaust learning experiences on social media. This aspect of the research aims to understand how individuals engage with Holocaust-related information, resources and activities within the social media landscape. It examines the ways in which users interact with the content produced and shared by Holocaust museums and memorials on social media platforms. This interaction may involve using available resources, participating in educational activities, or building relationships within the online Holocaust learning community (**RQ3** and **RQ4**).

By bridging the theoretical and methodological orientations of media and cultural studies with those of education and learning technologies, this research project aims to shed light on the intersection of social media, Holocaust memory and learning. It seeks to uncover the multifaceted dynamics of social media use in Holocaust education and to explore how online engagement with Holocaust-related content can contribute to individuals' knowledge, understanding, and personal growth.

3.3 Methodological approaches

This study uses a mixed-method, phenomenological approach that combines qualitative and quantitative research methods and is based on multi-method and multi-data approaches for triangulation purposes (Cresswell & Plano Clark, 2017; Morse & Niehaus, 2009). The mixed methods approach is based on "the primary importance of the question being asked rather than the methods, and [...] the use of multiple methods of data collection to inform the problems being studied" (Creswell & Plano Clark, 2017, p. 41). Accordingly, a variety of different research tools have been employed, as in a mixed methods approach, "a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration" (Johnson et al., 2007, p. 123).

The analysis is approached from an ecological perspective (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998), focusing on the natural daily activities occurring on social media platforms that influence learning, practical skills, and users' connections to public institutions (McHale et al., 2009). Social media are examined not only as an extension of daily life but also as a catalyst for social phenomena, providing insights into their broader societal impacts and intersections (Sloan & Quan-Haase, 2018).

The study uses specifically a variety of online research methods, drawing on social media research and educational science, in order to effectively integrate findings from these two distinct fields of inquiry. By adopting a multi-method approach (Cresswell & Plano Clark, 2017; Sloan & Quan-Haase, 2018), the researchers aim to gain a comprehensive understanding of the complex interplay between social media, educating about the Holocaust and informal learning.

With regard to the first two research questions (**RQ1** and **RQ2**), this study uses qualitative and quantitative data to shed light on the provision of Holocaust content on social media. These data are collected manually or automatically from the social media profiles of the target institutions and users. Depending on the granularity of the different stages of the research, social media analytics are used to collect, analyse and interpret data from social media platforms. Social media analytics allows for the systematic study of large datasets, providing valuable insights into the dynamics of Holocaust-related content on different platforms. This can provide insights into user behaviour, trends and patterns, as well as the measurement of engagement metrics such as reads, likes, shares and hashtags (Gerrard et al., 2017; Lassen et al., 2018; Vo, 2019). Quantitative methods such as computational big data methods and mixed methods social network analysis (MMSNA) are also used (Froehlich et al., 2019a; 2019b; Sloan & Quan-Haase, 2018). Social network analysis (SNA) provides the opportunity to map the underlying network structure, and to identify who follows and participates in the social media of the Holocaust memorials and institutions involved. In addition, semantic analysis techniques are used, such as latent Dirichlet allocation (Blei & Lafferty, 2009) for topic modelling (Alsumait et al., 2010) to gain insight into the type and tone of content shared on different social media platforms.

The study also uses ethnographic and qualitative research methods to explore the use of social media by Holocaust museums and memorials. These methods allow for a deeper understanding of local perspectives, which are often rooted in the local language (Kozinets, 2020). Unlike studies that use closed coding systems, where social media data attributes (e.g., links, mentions, hashtags, and text) are assigned predefined coded categories, this study relies primarily on open coding to explore social media content such as text, images, and videos (Murthy et al., 2016; Sloan & Quan-Haase, 2018). An open coding system that allows codes to emerge is preferable when exploring fuzzy and ill-defined topics and themes (Halaweh, 2018).

Regarding the third and fourth research questions (**RQ3** and **RQ4**), a user engagement perspective (McCay-Peet & Quan-Haase, 2016) is adopted to investigate users' participation on social media profiles. Activities such as viewing, posting, sharing content and participating in discussions are analysed. Data collection follows the principles of unobtrusive observation, ensuring that no personally identifiable information is collected (Blackstone, 2012). Existing data is collected primarily through application programming interfaces (APIs) or third-party tools that provide access to the API. Alternatively, depending on the social media platform, data may be obtained by crawling websites or manually copying and pasting data into Excel spreadsheets or other databases to create a corpus appropriate to the research purpose.

Survey tools and in-depth interviews (Salmons, 2015; 2016) are used to investigate users' learning benefits and their learning ecologies. This includes exploring social media users' motivations and the learning benefits they derive from using social media, as well as investigating social media managers' communication strategies. A combination of purposive and convenience sampling techniques is used to select participants (Mazur, 2010; Patton, 1990) in accordance with the purpose of the study (Miles et al., 2014). The units of analysis are participants' responses to various data collection instruments. Results are analysed using statistical methods and qualitative approaches such as grounded theory (Corbin & Strauss, 2014; Glaser & Strauss, 1967), interpretive phenomenological analysis (Smith, 2011), thematic coding for text interpretation (Guest et al., 2012), or narrative research techniques (Lieblich et al., 1998).

By integrating these different research methods, the study aims to bridge the gap between social media research and educational science. It combines quantitative and qualitative approaches, allowing for a holistic understanding of the multifaceted nature of the role of social media in learning about the Holocaust. By bringing together findings from different research fields, the study aims to make valuable contributions to theory, practice, and the development of effective methodologies for using social media as a powerful tool for educating about the Holocaust.

4.4 Ethical compliance

All empirical research conducted in this study was approved by the UOC Human Ethics Committee. Before taking part in the survey and interviews, participants were informed of their rights with regard to their personal data and the data obtained from the instruments. They were assured that all interview and personal data would be anonymised and that they would have access to interview transcripts and published results. Informed consent and image and video release forms were provided, read to and signed by each participant. The treatment and use of data was in accordance with Italian law, in particular the General Data Protection Regulation (GDPR) (2018). Personal data were only used for the selection of participants based on their respective profiles and were deleted after the interview process. In the specific research outputs (communications and publications), interview data and participants' personal data were only used in aggregated form and subsequently anonymised in published articles. Audio and video files of the interviews were stored on the servers of CNR-ITD, Italy, for a period of three years.

To ensure ethical research practices, we also followed the guidelines outlined in the ESRC Framework for Research Ethics and Stevens et al. (2015). We were careful to distinguish between public and private spaces, to obtain informed consent, and to protect data to ensure confidentiality and anonymity. In this study, we only used publicly available social media profiles as data sources and anonymised the comments and responses presented as examples to protect the privacy of the individuals who made them.

3.5 Context of the research

This study examines the interrelations between digital Holocaust remembrance and education and the learning ecologies of its users. It does so by referring to the international panorama of studies, on the one hand, and to the specific case of the Italian context, on the other. Particular attention is paid to how Italian Holocaust museums and memorials use social media and how their online users satisfy their informal learning needs. Special attention will also be given to Holocaust educators and their professional learning trajectories, including the use of digital technologies and social media.

3.5.1 The state of Holocaust education in Italy

Italy has long played an important role in Holocaust education and remembrance initiatives. In 2000, Italy became an early member of the International Holocaust Remembrance Alliance (IHRA)[20] and endorsed the Stockholm Declaration[21]. This commitment to Holocaust commemoration and education was further reflected when Italy assumed the presidency of the IHRA in 2004/2005 and again in 2018.

In 2000, Italy became one of the first countries to introduce a specific law requiring Holocaust education in schools, with particular emphasis on the historical and ethical dimensions of the Holocaust[22]. As a direct consequence of this law, the first edition of the national competition "I giovani ricordano la Shoah" (Young People Remember the Shoah) was held in 2001[23], with the aim of promoting the study and in-depth analysis of the tragic event that marked European history in the 20th century. The launch of the competition gave substance to Law 211/2000, by which the Italian Parliament established the "Giorno della Memoria"[24] (Holocaust Remembrance Day) to commemorate the extermination and persecution of the Jewish people and of Italian military and political deportees to Nazi camps. This law also entrusted the school system, in particular, with the responsibility of transmitting the memory of the Shoah to the younger generations.

---

[20] The International Holocaust Remembrance Alliance (IHRA) (known until January 2013 as the Task Force for International Cooperation on Holocaust Education, Remembrance, and Research or ITF) is an intergovernmental organisation founded in 1998 that brings together governments and experts to strengthen, advance, and promote Holocaust education, research, and remembrance worldwide, and to uphold the commitments of the Declaration of the Stockholm International Forum on the Holocaust. https://www.holocaustremembrance.com/

[21] https://www.holocaustremembrance.com/about-us/stockholm-declaration

[22] For the state of Holocaust education before 2000, see Santerini (2003).

[23] Year after year, the Ministry of Education and the Union of Italian Jewish Communities (UCEI) have worked together, sharing the responsibility for selecting themes, which are always different and as relevant as possible, as well as organizing the competitions. The goal is to encourage reflection and collaborative work in schools. See https://www.scuolaememoria.it/site/it/il-concorso-i-giovani-ricordano-la-shoah/

[24] https://presidenza.governo.it/USRI/confessioni/norme/legge_211_2000.pdf

Several institutions and organisations in Italy are dedicated to Holocaust education. The Union of Italian Jewish Communities[25] (UCEI), which is also part of the Italian IHRA delegation, plays an important role in promoting Holocaust education and remembrance at the national level. Other institutions that cooperate with the Ministry of Education are prominent international Holocaust organisations such as Yad Vashem[26] in Israel, the Mémorial de la Shoah de Paris[27] and the Auschwitz-Birkenau State Museum in Poland[28], with which training seminars and study trips for teachers and students to Holocaust memorial sites are organised.

There are also several Italian institutions that play a crucial role in providing Holocaust education for students and teachers. These include various associations and organisations, such as the "Centro di Documentazione Ebraica Contemporanea"[29] (CDEC, Centre for Contemporary Jewish Documentation) and the "Associazione Figli della Shoah"[30] (Association of Children of Holocaust Survivors), local administrative bodies, and two university initiatives: the Master in Didattica della Shoah at the University of Roma Tre and the Advanced Course in Holocaust Education at the University of Florence. These institutions, together with several Italian museums and memorials (see next subsection), make a significant contribution to the dissemination of knowledge about the Holocaust and to the development of effective teaching methods in this important field. In addition, there has been a significant increase in the number of specialised publications on the Shoah over the last twenty years, which has further promoted the knowledge and dissemination of Holocaust remembrance in Italy.

Despite collective efforts, challenges remain in the field of education and teachers' professional development. The teaching of the Holocaust can vary between regions and schools in Italy, due to the freedom of choice given to educational institutions and their proximity to memorial sites. In addition, there is a recognised need for continuous professional development opportunities for teachers to improve their knowledge and teaching methods related to Holocaust education. According to a 2018 survey on perceptions of Holocaust education in Italian schools (Statista, 2019), respondents expressed mixed opinions. Approximately 48 per cent of participants responded negatively when asked whether the Holocaust is adequately taught in Italian schools, while 44 per cent believed that Holocaust education in Italian schools was sufficient. These findings highlight the importance of ongoing efforts to standardise Holocaust education across all regions and to ensure that teachers have access to the resources, training and support they need to effectively educate students about this historical event.

In January 2018, the Italian IHRA delegation, in collaboration with the Ministry of Education, developed national guidelines for Holocaust education in schools ("Linee guida nazionali per una didattica della Shoah a scuola"[31]). These guidelines are designed to provide educators with a clear framework for teaching the Holocaust in an effective and accurate manner in Italian schools. The main objective of these guidelines is to promote a comprehensive and well-informed approach to Holocaust education, ensuring that students develop a profound understanding of the historical events, their causes and their consequences. The guidelines underline the importance of teaching about the Holocaust in the broader context of human rights, democracy and the fight against discrimination. They emphasise the importance of fostering critical thinking, empathy and active engagement among students. In addition, the guidelines stress the value of interdisciplinary approaches that integrate historical, literary, artistic and philosophical perspectives to provide students with a well-rounded understanding of the Holocaust. By providing a comprehensive framework and practical guidance, the National Guidelines for Holocaust Education in Schools aim to support educators in delivering accurate, thoughtful and effective Holocaust education. The ultimate goal is to foster understanding, tolerance and rejection of discrimination among students[32].

---

[25] https://www.ucei.it/

[26] https://www.yadvashem.org/education/other-languages/italian/about-school/desk.html

[27] https://www.memorialdelashoah.org/

[28] https://www.auschwitz.org/

[29] https://www.cdec.it/

[30] https://www.figlidellashoah.org/

In January 2022, the Ministry of Education published the "Linee guida sul contrasto all'antisemitismo nella scuola"[33] (Guidelines for Combating Antisemitism in Schools), prepared by the Joint Committee Ministry of Education - UCEI under the guidance of the National Coordinator for Combating Anti-Semitism. These guidelines, developed with the help of a group of experts, begin with a reference to the operational definition provided by the International Holocaust Remembrance Alliance (IHRA). They also provide an overview of the various manifestations of contemporary antisemitism, ranging from traditional anti-Judaism to neo-Nazi and neo-Fascist hatred, and including Holocaust denial[34] and hostility to the existence of the State of Israel.

Despite notable progress in Holocaust education, there remains a significant gap in the explicit promotion and integration of digital technologies, particularly social media, in the teaching and learning of this crucial subject. While efforts have been made to incorporate traditional pedagogical approaches such as textbooks, lectures and site visits, the full potential of digital tools and social media platforms in Holocaust education is far from being realised.

---

[31] https://www.miur.gov.it/-/linee-guida-nazionali-per-una-didattica-della-shoah-a-scuola

[32] The guidelines also emphasise the importance of using a variety of teaching methods, including primary and secondary sources, testimonies, multimedia resources and visits to Holocaust memorials and museums. They highlight the role of dialogue, discussion and reflection in engaging students in meaningful learning experiences. The "Linee guida" provide suggestions for age-appropriate teaching materials, recommended readings and multimedia resources that can assist educators in designing Holocaust education curricula. They also encourage cooperation and partnership between schools, local communities and relevant institutions to promote a comprehensive and inclusive approach to Holocaust education.

[33] https://www.miur.gov.it/-/linee-guida-sul-contrasto-all-antisemitismo-nella-scuola

[34] A survey conducted between 2019 and 2020 shows that 15.6% of Italians believe that the Holocaust never happened (Statista, 2020).

3.5.1.1 The selected museums and memorials

The commemoration of the Holocaust or Shoah (the term preferred in Italy, see Michman, 2021) in Italy has followed a complex trajectory, characterised by the absence of prominent, nationally representative museums. Only a few memorials have been erected in recent years at sites associated with deportation and persecution. In fact, during the period of Jewish deportation (1943-1945), there were several transit camps in Italy, of which little remains today, apart from commemorative plaques. There were also two concentration camps, the Campo di Fossoli[35] and the Risiera di San Sabba[36], both of which now have memorials. Most deportations during the war were carried out from ordinary prisons or temporary detention centres. These factors contribute to the absence of a national Holocaust museum or a prominent reference point for collective Holocaust memory in Italy[37]. Furthermore, in post-war Italy the Holocaust was often marginalised within the broader context of the Second World War, with greater attention being paid to national pacification and reconciliation between former Fascists and the political class that emerged from the Resistance[38] (Sierp, 2012).

For the purposes of this study, four Holocaust museums and memorials were selected as focal points in the Italian landscape of Holocaust remembrance. These institutions were selected on the basis of their active presence on at least two social media platforms. Unfortunately, the aforementioned Risiera di San Sabba Memorial Museum, which served as an extermination and transit camp and housed the only crematorium oven, had to be excluded from the study due to this requirement.

Nevertheless, the four institutions selected are considered key references for Holocaust remembrance and education in Italy. They were either built on the grounds of former concentration camps or deportation sites, or house permanent or temporary exhibitions on the persecution and deportation of Jews during the Holocaust. These institutions, with their educational centres visited by schools and students throughout the academic year, are of great historical importance.

---

[35] https://www.fondazionefossoli.org/i-luoghi/campo-di-fossoli/

[36] https://risierasansabba.it/

[37] After almost 20 years of planning and negotiations, funding for the Italian Shoah Museum has finally been approved. The museum will be located in the grounds of Villa Torlonia, a historically significant site that includes catacombs dating back to the 3rd and 4th centuries and was once the residence of Benito Mussolini. The establishment of this museum is an important step towards strengthening Holocaust education and remembrance in Italy, particularly in the capital, Rome. By locating the museum in a historically significant place and by highlighting Italy's role in the Holocaust, the Italian Shoah Museum has the potential to play an important role in shaping national and transnational memories related to Holocaust remembrance. See: https://moked.it/international/2023/03/20/new-holocaust-museum-in-rome-italys-government-gives-its-approval-lets-keep-the-memory-alive/

[38] Italy has faced challenges in reconciling its collective memory of the Second World War and the Holocaust. The public memory of the Resistance movement often portrays Italy as a victim of the war led by Mussolini and Hitler. In addition, anti-communist sentiments have fostered an alternative memory that opposes anti-fascist rhetoric. Despite the passage of more than 70 years since the war, official commemorations and events in Italy focus primarily on German responsibility for the persecution and deportation of Jews, rather than acknowledging Italian involvement. These events also highlight the role of the Italian resistance movement and the atrocities committed by Nazi Germany against civilians (Sierp, 2012).

A brief history of the four museums/memorials is given below.

Fondazione Fossoli (https://www.fondazionefossoli.org/). Founded in January 1996 by the Municipality of Carpi and the Associazione Amici del Museo Monumento al Deportato, the Fondazione Fossoli aims to preserve and promote the historical memory of the former Fossoli concentration camp. Located in the town of Fossoli in the Emilia-Romagna region, Fossoli began life in 1942 as a prisoner-of-war camp and was later transformed into a Jewish concentration camp, a police and transit camp, and a German-controlled labour collection centre. After the war it was used as a refugee camp until it was closed in 1970. About 2,844 Jews passed through Fossoli, of whom 2,802 were deported to Germany.

Fondazione Museo della Shoah (https://www.museodellashoah.it/). Founded in July 2008 by the Committee for the Promotion of the Shoah Museum Project, the Fondazione Museo della Shoah's mission is to facilitate the establishment of a National Shoah Museum in Rome, placing the Italian capital among the esteemed cities worldwide, such as Jerusalem, Washington, Berlin, London and Paris, that have dedicated Holocaust museums. Currently, the Foundation operates a small exhibition space in the area of the former Roman ghetto (Portico d'Ottavia), which hosts temporary exhibitions on various themes.

Memoriale della Shoah di Milano (https://www.memorialeshoah.it/). Located deep beneath Milan's central railway station, the Memoriale della Shoah di Milano occupies a sublevel that was originally used for handling mail cars. From 1943 to 1945, the site was used as a departure point where thousands of Jews and political opponents of the Italian Fascist regime, arriving from the San Vittore prison, were loaded onto cattle cars. These wagons were then taken to the tracks above and attached to trains bound for Auschwitz-Birkenau, Mauthausen and other extermination and concentration camps inside and outside Italy. Of all the deportation sites in Europe, the Memorial to the Shoah in Milan is the only one that has remained intact.

Museo Nazionale dell'Ebraismo Italiano e della Shoah - MEIS (https://meis.museum/). Founded in 2017, MEIS is dedicated to telling the story of over two thousand years of Jewish history in Italy. Located in Ferrara, this public history museum covers the history of the Jewish people in Italy from the Roman Empire to the Holocaust in the twentieth century. Founded in 2003 under the auspices of the Italian government, MEIS houses more than 200 artefacts and exhibits that provide a chronological narrative of Jewish history in Italy. The museum continues to add to its collection.

3.5.2 The state of social media use in Italy

Social media has become an integral part of everyday life for many Italians, offering a range of opportunities for communication, information sharing and entertainment. In

January 2023, approximately 74.5% of the total population in Italy actively used social media platforms[39], while Internet penetration reached 86.1% of the population.

Among the various social media platforms, Facebook continues to hold a prominent position in Italy, with a significant user base across different age groups. With around 77.5% of Internet users accessing the platform on a monthly basis, Facebook serves as a popular space for connecting with friends and family, sharing updates and participating in interest-based groups.

Instagram, known for sharing visual content, has gained significant popularity in Italy, especially among younger demographics. Around 72.9% of Internet users in Italy engage with Instagram, using it as a platform to share photos, videos and stories. It has also become a hub for influencers, content creators and businesses to showcase their products and engage with their audience.

WhatsApp, a messaging platform with voice calling features, is widely used in Italy, with approximately 89.1% of Internet users using its services. It serves as a primary mode of personal and group communication, allowing users to share news and multimedia content and effectively coordinate events.

Although Twitter has a smaller user base in Italy (26.4% of Internet users), it remains an essential platform for the dissemination of news, public discussions and engagement with public figures, organisations and brands.

Other platforms such as LinkedIn (25.9%), YouTube (74.5%) and TikTok (37.5%) also have a presence in Italy, serving specific purposes and attracting different user demographics. Each platform offers unique features and content experiences, contributing to the diverse social media landscape in the country.

In terms of preferences, WhatsApp emerges as the preferred social media platform in Italy, followed by Facebook, Instagram and TikTok. However, individual preferences may vary according to personal interests, age groups and specific usage patterns.

Overall, the widespread use of social media in Italy highlights their importance as communication and networking tools, as well as a space for sharing information, entertainment and self-expression. As social media continue to evolve, they are shaping the way people connect, share and engage with each other, affecting various aspects of daily life, including education, entertainment and cultural exchange.

3.6 Presentation of publications: Coherence and relevance

This dissertation is organised as a compilation of seven scientific articles and one supplementary contribution reported in the Appendix (Table 1). These publications are presented in the following sections, with brief summaries highlighting their objectives and significance.

---

[39] More broadly, 86.4 per cent of all Italian Internet users (regardless of age) used at least one social media platform. These and the following statistics are taken from: https://datareportal.com/reports/digital-2023-italy

#	*Contribution*	*Type*	*Bibliometric information*
1	Manca, S. (2021a). Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age. *Review of Education, Pedagogy and Cultural Studies*, 43(3), 226–253. https://doi.org/10.1080/10714413.2020.1862582	Journal article	SJR 2021: Q1 Cultural Studies; Q3 Education. WoS 2022: ESCI edition, Education & Educational Research, Q3, IF=0.5
2	Manca, S. (2021b). Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies. *Information*, 12(1), 1–17. https://doi.org/10.3390/info12010031	Journal article	SJR 2021: Q2 Information Systems. WoS 2022: ESCI edition, Computer Science, Information Systems, Q3, IF=3.1
3	Manca, S., Raffaghelli, J., & Sangrà, A. (2023a). A learning ecology-based approach for enhancing Digital Holocaust Memory in European cultural heritage education. *Heliyon,* 9(9), e19286, 1–13. https://doi.org/10.1016/j.heliyon.2023.e19286	Journal article	SJR: Q1 Multidisciplinary. WoS 2022: SCIE Edition, Q2 Multidisciplinary Sciences, IF=4.0
4	Manca, S., Passarelli, M., & Rehm, M. (2022). Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media. *Technology in Society*, 68, 101889. https://doi.org/10.1016/j.techsoc.2022.101889	Journal article	SJR 2022: Q1 Education. WoS 2022: SSCI Edition, Q1 Social Sciences, IF=9.2
5	Manca, S. (2022). Digital Holocaust Memory on social media: How Italian Holocaust museums and memorials use digital	Journal article	SJR 2022: Q1 Cultural Studies.

	ecosystems for educational and remembrance practice. *International Journal of Heritage Studies*, 28(10), 1152–1179. https://doi.org/10.1080/13527258.2022.2131879		WoS 2022: SSCI Edition, Q3 Social Sciences, Interdisciplinary, IF= 1.8
6	Manca, S., & Raffaghelli, J. (2023). An examination of learning ecologies associated with the Holocaust: The role of social media. *Journal of Computer Assisted Learning,* 39(6), 1874–1887. https://doi.org/10.1111/jcal.12848	Journal article	SJR 2022: Q1 Education. WoS 2022: SSCI Edition, Q1 Education & Eucational Research, IF=5.0
7	Manca, S., Raffaghelli, J., & Sangrà, A. (2023b). Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators. *British Educational Research Journal.* Ahead of print. http://dx.doi.org/10.1002/berj.3927	Journal article	SJR 2022: Q1 Education. WoS 2022: SSCI Edition, Q3 Education & Educational Research, IF=2.3
Appendix	Manca, S. (2021c). *A framework for analysing content on social media profiles of Holocaust museums. Results of a Delphi Study.* IHRA Project Report. http://dx.doi.org/10.13140/RG.2.2.20070.34884	Technical report	

Table 1. Scientific contributions

3.6.1 Contribution 1

Article 1 (*Chapter 4*), entitled "Bridging cultural studies and educational science: An investigation of social media use for Holocaust memory and education in the digital age" (Manca, 2021a), presents the results of a systematic review of the literature that aimed to map the current state of Holocaust memory and Holocaust education on social media and to identify key research topics in both fields. It used a mixed methods approach, combining qualitative analysis with bibliometric approaches, to review publications that use social media for digital memory and Holocaust education. The findings, based on 28 publications, revealed several research themes and that, despite some common theoretical references, the two subfields are mostly based on separate conceptual backgrounds. While Holocaust remembrance is a well-established field of research, there are few studies and a lack of theoretical elaboration on the use of social media for teaching and learning about the Holocaust. In this sense, the review provides a rationale for more conceptual and empirical elaboration on the use of social media for learning about the Holocaust.

3.6.2 Contribution 2

Article 2 (*Chapter 5*), entitled "Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies" (Manca, 2021b), presents a preliminary study that uses a quantitative mixed methods approach to analyse the social media profiles of three prominent Holocaust organisations. The study focuses on Yad Vashem, the United States Holocaust Memorial Museum, and the Auschwitz-Birkenau Memorial and Museum, using social media analytics and latent semantic analysis to examine their presence on Facebook, Twitter, Instagram, and YouTube. The analysis examines engagement with the public, communication strategies and popular content. The results show that the organisations are more active on Twitter, with the Auschwitz-Birkenau Memorial and Museum taking a prominent position in the Twitter discourse, while Yad Vashem and the United States Holocaust Memorial Museum have a stronger presence on YouTube. The United States Holocaust Memorial Museum shows some interactivity on Facebook, but overall social media is used mainly as a one-way communication channel. The analysis of terms and hashtags shows that "Auschwitz" is a central theme in Holocaust discourse, overshadowing other topics, especially those related to recent events. This study provides a quantitative methodological approach to understanding how Holocaust museums use social media platforms and the impact of these platforms on memory and commemoration. The article provides an initial answer to the first research question (**RQ1**), which focuses on how Holocaust museums and memorials use different social media platforms, including Facebook, Twitter, Instagram and YouTube, and how their use varies depending on their target audience.

3.6.3 Contribution 3

Article 3 (*Chapter 6*), entitled "A learning ecology-based approach for enhancing Digital Holocaust Memory in European cultural heritage education" (Manca, Raffaghelli, & Sangrà, 2023a), aims to conceptually define the intertwined boundaries between the cultural study space of digital Holocaust memory and the pedagogical approach based on the learning ecology approach. This study adopts a conceptual research approach to examine recent advances in digital Holocaust memory, with a particular focus on the use of digital technology for teaching and learning about the Holocaust. Central to this theoretical exploration is the notion that technological advances can enhance learning by fostering participatory cultures and empowering users. The study seeks to deepen our understanding of how digital technology can facilitate meaningful learning experiences related to the Holocaust, using an ecological approach to learning. Particular attention will be paid to understanding how memory and Holocaust education can be understood as complex, multidirectional and multi-layered phenomena influenced by the learning environment, the use of digital technology and historical, political and cultural contexts. In this respect, the study fills the knowledge gaps identified in the systematic literature review in **Chapter 4**. By filling these gaps, it contributes to a more comprehensive understanding of the intersection between digital technology, Holocaust education and cultural heritage, and provides valuable insights for European heritage education.

3.6.4 Contribution 4

Article 4 (*Chapter 7*), entitled "Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media" (Manca, Passarelli & Rehm, 2022), uses the results of paper 2 (Chapter 5) and integrates them with a survey tool to investigate how a sample of 69 Holocaust museums and memorials worldwide use social media to engage their audiences. The institutions are analysed in terms of their "size" (small, medium or large), how they differ in their attitudes towards these practices and the extent to which they promote Holocaust remembrance on social media. The study uses several quantitative approaches, combining the results of a survey with a set of social media metrics that analyse how museums engage on Facebook, Twitter, Instagram and YouTube in terms of content generated, interactivity, popularity and type of content. The results show that museums have an overall positive attitude towards social media, although some concerns have been raised, particularly by smaller institutions; they tend to use Facebook, Instagram and YouTube the most, sharing educational content and information about the museum's activities. However, despite a tendency to accumulate a large number of fans and followers, especially in the case of larger institutions, interaction with users remains limited. This study provides an answer to the first and second research questions (**RQ1** and **RQ2**) and sets the ground for further specific and focused research on the state of Italian Holocaust museums.

3.6.5 Contribution 5

Article 5 (*Chapter 8*), entitled "Digital Holocaust memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and commemorative practice" (Manca, 2022), takes a socio-technical systems approach to examine how national and transnational remembrance of the Holocaust are implemented on the social media the social media profiles of four Italian museums and memorial sites. The four museums and memorials are examined to see how they use social media as an ecosystem to provide historical content and to and engage their audiences in digital remembrance of the Holocaust on four social media platforms: Facebook, Twitter, Instagram and YouTube. Results show that posts on Facebook generated higher levels of interactivity and positive responses and positive reactions than posts on the other platforms, while user activity in terms of activity in terms of creating new posts remains low on all four platforms. The four institutions tend to appeal to national audiences and interweave transnational themes of Holocaust remembrance with distinctly national ones. Although the social media profiles examined show that museums and memorials are reliable sources of historical and trustworthy information through which they shape through which they shape memory ecologies, their use reflects a conservative a conservative attitude, with a preference for a target audience of over 25 years of age, which is reflected both in the choice of platforms used and in the mostly one-way communication approach. In this light, the study provides an answer to research questions **RQ1**, **RQ2** and **RQ3**.

3.6.6 Contribution 6

Article 6 (*Chapter 9*), entitled "An examination of learning ecologies associated with the Holocaust: The role of social media" (Manca & Raffaghelli, 2023), is a comprehensive exploration of how adults use social media platforms for informal learning about the Holocaust. To collect the data, a survey was conducted among 276 participants who actively interacted with the social media profiles of Italian Holocaust museums. The study analyses in detail their interests, expectations and learning processes. The results of the research shed light on the demographic characteristics of the respondents. The majority of participants were educated women in their 50s, indicating a specific demographic inclination towards Holocaust education on social media. In addition, the study reveals that these individuals have a remarkable passion for transnational and national issues of remembrance and a strong sense of civic responsibility for preserving the legacy of the Holocaust. In terms of learning methods, the study highlights a preference for individual learning among the participants. They tend to engage in self-directed learning processes rather than relying heavily on peer interaction. This finding suggests that learners seek autonomy and independence in their educational journeys, using social media platforms as a means to acquire knowledge and deepen their understanding of the Holocaust. Significantly, the study highlights the crucial role of understanding learners' preferences and tailoring educational content accordingly. It highlights the need for reliable and trustworthy resources to be readily available on social media platforms, as learners actively seek out quality content to enhance their learning experience. The research effectively addresses research questions **RQ3** and **RQ4**, which focus on learners' preferences and the importance of providing reliable educational content on social media.

3.6.7 Contribution 7

Article 7 (*Chapter 10*), entitled "Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators" (Manca, Raffaghelli & Sangrà, 2023b), examines in depth the learning ecologies of a group of Italian Holocaust educators, to shed light on their motivations for initial and lifelong learning, and to explore their learning practices. To this end, in-depth interviews were conducted with ten teachers representing different subject areas within Holocaust education. The results of the study show that the participants' motivations for engaging in Holocaust education can be divided into two main categories: personal motivations and curricular motivations. In terms of learning practices, the study found that the educators interviewed used a variety of approaches to both their own initial learning and their ongoing lifelong learning. These practices allowed them to continually deepen their knowledge, gain new perspectives and improve their teaching methods. Interestingly, while digital technologies and social media were not widely considered by participants as primary learning environments, they were acknowledged as valuable supplementary resources. Educators recognised the potential of digital platforms to access a wealth of information, to connect with experts and fellow educators, and to use multimedia content to enrich their teaching materials. In this light, the study provides an answer to research questions **RQ3** and **RQ4**.

3.6.8 Supplementary contribution

This supplementary contribution (*Appendix*), entitled "A framework for analysing content on social media profiles of Holocaust museums. Results of a Delphi Study" (Manca, 2021c), focuses on the development of a qualitative analysis framework for analysing the social media content of Holocaust museums and memorials. The primary objective of the study is to fill the gap in understanding the nature of the content shared by these organisations on their social media pages. To address this knowledge gap, a Delphi study was conducted with 22 international experts to validate a framework for analysing Holocaust-related content published on social media. Through a three-round process, the experts reached consensus on a comprehensive framework covering three key areas: historical content of the Holocaust, contemporary issues related to the Holocaust, and museum activities and communication. This report provides an initial response to the second research question (**RQ2**), which concerns the type of content published by Holocaust museums and memorials on their social media profiles. It does so by developing an analysis tool specifically designed for social media content. By providing this analytical framework, the article serves as a valuable resource for understanding the segmentation of Holocaust knowledge and memory within the realm of museums' social media presence. It offers researchers and analysts a means to explore and gain insights from the content disseminated by Holocaust museums and memorials on social media platforms.

The table presents a summary of the seven publications, their typology and the research questions they address.

#	Contribution	Contribution	Response to research questions
1	Manca, S. (2021). Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age. *Review of Education, Pedagogy and Cultural Studies*, 43(3), 226–253.	Literature review	Research gap identification
2	Manca, S. (2021). Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies. *Information*, 12(1), 1–17.	Development of quantitative methodology	**RQ1**
3	Manca, S., Raffaghelli, J., & Sangrà, A. (2023). A learning ecology-based approach for enhancing Digital Holocaust Memory in European cultural heritage education. *Heliyon*, 9(9), e19286, 1–13.	Theoretical framework	Bridging the identified theoretical gaps in LR
4	Manca, S., Passarelli, M., & Rehm, M. (2022). Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media. *Technology in Society*, 68, 101889.	Remembrance practices on SM (international)	**RQ1** and **RQ2**

5	Manca, S. (2022). Digital Holocaust Memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and remembrance practice. *International Journal of Heritage Studies*, 28(10), 1152–1179.	Remembrance practices on SM (Italy)	**RQ1**, **RQ2** and **RQ3**
6	Manca, S., & Raffaghelli, J. (2023). An examination of learning ecologies associated with the Holocaust: The role of social media. *Journal of Computer Assisted Learning*, 39(6), 1874–1887.	Learning ecologies of Italian users	**RQ3** and **RQ4**
7	Manca, S., Raffaghelli, J., & Sangrà, A. (2024). Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators. *British Educational Research Journal*, 50(1), 307-330.	Learning ecologies of Holocaust educators	**RQ3** and **RQ4**
Appendix	Manca, S. (2021). *A framework for analysing content on social media profiles of Holocaust museums*. Results of a Delphi Study. IHRA Project Report. http://dx.doi.org/10.13140/RG.2.2.20070.34884	Qualitative methodology	**RQ2**

3.7 References

Alsumait, L., Wang, P., Domeniconi, C., & Barbará, D. (2010). Embedding Semantics in LDA Topic Models. in M. W. Berry and J. Kogan (Eds.), *Text Mining* (pp. 183–204). Hoboken, NJ: Wiley.

Blei, D. M., & Lafferty, J. D. (2009). *Topic models* (Vol. 10). Boca Raton, FL: CRC Press.

Blackstone, A. (2012). *Principles of Sociological Inquiry – Qualitative and Quantitative Methods.* Washington, DC: Saylor Foundation.

Bronfenbrenner, U. (1976). The Experimental ecology of education. *Educational Researcher*, 5(9), 5–15.

Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon & R. Lerner (Eds.), *Handbook of child psychology. Vol. 4: Theories of development* (pp. 999–1058). Hoboken, NJ: Wiley.

Corbin, J., & Strauss, A. (2014). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory (fourth edition).* Thousand Oaks, CA: SAGE Publications.

Cresswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research (3rd ed.).* Thousand Oaks, CA: SAGE Publications.

Froehlich, D. E., Rehm, M., & Rienties, B. C. (2019a). *Mixed Methods Social Network Analysis: Theories and Methodologies in Learning and Education.* London, UK: Routledge.

Froehlich, D. E., Rehm, M., & Rienties, B. C. (2019b). Reviewing Mixed Methods Approaches Using Social Network Analysis for Learning and Education. In A. Peña-Ayala

(Ed.), *Educational Networking. A Novel Discipline for Improved Learning Based on Social Networks* (pp. 43–75). Cham: Springer.

Gerrard, D., Sykora, M., & Jackson, T. (2017). Social Media Analytics in Museums: Extracting Expressions of Inspiration. *Museum Management and Curatorship*, 32(3), 232‑250.

Glaser, B. & Strauss, A. (1967). *The Discovery of Grounded Theory. Strategies for Qualitative Research.* New York, NY: Aldine Publishing Company.

Guest, G., MacQueen, K., & Namey, E. (2012). *Applied thematic analysis.* Thousand Oaks, CA: SAGE Publications.

Halaweh, M. (2018). Integrating social media and grounded theory in a research methodology: A possible road map. *Business Information Review*, 35(4), 157–164.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Towards a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112–133.

Kozinets, R. V. (2020). *Netnography: The Essential Guide to Qualitative Social Media Research (3rd edition).* Thousand Oaks, CA: SAGE Publications.

Lassen, N. B., la Cour, L., & Vatrapu, R. (2018). Predictive Analytics with Social Media Data. In L. Sloan and A. Quan-Haase (Eds.), *The SAGE Handbook of Social Media Research Methods* (pp. 328–341). Thousand Oaks, CA: SAGE Publications.

Lieblich, A., Tuvial-Mashiach, R., & Zilber, T. (1998). *Narrative research. Reading, Analysis and Interpretation.* Thousand Oaks, CA: SAGE Publications.

Mazur, E. (2010). Collecting data from social networking Web sites and blogs. In S. D. Gosling & J. A. Johnson (Eds.), *Advanced methods for conducting online behavioral research* (pp. 77–90). Washington, DC: American Psychological Association.

McCay-Peet, L., & Quan-Haase, A. (2016). A model of social media engagement: User profiles, gratifications and experiences. In Heather L. O'Brien & Luke Sloan (Eds.), *Why Engagement Matters: Cross-disciplinary Perspectives and Innovations on User Engagement with Digital Media* (pp. 199–217). New York, NY: Springer-Verlag.

McHale, S. M., Dotterer, A., & Kim, J. Y. (2009). An Ecological Perspective on the Media and Youth Development. *The American Behavioral Scientist*, 52(8), 1186–1203.

Michman, D. (2021). Why Is the Shoah Called 'the Shoah' or 'the Holocaust'? On the History of the Terminology for the Nazi Anti-Jewish Campaign. *The Journal of Holocaust Research*, 35, 233–256.

Miles, M., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook (third edition).* Thousand Oaks, CA: SAGE Publications.

Morse, J. M., & Niehaus, L. (2009). *Mixed Method Design: Principles and Procedures.* London, UK: Routledge.

Murthy, D., Gross, A., & Pensavalle, A. (2016). Urban Social Media Demographics: An Exploration of Twitter use in Major American Cities. *Journal of Computer Mediated Communication*, 21(1), 33–49.

Patton, M. Q. (1990). *Qualitative Evaluation and Research Methods (2nd ed.)*. Thousand Oaks, CA: SAGE Publications.

Salmons, J. (2015). *Qualitative online interviews*. Thousand Oaks, CA: SAGE Publications.

Salmons, J. (2016). *Doing qualitative research online*. Thousand Oaks, CA: SAGE Publications.

Santerini, M. (2003). Holocaust Education in Italy. *Intercultural Education*, 14(2), 225–232.

Sierp, A. (2012). Italy's Struggle with History and the Europeanisation of National Memory. In U. Engel, M. Middell & S. Troebst (Eds.), *Erinnerungskulturen in Transnationaler Perspektive* (pp. 212–234). Leipzig: Leipziger Universitätsverlag.

Sloan, L., & Quan-Haase, A. (2018). *The SAGE Handbook of Social Media Research Methods*. Thousand Oaks, CA: SAGE Publications.

Smith, J. A. (2011). Evaluating the contribution of interpretative phenomenological analysis. *Health Psychology Review*, 5(1), 9–27.

Statista (2019). *Generally speaking, do you think that the Holocaust is sufficiently taught or not in Italian schools?*, https://www.statista.com/statistics/963016/perception-of-holocaust-education-in-school-in-italy/

Statista (2020). *Do you agree with the following statement: "The Holocaust never happened"?*, https://www.statista.com/statistics/1092478/share-of-italians-who-deny-the-holocaust/

Stevens, G., O'Donnell, V. L., & Williams, L. (2015). Public domain or private data? Developing an ethical approach to social media research in an interdisciplinary project. *Educational Research and Evaluation*, 21(2), 154–167.

Vo, L. M. (2019). *Mining Social Media: Finding Stories in Internet Data*. San Francisco, CA: No Starch Press.

4. Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age[40]

Abstract

Along with advances in communication technology that are making new forms of historical memorialization and education available, social media are researched as valuable tools for supporting forms of digital memory and for engaging students and teachers about historical knowledge and moral education. This study aims to map the current state of Holocaust remembrance and Holocaust education and to identify main topics of research in the two areas. It adopts a mixed-method approach that combines qualitative analysis with bibliometric approaches to review publications that use social media for digital memory and history education about the Holocaust. Results based on 28 publications reveal several research topics and that, despite some common theoretical references, the two subfields mostly rely on separate conceptual backgrounds. While Holocaust remembrance is a well-established research field, there are few studies and a lack of theoretical elaboration about social media use for teaching and learning about the Holocaust.

Keywords: Social media, Holocaust remembrance, Holocaust education, cultural studies, education studies, digital memory

4.1 Introduction

Scholarly research has produced an astonishing number of studies that investigate social media use in many disciplinary sectors (McCrory et al., 2020; Wilson et al., 2012). According to a recent article, the vast majority of publications on social media are being conducted in the domains of medicine and health care, applied science, management, information sciences, psychology, and social sciences (Rehm et al., 2019). Other relevant areas regarding cultural studies are civic and citizen engagement (Skoric et al., 2016), political and organization communication (Diehl et al., 2016), and museum user experience (Wight, 2020).

In the research subfield of social media memory studies (Birkner & Donk, 2020), digital memory of relevant historical events has its own scholarship and avenues of publication (e.g., Garde-Hansen et al., 2009; Hoskins, 2011). As for the specific area of Holocaust studies, with the passing of the generation that witnessed and experienced the Holocaust (Wieviorka, 2006), scholars have stressed that learning about the Holocaust will progressively rely less on public speakers and more on audio-visual testimonies and second and third generation accounts (Gross & Stevick, 2015; Hirsch, 2012). Scholars have advanced the idea of a "virtual Holocaust memory" to consider both digital and non-digital memory projects related to the Holocaust that draw attention to the pervasive nature of the virtuality of memory (Walden, 2019). If today there seems to be a convergence on the fact that "the cosmopolitan Holocaust memory of the new millennium is synonymous with digital technology" (Kansteiner, 2017, p. 331), for some time now, visual culture has become predominant in the younger generations and in particular among those of post-memory (Hirsch, 2012).

---

[40] Accepted version of: Manca, S. (2021). Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age. *Review of Education, Pedagogy and Cultural Studies*, 43(3), 226-253. https://doi.org/10.1080/10714413.2020.1862582

Today, thanks to digital technologies, more opportunities to witness accounts and survivor testimonies are preserved, such as digitized Holocaust survivor testimonies in the New Dimensions in Testimony project, which gathers a collection of 3 D interactive survivor testimonies in order to safeguard the conversational experience of asking survivors questions about their life and hearing their responses in real time (Frosh, 2018). Another example is the "Anne Frank House VR" app[41] that provides a carefully built and modeled in 3 D reconstruction of the Secret Annex where Anne Frank and the seven other people hid during WWII. More recent projects have been designed and implemented specifically for social media, such as Eva.Stories on Instagram (https://www.instagram.com/eva.stories/) and the Anne Frank video diary on YouTube (https://www.youtube.com/ annefrank). Although reactions to these have given rise to controversy, these projects attest an interest in involving new generations of youth via alternative accounts and perspectives (Henig & Ebbrecht-Hartmann, 2020).

Nonetheless, despite the pace at which technology has advanced and become woven into the fabric of youths' lives, it is still unclear how "the internet and in particular social media impact on students' knowledge and understanding of the Holocaust" (Gray, 2014, p. 105). Moreover, scholars argue that for contemporary digital users, there is a need to "resurrect" Holocaust commemoration through the creation of immersive and more engaging memories as mass media such as cinema and television may be no longer suitable (Kansteiner, 2017). This study provides a review of social media use for Holocaust remembrance and for teaching and learning about the Holocaust. The aim is to identify the main topics of research and potential connections between the two fields and to provide indications for further research.

4.2 Theoretical background

4.2.1 Digital memory and Holocaust remembrance

Mediatized memory is a form of collective memory with a specific meaning-making potential, which intertwines the strands of past, present and future into significant patterns that shape identities and help people make sense of their world (O'Connor, 2019). Collective memories are associated with a specific "lieu de memoire" which is "any significant entity, whether material or non-material in nature, which by dint of human will or the work of time has become a symbolic element of the memorial heritage of any community" (Nora, 1989, p. 7). However, memory has become progressively "unanchored" from localized contexts, due to technological transformation and the transcultural dimensions of memory and its growing mediation (O'Connor, 2019). In a mediatized world, memory is already transcultural as media "undermines the biological, social and cultural divisions and distinctions of memory" (Hoskins, 2011, p. 21), and makes collective and individual memory timeless and spaceless.

---

[41] The App may be downloaded from https://www.oculus.com/experiences/go/1596151970428159/

While various communication genres on the internet, mostly social media, are contributing to the construction of new kinds of historical memories (Uffelmann, 2014), the key characteristics of digital memories is their capacity of being permanently overwritten and reconstructed (Assmann, 2011). This "deterritorialization of memory" (Erll, 2011) attests to the progressive erosion of the traditional territorial and social boundaries of mass media and digital technologies (Garde-Hansen et al., 2009; Hoskins, 2011). Despite the formation of transnational and transcultural memories, such as in the case of the Holocaust memory (Levy & Sznaider, 2006), cultural memory continues to be ever instantiated locally within specific local and cultural frameworks (Radstone, 2011).

In the field of collective memories related to historical events, technologies are gaining momentum and becoming influential in enhancing the general public's knowledge and understanding of recent historical events that affected billions of people, such as the two world wars. In this scenario, memory of the Holocaust is considered one of the "founding myths" of contemporary European political identity and one of the strongest Western collective memories (Probst, 2003). In this sense, "the Holocaust has become a principal part of civic moral education in liberal Western and Westernizing nation states, particularly in Europe since 2000" (Allwork, 2015, p. 288). As stressed first by Levy and Sznaider (2006), while there is a tendency today to consider the Holocaust part of the development of a collective transnational European memory culture, global media representations contribute to create new "cosmopolitan" memories and emerging moral-political interdependencies (Goldberg & Hazan, 2015; Kansteiner & Presner, 2016).

However, if until recently the centrality of the Holocaust in Western European identity and memory seemed secure, today we are witnessing a memory crisis resulting from conflicting perceptions of the Holocaust in Western and Central Europe. On the one side, there is a strong tendency to acknowledge the universal meaning of the Holocaust, and related UN and EU resolutions and declarations. On the other, the process of globalizing the Holocaust discourse is often considered as another mechanism to further strengthen Western cultural domination (van der Poel, 2019). The supposed limits of the universalization of Holocaust memory are also at the forefront of how the Holocaust memory sites are commemorated as "lieux de memoire" that can be physical (memorials sites and museums) or cyberspaces (Katz, 2016). In Eastern Europe, memory of the Holocaust as an archetype of genocide has the crimes of Communism as a rival memory framework (Kovacs, 2018), and "memory wars" are detectable on social media when the same historical event is recollected by diverse national and ethnic groups (de Smale, 2020).

Among the agencies gaining momentum in conveying mediated memories of the Holocaust are Holocaust museums, whose educational departments offer valuable, high-quality resources for remembrance and historical knowledge (Cowan & Maitles, 2017). Despite having a dual mandate of commemoration and engaging/educating visitors, museums can shape the public's understanding of the past, and create, strengthen, or challenge a historical narrative (Pennington, 2018). Museums use and produce diverse media to transmit and communicate memorial content, including print, multimedia productions, hands-on info stations, interactive software and web-based presence (Brown & Waterhouse-Watson, 2014; Wight, 2020). While it is true that the phenomenon of Holocaust distortion and trivialization (Bauer, 2020; Rosenfeld, 2013) has become more and more pervasive on Internet sites and social media, at the same time social web pages relating to the historical contexts of National Socialism and the Holocaust reach millions of people and have the power to reposition the Holocaust and transform engrained memory paradigms (Burkhardt, 2015). From this perspective, Holocaust museums are located at the intersection between commemorative memory—as physical monuments—and mediated memory—as mediated and virtual spaces (O'Connor, 2019).

4.2.2 Teaching and learning about the Holocaust

A pedagogical problem of how to teach and learn remembrance of historical traumas (Simon et al., 2000) today also faces issues of "Holocaust fatigue" that might have resulted from over-exposure to Holocaust education in schools during the last decades (Short, 2003; Stein, 2014). In this sense, social media might help overcome the stereotypes associated with teaching and learning history as a monotonous presentation of endless facts still persisting in popular imagination (Farley, 2007), or to bend history teaching of contemporary crimes to a list of moral lessons or a pedagogy of identification (Bos, 2014). As recently stressed (Foster et al., 2020), notwithstanding Holocaust education has become a principal conduit for the transmission of its memory, the intertwining of memory and knowledge is still problematic, and representations of social traumas in curriculum and the individual's encounters with them in pedagogy remains a "difficult knowledge" to co-construct (Britzman, 1998).

However, in order to confront issues of memory loss and contemporary trivialization of the Holocaust, according to recent studies, visual media such as Instagram, for example, may contribute to understand Holocaust cultures through the lens of adolescence or young adulthood and help dispel some anxieties about the erosion of Holocaust memory in the 21st century (Lundrigan, 2020). Unlike social media use in formal learning, which takes place in schools and higher education settings and has been investigated in a large number of studies (Greenhow et al., 2020; Manca, 2020; Tang & Hew, 2017), research on informal modes of learning in social media is still in its infancy (Greenhow & Lewin, 2015; Haythornthwaite et al., 2018). Learning on and through social media is becoming a cornerstone of informal learning, with increasing opportunities to access information and find self-motivated learners who share resources, or engage in conversations with others (Haythornthwaite, 2015). This type of grassroots learning, which has also been called "learning in the wild" (Haythornthwaite et al., 2018), encompasses the Learning Ecology perspective. Defined as "an open, complex, adaptive system comprising elements that are dynamic and interdependent" (Brown, 2000, p. 19), the Learning Ecology represents a broad semantic space for characterizing innovative ways of learning that occur across several learning contexts and are mediated by digital technologies (Sangrà et al., 2019).

With school usually perceived as a major socialization agent for Holocaust memory, formal, lecture-style classroom lessons are still the dominant educational approach. By contrast, scholars have stressed that teaching about the Holocaust in a non-formal manner creates symmetry between teachers and students and a special educational atmosphere which enables discussion and the honing of sensitive and complex issues that may arise (Gross, 2010). Some programs emphasize the importance of relying on students' ability to structure their knowledge in a constructivist and interdisciplinary manner that suits their cognitive abilities and emotional traits (Eckmann et al., 2017). Scholars of Holocaust education also focus on the growing role of informal or experiential activities such as ceremonies, field trips, presentations and testimonies of survivors, and access to the Internet (Foster, 2020).

In this light, research has also shown that people learn about the history of the Holocaust from a variety of sources, such as movies, literature, popular and digital media (Burkhardt, 2019; Popescu & Schult, 2015). Indeed, advances in communication technology and the ongoing expansion of the Internet are making available new forms of history learning and teaching and learning about the Holocaust, presenting a new range of opportunities and challenges (Gray, 2014). As recently stressed by the International Holocaust Remembrance Alliance [IHRA] (2019), social media play an important role in contemporary education and may pave the way to engaging forms of teaching and learning about the Holocaust.

4.3 Methodology

4.3.1 Research aims

The aim of this study is to analyze current research about social media use for Holocaust remembrance and for teaching and learning about the Holocaust (aka Holocaust education[42]) with the purpose of identifying the main topics of research, areas of intersection between the two fields and theoretical references in common. The ultimate aim is to prospect potential bridging between the two areas. To achieve this aim, a systematic review of the literature was conducted employing a mixed-method approach that uses qualitative analysis and data-driven methods to map the state-of-theart and identify gaps and trends in research (Zawacki-Richter et al., 2020). Mixed methods is a research approach where "a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration" (Johnson et al., 2007, p. 123). In a mixed-method approach, a study should provide evidence that quantitative and qualitative methods need to be integrated, either concurrently or sequentially, at one or more stages of the research process to provide support of empirical evidence and counter possible research biases.

---

[42] Although we prefer the expression "teaching and learning about the Holocaust" according to the IHRA recommendations (IHRA, 2019), for reasons of brevity, studies that deals with teaching and learning about the Holocaust will be labelled as studies about "Holocaust education".

In addition to qualitative analysis of literature, bibliometric analysis is considered an important methodological tool "to map the state of the art in a given area of scientific knowledge and identify essential information for various purposes, such as prospecting research opportunities and substantiating scientific researches" (de Oliveira et al., 2019, p. 1).

4.3.2 Methods and procedures

The aim of this review is to provide a theoretically-founded analysis of publications that specifically investigate the topic of social media in Holocaust related studies. Since we are interested in how current research conceives this topic from the theoretical and experimental perspectives, we consider studies embodying either pursuit. As we expected to find few publications on these topics, a methodological choice was also made to consider any type of publication that was made available in the selected databases including journal articles, conference proceedings, reviews, and book chapters written in any language. It was decided to limit the search to the Web of Science, Scopus and EBSCO databases as the broad search criteria adopted were expected to produce a substantial number of results. Additionally, no selection criteria like subject areas or categories were applied.

We adopted the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) standards for systematic literature reviews (Moher et al., 2009), which informed the process of publication identification, description of eligibility criteria, identification of information sources, the data collection process, data items, and synthesis of results. Moreover, indications to control researcher bias in data collection and analysis were adopted (Petticrew & Roberts, 2006).

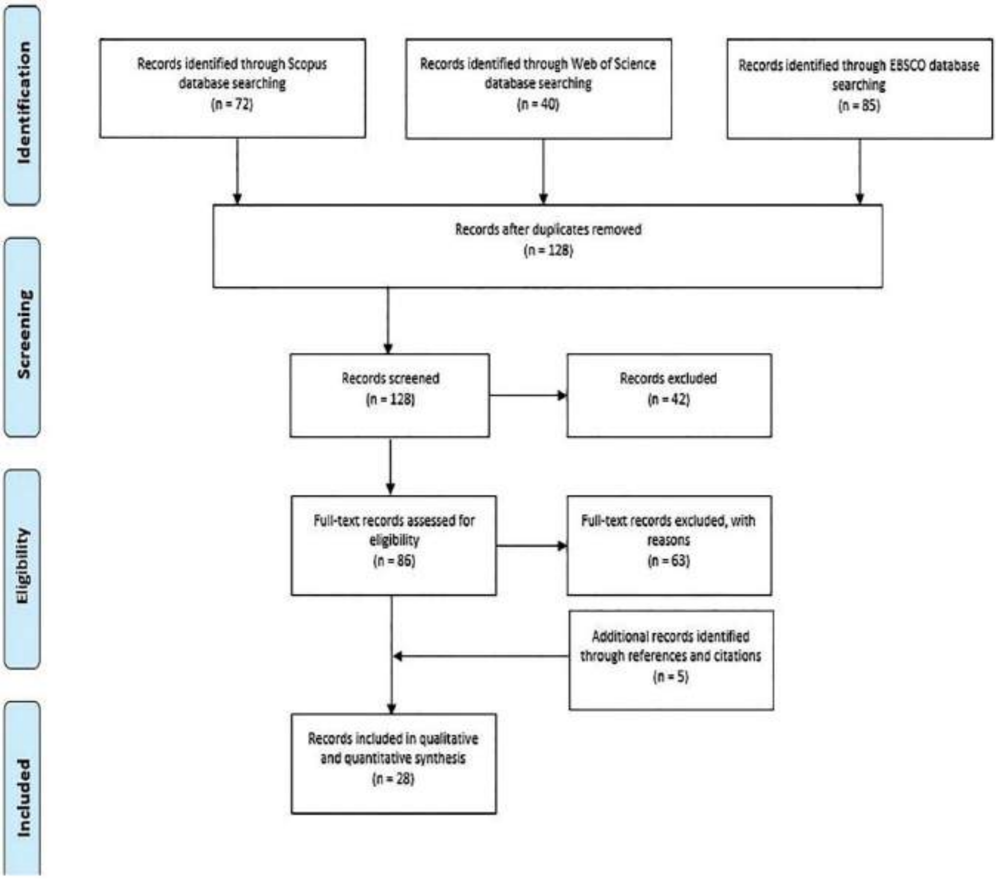

Identification
Screening
Eligibility
Included
Records identified through Scopus database searching (n = 72)
Records identified through Web of Science database searching (n = 40)
Records identified through EBSCO database searching (n = 85)
Records after duplicates removed (n = 128)
Records screened (n = 128)
Records excluded (n = 42)
Full-text records assessed for eligibility (n = 86)
Full-text records excluded, with reasons (n = 63)
Additional records identified through references and citations (n = 5)
Records included in qualitative and quantitative synthesis (n = 28)

Figure 1. The PRISMA flowchart

The pool of publications was gathered by systematically searching the three above mentioned research database using keywords such as "Holocaust," "social media," "Internet," "Facebook," "Twitter," "Instagram," and "YouTube." No specific time span was applied.

The search was performed on the 12th of March 2020 and yielded articles distributed as follows: (1) Web of Science: 40; (2) Scopus: 72; (3) EBSCO: 85. After applying inclusion and exclusion criteria, a sample of 23 publications was selected. Their references and citations on Scopus and Web of Science were inspected to identify further publications. This additional search yielded five more publications, so the final corpus comprised 28 studies (Figure 1).

4.3.3 Procedure and data analysis

Through an iterative process of qualitative content analysis (Hsieh & Shannon, 2005), the 28 publications were coded according to the following criteria:

- Year of publication
- Publication typology (journal article; book chapter; conference proceedings)
- Study typology (theoretical/conceptual; experimental study; literature review)
- Language of the publication

- Aims of the study
- Subject typology (Holocaust remembrance; Holocaust denial or distortion; Holocaust education)
- Geographical area of the research performed
- Social media platform(s)

In the context of this study, bibliometric analyzes provided a macrolevel perspective that determines the underlying social network pattern among reciprocal citations and references (Perianes-Rodriguez et al., 2016). A first analysis is on mapping the references structures based on which study uses the other studies to support or to disagree with its claims and concerns the creation of a matrix of cross-references among the 28 studies. Cross-citation, also called author direct citation analysis (ADCA) or inter-citation, is a bibliometric method which can provide reliable linkages to illustrate relationships between studies and academics. Compared with co-citation and bibliographic coupling, a direct citation is a citing relationship without a third-party publication that may serve to understand the evolution of theory and practice (Yang & Wang, 2015). In our study, the aim was to discover popular scholars and their work as means to cross-fertilize two distinct field of research that relies on separate academic traditions.

The second analysis adopts co-citation networking. In co-citation, two papers share an indirect bibliographic coupling relationship, that is the relationship is established by third-party documents. This technique focuses on references and uses pairs of documents that often appear together in reference lists and may serve to explore the pillars of a specific research stream (Small, 1973). This analysis identifies clusters of studies that share a theoretical background considering the topical authors that are cited at least by four studies. Both analyzes were conducted with Cyram NetMiner 4.0 software.

To corroborate the results of qualitative analysis, we also use Latent Semantic Analysis (LSA), i.e. specifically distributional semantics, which analyzes relationships between words (Deerwester et al., 1990). As a measure to counteract possible research biases in conducting qualitative analysis, LSA is a method that permits to extract topical terms based on their frequency. In our study, it is employed to determine what words or strings of words are most frequently used in the abstracts of the studies to determine the topical structure of the themes researched. Given the strictly linguistic nature of the analysis, the choice to analyze only abstracts was based on the use of different languages within the body of articles, while all articles also had an abstract in English. This analysis was conducted with MonkeyLearn (https://monkeylearn.com/word-cloud/).

		#	%
Year	2010	1	3.6
	2011	2	7.1
	2012	1	3.6
	2013	0	0.0
	2014	1	3.6
	2015	3	10.7
	2016	5	17.9

	2017	7	25.0
	2018	3	10.7
	2019	5	17.9
Publication typology	journal article	23	82.1
	book chapter	4	14.3
	conference proceeding	1	3.6
Study typology	experimental study	21	75.0
	theoretical/conceptual	7	25.0
	literature review	0	0.0
Subject typology	Holocaust remembrance	19	67.9
	Holocaust education	5	17.9
	Holocaust denial or distortion	4	14.3
Language of the publication	English	24	85.7
	German	2	7.1
	Spanish	1	3.6
	Italian	1	3.6
Social media platform(s)*	Facebook	9	32.1
	Social media	8	28.6
	Instagram	5	17.9
	YouTube	4	14.3
	Wikipedia	4	14.3
	Twitter	2	7.1
	Yahoo! Answers	1	3.6
	Lurkmore	1	3.6
Country of the research subject	Poland	8	28.6
	Ukraine	4	14.3
	Hungary	2	7.1
	Germany	1	3.6
	France	1	3.6
	The Netherlands	1	3.6
	Czech Republic	1	3.6
	Israel	1	3.6
	Greece	1	3.6
	Russia	1	3.6
	NA	11	39.3

Table 1. Study characteristics. *The total number is more than 28 as the studies could have been investigated more than one social media platform

4.4 Results

4.4.1 Study characteristics

As reported in Table 1, the studies were all published in the 2010–2019 timespan, with peak level reached in 2017 (N¼ 7; 25.0%). Most of the studies were published in academic journals (N¼ 23; 82.1%), and three quarters were experimental studies (N¼ 21; 75.0%). More than half the studies were focused on research about Holocaust remembrance (N¼

19; 67.9%), while only five (17.9%) investigated Holocaust education and four centered on Holocaust denial or distortion (14.3%).

As for publication language, most of the studies were written in English (N¼ 24; 85.7%), with two in German (7.1%), one in Spanish (3.6%) and one in Italian (3.6%).

Finally, regarding social media platforms, the studies were conducted about Facebook (N¼ 9; 32.1%), social media as a broad category (N¼ 8; 28.6%), Instagram (N¼ 5; 17.9%), YouTube (N¼ 4; 14.3%), Wikipedia (N¼ 4; 14.3%), Twitter (N¼ 2; 7.1%), Yahoo! Answers (N¼ 1; 3.6%) and Lurkmore[43] (N¼ 1; 3.6%).

Finally, in terms of geographical scope of the research conducted, 17 of the 28 publications researched social media use in one specific country, with a prevalence of studies focused on Eastern Europe (N¼ 13; 46.4%): eight studies were about Poland (28.6%), four were about Ukraine (14.3%) and one was about Russia (3.6%).

4.4.2 Topic analysis

4.4.2.1 Holocaust remembrance

Use of pictures and videos of heritage sites. A first group of studies research the controversial use of pictures and videos taken at the Auschwitz-Birkenau Memorial and Museum. One of the most fiercely debated digital experiences was "Dancing Auschwitz from summer 2010," a YouTube video of a Jewish family dancing at various Holocaust remembrance sites. Gibson and Jones's (2012) study of this analyzed role switching, redefinition, and disassociation as forms of remediation that allow survivors and their descendants to re-mediate their identities and find a way to endure their tragic and painful past. In another study, Dalziel (2016) investigates visitors' reasons and motivations for taking photographs, to understand the ways in which the Holocaust is being memorialized and commemorated, especially by younger generations: they range from aesthetics and good photography to educational and commemoration aims. The theme of "selfies" at Auschwitz is also the subject of Zalewska's (2017) study, which analyzes how the Auschwitz Museum reacts and engages online with new media content visitor posted on Instagram. In overcoming the rigid binary between the "pre-digital institutional authority" and "digital online freedom," the author analyzes the problematic nexus of individual and institutional entanglements between off- and online memory practices.

In a different vein, Carter-White (2018) shows that, while photographs taken at Auschwitz are incorporated into contexts well beyond the control of museum authorities, it is questionable whether they result in an active and imaginative "democratization" of memory because of the highly ritualized conventions of content expressed in the pictures.

---

[43] Lurkmore or Lurkomorye is an informal Russian-language MediaWiki-powered online encyclopedia focusing on Internet subcultures, folklore, and memes. As of December 17, 2019, Lurkmore contained 9000 articles. It is one of the most popular humor—as well as internet-meme-related—websites of the Russian Internet (source Wikipedia, consulted on 26/06/2020).

From a different perspective, Commane and Potton (2019) investigate various ways young people engage around Holocaust remembrance on Instagram, specifically using the #Auschwitz hashtag. The study shows that Instagram can give young people voice and place in debates, stimulating discussion and remembrance, despite the multiple and inconsistent ways in which users appropriate Auschwitz-related images.

Commemoration projects. The second group of publications investigates the dynamics of Holocaust commemoration projects on social media. Rodrıguez Serrano (2011) discusses a number of these in the light of media studies and sociology theories, and the new genres contributing to memory building. In a study of two Polish examples of World War II and Holocaust commemoration on Facebook, de Bruyn (2010) focuses on the processual character of remembering individual life stories and shared past experiences of a distinct community, showing digital memory as a performative process embedded in social media's socio-technical practices. Remediation is also the focus of Menyhert's (2017) study, which investigates two Facebook projects that deal with Hungarian Holocaust memories. In this research, the focus is on collective historical trauma processed through the digital sharing of memories of trauma, which helps unblock obstructed avenues to the past and contributes to the transformation of identities. The last publication is focused on how a Facebook page and a YouTube channel act as alternative public spheres for remembering Thessaloniki's past and its Jewish heritage (Mylonas, 2017). The study analyzes how the photography-orientated project deals with the city's neglected past to function as alternative public spheres for remembering marginalized traumatic events in the national public sphere.

Memory wars and counter-memories. Memory wars and counter-memories are the focus of a group of studies conducted in Eastern Europe. Through the example of a Facebook group dedicated to family memories, Fritz (2016) investigates new forms of private counter-memory in Hungary as a form of resistance against politically- motivated interpretations of the past. The research highlights how social media can contribute to the emergence of transgenerational and transnational commemorative communities, leading to a pluralization of the culture of remembrance.

Wikipedia is investigated in two further studies. The first (Wolniewicz-Slomka, 2016) investigates how three Holocaust topics (the Auschwitz-Birkenau camp, the pogrom in Jedwabne, and Righteous Among Nations) are presented in Polish, Hebrew, and English. Although each version is supposed to follow mainstream collective Holocaust memory in its respective country, there is some convergence on explanations and interpretations provided in the different languages that do not necessarily follow the respective collective historical narratives. In the second study, Makhortykh (2017a) analyzes how the Babi Yar massacres of 1941–1943 are investigated by Russian and Ukrainian users employing different strategies to promote their vision of those events, dealing with the complex interplay between hegemonic and polyphonic tendencies in the online discourse about construction and transmission of traumatic memories.

Another study conducted on post-Socialist countries (Makhortykh, 2019) investigates the Lviv pogrom of 1941 and how Russophone and Ukrainophone users engage with the topic via YouTube's audio-visual tributes. While challenging hegemonic historical narratives, social media do not necessarily lead to more pluralist views of the past. On the contrary, the use of racist hate speech can also lead to the propagation of views of the past that result in nurturing pain.

A specific case of counter-memory is related to the practices of controversial remembering, which are at the heart of Friesem's (2018) study. The author analyzes a case of a "battle against the hegemonic Holocaust discourse" on Twitter conducted by oppositional decoding. Users engage in an act of resistance against the "Holocaustization" of Israeli life and the dominant Holocaust discourse implemented by the state and its educational and political agencies. These subversive practices serve to anchor the Holocaust in Israeli experience as a parallel memory route, complementary to official acts of remembering.

Museum and memorial use of social media. A further group of studies analyze social media use by Holocaust museums and memorials. Wong (2011) examines the case of the USHMM to discuss the professionalization of museum work using social media. Tensions and synergies between traditional and modern museum practice are analyzed in the perspective of addressing ethical issues of transparency, censorship, respect for constituencies, with the loss of control museums' media content. Presenting examples taken from Facebook and Wikipedia, Pfanzelter (2015) discusses how social media technologies, digital memory and their new media representations are fluidly interrelated and may provide controversial forms of commemoration of the Holocaust. In a subsequent study, Pfanzelter (2016) shows how the internet is not only influencing the discourse as a means of acceleration but is also a central instrument of public history, which in future will progressively mediate, shape, and continue the memory of the Holocaust. Finally, a recent study (Manca, 2019) provides a first analysis of how a sample of memorials use Facebook and Twitter to engage their public both at content and relational levels. Results show that there is great variance among their use of the various social media services, with many showing limited activity and diverse levels of engagement of their public in terms of generated content, interactivity, and popularity.

4.2.2.2 Holocaust education

Three theoretical studies and two empirical investigations comprise the small group of publications about Holocaust education. The former are centered on the potential of social media for Holocaust education. Gray (2014) demands more empirical research about methods for fostering youth knowledge and understanding of the Holocaust, while warning about possible distortion and abuse. Klevan and Lincoln (2016) provide guidelines addressed to educators who want to use the Internet to teach about the Holocaust and give some examples of best practices of social media use. Finally, also Pohl and Schwabe (2018) provide diverse examples of Internet use in teaching and learning about the Holocaust, including social media.

Out of the two empirical studies, one was conducted on how an important episode in Ukrainian history - the capture of Lviv by the Germans on 30 June 1941—is represented in different language versions of Wikipedia (Makhortykh, 2017b). With a specific focus on the Lviv pogrom, it provides one of the first attempts at analyzing how different interpretations may have impact on teaching and remembering the Second World War in post-Soviet countries. In the second study, Lazar and Hirsch (2015) investigate how the Yahoo! Answers community reacts to questions posted by students who seek help with their homework assignments. Despite answers were in most cases based upon the respondents' own views and reflected common notions, the authors provide some recommendations about approaching a medium capable of shaping the ways students approach Holocaust-related issues.

4.4.2.3 Holocaust denial or distortion

The final broad topic, Holocaust denial or distortion, is investigated in a small number of studies. Ziccardi (2017) outlines the history of Holocaust denial and distortion on the Internet and identifies some measures to counter these, such as the use of counter speech, the application of the law, and advanced use of natural language processing technology to detect and automatically manage online contents.

In a study that investigates historical internet memes related to World War II which are associated with a historical event or a personality, Makhortykh (2015) analyzes how users of the online encyclopedia of Russian web folklore, Lurkomore, shape historical memes for supporting or to countering official narratives. The study analyzes memes aimed at emphasizing the notion of Jewish responsibility for the Shoah: by criticizing Holocaust commemoration, these memes tend to mix antisemitism with resentment against assumed Western ignorance of Russian suffering during the war.

Miller (2017) discusses the integrative review of select themes associated with the Holocaust to show that, despite the potential of social media to spread Holocaust-related pictures to a wide audience, the same means is also used to denigrate the Holocaust, its victims and survivors. When investigating YouTube comment postings to analyze how users evaluate and interpret videos containing explicit and graphic imagery connected to themes of evil, Miller (2019) finds that for videos associated with higher levels of evil, such as depictions of the Holocaust, more racist views and expressions that the event was "fake" were noted.

Finally, Zhukhova (2019) researches how images representing the Ukrainian famine of 1932–1933, that were circulated on Instagram under the tag #holodomor between 2012–2018, also included appropriation of images of the Holocaust to support anti-communist and antisemitic narratives, thus constituting a re-writing of Holocaust history that overshadows previously established narratives.

4.4.3 Keywords map

In addition to qualitative analysis, a word cloud was created to determine what words or strings of words are most frequently used in the abstracts of the studies. Figure 2 shows the 50 most relevant ($0 \leq X \leq 1$) of these, with the most frequent words being "Holocaust"

(71 times, Relevance 0.671), "memory" (33 times, Relevance 0.155) and "social media" (26 times, Relevance 0.996). In terms of data about the two broad areas investigated in this study, it was found that the term "holocaust remembrance" (10 times, Relevance 0.498) is much more frequent than "holocaust education" (2 times, Relevance 0.166).

4.4.4 Cross-citation analysis

A network was built by using the set of 28 papers as nodes and the cross-citations between them as links. Figure 3 shows the whole network of all cross-cited papers. Different colours were used to represent publications classified as belonging to Holocaust remembrance (blue), Holocaust denial or distortion (red) and Holocaust education (green). The link between any two papers is ordered, and it is possible to distinguish between citing and cited studies.

Overall, the network is populated by a high percentage of articles bereft of cross-citation, and a large portion of nine isolated studies that do not receive or give cross-citations. The other two clusters represent 1) a small network of Holocaust remembrance studies in which Carter-White (2018) cites three other references, but is not cited by others, and 2) a larger network which includes fifteen publications that belong to the different categories. In particular, one of the main nodes, Pfanzelter (2015), features the highest number of cross-citations (N=5), all regarding studies classified as Holocaust remembrance, while De Bruyn (2010) is cross-citated with three Holocaust remembrance studies and Holocaust denial or distortion paper. The five Holocaust education studies show little cross-citing, although Gray (2014) is cited by two Holocaust remembrance studies. In terms of the most cited publications, Makhortykh (2017a), Makhortykh (2019) and Manca (2019) are cross-cited with four publications. These three studies are also those that tend to cite publications of a diverse macro-category.

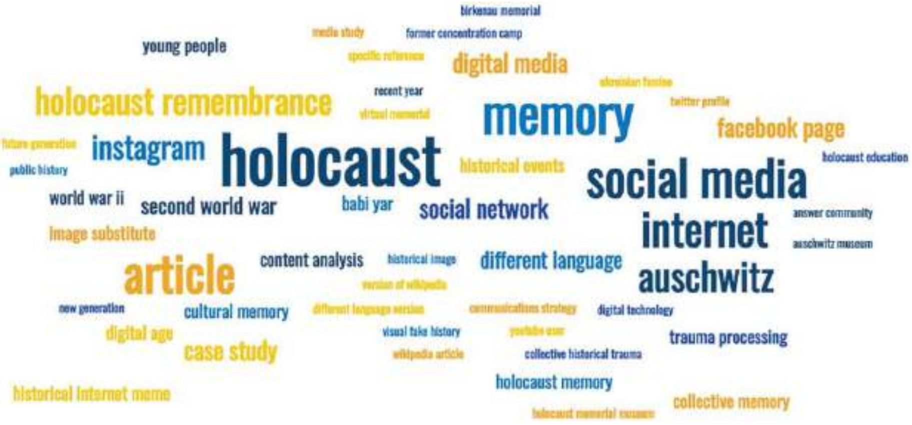


Figure 2. Word cloud

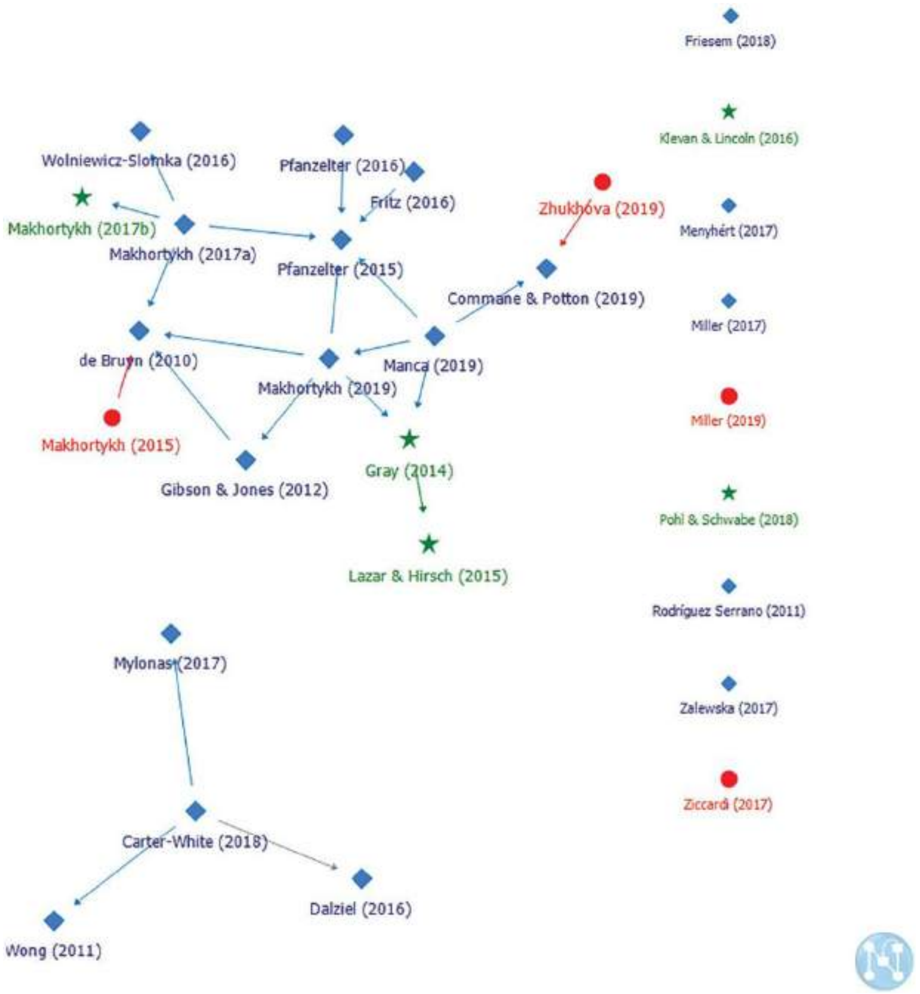

Wolniewicz-Slomka (2016)
Pfanzelter (2016)
Fritz (2016)
Makhortykh (2017b)
Makhortykh (2017a)
Pfanzelter (2015)
Zhukhova (2019)
Commane & Potton (2019)
de Bruyn (2010)
Makhortykh (2019)
Manca (2019)
Makhortykh (2015)
Gibson & Jones (2012)
Gray (2014)
Lazar & Hirsch (2015)
Mylonas (2017)
Carter-White (2018)
Dalziel (2016)
Wong (2011)
Friesem (2018)
Klevan & Lincoln (2016)
Menyhért (2017)
Miller (2017)
Miller (2019)
Pohl & Schwabe (2018)
Rodríguez Serrano (2011)
Zalewska (2017)
Ziccardi (2017)

Figure 3. Cross-citation network

4.4.5 Co-citation analysis

Co-citation analysis investigated the references of the 28 papers and identified authors who are cited by at least four studies. Table 2 provides the details of the authors and the citing studies, while the network of the top 13 topical authors (in blue) is represented in Figure 4. These are the authors that constitute the theoretical background of the studies and compose a multidisciplinary plethora of scholarship in Social sciences and Arts and Humanities. Except for a small group of six publications, most of the 28 studies (in red) are represented as part of some subnetworks (Figure 4), attesting to the inter-disciplinary, cross-disciplinary, and trans-disciplinary nature of the network.

Top 13 authors	*# of citing studies*	*Citing publications*
Hannah Arendt	4	Gibson and Jones (2012), Miller (2017), Miller (2019), Zhukhova (2019)
Aleida Assmann	7	Fritz (2016), Gibson and Jones (2012), Makhortykh (2017a), Menyhért (2017), Pfanzelter (2015), Pohl and Schwabe (2018), Wolniewicz-Slomka (2016)

Astrid Erll	6	de Bruyn (2010), Makhortykh (2017a), Mylonas (2017), Pfanzelter (2015), Pfanzelter (2016), Pohl and Schwabe (2018)
Michela Ferron and Paolo Massa	4	Makhortykh (2015), Makhortykh (2017a), Makhortykh (2017b), Pfanzelter (2016)
Joanne Garde-Hansen	6	Carter-White (2018), de Bruyn (2010), Makhortykh (2019), Menyhért (2017), Pfanzelter (2015), Zalewska (2017)
Marianne Hirsch	9	Carter-White (2018), de Bruyn (2010), Gibson and Jones (2012), Makhortykh (2015), Makhortykh (2019), Menyhért (2017), Pfanzelter (2015), Pfanzelter (2016), Wong (2011)
Andrew Hoskins	9	Carter-White (2018), de Bruyn (2010), Fritz (2016), Gibson and Jones (2012), Makhortykh (2017a), Makhortykh (2019), Mylonas (2017), Pfanzelter (2016), Wong (2011)
Andreas Huyssen	5	de Bruyn (2010), Makhortykh (2015), Makhortykh (2019), Mylonas (2017), Zalewska (2017)
Henry Jenkins	4	Makhortykh (2015), Makhortykh (2019), Pfanzelter (2016), Wong (2011)
Alison Landsberg	4	de Bruyn (2010), Gibson and Jones (2012), Pfanzelter (2015), Pfanzelter (2016)
Daniel Levy and Natan Sznaider	5	Fritz (2016), Lazar and Hirsch (2015), Makhortykh (2019), Pfanzelter (2016), Pohl and Schwabe (2018)
Susan Sontag	6	Commane & Potton (2019), Dalziel (2016), Gibson and Jones (2012), Makhortykh (2019), Wong (2011), Zalewska (2017)
José van Dijck	6	Gibson and Jones (2012), Makhortykh (2015), Menyhért (2017), Mylonas (2017), Pfanzelter (2015), Pfanzelter (2016)

Table 2. The top cited authors

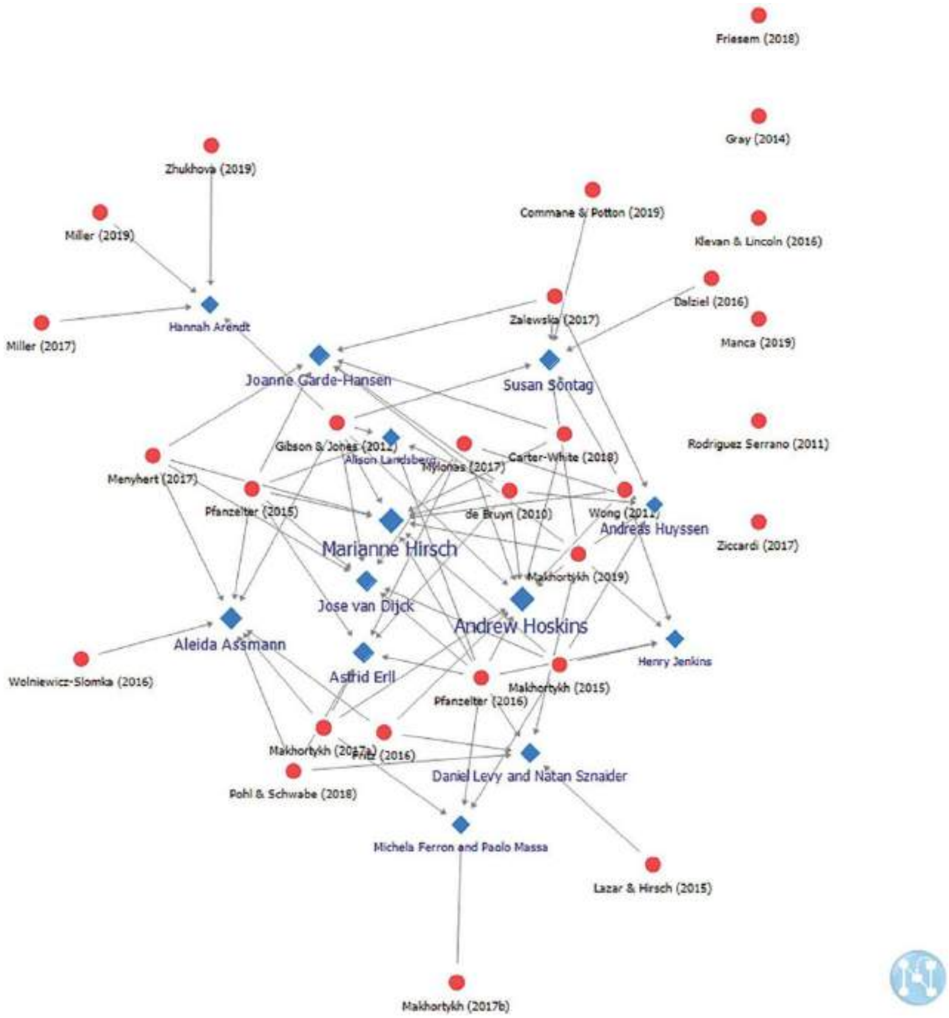

Friesem (2018)
Gray (2014)
Zhukhova (2019)
Commane & Potton (2019)
Miller (2019)
Klevan & Lincoln (2016)
Dalziel (2016)
Hannah Arendt
Zalewska (2017)
Miller (2017)
Manca (2019)
Joanne Garde-Hansen
Susan Sontag
Rodriguez Serrano (2011)
Gibson & Jones (2012)
Alison Landsberg
Mylonas (2017)
Carter-White (2018)
Menyhert (2017)
Pfanzelter (2015)
de Bruyn (2010)
Wong (2011)
Andreas Huyssen
Ziccardi (2017)
Marianne Hirsch
Makhortykh (2019)
Jose van Dijck
Andrew Hoskins
Aleida Assmann
Henry Jenkins
Wolniewicz-Slomka (2016)
Astrid Erll
Makhortykh (2015)
Pfanzelter (2016)
Makhortykh (2017a)
Fritz (2016)
Pohl & Schwabe (2018)
Daniel Levy and Natan Sznaider
Michela Ferron and Paolo Massa
Lazar & Hirsch (2015)
Makhortykh (2017b)

Figure 4. Co-citation network

4.5 Discussion

This literature review has sought to provide a theoretically-founded analysis of publications that investigate the topic of social media in Holocaust-related studies. Using a mixed-method approach, we attempted to analyze research topics and interconnections between the two fields of study to provide indications for prospective research opportunities. Across the sample of 28 studies published over the past decade, there are a few valuable discussion points, among which the scarcity of research on Holocaust education. Despite the general availability of empirical research, most of the studies have been published in the area of Holocaust remembrance, while very few focused on Holocaust education. When inspecting cross-citation and co-citation networks, we also saw that the two fields of study are loosely connected, although they do share some common theoretical references. In particular, it appears that major scholars of Holocaust remembrance occupy the central position of this loosely connected network, while authors of Holocaust education tend to use those references in their research. This demonstrates that there is no stringent conceptual or theoretical contamination between the two fields, where one tends to superimpose over the other. There is a confirmation of this situation also in the keyword map, which shows that the relevance of topics associated to Holocaust education is marginal.

In the following, the discussion focuses on the interpretation of topic analysis and provides indications for further research.

Much remembrance…

An important result concerns the articulation of topic analysis. Analysis of the sharing of pictures (e.g., "selfies") and videos taken at heritage sites was restricted to a small number of platforms. We noticed that Facebook and Instagram were the most popular platforms investigated, probably because they provide a better channel for audio-visual and multimedia material, which is not surprisingly as the Holocaust is one of the most comprehensively documented events (Hirsch, 2012). This topic also raises ethical dilemmas associated to the use of selfies in "austere" places as out-of-place acts. As stressed by Nunes (2017), "selfies" are acts of self-witnessing that blurs the line between tourism photography and civic or social action. Crossing the line may lead to complicated acts such as those documented in Yolocaust (https://yolocaust.de/), a recent web art project aimed at showing disturbing images created with people's selfies and pictures from extermination camps. In addition to this, there is currently no consensus about how original users exploit the potential of social media to "democratize" existing memory practices from heritage at grassroots level. Also, when challenging hegemonic historical narratives, in some cases users tend to produce obvious and superficial acts of remediation that do not question established narratives.

The several studies classified as Holocaust remembrance projects, which report national and micro-national memorialization experiences, show the importance of recovering long removed and marginalized memories to heal the wounds of the past. In this sense, social media seem to act as powerful means for remediation and vernacular memories that, despite their ephemeral nature, may support the agency of commemorative communities (Hess, 2007).

The subgroup of studies classified under the topic "Memory wars and counter-memories" points out the complementary of transnational memories and nationally divisive memory cultures. As stressed by Erll (2011), assumed, relatively clear-cut social formations as containers of cultural memory must leave room for an approach based instead on "travelling memory" and the continuous movement of memories and symbols across time and space, together with their social, linguistic and cultural transformations. In this sense, "multidirectional memory" represents what happens when confronting histories of genocide or other extreme events that occupy the public sphere (Rothberg, 2009). As most of these studies deal with memories in post-Soviet countries, they constitute significant cases of rival memories regarding Nazi and Communist crimes perpetrated by different national and ethnic groups (de Smale, 2020).

In the topics summarized above, there are at least a few factors that need to be stressed. First of all, unlike other studies that have reported a prevalence of "Auschwitz" discourse at the expense of other topics related to the so-called Final Solution (Pettigrew &

Karayianni, 2019), in this cohort of studies there is a balance of "Auschwitz" discourse and other global discourses of the Holocaust such as the "Holocaust by bullets" (Vice, 2019). However, what distinguishes many of these studies is a focus on local languages, which reflects the typically Eastern European milieu of "national intimacy" (Imre, 2009) that strengthens community bonds between users and "counters" alternative memories dealt with by other groups. This is especially reflected in the post-Socialist space and is characterized by a disproportionate politicization of conflicting memories of the past and sometimes by "micronational" virtual networks of users (van der Poel, 2019).

Finally, when approaching the topic of social media use in memorials and museums, the results especially emphasize the challenges associated to the blurring of boundaries between official and grassroots commemoration occupying the same digital places. In this sense, as highlighted by O'Connor (2019), today Holocaust museums are not only mediated and virtual spaces, but also the place of convergence for popular participative practices. However, ethical dilemmas arise when museums engage with their audience, both acting with the aim of dealing with digital commemorative activities. These latter need to be accommodated in a multidirectional perspective comprising diverse practices of remediation (Rothberg, 2009). If museums' power as official providers of authoritative content is not diminishing (Cowan & Maitles, 2017), more research is needed to investigate how the internet, in general, and social media in particular, are blurring the boundaries between private and public and altering 'interpersonal negotiation processes' regarding the history of the Holocaust (Burkhardt, 2015).

… *and little distortion and education*

Although Holocaust denial and distortion is a topical phenomenon and the potential virality of content that social media allows (and often encourages) is considered a major tool in the dissemination of hateful content and spread of incitement and intolerance (Wetzel, 2017), we found very few academic studies about this topic. The sophisticated revisionist model known as Double Genocide, which posits the "equality" of Nazi and Soviet crimes and sometimes includes attempts to rehabilitate perpetrators and discredit survivors (Katz, 2016; Radonic, 2018), lies at the center of these studies. The widespread phenomenon of fake news that still blames the Jews for the Holocaust or diminishes the suffering caused in order to emphasize that resulting from Communist atrocities in post-Soviet countries is also connected with Holocaust education and the measures that may be taken to counter antisemitism in programs. As recently stressed by Foster et al. (2020), despite the generally accepted principle that teaching and learning about the Holocaust is the primary bulwark against antisemitism, it is important to question the belief that Holocaust education offers a way out, a one-dimensional approach to opposing any case of prejudice and hate. In this light, educators and policymakers are invited to reconsider and reevaluate current Holocaust education practices and many of the core ideas and principles that currently underpin teaching and learning about the Holocaust.

Unfortunately, the very few empirical studies investigated in this review does not permit deep evaluation of social media potential for Holocaust education. Although deriving from only a single study, one of the indications regards the challenges posed by different interpretations of Holocaust events when they are provided in multicultural classrooms with students of diverse linguistic and cultural backgrounds. As also recommended by IHRA (2019), if social media can be a valuable tool for education and research, students and teachers are invited to use recommended authoritative sites and to develop tools and training to critically assess any sources, and to evaluate the agenda of the sites. In this light, Holocaust museums and memorials have the potential to address informal and seamless learning and offer especially young people agency to explore complex responses to and participation with cultural and historical content (Russo et al., 2009). However, much more research is needed to investigate this potential.

4.6 Conclusion

Although the limited sample of studies in this review does not allow many generalized conclusions to be drawn, overall, there is an abundance of theoretical and conceptual elaborations about digital memory concerning the Holocaust. On the contrary, research about social media use in Holocaust education is still at an early stage of research. Overall, the limited number of the studies investigated demonstrates the need for more empirical research about how social media are changing remembrance and educational practices. One further indication is to consider social media as sociotechnical-cultural systems that are now part of our daily socio-cultural practices, enabling the permanent addition, modification, deletion and reconstruction of private and public content. Such consideration is a vector for some important research perspectives.

Firstly, as stressed by Pfanzelter (2016), while the sustainable archiving of digital data still depends on institutional preferences and archiving practices, it is the users that determine which parts of our cultural legacies will ultimately be archived and preserved. These considerations have profound implications for how we conceive the creation, archive, retrieval, and reuse of data in terms of critical digital literacy applied to social media. This means that future studies should also investigate the influence of platform-specific norms and policies on digital memory and Holocaust knowledge.

Secondly, as the diversity of platform-specific formats and practices results in the formation of distinct digital memory genres, future research should also investigate how specific "technical conditions as well as rhetorical rules and cultural particularities" determine how users interact with digital mementos (Makhortykh, 2019).

Thirdly, there are also some implications for the development of social media literacies within general media studies. In this sense, it is suggested a combined perspective that considers social media skills as a combination of global skills (transversal across different social media) and local skills (pertaining to a specific social media platform), which need to be intertwined with an examination of practices that may be decontextualized or situated and context-dependent (Manca et al., 2021). Future research should consider how ecosystems of digital and media content could be accommodated to support students in building complex and multiperspective representations of the collective memory of the Holocaust.

4.7 Funding

This work was supported by the International Holocaust Remembrance Alliance (IHRA) "Countering Holocaust Distortion on Social Media. Promoting the positive use of Internet Social Technologies for teaching and learning about the Holocaust" under grant no. 2020-792.

4.8 Acknowledgments

This study was carried out as part of the author's research project "Teaching and learning about the Holocaust with social media: A learning ecologies perspective"—Doctoral program in "Education and ICT (e-learning)," Universat Oberta de Catalunya, Spain. Thanks to Juliana Elisa Raffaghelli for methodological advice and to Jeffrey Earp for revising the original manuscript.

4.9 Data availability statement

The datasets generated during the current study are available in the Zenodo repository, http://doi.org/10.5281/zenodo.3950522

4.10 Notes on contributors

Stefania Manca is a Research Director at the Institute of Educational Technology of the National Research Council of Italy. She has a Master's Degree in Education and is a PhD student in Education and ICT (e-learning), Universitat Oberta de Catalunya, Spain, with a research project entitled "Teaching and learning about the Holocaust with social media: A learning ecologies perspective." She has been active in the field of educational technology, technology-based learning, distance education and e-learning since 1995. Her research interests are social media and social network sites in formal and informal learning, teacher education, professional development, digital scholarship, and Student Voice-supported participatory practices in schools. She is the project coordinator of the IHRA grant no. 2020-792 "Countering Holocaust distortion on Social Media. Promoting the positive use of Internet social technologies for teaching and learning about the Holocaust," which includes the University of Weingarten (Germany), the University of Florence (Italy) and the following participating organizations: Yad Vashem (Israel), M_emorial de la Shoah de Paris (France) and Mauthausen Memorial (Austria).

4.11 References

Allwork, L. (2015). Holocaust remembrance as 'civil religion': The case of the Stockholm Declaration (2000). In D. I. Popescu and T. Schult (Eds.), *Revisiting Holocaust representation in the post-witness era. The Holocaust and its contexts* (pp. 288–304). Palgrave Macmillan.

Assmann, A. (2011). *Cultural memory and western civilization: Arts of memory*. Cambridge University Press.

Bauer, Y. (2020). Creating a "usable" past: On Holocaust denial and distortion. *Israel Journal of Foreign Affairs*, 14(2), 209–227. https://doi.org/10.1080/23739770.2020.1805916

Birkner, T., & Donk, A. (2020). Collective memory and social media: Fostering a new historical consciousness in the digital age? *Memory Studies*, 13(4), 367–383. https://doi.org/10.1177/1750698017750012

Bos, P. R. (2014). Empathy, sympathy, simulation? Resisting a Holocaust pedagogy of identification. *Review of Education, Pedagogy, and Cultural Studies*, 36(5), 403–421. https://doi.org/10.1080/10714413.2014.958380

Britzman, D. P. (1998). *Lost subjects, contested objects: Toward a psychoanalytic inquiry of learning.* State University of New York Press.

Brown, A., & Waterhouse-Watson, D. (2014). The future of the past: Digital media in Holocaust museums. *Holocaust Studies*, 20(3), 1–32. https://doi.org/10.1080/17504902.2014.11435374

Brown, J. S. (2000). Growing up digital: How the web changes work, education, and the ways people learn. *Change: The Magazine of Higher Learning*, 32(2), 11–20. https://doi.org/10.1080/00091380009601719

Burkhardt H (2015) Geschichte im Social Web: Geschichtsnarrative und Erinnerungsdiskurse auf Facebook und Twitter mit dem kulturwissenschaftlichen Medienbegriff Medium des kollektiven Gedächtnisses' analysieren. In: Pallaske C (ed) *Medien machen Geschichte: Neue Anforderungen an den geschichtsdidaktischen Medienbegriff im digitalen Wandel.* Berlin: Logos, pp. 99–114.

Burkhardt, H. (2019). Social media und Holocaust education. Chancen und Grenzen historisch-politischer Bildung. In A. Ballis and M. Gloe (Eds.), *Holocaust education revisited. Holocaust education – Historisches Lernen – Menschenrechtsbildun* (pp. 371–389). Springer VS.

Carter-White, R. (2018). Death camp heritage 'from below'? Instagram and the (re)mediation of Holocaust heritage. In H. Muzaini and C. Minca (Eds.*), After heritage: Critical perspectives on heritage from below* (pp. 86–106). Edward Elgar Publishing.

Commane, G., & Potton, R. (2019). Instagram and Auschwitz: A critical assessment of the impact social media has on Holocaust representation. *Holocaust Studies*, 25(1–2), 158–181. https://doi.org/10.1080/17504902.2018.1472879

Cowan, P., & Maitles, H. (2017). *Understanding and teaching Holocaust education.* SAGE.

Dalziel, I. (2016). "Romantic Auschwitz": Examples and perceptions of contemporary visitor photography at the Auschwitz-Birkenau State Museum. *Holocaust Studies*, 22(2–3), 185–207. https://doi.org/10.1080/17504902.2016.1148874

de Bruyn, D. (2010). World War 2.0: Commemorating war and Holocaust in Poland through Facebook. *Digital Icons: Studies in Russian, Eurasian and Central European New Media*, 4, 45–62.

de Oliveira, O. J., da Silva, F. F., Juliani, F., Barbosa, LCFM., & Nunhes, T. V. (2019). Bibliometric method for mapping the state-of-the-art and identifying research gaps and trends in literature: An essential instrument to support the development of scientific projects. In S. Kunosic & E. Zerem (Eds.), *Scientometrics recent advances*. IntechOpen, https://doi.org/10.5772/intechopen.85856

de Smale, S. (2020). Memory in the margins: The connecting and colliding of vernacular war memories. *Media, War & Conflict*, 13(2), 188–212. https://doi.org/10.1177/1750635219828772

Deerwester, S., Dumais, S. T., Furnas, G. W., Landauer, T. K., & Harshman, R. (1990). Indexing by latent semantic analysis. *Journal of the American Society for Information Science*, 41(6), 391–407. https://doi.org/10.1002/(SICI)1097-4571(199009)41:6<391::AIDASI1>3.0.CO;2-9

Diehl, T., Weeks, B. E., & de Zuniga, H. G. (2016). Political persuasion on social media: Tracing direct and indirect effects of news use and social interaction. *New Media & Society*, 18(9), 1875–1895. https://doi.org/10.1177/1461444815616224

Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017). *Research in teaching and learning about the Holocaust. A dialogue beyond borders*. Metropol.

Erll, A. (2011). Travelling memory. *Parallax*, 17(4), 4–18. https://doi.org/10.1080/13534645. 2011.605570

Farley, L. (2007). The "shadowy underside" of learning history. *Review of Education, Pedagogy, and Cultural Studies*, 29(5), 423–440. https://doi.org/10.1080/10714410701566256

Foster, S. (2020). To what extent does the acquisition of historical knowledge really matter when studying the Holocaust? In S. Foster, A. Pearce, & A. Pettigrew (Eds.), *Holocaust education. Contemporary challenges and controversies* (pp. 28–49). UCL Press.

Foster, S., Pearce, A., & Pettigrew, A. (2020). *Holocaust education. Contemporary challenges and controversies*. UCL Press.

Friesem, L. (2018). Holocaust Tweets as an act of resistance. *Israel Studies Review*, 33(2), 85–104. https://doi.org/10.3167/isr.2018.330206

Fritz R (2016) Persönliche Holocaust-Erinnerungen auf Facebook. (Private) Gegenerzählungen in Ungarn im Kontext des Holocaust-Gedenkjahres 2014 [Individual holocaust-memory on facebook: (Private) counter-narratives in Hungary in the context of the holocaust-remembrance year 2014]. *Zeitgeschichte* 43(4): 233-249.

Frosh, P. (2018). The mouse, the screen and the Holocaust witness: Interface aesthetics and moral response. *New Media & Society*, 20(1), 351–368. https://doi.org/10.1177/1461444816663480

Garde-Hansen, J., Hoskins, A., Reading, A. (2009). *Save as… Digital memories*. Palgrave Macmillan.

Gibson, P. L., & Jones, S. (2012). Remediation and remembrance: “Dancing Auschwitz” collective memory and new media. *ESSACHESS. Journal for Communication Studies*, 5(2(10)), 107–131.

Goldberg, A., & Hazan, H. (2015). *Marking evil: Holocaust memory in the global age*. Berghahn.

Gray, M. (2014). The digital era of Holocaust education. In *Contemporary debates in Holocaust education* (pp. 99–114). Palgrave Macmillan.

Greenhow, C., Galvin, S., Brandon., & Askari, E. (2020). A decade of research on K-12 teaching and teacher learning with social media: Insights on the state of the field. *Teachers College Record*, 122(6), 23303.

Greenhow, C., & Lewin, C. (2015). Recrafting formal education: Shifting the boundaries of formal and informal learning. *Learning, Media & Technology*, 40(3), 128–148.

Gross, Z. (2010). Holocaust education in Jewish schools in Israel: Goals, dilemmas, challenges. *Prospects*, 40(1), 93–113. https://doi.org/10.1007/s11125-010-9142-x

Gross, Z., & Stevick, E. D. (2015). *As the witnesses fall silent: 21st Century Holocaust education in curriculum, policy and practice*. Springer.

Haythornthwaite, C. (2015). Rethinking learning spaces: Networks, structures, and possibilities for learning in the twenty-first century. *Communication Research and Practice*, 1(4), 292–306. https://doi.org/10.1080/22041451.2015.1105773

Haythornthwaite, C., Kumar, P., Gruzd, A., Gilbert, S., Esteve del Valle, M., & Paulin, D. (2018). Learning in the wild: Coding for learning and practice on Reddit. *Learning, Media and Technology*, 43(3), 219–235. https://doi.org/10.1080/17439884.2018.1498356

Henig, L., & Ebbrecht-Hartmann, T. (2020). Witnessing Eva Stories: Media witnessing and self-inscription in social media memory. *New Media & Society*, 1–25. https://doi.org/10. 1177/1461444820963805

Hess, A. (2007). In digital remembrance: Vernacular memory and the rhetorical construction of web memorials. *Media, Culture & Society*, 29(5), 812–830. https://doi.org/10. 1177/0163443707080539

Hirsch, M. (2012). *The generation of postmemory: Writing and visual culture after the Holocaust.* Columbia University Press.

Hoskins, A. (2011). Media, memory, metaphor: Remembering and the connective turn. *Parallax*, 17(4), 19–31. https://doi.org/10.1080/13534645.2011.605573

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Imre, A. (2009). National intimacy and post-socialist networking. *European Journal of Cultural Studies*, 12(2), 219–233. https://doi.org/10.1177/1367549409102428

International Holocaust Remembrance Alliance. (2019). *Recommendations for teaching and learning about the Holocaust.* https://holocaustremembrance.com/sites/default/files/inlinefiles/IHRA-Recommendations-Teaching-and-Learning-about-Holocaust.pdf

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Towards a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112–133. https://doi.org/10.1177/1558689806298224

Kansteiner, W. (2017). Transnational Holocaust memory, digital culture and the end of reception studies. In T. S. Andersen & B. Törnquist-Plewa (Eds.), *The twentieth century in European memory: Transcultural mediation and reception* (pp. 305–343). Brill.

Kansteiner, W., & Presner, T. (2016). Introduction: The field of Holocaust studies and the emergence of global Holocaust culture. In C. Fogu, W. Kansteiner, & T. Presner (Eds.), *Probing the ethics of Holocaust culture* (pp. 1–42). Harvard University Press.

Katz, D. (2016). Is eastern European 'double genocide' revisionism reaching museums? *Dapim: Studies on the Holocaust*, 30(3), 191–220. https://doi.org/10.1080/23256249.2016.1242043

Klevan, D., & Lincoln, M. (2016). The use of the internet in teaching and studying about the Holocaust. In S. Totten and S. Feinberg (Eds.), *Essentials of Holocaust education. Fundamental issues and approaches* (pp. 76–98). Taylor & Francis.

Kovacs, E. (2018). Limits of universalization: The European memory sites of genocide. *Journal of Genocide Research*, 20(4), 490–509. https://doi.org/10.1080/14623528.2018.1522825

Lazar, A., & Hirsch, T. L. (2015). An online partner for Holocaust remembrance education: Students approaching the Yahoo! Answers community. *Educational Review*, 67(1), 121–134. https://doi.org/10.1080/00131911.2013.839545

Levy, D., & Sznaider, N. (2006). *The Holocaust and memory in the global age*. Temple University Press.

Lundrigan, M. (2020). #Holocaust #Auschwitz: Performing Holocaust memory on social media. In S. Gigliotti & H. Earl (Eds.), *A companion to the Holocaust* (pp. 639–654). John Wiley & Sons.

Manca, S. (2019). Holocaust memorialisation and social media. Investigating how memorials of former concentration camps use Facebook and Twitter. In W. Popma and F. Stuart (Eds.), *Proceedings of the 6th European Conference on Social Media – ECSM 2019* (pp. 189–198). University of Brighton.

Manca, S. (2020). Snapping, pinning, liking or texting: Investigating social media in higher education beyond Facebook. *The Internet and Higher Education*, 44, 100707. https://doi.org/10.1016/j.iheduc.2019.100707

Manca, S., Bocconi, S., & Gleason, B. (2021). "Think globally, act locally": A glocal approach to the development of social media literacy. *Computers & Education*, 160, 104025. https://doi.org/10.1016/j.compedu.2020.104025

Makhortykh, M. (2015). Everything for the Lulz: Historical memes and World War II memory on Lurkomor'e. *Digital Icons: Studies in Russian, Eurasian and Central European New Media*, 13, 63–90.

Makhortykh, M. (2017a). Framing the Holocaust online: Memory of the Babi Yar Massacres on Wikipedia. *Digital Icons: Studies in Russian, Eurasian and Central European New Media*, 18, 67–94.

Makhortykh, M. (2017b). War memories and online encyclopedias: Framing 30 June 1941 in Wikipedia. *Journal of Educational Media, Memory, and Society*, 9(2), 40–68. https://doi.org/10.3167/jemms.2017.090203

Makhortykh, M. (2019). Nurturing the pain: Audiovisual tributes to the Holocaust on YouTube. *Holocaust Studies*, 25(4), 441–466. https://doi.org/10.1080/17504902.2018.1468667

McCrory, A., Best, P., & Maddock, A. (2020). The relationship between highly visual social media and young people's mental health: A scoping review. *Children and Youth Services Review*, 115, 105053. https://doi.org/10.1016/j.childyouth.2020.105053

Menyhert, A. (2017). Digital trauma processing in social media groups: Transgenerational Holocaust trauma on Facebook. *Hungarian Historical Review*, 6(2), 355–376.

Miller, E. D. (2017). Making sense of the brutality of the Holocaust: Critical themes and new perspectives. *The Journal of Psychology*, 151(1), 88–106. https://doi.org/10.1080/00223980. 2016.1217191

Miller, E. D. (2019). Codifying gradients of evil in select YouTube comment postings. *Human Behavior and Emerging Technologies*, 1(3), 216–222. https://doi.org/10.1002/hbe2.155

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyzes: The PRISMA statement. *PLoS Medicine*, 6(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Mylonas, Y. (2017). Witnessing absences: Social media as archives and public spheres. *Social Identities*, 23(3), 271–288. https://doi.org/10.1080/13504630.2016.1225495

Nora, P. (1989). Between memory and history: Les Lieux de Memoire. *Representations*, 26, 7–24. https://doi.org/10.2307/2928520

Nunes, M. (2017). Selfies, self-witnessing and the 'out-of-place' digital citizen. In A. Kuntsman (Ed.), *Selfie Citizenship*. Palgrave Macmillan, pp. 109–117.

O'Connor, P. (2019). The unanchored past: Three modes of collective memory. *Memory Studies*, 1–16. https://doi.org/10.1177/1750698019894694

Pennington, L. K. (2018). Hello from the other side: Museum educators' perspectives on teaching the Holocaust. *Teacher Development*, 22(5), 607–631. https://doi.org/10.1080/13664530.2018.1483419

Perianes-Rodriguez, A., Waltman, L., & van Eck, N. J. (2016). Constructing bibliometric networks: A comparison between full and fractional counting. *Journal of Informetrics*, 10(4), 1178–1195. https://doi.org/10.1016/j.joi.2016.10.006

Petticrew, M., & Roberts, H. (2006). *Systematic reviews in the social sciences. A practical guide*. Blackwell.

Pettigrew, A., & Karayianni, E. (2019). 'The Holocaust is a place where … ': The position of Auschwitz and the camp system in English secondary school students' understandings of the Holocaust. *Holocaust Studies*, 1–18. https://doi.org/10.1080/504902.2019.1625116

Pfanzelter, E. (2015). At the crossroads with public history: Mediating the Holocaust on the internet. *Holocaust Studies*, 21(4), 250–271. https://doi.org/10.1080/17504902.2015.1066066

Pfanzelter, E. (2016). Selfies, Likes & Co: Multimediale Inszenierungen des Holocaust in deutsch- und englischsprachigen sozialen Netzwerken [Selfies, likes & co: Performances of the Holocaust in German and English social media sites]. *Zeitgeschichte*, 43(4), 213–232.

Pohl, K. H., & Schwabe, A. (2018). Presenting and teaching the past. In S. Baranowski, A. Nolzen, & C.-C. W. Szejnmann (Eds.), *A Companion to Nazi Germany* (pp. 615–630). John Wiley & Sons.

Popescu, D. I., & Schult, T. (2015). *Revisiting Holocaust representation in the post-witness era*. Palgrave Macmillan.

Probst, L. (2003). Founding myths in Europe and the role of the Holocaust. *New German Critique*, 90(90), 45–58. https://doi.org/10.2307/3211107

Radonic, L. (2018). From "double genocide" to "the new Jews": Holocaust, genocide and mass violence in post-communist memorial museums. *Journal of Genocide Research*, 20(4), 510–529. https://doi.org/10.1080/14623528.2018.1522831

Radstone, S. (2011). What place is this? Transcultural memory and the locations of memory studies. *Parallax*, 17(4), 109–123. https://doi.org/10.1080/13534645.2011.605585

Rehm, M., Manca, S., Brandon, & Greenhow, C. (2019). Beyond disciplinary boundaries: Mapping educational science in the discourse on social media. *Teachers College Record*, 121(14), 140303.

Rodrıguez Serrano, A. (2011). Nuevas formas audiovisuales de la representacion del holocausto [New Audiovisual Forms of Holocaust Representation. Postmodern Languages for the Construction of Memory]. *Prisma Social*, 6, 1–22.

Rosenfeld, A. H. (2013). *The end of the Holocaust.* Bloomington, IN: Indiana University Press.

Rothberg, M. (2009). *Multidirectional memory: Remembering the Holocaust in the age of decolonization.* Stanford, CA: Stanford University Press.

Russo, A., Watkins, J., & Groundwater-Smith, S. (2009). The impact of social media on informal learning in museums. *Educational Media International*, 46(2), 153–166. https://doi.org/10.1080/09523980902933532

Sangrà, A., Raffaghelli, J. E., & Guitert-Catasus, M. (2019). Learning ecologies through a lens: Ontological, methodological and applicative issues. A systematic review of the literature. *British Journal of Educational Technology*, 50(4), 1619–1638. https://doi.org/10.1111/bjet.12795

Short, G. (2003). Holocaust education in the primary school: Some reflections on an emergent debate. *London Review of Education*, 1(2), 119–129. https://doi.org/10.1080/14748460320000098482

Skoric, M. M., Zhu, Q., Goh, D., & Pang, N. (2016). Social media and citizen engagement: A meta-analytic review. *New Media & Society*, 18(9), 1817–1839. https://doi.org/10.1177/1461444815616221

Simon, R. I., Rosenberg, S., & Eppert, C. (2000). *Between hope and despair: Pedagogy and the remembrance of historical trauma.* Rowman & Littlefield.

Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science*, 24(4), 265–269. https://doi.org/10.1002/asi.4630240406

Stein, A. (2014). *Reluctant witnesses: Survivors, their children, and the rise of Holocaust consciousness.* Oxford University Press.

Tang, Y., & Hew, K. F. (2017). Using twitter for education: Beneficial or simply a waste of time? *Computers & Education*, 106, 97–118. https://doi.org/10.1016/j.compedu.2016.12.004

Uffelmann, D. (2014). The issue of genre in digital memory: What literary studies can offer to internet and memory culture research. *Digital Icons: Studies in Russian, Eurasian and Central European New Media*, 12, 1–24.

van der Poel, S. (2019). Memory crisis: The Shoah within a collective European memory. *Journal of European Studies*, 49(3–4), 267–281. https://doi.org/10.1177/0047244119859180

Vice, S. (2019). 'Beyond words': Representing the 'Holocaust by bullets'. *Holocaust Studies*, 25(1–2), 88–100. https://doi.org/10.1080/17504902.2018.1472878

Walden, V. G. (2019). What is 'virtual Holocaust memory'? *Memory Studies*, 1–13. https://doi.org/10.1177/1750698019888712

Wetzel, J. (2017). Soft denial in different political and social areas on the web. In A. McElligott and J. Herf (Eds.), *Antisemitism before and since the Holocaust: Altered contexts and recent perspectives* (pp. 305–331). Palgrave Macmillan.

Wieviorka, A. (2006). *The era of the witness*. Cornell University Press.

Wight, A. C. (2020). Visitor perceptions of European Holocaust heritage: A social media analysis. *Tourism Management*, 81, 104142. https://doi.org/10.1016/j.tourman.2020.104142

Wilson, R. E., Gosling, S. D., & Graham, L. T. (2012). A review of Facebook research in the social sciences. *Perspectives on Psychological Science*, 7(3), 203–220. https://doi.org/10.1177/1745691612442904

Wolniewicz-Slomka, D. (2016). Framing the Holocaust in popular knowledge: 3 articles about the Holocaust in English, Hebrew and Polish Wikipedia. *Adeptus*, 8(8), 29–49. https://doi.org/10.11649/a.2016.012

Wong, A. S. (2011). Ethical issues of social media in museums: A case study. *Museum Management and Curatorship*, 26(2), 97–112. https://doi.org/10.1080/09647775.2011.566710

Yang, S., & Wang, F. (2015). Visualizing information science: Author direct citation analysis in China and around the world. *Journal of Informetrics*, 9(1), 208–225. https://doi.org/10.1016/j.joi.2015.01.001

Zalewska, M. (2017). Selfies from Auschwitz: Rethinking the relationship between spaces of memory and places of commemoration in the digital age. *Digital Icons: Studies in Russian, Eurasian and Central European New Media*, 18, 95–116.

Zawacki-Richter, O., Kerres, M., Bedenlier, S., Bond, M., & Buntins, K. (2020). *Systematic reviews in educational research. Methodology, perspectives and application*. Springer.

Zhukhova, E. (2019). Image substitutes and visual fake history: Historical images of atrocity of the Ukrainian famine 1932–1933 on social media. *Visual Communication*, 1–25. https://doi.org/10.1177/1470357219888673

Ziccardi, G. (2017). Il negazionismo in Internet, nel deep web e sui social network: evoluzione e strumenti di contrasto [Holocaust denial on the internet, in the deep web and on the social networks: Evolution and defense tools]. *Notizie di Politeia*, XXXIII(125), 107–119.

5. Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies[44]

Abstract

With the passing of the last testimonies, Holocaust remembrance and Holocaust education progressively rely on digital technologies to engage people in immersive, simulative, and even counterfactual memories of the Holocaust. This preliminary study investigates how three prominent Holocaust museums use social media to enhance the general public's knowledge and understanding of historical and remembrance events. A mixed-method approach based on a combination of social media analytics and latent semantic analysis was used to investigate the Facebook, Twitter, Instagram, and YouTube profiles of Yad Vashem, the United States Holocaust Memorial Museum, and the Auschwitz–Birkenau Memorial and Museum. This social media analysis adopted a combination of metrics and was focused on how these social media profiles engage the public at both the page-content and relational levels, while their communication strategies were analysed in terms of generated content, interactivity, and popularity. Latent semantic analysis was used to analyse the most frequently used hashtags and words to investigate what topics and phrases appear most often in the content posted by the three museums. Overall, the results show that the three organisations are more active on Twitter than on Facebook and Instagram, with the Auschwitz–Birkenau Museum and Memorial occupying a prominent position in Twitter discourse while Yad Vashem and the United States Holocaust Memorial Museum had stronger presences on YouTube. Although the United States Holocaust Memorial Museum exhibits some interactivity with its Facebook fan community, there is a general tendency to use social media as a one-way broadcast mode of communication. Finally, the analysis of terms and hashtags revealed the centrality of "Auschwitz" as a broad topic of Holocaust discourse, overshadowing other topics, especially those related to recent events.

Keywords: Holocaust remembrance; social media; cultural studies; digital memory; social media analytics; latent semantic analysis

5.1 Introduction

With the advent of increasingly sophisticated communication technologies and with progressive temporal departure from the historical circumstances that marked the "destruction of European Jewry" [1] about 80 years ago, the employment of digital technology has emerged as a specific topic of research in the field of Holocaust studies. As a number of scholars have highlighted, "the cosmopolitan Holocaust memory of the new millennium is synonymous with digital technology" [2] (p. 331). Efforts to save and preserve historical archives combined with attempts to safeguard the testimonies of the last survivors have resulted in numerous undertakings based on the use of advanced digital technologies. The first prominent initiative came from the USC Shoah Foundation's Institute for Visual History and Education (formerly Survivors of the Shoah Visual History Foundation), a non-profit organization dedicated to recording interviews with survivors and witnesses of the Holocaust and other genocides [3]. Subsequently, progressive diminishment of the witness era [4] has further marked the need to preserve testimonies through digital means. One such initiative, the New Dimensions in Testimony, gathers a collection of survivor testimonies in interactive 3D format in a quest to safeguard the possibility of real-time, question-and-answer virtual dialogue with survivors to learn about and appreciate their life experiences [5,6]. In this vein, the idea of a "virtual Holocaust memory" has advanced, embracing both digital and non-digital memory related to the Holocaust and, at the same time, drawing attention to the pervasive nature of the virtuality of memory itself [7].

---

[44] Published version of: Manca, S. (2021). Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies. *Information*, 12(1), 1–17. https://doi.org/10.3390/info12010031

Overall, digital culture opens up new opportunities for externalising collective memories and, in this regard, social media settings may be considered the main arenas of mediatized memory that are increasingly globalised and transcultural [8–10]. Due to technological transformation and the increasingly mediated nature of communication, digital memory is progressively becoming "unanchored" from localised contexts, making both individual and collective memory timeless and spaceless [11,12].

In this light, Holocaust memorials, remembrance centres, and institutions have had a solid presence on the Internet for a considerable time now, curating websites, mailing lists, and other digital services [13,14]. Museums use and produce diverse media to transmit and communicate memorial content, including standard printed media, multimedia productions, (often hands-on) media stations, interactive software, and web-based material and services. Franken-Wendelstorf, Greisinger, and Gries [15] explained how the "learning location museum" has expanded into digital space. Furthermore, museums, libraries, and related cultural institutions have started using social media for the development of digital social archives [16]. Indeed, social media have become standard means by which Holocaust museums, memorials, and institutions disseminate knowledge and reach out to the public, e.g., for publicising upcoming local events.

Within the specific research subfield of social media memory studies [17], which investigates digitalmemory of historical events such as those related to theHolocaust [11,18], social media Holocaust studies have become a topic of scholarship in its own right. Some recent projects in this area, such as Eva.Stories on Instagram (https://www.instagram.com/ eva.stories/) and the Anne Frank video diary on YouTube (https://www.youtube.com/ annefrank), have raised considerable controversy. However, the interest in engaging new generations through novel forms of agency in relation to media witnessing and mediated memory is not something that can be dismissed in principle, as they exemplify the cocreation of socially mediated experiences [19]. Although mass culture has increasingly become prominent in the provision of historical knowledge

[20], some scholars argue that traditional Holocaust memory environments, such as memorials, cinema, and television, are no longer suitable for contemporary digital users; they see the need to "resurrect" Holocaust commemoration, creating immersive and more engaging memories [2].

For the most part, much critical debate about social media use has focused on so-called dark tourism at Holocaust memorial sites [21], namely visitors taking selfies and other tourist photographs and subsequently sharing them on social media with hashtags [22–24]. By contrast, little research has focused on proactive social media use by Holocaust institutions, such as memorials and museums [21,25–27]. In today's digital age, Holocaust museums act both as physical monuments and as mediated and virtual spaces and are thus located at the intersection between commemorative memory and mediated memory [12]. In this sense, they have a multifaceted mandate that covers commemoration, engagement/education of site visitors, enlightenment of the general public's understanding of the past, as well as strengthening or challenging of historical narratives [28]. Along with archives and libraries, Holocaust museums are public spaces that constitute prime social "memory institutions" and, today, represent the most significant repositories of national and community memories of the Nazi genocide [29].

In this vein, museums position themselves at the intersection of Holocaust memory studies and the emerging field of digital history by making content accessible beyond the physical spaces of museums, research institutions, or archives [25]. However, today, the general expansion of social media into the realm of cultural heritage, not least that of Holocaust remembrance, also raises serious concerns about competing forms of local and national memory, including the narratives conveyed through museums [30]. Despite controversial cases of "multidirectional memory" [31], museums serve to reassure patrons thanks to the legitimacy and authority that people tend to accord to these cultural institutions, especially when set against the confusion of Internet sites promoting antisemitism and treating Holocaust denial as historical truth [29,32].

More recently, the restrictions posed by the COVID-19 pandemic on cultural institutions and heritage sites have accelerated the proliferation of digital memory [33]; a growing use of social media has been a natural response to the limitations posed specifically on in situ socialisation, thereby giving impetus to a shift from complex onsite digital technology to online social media. Various campaigns, such as #RememberingFromHome and #ShoahNames, were launched by Yad Vashem [34] to celebrate Israeli Holocaust Remembrance Day and to foster engagement, participation, and users' active response through sharing, posting, and commenting, thus configuring new memory ecologies [35].

This study analyses how three Holocaust museums—Yad Vashem, the United States Holocaust Memorial Museum, and the Auschwitz–Birkenau Memorial and Museum—use Facebook, Twitter, Instagram, and YouTube to engage their communities both at the content page and at relational levels. The aim is to investigate what communication strategies the three museums adopt regarding generated content, interactivity, and popularity; these are examined in terms of typology of published content as well as engaging terms and hashtags.

5.2 Related Literature

Among cultural heritage institutions, museums, monuments, and memorials are leading adopters of digital technologies for education and dissemination activities. These institutions are early up-takers of the Internet, driven in part by the widespread push to digitise their archives, thereby making them accessible to an increasingly wide audience. Similarly, they have turned to social media use from the early stages [25,36]. Several studies have focused on how social media has challenged the traditional flow of museumbased information and have blurred the lines traditionally dividing the roles of exhibition developers, designers, and educators [37]. Other studies have investigated the tensions and synergies between traditional and modern museum practice from the perspective of ethical issues connected to transparency, censorship, and respect for constituencies, especially with the museum relinquishing direct control over their media content [38]. At the same time, paramount importance has been stressed in encouraging different levels of public participation, ranging from merely enjoying content to exercising more participatory roles through the co-creation of new content. This participative turn in cultural policy relies on the paradigm of cultural democracy, according to which diverse social groups should obtain acknowledgement of their cultural practices and no assumption should be made of any superior imperative in the transmission of cultural expression [39].

In this light, the different degrees of engagement with cultural heritage institutions—attendance, interaction, and co-construction—are also reflected in their social media presence. The participatory culture imbued in social media [40] is also reflected in the ways that museums act as intermediaries of historical knowledge and cultural heritage through the exploitation of social media as sociotechnical systems and through leveraging their affordances [41]. The focus of recent studies has shifted from engagement to the extent to which social media contribute to the co-construction of dialogue between museums and their visitors [42]. The idea of museums as cultural intermediaries is connected with the concept of online value creation. This is manifest in at least three organizational forms in which museums may engage: (1) marketing, which promotes the face of the institution; (2) inclusivity, which nurtures a real online community; and (3) collaboration, which goes beyond communication and promotes constructive interaction with the audience [43,44].

One of the approaches taken for measuring museums' social media presence involves gauging social media effectiveness by considering both content and relational communication strategies [45]. According to this approach, engagement is manifested in different behaviours and communication effectiveness ought to be considered in terms of three consumer engagement dimensions: popularity (e.g., the number of followers and likes); generated content (e.g., the number of posts and comments); and virality (e.g., the number of reposts/shares) [30]. Other studies have investigated post writing as a tool for ascertaining museum engagement and have explored engagement with posts and its distribution by focusing on images, hashtags, and mentions [46]. Other techniques based on topic modelling have been used to derive discourse topics in the content of museums' posts and the interactions these generated [47].

Notwithstanding the above-reported methodological approaches, to the best of our knowledge, no research study has yet investigated social media engagement centring on major Holocaust museums and memorials. Moreover, recent studies have shown that research in the two subfields of Holocaust remembrance and Holocaust education are largely underpinned by different conceptual frameworks. While the former has become a well-established research field, there is a clear lack of empirical research on social media use for teaching and learning about the Holocaust [48]. This study provides a preliminary analysis of what type of content these three major Holocaust institutions publish on social media and how they engage their respective online communities.

5.3. Rationale of the Study

Holocaust museums' current pursuit of a dual mission—as sources of cultural heritage and as institutions with an educational calling—is a phenomenon that is increasingly related to their employment of digital technologies [13]. Social media use has the potential to reach millions of people and the power to transform engrained memory paradigms about the historical contexts of national socialism and the Holocaust [49]. Although Holocaust distortion and trivialisation [50] have become increasingly pervasive on Internet sites and social media, at the same time, social media may strengthen Holocaust knowledge and raise awareness of the many forms of Holocaust distortion being propagated, in part thanks to ready (online) access to accurate historical scientific knowledge on which to judge historical facts [51].

In this sense, there is a need to raise awareness about the potential that social media channels offer to museums and memorials for Holocaust education so that they can better engage their audiences; this involves not only promoting cultural activities and initiatives but also adopting effective social media practices for disseminating accurate historical information.

This study aims to provide a preliminary analysis of social media engagement in three major Holocaust museums: Yad Vashem (YV) in Israel, the United States Holocaust Memorial Museum (USHMM), and the Auschwitz–Birkenau Memorial and Museum (AMM) in Poland. The reasons for focusing on these museums lie in their representativeness of worldwide Holocaust heritage, their prominence in terms of the number of visitors they receive annually, and their importance as agencies in the field of Holocaust education. Moreover, despite variance in their Holocaust narratives and their differing social, cultural, and political agendas [52], they are all prominent Holocaust heritage tourist sites that play a special role in shaping the collective memory of the Holocaust [8–10].

Although many academic studies have investigated these museums singularly or as part of a group of major heritage sites (e.g., [53–56]), very few have researched their use of social media [2,21,23–25,57]. All three museums run active social media profiles on several platforms in order to share news about their special events and educational initiatives as well as to publicise important dates and ceremonies. In this endeavour, they have adopted their own hashtags—#yadvashem, #USHMM, and #Auschwitz—to make it easy for people to locate their official communication. Despite the advent of this stream of activity, research has yet to produce a comprehensive overview of how these three museums use Twitter, Facebook, Instagram, and YouTube as part of media-related learning and socially inherited memory.

Accordingly, this study aims to provide an answer to the following specific research questions:

1 What kind of content do the three museums publish via their social media profiles?

2 What kind of interaction takes place with these profiles?

3 What types of content engage the fans/followers most?

5.4. Methods and Procedure

This study adopts a mixed-method approach grounded on established methods for social media research [58] and is based on social media analytics and latent semantic analysis. Social media analytics are considered a powerful means not only for informing but also for transforming "existing practices in politics, marketing, investing, product development, entertainment, and news media" [59]. In cultural heritage studies on museums' use of social media, social media analytics have been used to evaluate the impact of museums' events [60,61] and to extract inspiring pronouncements [62].

Social media analytics were employed to investigate the three institutions' use of four different social media platforms: Facebook, Twitter, Instagram, and YouTube. Specifically, Instagram was included in this group because it "encourages conversation and empathy, keeping the Holocaust visible in youth discourses" [22] (p. 160) and because it offers a different perspective on Holocaust museums' engagement with social media. Table 1 reports the list of profiles for the three museums investigated here.

	YV	**USHMM**	**AMM**
Facebook	Yadvashem (11 June 2009)	Holocaustmuseum (31 October 2008)	Auschwitzmemorial (13 October 2009)
Twitter	@yadvashem (19 April 2009)	@HolocaustMuseum (28 August 2007)	@AuschwitzMuseum (21 May 2012)
Instagram	Yadvashem (April 2015)	Holocaustmuseum (July 2014)	Auschwitzmemorial (January 2013)

Table 1. List of social media accounts per museum. The date of creation or activation of the profile is given in brackets

Social media profiles were analysed in terms of: 1) Content (e.g., post frequency and format, and type of information); 2) Interactivity (e.g., user response and engagement); and 3) Popularity (e.g., number of fans/followers, shares, etc.). This approach derives from an analysis framework that distinguishes between content and relational communication strategies and measures the effectiveness of fan pages and posts [41].

Unlikely previous studies [60], that relied on the analytics provided by the Museum Analytics website (http://www.museum-analytics.org), this study uses Fanpage Karma as social media data analysis platform to retrieve data from Facebook pages, Twitter accounts and Instagram profiles.

Fanpage Karma (https://www.fanpagekarma.com/) is one of the leading providers of Social Media Analytics and Monitoring. It provides valuable insights on posting metrics, strategies, and performance of profiles on social media for Facebook, Twitter, YouTube, Instagram, LinkedIn and Pinterest. The service allows the creation of dashboards and benchmarks for social media profiles and instant reports (Excel, PowerPoint, PDF) and email updates. The trial version provides metrics for the last 28 days for public pages, while the paid service allows setting the favourite timeframe. Table 2 shows a sample of metrics considered for the analysis. Data analysis is referred to two months of activity, with a time range 6th July-7th September 2020.

	Facebook Page	Twitter Profile	Instagram Profile	YouTube Channel
Content	• Number of posts • Posts per day • Link-posts (number of posts in URL format) • Picture-posts (number of posts in picture format) • Video-posts (number of posts in video format)	• Number of tweets • Tweets per day • Picture and/or link-tweet • New content-tweet	• Number of posts • Posts per day • Picture-post Carousel-post (post with multiple photos or videos that can be viewed by swiping or clicking left) • Video-post	• Number of videos
Interactivity	• Number of comments on posts • Number of reactions to posts • Post interaction (%) • Engagement (%) • Fans' posts • Fans' posts with comment by page	• Number of likes • Number of likes per tweet • Tweet interaction (%) • Engagement (%) • Conversations	• Number of comments • Number of comments per post • Post interaction (%) • Engagement (%)	• Number of views Number of views per video • Number of likes Number of likes per video • Number of dislikes • Number of dislikes per video • Number of comments

	• Fans’ posts with reaction by page • Fans’ comments on other fans’ posts			• Number of comments per video
Popularity	• Number of fans • Number of shares	• Number of followers • Number of retweets • Average number of retweets per tweet	• Number of followers • Follower growth	• Number of subscribers • Subscriber growth (%)

Table 2. List of metrics per platform

In addition to social media analytics metrics, this study also considered latent semantic analysis (LSA) [64]. This is a technique adopted in natural language processing, in particular distributional semantics, that analyses relationships between words; in this study, it was employed to determine the topical structure of communication. LSA was applied to words and hashtags to analyse what words or strings of words are most frequently used in posts/tweets. Given the functional importance and pervasive use of hashtags in Twitter, these have been the subject of numerous studies that highlight their status as polysemic texts embodying multiple meanings and usages [65,66]. In this study, the aim is to provide an overview of the topics and phrases that appear most often and to discover which hashtags engage the fans/followers most.

5.5 Results

An initial analysis was conducted by inspecting social media analytics, which provided insights about how the three museums—Yad Vashem (YV), the United States Holocaust Memorial Museum (USHMM), and the Auschwitz–Birkenau Memorial and Museum (AMM)—used Facebook, Twitter, Instagram, and YouTube in the two-month period from 6th July to 7th September 2020. Tables 3–6 report the analytics related to the content, interactivity, and popularity of these three museums on the four social media platforms.

		YV	**USHMM**	**AMM**
Content	Tweets	193	147	3136
	Tweets per day	3.0	2.3	49.0

	Picture and/or link-tweet	143 (74.1%)	74 (50.3%)	2106 (67.2%)
	New content-tweet	139 (72%)	142 (96.6%)	996 (31.8%)
Interactivity	Likes	19,931	3214	4,067,181
	Likes per tweet	103	220	1296
	Tweet interaction (%)	0.17%	0.09%	0.15%
	Engagement (%)	0.5%	0.2%	7.4%
	Conversations	48%	25%	13%
Popularity	Followers	79,154	322,781	1,066,133
	Retweets	6654	12,763	933,186
	Average number of retweets per tweet	34.5	87.4	297.6

Table 3. Content, interactivity, and popularity of museums' Twitter profiles

		YV	**USHMM**	**AMM**
Content	Posts	32	141	73
	Posts per day	0.5	2.2	1.1
	Link-posts	0 (0.0%)	105 (74.5%)	3 (4.1%)
	Picture-posts	22 (68.8%)	14 (9.9%)	66 (90.4%)
	Video-posts	7 (21.9%)	22 (15.6%)	3 (4.1%)
Interactivity	Comments on posts	2404	64,238	12,207
	Reactions to posts	33,621	587,231	22,653
	Post interaction (%)	0.7%	0.5%	1.1%
	Engagement (%)	0.4%	1.1%	1.3%
	Fans' posts	0	143	13
	Fans' posts with comment by page	0	0	0
	Fans' posts with reaction by page	0	8	0
	Fans' comments on other fans' posts	0	5	0
Popularity	Fans	195,036	1,148,716	342,238
	Shares	871	132,892	41,859

Table 4. Content, interactivity, and popularity of museums' Facebook pages

		YV	**USHMM**	**AMM**
Content	Posts	53	66	63
	Posts per day	0.8	1	1
	Picture-post	46 (86.8%)	60 (90.9%)	63 (100.0%)
	Carousel-post	7 (13.2%)	2 (3.0%)	0 (0.0%)
	Video-post	0 (0.0%)	4 (6.1%)	0 (0.0%)
Interactivity	Comments	2571	6,34	5966
	Comments per post	49	96	95
	Post interaction (%)	3.1%	3.2%	3.4%
	Engagement (%)	2.5%	3.3%	3.3%
Popularity	Followers	75,231	104,893	108,254
	Growth	2353	5895	6049

Table 5. Content, interactivity, and popularity of museums' Instagram profiles

		YV	**USHMM**	**AMM**
Content	Videos	11	9	2
Interactivity	Views	64,992	42,559	1865
	Views per video	5908	4728	933
	Likes	1161	1021	47
	Likes per video	106	113	24
	Dislikes per video	12	15	0
	Comments	11	0	0
	Comments per video	1	0	0
Popularity	Subscribers	60,300	29,900	2700
	Subscriber growth	0	0	3.8%

Table 6. Content, interactivity, and popularity of museums' YouTube channels

5.5.1 Content

If we look at content categories, we see that the highest number of posted content was found on Twitter (Table 3), where out of 3476 tweets, 90.2% (N = 3136) was produced by AMM, with an average of 49 tweets published per day. In terms of content types, in general, more than half of the tweets contained images and/or links. While USHMM tended to publish more original content than the other two profiles (N = 142; 96.6%), AMM republished the most content produced by other Twitter profiles (N = 2140; 68.2%).

If we look at Facebook posts (Table 4), the situation is very varied as far as the different types of content are concerned. The content published on Facebook is, on the other hand, more often published by USHMM: out of 246 posts, USHMM accounts for more than half of the content published (N = 141; 57.3%), with an average of 2.2 posts per day. While external links are prominently a feature in USHMM content, (N = 105; 74.5%), AMM and YV (to a lesser degree) make massive use of images (N = 66; 90.4%, and N = 22; 68.8%, respectively). Video content is employed more frequently by YV (N = 7; 21.9%) and USHMM (N = 22; 15.6%), although to a lesser extent than images.

As far as Instagram use is concerned (Table 5), content distribution is more homogeneous (USHMM: N = 66, 36.3%; AMM: N = 63, 34.6%; and YV: N = 53, 29.1%). Picture-posts account for most of the content, while YV also tends to publish a small amount of carousel-posts (N = 7; 13.2%). The USHMM profile also includes a small percentage of video-posts (N = 4; 6.1%).

Finally, YouTube activity (Table 5) was higher for YV (N = 11; 50%) and USHMM (N = 9; 40.9%) than for AMM (N = 2; 9.1%), although the frequency of video posting per day was quite low (N = 0.11). All three channels published original content.

5.5.2. Interactivity

Interactivity was largely investigated using analytics (e.g., the number of total comments/likes or post/tweet interaction) and engagement. For Twitter (Table 3), along with a high level of variance between the number of total likes that each profile's content attracted, we also found that AMM tweets tend to receive more likes than those of the other two profiles (N = 1296 versus 220 for USHMM and 103 for YV). However, if we look at Twitter interaction—the average number of interactions per day on a given day's tweets in relation to the total number of followers accrued on that same day in the selected period—we can see that both YV and AMM report a similar percentage (0.17% and 0.15%, respectively). Engagement levels—the average number of interactions per day on tweets on a given day in relation to the number of followers accrued on that same day in the selected period—were found to differ significantly between the three profiles: AMM had the highest engagement among the three profiles, with 7.4% versus 0.2% for USHMM and 0.5% for YV. Finally, for the Twitter-specific metric conversations (a measure determined by the ratio of @-reply tweets to all tweets published in the selected period interacting with other Twitter profiles), YV had a higher ratio (48%) than USHMM (25%) or AMM (13%).

Turning to interactivity on Facebook (Table 4), this was gauged not only by the number of comments on posts, post interaction, and engagement but also by metrics such as the number of posts by fans, fan posts that received comments by the profile page, fan posts that received reactions from the profile page, and comments on user posts from other fans. Regarding the ratio of comments per post and the ratio of reactions per post, USHMM attracted higher activity on both counts: 64,238/141 = 455.6 and 587,231/141 = 4164.7 respectively. For post interaction—the average number of interactions per post; reactions such as Like, Love, Hahah, Thankful, Wow, Sad, and Angry; comments; and shares on posts made on a given day in relation to the number of fans accrued on the same day in the selected period—AMM attracted the most activity (1.1%). This is in line with the engagement metrics—the average number of interactions per day on posts made on a given day in relation to the number of fans accrued on the same day in the selected period—with AMM accounting for 1.3% and USHMM accounting for 1.1%. However, the situation is different when we look at the level of users' active posting and the number of comments or reactions they receive. Here, there is a huge difference among the three profiles: while users post new content almost exclusively in USHMM (N = 141) and to a minor extent in the AMM page (N = 13), none of the users' posts received comments by the page owner and only a limited number of posts from USHMM page users' posts received reactions from the page itself (N = 8) or comments from other fans (N = 5).

Posts on Instagram were inspected in terms of the number of comments and likes, post interaction, and engagement (Table 5). The ratio of comments per post is higher in USHMM (6340/66 = 96.1) and AMM (5966/63 = 94.7), while the ratio of likes per post is prevalent in AMM (218,939/63 = 3475). Post interaction metrics—the average number of organic likes and comments per post on posts made on a given day in relation to the number of followers accrued on the same day in the selected period—are similar in all three profiles, ranging from YV's 3.1% to AMM's 3.4%. In terms of engagement—the average number of organic likes and comments per day on posts made on a given day in relation to the number of followers accrued on the same day in the selected period—was higher in USHMM and AMM, corresponding to 3.3%.

Finally, YouTube interactivity was assessed mostly through views, likes and dislikes, and comments. YV and USHMM collected higher numbers of views both globally and per video (N = 5908 and N = 4728, respectively) against only 933 for AMM. The likes vs. dislikes ratios are 86% for YV, 88% for USHMM, and 100% for AMM. The number of comments was zero in the case of USHMM and AMM, while YV collected only a very limited number of comments (N = 11).

5.5.3. Popularity

Popularity was measured in terms of the number of fans/followers and number of retweets or shares. In the case of Twitter (Table 3), AMM has the highest number of followers (N = 1,066,133), followed by USHMM (N = 322,781). This proportion is also reflected in the average number of retweets per tweet, with 297.6 retweets per tweet for AMM, 87.4 for USHMM, and 34.5 for YV.

Facebook popularity (Table 4) is found to be higher in USHMM, with 1,148,716 fans and the highest number of shares (N = 132,892).

Instagram popularity (Table 5) was found to be quite similar among the three profiles, with 108,254 fans for AMM, 104,893 for USHMM, and 75,231 for YV. Follower growth, that is the difference between the number of followers on the first and last days of the selected period, was found to be higher for AMM and USHMM, with 6049 and 5895 additional fans, respectively.

Finally, YouTube popularity was measured via the number of subscribers and subscriber growth. The most popular YouTube channel amongst these three museums is Yad Vashem with 60,300 subscribers, followed by USHMM with 29,900 followers. Although it is the least popular channel with 2700 subscribers, the AMM channel grew by 3.8% during the considered period.

5.5.4. Topic Content and Hashtag Analysis

A second, latent semantic analysis was conducted by inspecting the most commonly occurring words and hashtags used to identify conversation topics on the four social media platforms.

On Twitter, the most frequently used words by the three profiles are “educate” (N = 1.6k), “history” (N = 1.6k), “people” (N = 1.2k), “learn” (N = 1.1k), “online” (N = 1.1k), and “visit” (N = 1.1k). However, if we look at the profiles individually, we can see that these words largely coincide with those most used by the AMM profile, while “Nazi” (N = 76), “Holocaust” (N = 49), and “Jews” (N = 35) tend to prevail for USHMM and “Jews” (N = 46) and “Holocaust” (N = 43) tend to prevail for YV.

For Twitter hashtags, Figure 1 presents those most frequently used by the three Twitter profiles. We can see that #Auschwitz is clearly the most frequently used (N = 2.6k), although it does not attract a high level of engagement. Indeed, despite having a lower number of occurrences, hashtags such as #theresienstadt (N = 105) and #zigeunerlager (N = 61) generate higher engagement. Breaking down these figures by profile, we see that the use of #Auschwitz is found only on the AMM profile, while USHMM mostly used hashtags such as #otd [on this day] (N = 17) and #antisemitism (N = 8), while more frequently adopted hashtags on YV were #otd [n this day] (N = 59), #martinschoeller, (N = 19) and #75survivors (N = 18).

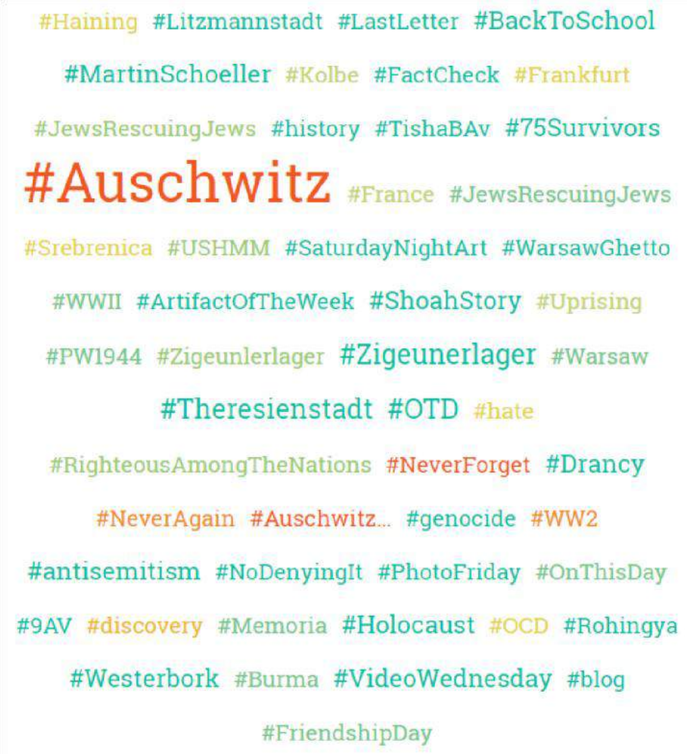


Figure 1. Hashtags that the museums used most frequently on Twitter (relative frequency is expressed both by text size and by colour)

For Facebook, the most popular words employed in posts were “camp” (N = 163), “Nazi” (N = 130), “Jews” (N = 114), and “Holocaust” (N = 109). In terms of differences among the three profiles, AMM’s most frequent words were “camp” (N = 102), “prisoner” (N = 68), and “Auschwitz” (N = 50), while USHMM’s were “Nazi” (N = 101), “Holocaust” (N = 63), and “Jews” (N = 61) and YV’s were “Holocaust” (N = 37), “family” (N = 26), and “Jews” (N = 26).

Looking at the use of hashtags on Facebook (Figure 2), the most frequent were #Auschwitz (N = 45) and #backtoschool (N = 4), while the one attracting most engagement was #antisemitism (N = 5). Broken down by institution, #Auschwitz was the most frequent and engaging hashtag for AMM, while #antisemitism was the most popular and engaging (N = 5) for USHMM and #backtoschool (N = 3) was that for YV.

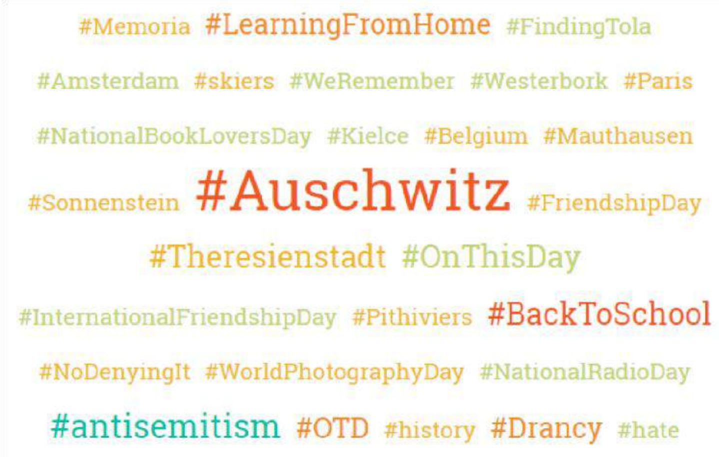


Figure 2. Hashtags that the museums used most frequently on Facebook (relative frequency is expressed both by text size and by colour)

As for Instagram content analysis, the top words employed were "camp" (N = 120), "Jews" (N = 117), "deported" (N = 95), "Nazi" (N = 94), and "Jewish" (N = 93): with "camp" (N = 49) for AMM, "Nazi" (N = 88) and "Jews" (N = 57) for USHMM, and "Jews" (N = 48) and "camp" (N = 42) for YV being the most employed.

Figure 3 shows that the most commonly used Instagram hashtag was #Holocaust (N = 80) while the most engaging were #Auschwitz (N = 67), #history (N = 54), and #yadvashem (N = 53). Broken down, the most popular were #Auschwitz (N = 56) for AMM; #Holocaust (N = 28) and #history (N = 8) for USHMM; and #yadvashem (N = 53), #Holocaust (N = 41), and #history (N = 35) for YV.

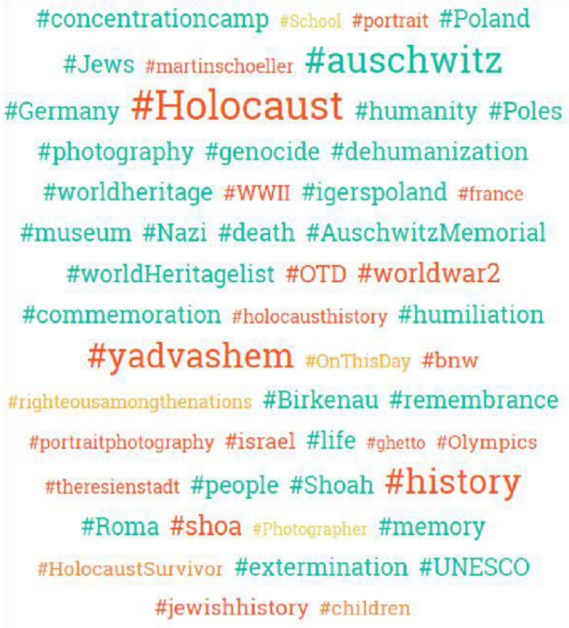


Figure 3. Hashtags that the museums used most frequently on Instagram (relative frequency is expressed both by text size and by colour)

Given the lack of hashtags use on YouTube, the analysis focused exclusively on word frequency. The results show that the posted videos cover a range of topics, with a prevalence of words such as “Holocaust” and “Auschwitz–Birkenau” (Figure 4).

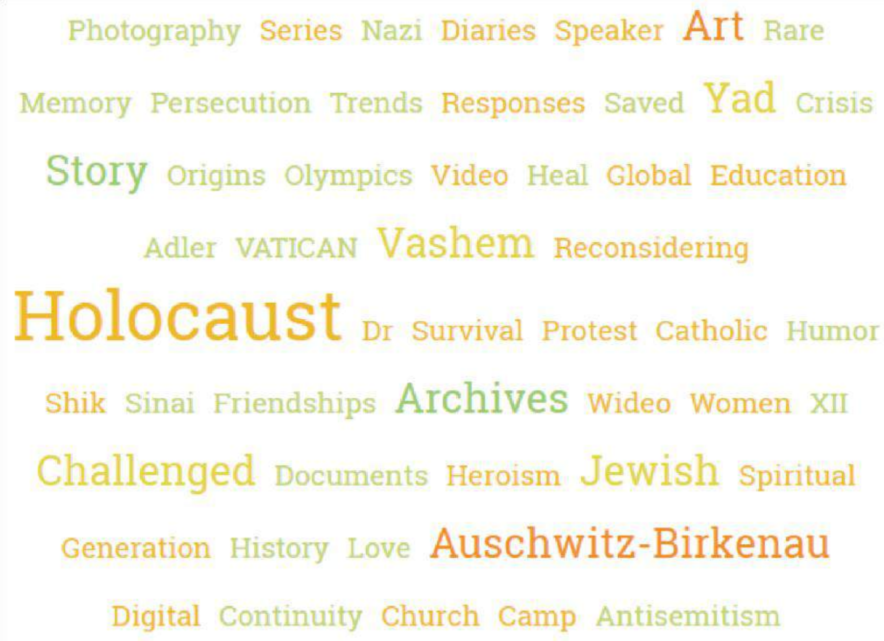


Figure 4. Words that the museums used most frequently words on YouTube (relative frequency is expressed both by text size and by colour)

5.6 Discussion

This study investigated how a sample of prominent Holocaust museums and organisations use social media to engage their audience about topics related to the Holocaust. The results of this preliminary investigation show that, in general, the three Holocaust organisations are quite active on Twitter, Facebook, Instagram, and YouTube, although with differing capacities to attract followers and to engage with them. Overall, the three profiles are more active on Twitter than on the other two social media, and publication date does not seem to influence the capacity to attract followers or to frequently produce content. At the same time, notable differences emerged. While AMM’s activity is well established, especially on Twitter, with the highest number of followers and tweets published daily, USHMM is more (globally and daily) active and popular on Facebook; conversely, YV seems to invest more into YouTube videos. The particular popularity of AMM’s Twitter profile is highlighted by the high average number of retweets per tweet. USHMM’s Facebook page has the highest number of shared posts; they have had a presence on Facebook, Twitter, and YouTube for more than 10 years now, and this testifies to their social media commitment. This prioritisation is also reflected in the declaration of the Auschwitz–Birkenau Memorial and Museum to invest in “a place for discussion which is not available on the official website” [67] and to engage with Holocaust mockers and deniers [68]. In a similar vein, the United States Holocaust Memorial Museum has recently released a document in which they advocate the role of social media in countering Holocaust denial and providing accurate knowledge for history lessons [69]. Instagram adoption is a more recent phenomenon, and here, no significant differences emerge between the three museums except for the more pronounced growth rate for USHMM and AMM. With respect to YouTube activity, Yad Vashem has a long tradition of video production, which is also reflected in the number of subscribers/fans and interactions related to their channel.

Regarding the first research question (content type), the data show that the three museums tend to publish new or original contents on their social media profiles except for AMM's Twitter profile, where there is a prevalence of reposted (retweeted) contents produced by third parties. This demonstrates that the Polish museum's Twitter profile acts as a "bridge" among other Holocaust organisations' profiles, thus contributing to cross-referencing and network-building among Holocaust commemoration bodies. Further research might investigate how social media is used for community building among Holocaust organisations, with opportunities for the development of cooperation strategies and experiences [27]. As for content media typology, AMM and YV have a stronger tendency to publish Twitter content that contains images and/or links to external resources, while USHMM seems to prefer textual information. This trend is also reflected to some extent on Facebook, where USHMM tends to publish textual content accompanied by links to external resources while YV and AMM make extensive use of images and YV of video content. In this regard, future research might also investigate the relationship between the use of images and visual content and user engagement, following the example set by some recent forward-looking research studies [46]. Finally, as far as Instagram is concerned, the only institution to make (limited) use of video in addition to the more standard picture or carousel posts is USHMM. However, further research is needed to study Instagram's aesthetic visual communication and how Instagram grammar [70] encourages conversation and empathy, especially in youth discourse [22].

In response to the second research question, interactivity was found to be globally higher on Instagram, where no major difference emerged among the three museums in terms of post interaction and general interactivity, although USHMM and AMM posts seem to attract more comments. More specifically, the situation changes completely when considering Twitter, where AMM has by far the highest engagement level, also borne out of the high number of likes per tweet that it attracts. However, if we look at the average number of tweet responses to tweets on a given day in relation to the number of followers (Twitter interaction), there is no significant difference between YV and AMM, showing that more content published does not necessarily mean more user interaction. On YouTube, we found a significant level of passive participation, with a high number of views and likes but no active responses in terms of comments left. However, the most interesting outcomes from the data analysis are in regard to Facebook. The multifaceted metrics available on Facebook activity such as the number of fan posts and interaction with these posts allows for a deeper analysis of how content co-construction unfolds on this social media platform. While USHMM's Facebook page allows users to post their own photos or other content, the other two profiles do not allow active participation in their page content. Despite this, USHMM has a very low reaction rate to visitors' posts and, more generally, there is a lack of interaction among the page users themselves. This points to a broadcast-mode use of social media, which is broadly in line with previous studies showing a tendency towards mono-directional communication [26,47]. This trend has been emphasised in other studies, which have highlighted the passivity of "Holocaust institutions whose staff members prefer one-directional communication, 'broadcasting' a carefully shaped, widely acceptable message via social media but refusing to engage further and bring their considerable expertise to bear on the difficult moral questions of how to develop an appropriate communicative memory of war crimes and what political consequences to draw from that memory" [2] (pp. 323–324). However, as stressed in other studies [24], the way in which AMM, for instance, engages with Instagram followers shows that it can be possible to exert less control over new channels of communication and representation, thus allowing Holocaust-focused institutions to assume an increasingly visible role in transnational social media Holocaust discourse. Nevertheless, further study and more rigorous methodological approaches are required to understand how Holocaust institutions are placing users (and their responsibility for the content they choose to post on social media) at the centre of the debate on sociohistorical agency in the digital age. In the case of this preliminary study, no specific evidence emerges that there has been an erosion of institutional power over how Holocaust organisations and Holocaust memory are presented and curated [24] or how social media users are exercising agency in the co-construction of Holocaust digital memories [42]. Further research is needed to support these claims as well as to investigate how the perceived threat and actual manifestation of antisemitic and hate speech may be factors potentially conditioning the way memorials approach and embrace social media [26].

Finally, the third research question regards the type of content that mostly strongly engages fans/followers. This entailed latent semantic analysis of the most frequently used hashtags and words. The analysis has revealed a set of terms and hashtags that refer to the basic lexicon of Holocaust history, which attests to users' strong interest in historical knowledge and less emphasis on the recent past or on analogies between contemporary events and WWII history. In this light, as Kansteiner [2] (p. 324) has highlighted, Holocaust-themed social media pages seem mostly to represent "a cyberspace address where [the subscribers] can hang out with peers, pursue their genocide memory interests by adding a thoughtful facet to their virtual selves, and then return to their comfortable lives". Another matter of concern relates to the centrality of Auschwitz, both as a hashtag used by Holocaust organisations and as a broad topic of Holocaust discourse. This is reflected in the dominant popular perception of the Holocaust in which Auschwitz and related imagery represents an icon of the spatiality of the Jewish genocide [71–73]. Whether the centrality of "Auschwitz" overshadows—and hence inhibits—topical discourses on final solution topics that are less familiar to the wider public is an issue worthy of more in-depth future research, as is whether it poses problems of the overall paucity of Holocaust remembrance, such as the Holocaust by bullets [74].

5.7. Limitations and Conclusions

While this study has provided some useful insights based on a combination of social media analytics and topic modelling, some limitations need to be recognised. First of all, the study sample generated for this study covered a timespan stretching across the summer of 2020, when museums were still struggling to adjust to the COVID-19 pandemic. Their social media contents and publication strategies may have been influenced by contingent circumstances, as ordinary activity was disrupted. In this respect, further research might investigate, for instance, a possible overlap of content between Facebook and YouTube to increase the provision of visual content due to the closure of museums. A second limitation concerns the adoption of the Fanpage Karma analytic service, which provides metrics and tools for analysis mostly based on a marketing approach. In future studies, other monitoring tools may be used to compare a diverse set of metrics and indications for engagement measures. Thirdly, there is also a need to use mixed-method approaches that combine quantitative tools and qualitative instruments. For example, it is important to analyse posted content through a qualitative codebook that may use predefined or inducted categories to analyse historical content, moral lessons, or contemporary events related to Holocaust topics. More sophisticated tools for (automatic) semantic analysis could complement a qualitative approach as such. Moreover, it will be important to consider diverse meanings of "engagement" applying relative weighting to the metrics adopted for determining engagement and interactivity (in our case, e.g., "YouTube interactivity was assessed mostly through views, likes and dislikes, and comments."). These are each quite different in the nature and level of visitor engagement with the content. Finally, the content of visitors' comments, which were not the object of this study, should be considered in future research to investigate how fans/followers interact textually or with multimedia content with institutional pages/profiles. Whatever the specific issues future research focuses on, research based on social media data will allow "unprecedented insights in the generation of historical consciousness because multi-platform consumption of historical content and explicit generation of historical interpretation can be recorded in unprecedented depth and breadth" [2] (p. 330).

5.8 Funding

This work was supported by the International Holocaust Remembrance Alliance (IHRA) under grant no. 2020-792 "Countering Holocaust Distortion on Social Media. Promoting the positive use of Internet Social Technologies for teaching and learning about the Holocaust".

5.9 Informed Consent Statement

Not applicable.

5.10 Data Availability Statement

The data were obtained through a paid service and are not freely available.

5.11 Acknowledgments

This study was carried out as part of the author's research project "Teaching and learning about the Holocaust with social media: A learning ecologies perspective"—Doctoral programme in "Education and ICT (e-learning)", Universat Oberta de Catalunya, Spain.

5.12 Conflicts of Interest

The authors declare no conflict of interest.

5.13 References

1. Hilberg, R. *The Destruction of the European Jewry, revised and definitive edition*; Holes and Meir: New York, NY, USA, 1985.
2. Kansteiner, W. Transnational Holocaust Memory, Digital Culture and the End of Reception Studies. In *The Twentieth Century in European Memory: Transcultural Mediation and Reception*; Andersen, T.S., Törnquist-Plewa, B., Eds.; Brill: Leiden, Belgium, 2017; pp. 305–343.
3. Shandler, J. *Holocaust Memory in the Digital Age: Survivors' Stories and New Media Practices*; Stanford University Press: Palo Alto, CA, USA, 2017.
4. Wieviorka, A. *The Era of the Witness*; Cornell University Press: Ithaca, NY, USA; London, UK, 2006.
5. Frosh, P. The mouse, the screen and the Holocaust witness: Interface aesthetics and moral response. *New Media Soc.* **2018**, *20*, 351–368.
6. Zalewska, M. The Last Goodbye (2017): Virtualizing Witness Testimonies of the Holocaust. *Spectator* **2020**, *40*, 45–52.
7. Walden, V.G. What is 'virtual Holocaust memory'? *Mem. Stud.* **2019**.
8. Goldberg, A.; Hazan, H. *Marking Evil: Holocaust Memory in the Global Age*; Berghahn: New York, NY, USA, 2015.
9. Kansteiner, W.; Presner, T. Introduction: The Field of Holocaust Studies and the Emergence of Global Holocaust Culture. In *Probing the Ethics of Holocaust Culture*; Fogu, C., Kansteiner, W., Presner, T., Eds.; Harvard University Press: Cambridge, MA, USA, 2016; pp. 1–42.
10. Levy, D.; Sznaider, N. *The Holocaust and Memory in the Global Age*; Temple University Press: Philadelphia, PA, USA, 2006.
11. Hoskins, A. Media, memory, metaphor: Remembering and the connective turn. *Parallax* **2011**, *17*, 19–31.
12. O'Connor, P. The unanchored past: Three modes of collective memory. *Mem. Stud.* **2019**.

13. Brown, A.; Waterhouse-Watson, D. The Future of the Past: Digital Media in Holocaust Museums. *Holocaust Stud.* **2014**, *20*, 1–32.
14. Pfanzelter, E. At the crossroads with public history: Mediating the Holocaust on the Internet. *Holocaust Stud.* **2015**, *21*, 250–271.
15. Franken-Wendelstorf, R.; Greisinger, S.; Gries, C. *Das Erweiterte Museum. Medien, Technologien und Internet*; Walter de Gruyter: Berlin, Germany, 2019.
16. Bernsen, D.; Kerber, U. *Praxishandbuch Historisches Lernen und Medienbildung im digitalen Zeitalter*; Verlag Barbara Budrich: Leverkusen, Germany, 2017.
17. Birkner, T.; Donk, A. Collective memory and social media: Fostering a new historical consciousness in the digital age? *Mem. Stud.* **2020**, *13*, 367–383.
18. Garde-Hansen, J.; Hoskins, A.; Reading, A. *Save As Digital Memories*; Palgrave Macmillan: Basingstoke, UK, 2009.
19. Henig, L.; Ebbrecht-Hartmann, T. Witnessing Eva Stories: Media witnessing and self-inscription in social media memory. *New Media Soc* **2020**.
20. Landsberg, A. *Engaging the Past: Mass Culture and the Production of Historical Knowledge*; Columbia University Press: New York, NY, USA, 2015.
21. Wight, A.C. Visitor perceptions of European Holocaust Heritage: A social media analysis. *Tour. Manag.* **2020**, *81*, 104142.
22. Commane, G.; Potton, R. Instagram and Auschwitz: A critical assessment of the impact social media has on Holocaust representation. *Holocaust Stud.* **2019**, *25*, 158–181.
23. Dalziel, I. “Romantic Auschwitz”: Examples and perceptions of contemporary visitor photography at the Auschwitz-Birkenau State Museum. *Holocaust Stud.* **2016**, *22*, 185–207.
24. Zalewska, M. Selfies from Auschwitz: Rethinking the Relationship between Spaces of Memory and Places of Commemoration in the Digital Age. *Digit Icons* **2017**, *18*, 95–116.
25. Lundrigan, M. #Holocaust #Auschwitz: Performing Holocaust Memory on Social Media. In *A Companion to the Holocaust*; Gigliotti, S., Earl, H., Eds.; John Wiley & Sons: Hoboken, NJ, USA, 2020; pp. 639–654.
26. Manca, S. Holocaust memorialisation and social media. Investigating how memorials of former concentration camps use Facebook and Twitter. In Proceedings of the 6th European Conference on Social Media—ECSM 2019, Brighton, UK, 13–14 June 2019; pp. 189–198.
27. Rehm, M.; Manca, S.; Haake, S. Sozialen Medien als digitale Räume in der Erinnerung an den Holocaust: Eine Vorstudie zur Twitter-Nutzung von Holocaust-Museen und Gedenkstätten. *Merz* **2020**, *6*, 62–73.
28. Pennington, L.K. Hello from the other side: Museum educators’ perspectives on teaching the Holocaust. *Teach. Dev.* **2018**, *22*, 607–631.
29. Reading, A. Digital interactivity in public memory institutions: The uses of new technologies in Holocaust museums. *Media Cult. Soc.* **2003**, *25*, 67–85.
30. Katz, D. Is Eastern European ‘Double Genocide’ Revisionism Reaching Museums? *Dapim* **2016**, *30*, 191–220.

31. Rothberg, M. *Multidirectional Memory: Remembering the Holocaust in the Age of Decolonization*; Stanford University Press: Stanford, CA, USA, 2009.
32. Topor, L. Dark Hatred: Antisemitism on the Dark Web. *J. Contemp. Antisemitism* **2019**, *2*, 25–42.
33. Samaroudi, M.; Echavarria, K.R.; Perry, L. Heritage in lockdown: Digital provision of memory institutions in the UK and US of America during the COVID-19 pandemic. *Mus. Manag. Curatorship* **2020**, *35*, 337–361.
34. Worldwide Virtual Name-Reading Campaign to Mark Holocaust Remembrance Day. 2020. Available online: https://www. yadvashem.org/downloads/name-reading-ceremonies.html (accessed on 27 November 2020).
35. Transformation of Holocaust Memory in Times of COVID-19. Available online: https://www.iwm.at/always-active/coronafocus/tobias-ebbrecht-hartmann-transformation-of-holocaust-memory-in-times-of-covid-19/ (accessed on 27 November 2020).
36. Marakos, P. Museums and social media: Modern methods of reaching a wider audience. *Mediterr. Archaeol. Archaeom.* **2014**, *14*, 75–81.
37. Gonzales, R. Keep the Conversation Going: How Museums Use Social Media to Engage the Public. *Mus. Sch.* **2017**, *1*, 1–11.
38. Wong, A.S. Ethical issues of social media in museums: A case study. *Mus. Manag. Curatorship* **2011**, *26*, 97–112.
39. Bonet, L.; Négrier, E. The participative turn in cultural policy: Paradigms, models, contexts. *Poetics* **2018**, *66*, 64–73.
40. Jenkins, H.; Mizuko, I. *Participatory Culture in a Networked Era: A Conversation on Youth, Learning, Commerce, and Politics*; Polity Press: Cambridge, UK, 2015.
41. Manca, S. ResearchGate and Academia.edu as networked socio-technical systems for scholarly communication: A literature review. *Res. Learn. Technol.* **2018**, *26*, 1–16.
42. Gronemann, S.T.; Kristiansen, E.; Drotner, K. Mediated co-construction of museums and audiences on Facebook. *Mus. Manag. Curatorship* **2015**, *30*, 174–190.
43. Kidd, J. Enacting engagement online: Framing social media use for the museum. *Inf. Technol. People* **2011**, *24*, 64–77.
44. Padilla-Meléndez, A.; del Águila-Obra, A.R. Web and social media usage by museums: Online value creation. *Int. J. Inf. Manag.* **2013**, *33*, 892–898.
45. Camarero, C.; Garrido, M.-J.; San Jose, R. What Works in Facebook Content Versus Relational Communication: A Study of their Effectiveness in the Context of Museums. *Int. J. Hum. Comput. Interact.* **2018**, *34*, 1119–1134.
46. Agostino, D.; Arnaboldi, M.; Diaz, M.L.L.; Riva, P. Exploring the Importance of Facebook Post Writing as a Museum Engagement Tool. In Proceedings of the 7th European Conference on Social Media—ECSM 2020, Larnaca, Cyprus, 2–3 July 2020; pp. 28–36.
47. Diaz, M.L.; Arnaboldi, M. The participative turn in Museum: The online facet. In Proceedings of the 11th International Conference on Social Media & Society (SMSociety'20), Toronto, ON, Canada, 22–24 July 2020; pp. 265–276.

48. Manca, S. Bridging cultural studies and learning sciences: An investigation of social media use for Holocaust memory and education in the digital age. *Rev. Educ. Pedagog. Cult. Stud.* **2020**.
49. Burkhardt, H. Geschichte im Social Web: Geschichtsnarrative und Erinnerungsdiskurse auf Facebook und Twitter mit dem kulturwissenschaftlichen Medienbegriff Medium des kollektiven Gedächtnisses' analysieren. In *Medien Machen Geschichte: Neue Anforderungen an den Geschichtsdidaktischen Medienbegriff im Digitalen Wandel*; Pallaske, C., Ed.; Logos: Berlin, Germany, 2015; pp. 99–114.
50. Bauer, Y. Creating a "Usable" Past: On Holocaust Denial and Distortion. *Isr. J. Foreign Aff.* **2020**, *14*, 209–227.
51. Burkhardt, H. Social Media und Holocaust Education. Chancen und Grenzen historisch-politischer Bildung. In *Holocaust Education Revisited. Holocaust Education–Historisches Lernen–Menschenrechtsbildun*; Ballis, A., Gloe, M., Eds.; Springer: Wiesbaden, Germany, 2019; pp. 371–389.
52. Rotem, S.S. *Constructing Memory: Architectural Narratives of Holocaust Museums*; Peter Lang AG: Bern, Switzerland, 2013.
53. Berenbaum, M.; Kramer, A. *The World Must Know: The History of the Holocaust as Told in the United States Holocaust*; Johns Hopkins University Press: Baltimore, MD, USA, 2006.
54. Bernard-Donals, M. *Figures of Memory: The Rhetoric of Displacement at the United States Holocaust Memorial*; State University of New York Press: New York, NY, USA, 2017.
55. Griffiths, C. Encountering Auschwitz: Touring the Auschwitz-Birkenau State Museum. *Holocaust Stud.* **2019**, *25*, 182–200.
56. Sievers, L.A. Genocide and Relevance: Current Trends in United States Holocaust Museums. *Dapim* **2016**, *30*, 282–295.
57. Burkhardt, H. Erinnerungskulturen im Social Web. Auschwitz und der Europäische Holocaustgedenktag auf Twitter. In *Geschichtsunterricht–Geschichtsschulbücher–Geschichtskultur. Aktuelle Geschichtsdidaktische Forschungen des Wissenschaftlichen Nachwuchses.* Mit einem Vorwort von Thomas Sandkühler; Danker, U., Ed.; Vandenhoeck & Ruprecht: Göttingen, Germany, 2017; pp. 213–236.
58. Sloan, L.; Quan-Haase, A. *The SAGE Handbook of Social Media Research Methods*; SAGE Publications: London, UK, 2018.
59. Lassen, N.B.; la Cour, L.; Vatrapu, R. Predictive Analytics with Social Media Data. In *The SAGE Handbook of Social Media Research Methods*; Sloan, L., Quan-Haase, A., Eds.; SAGE Publications: London, UK, 2018; pp. 328–341.
60. Lê, J.T. #Fashionlibrarianship: A Case Study on the Use of Instagram in a Specialized Museum Library Collection. *Art Docum.* **2019**, *38*, 279–304.
61. Villaespesa, E. An Evaluation Framework for Success: Capture and Measure your Social-media Strategy Using the Balanced Scorecard. *MW2015*: *Museums and the Web 2015*. Available online: https://mw2015.museumsandtheweb.com/paper/anevaluation-framework-for-success-capture-and-measure-your-social-media-strategy-using-the-balanced-scorecard/ (accessed on 30 November 2020).
62. Gerrard, D.; Sykora, M.; Jackson, T. Social media analytics in museums: Extracting expressions of inspiration. *Mus. Manag. Curatorship* **2017**, *32*, 232–250.

63. Claes, F.; Deltell, L. Social museums: Social media profiles in Twitter and Facebook 2012–2013. *Prof. Inf.* **2014**, *23*, 594–602.
64. Deerwester, S.; Dumais, S.T.; Furnas, G.W.; Landauer, T.K.; Harshman, R. Indexing by latent semantic analysis. *J. Am. Soc. Inf. Sci.* **1990**, *41*, 391–407.
65. Erz, A.; Marder, B.; Osadchaya, E. Hashtags: Motivational drivers, their use, and differences between influencers and followers. *Comput. Hum. Behav.* **2018**, *89*, 48–60.
66. Tsuria, R. Get out of Church! The Case of #EmptyThePews: Twitter Hashtag between Resistance and Community. *Information* **2020**, *11*, 335.
67. Auschwitz Launches Facebook Site. BBC News. 14 October 2009. Available online: http://news.bbc.co.uk/2/hi/europe/8307162.stm (accessed on 30 November 2020).
68. The Auschwitz Museum Has a Twitter Account, and this Ex-Journalist Runs It. The Times of Israel. 8 January 2017. Available online: https://www.timesofisrael.com/the-auschwitz-museum-has-a-twitter-account-and-this-ex-journalist-runs-it/ (accessed on 30 November 2020).
69. The Lessons of History and Social Media. US Holocaust Museum. 31 August 2020. Available online: https://us-holocaustmuseum.medium.com/the-lessons-of-history-and-social-media-1654446ed848 (accessed on 30 November 2020).
70. Highfield, T.; Leaver, T. Instagrammatics and digital methods: Studying visual social media, from selfies and GIFs to memes and emoji. *Commun. Res. Pract.* **2016**, *2*, 47–62.
71. Cole, T. *Selling the Holocaust: From Auschwitz to Schindler, How History is Bought, Packaged, and Sold*; Routledge: New York, NY, USA, 1999.
72. Partee Allar, K. Holocaust tourism in a post-holocaust Europe: Anne Frank and Auschwitz. In *Dark Tourism and Place Identity: Managing and Interpreting Dark Places*; White, L., Frew, E., Eds.; Routledge: New York, NY, USA, 2013.
73. Pettigrew, A.; Karayianni, E. 'The Holocaust is a place where . . . ': The position of Auschwitz and the camp system in English secondary school students' understandings of the Holocaust. *Holocaust Stud.* **2019**.
74. Vice, S. 'Beyond words': Representing the 'Holocaust by bullets'. *Holocaust Stud.* **2019**, *25*, 88–100.

5.14 Author Biography

Stefania Manca is a Research Director at the Institute of Educational Technology of the National Research Council of Italy. She has a Master's Degree in Education and is a PhD student in Education and ICT (e-learning). She has been active in the field of educational technology, technology-based learning, distance education and e-learning since 1995. Her research interests include social media and social network sites in formal and informal learning, teacher education, professional development, digital scholarship, and Student Voice-supported participatory practices in schools. She is currently working on a three-year research project about the application of social media to Holocaust education from a learning ecologies perspective. She is author of scientific publications on various topics of educational technology, co-editor of the Italian Journal of Educational Technology (formerly TD Tecnologie Didattiche), and part of the editorial and scientific boards of international and national journals and conferences on technology-enhanced learning.

6. A learning ecology-based approach for enhancing Digital Holocaust Memory in European cultural heritage education[45]

Abstract

This study adopts a conceptual research approach to examine recent developments in Digital Holocaust Memory regarding the use of digital technology for teaching and learning about the Holocaust. In order to promote heritage education, this paper proposes a conceptual framework that links the field of Digital Holocaust Memory with the approach of learning ecologies. A key element of this framework is the idea that technological advances can enhance learning by fostering participatory cultures and empowering users. The aim of this paper is to provide a deeper understanding of how digital technology can be used to create meaningful learning experiences about the Holocaust, and to propose a theoretical lens based on an ecological approach to learning. In addition, the study aims to present a framework that can assist students in developing their own Holocaust-related learning experiences. The focus is on understanding Holocaust remembrance and learning as complex, multidirectional and multi-layered phenomena, influenced by the specific learning environment, the use of digital technology, and historical, political and cultural contexts. By taking into account the specific cultural, social and economic characteristics of the learning environment, this framework provides a comprehensive approach to designing educational interventions that meet the needs of learners, teachers and stakeholders.

Keywords: Digital Holocaust Memory, Holocaust education, Learning ecologies, Lifelong learning, Digital technologies, Social media

6.1 Introduction

The Holocaust and the Second World War are two of the most significant collective memories that continue to shape Western and European identity [1]. In the early 1990s, a European dimension of remembrance emerged and developed, within which the memory of the destruction of European Jewry became increasingly prominent [2-3]. There has been a notable shift in the field of memory and identity politics, from a focus on nation-states wielding symbolic power in their management to the emergence of local memory construction and increased civil society participation [4]. At the same time, the concept of transnational memory [5] has gained prominence, with international organisations actively involved in its design [6].

However, despite efforts to make Holocaust memory increasingly global and transnational, Holocaust remembrance remains deeply shaped by national contexts [7-8]. Indeed, in Holocaust cultural institutions, local and global Holocaust memory are intertwined in complex ways. National contexts often shape the ways in which Holocaust memories are presented and understood [9], as a country's national narrative and politics can influence the ways in which the Holocaust is remembered and communicated at the educational level [10]. Local and global memories of the Holocaust can also be intertwined, as local contexts can be used to inform global understandings of the Holocaust especially in digital environments [11]. This has profound implications for how people in different countries learn about and understand the Holocaust, in terms of their interests and motivations, as well as the resources and activities they use to acquire knowledge about the subject.

---

[45] Published version of: Manca, S., Raffaghelli, J., & Sangrà, A. (2023a). A learning ecology-based approach for enhancing Digital Holocaust Memory in European cultural heritage education. *Heliyon*, 9(9), e19286, 1–13. https://doi.org/10.1016/j.heliyon.2023.e19286

Although Holocaust remembrance has played an important role in the last decade through a proliferation of public activities related to the memory of the Second World War, spaces of historical memory have also undergone profound changes [4]. Today we face a complex situation in which the need for better education about the Holocaust is complicated by a growing awareness of ignorance and distortion of the subject, especially in digital environments and social media [10, 12]. While Holocaust remembrance and education is experiencing a period of 'Holocaust fatigue' [13], there is also a growing number of people who limit or distort historical facts about the Second World War and the Holocaust, or who demonstrate a limited understanding of historical concepts and events [14-15]. A recent survey conducted by the Claims Conference in six countries between 2018 and 2022[46] examining knowledge and perceptions of the Holocaust around the world, found that while the overwhelming majority of respondents believe it is important to continue teaching about the Holocaust, there are alarming numbers of misconceptions and lack of knowledge about the topic, particularly among younger generations[47].

On a more positive note, other surveys have found that Gen Z tends to be much more interested in the Nazi era than their parents, drawing parallels between today's racism and discrimination and the motivations of the perpetrators [16]. Far from being digitally literate, they also want more "snackable content" or digestible information, and more of a "fusion of digital and analogue" offerings, such as virtual tours of memorials, holograms or chats with contemporary witnesses, podcasts, videos or Twitch.tv that provide access to information.

Similar to how education has been transformed by the widespread use of technology, the rapid development of digital technologies has profoundly changed the nature of Holocaust remembrance and education [17-19]. Holocaust education is increasingly linked to the digital age, from live and virtual survivor testimonies [20] to "serious games" to enhance historical understanding [21], from geomedia-based educational tools [22] to the use of social media in formal and informal learning settings [23]. The digitisation of Holocaust memory and remembrance practices is closely related to this trend [24-25]. However, there is also a lack of clarity about the direction in which Holocaust pedagogy is likely to develop in the digital age [26]. As technological advances have enabled people to access a wide range of information, it can be difficult to determine which information is reliable and educationally relevant, and to develop a coherent pedagogical approach. One of the challenges is to find ways to ensure that the Holocaust is taught in a meaningful and accurate way, while recognising that digital media can be used to spread misinformation or distorted information [10]. This requires a careful balance between providing learners with access to reliable historical and moral resources and teaching them critical thinking skills to assess the accuracy of the information they find, as well as to deal with the ethical implications of the latest developments such as hologram technology and the use of AI and chatbots (e.g., ChatGPT-4).

---

[46] https://www.claimscon.org/netherlands-study/, https://www.claimscon.org/uk-study/, https://www.claimscon.org/france-study/, https://www.claimscon.org/austria-study/, https://www.claimscon.org/study-canada/, https://www.claimscon.org/study/, https://www.claimscon.org/millennial-study/

[47] https://www.claimscon.org/millennial-study/

In order to extend the theoretical elaboration of pedagogical implications related to digital Holocaust memory, this study proposes an educational intervention based on digital technologies using conceptual and empirical approaches of learning ecologies [27]. Taking a learning ecology approach to Holocaust education allows us to view the learning process as an interconnected system of dynamic and mutually influential relationships between physical, social and cultural environments, incorporating digital technologies and diverse learning settings [28]. Thus, by focusing on understanding how learners interact with digital Holocaust remembrance and educational materials, the study provides a framework for examining learning experiences at the individual and collective levels, as well as their impact on learners [29].

The study contributes to a deeper understanding of the complex field of Holocaust education and how it has been hybridised with digital technology. It also explores how digital media can be used to create a more immersive educational experience and engage learners in ways that traditional methods cannot, while at the same time presenting unprecedented challenges. The approach adopted is particularly relevant in dealing with such a complex and sensitive issue, as it takes into account the ecology of learning about the subject across multiple settings and media resources. Indeed, "relationing to the Holocaust" [10] has become one of the most common motifs for expressing political views, social identities and cultural concerns in contemporary society [30]. At the same time, the Holocaust is an ongoing discursive event that is constantly evolving, and the clear distinction between commemorative and non-commemorative memory is becoming less defined [31]. It is therefore a priority to explore how such a discourse can be developed in different settings, using different tools and resources, and influencing people's learning dispositions and processes.

The following sections present the methodological approach adopted, summarise the current state of Holocaust education, introduce the new field of study of Digital Holocaust Memory, and describe the learning ecology approach. Our final contribution includes a set of recommendations for the design of educational and pedagogical interventions based on Holocaust education that take advantage of digital technologies. The methodological approach adopted considers the context of digital technologies and how they can be used in conjunction with Holocaust education to create a meaningful and effective learning experience. This includes consideration of the physical, social and digital environments in which learning takes place, as well as the different types of media used and the potential of digital technologies to support and enhance learning.

6.2 Methodological approach

Our aim is to establish a link between the knowledge generated within the disciplinary field of media and cultural studies, which has dealt extensively with difficult legacies [32] and Holocaust memory, and the field of education. It is worth noting that recent research [23] has shown that these two subfields primarily rely on different conceptual frameworks. Furthermore, while Holocaust memory is a well-established field of research, there are few studies and insufficient theoretical elaboration on the use of digital technologies for Holocaust education. Given this disparity, our study seeks to bridge the gap and make connections between these fields. We aim to explore the intersection of media and cultural studies with education, focusing on the role of digital technologies in teaching and learning about the Holocaust. In doing so, we aim to contribute to a broader understanding of how digital tools can be effectively integrated into Holocaust education, drawing on the insights and theoretical foundations of both disciplines.

From a methodological perspective, this study applies conceptual research as a methodology that involves observing and analysing existing information without conducting practical experiments [33]. The aim of this approach is to gain a better understanding of the underlying phenomena and to develop new insights and theories that may help to explain the data. Through this approach, researchers are able to take a more holistic view of the phenomenon, analysing it from multiple angles and exploring the numerous factors that contribute to it [34-35]. In a conceptual research framework, the researcher combines previous research with other related studies, assuming that the phenomenon can be explained based on existing research [36]. It systematically explains the actions that need to be taken during the course of the study, using information from available research studies and the perspectives of other researchers on the topic.

We used the theory adaptation model to revise consolidated knowledge by introducing complementary frames of reference in order to present a new perspective on a conceptualisation [37]. The theory adaptation model allows for the analysis of multiple frames of reference and approaches, which can then be used to create a more comprehensive and insightful perspective on established concepts. By understanding the different frames of reference and approaches that exist within a given concept, the model can be used to inform fieldwork and empirical research and to support innovative pedagogical practices.

However, far from being purely speculative, this study also provides preliminary indications of the application of the learning ecology approach to an ecological learning context in relation to a specific setting, namely adult learners' access to information about the Holocaust on social media. By examining a concrete example, we hope to demonstrate how this approach can enhance our understanding of the complex interplay between learners, technology, social media platforms and the information landscape surrounding the Holocaust.

6.3 Holocaust education and its complexity

Holocaust education has been defined as "a relatively autonomous social system with certain practices, rules, and institutions, which is constituted by a system of relative positions created by competitive interaction between different agents and thus prone to constant reorganization" [38][48]. In this context, curriculum, teacher training, supervision and standardised testing reflect the national aspect, while the individual component comes from students and their teachers, who bring their unique perspectives and values to the classroom. In addition, professional expertise based on educational theories, research, and teachers' identities also influence how the Holocaust is taught [10]. This suggests that each teacher and student has their own understanding of the Holocaust and its meaning, which adds a crucial layer of complexity to Holocaust education. Such individual perspectives play a unique role in shaping a compelling pedagogical intervention. For example, a teacher's personal family background can provide a personal connection to the subject matter, enabling them to inspire students to consider the human stories intertwined with the Holocaust and to reflect on its continuing impact in the present [10].

Despite the lack of consensus on the definition of the field and its precise ontological boundaries, teaching and learning about the Holocaust has gradually developed and become professionalised, institutionalised, and globalised, with the subject being incorporated into formal school programmes through its inclusion in (official) curricula and, increasingly, in teacher training institutions as well as university education faculties [39-40]. Curricula, textbooks, and all non-formal and formal efforts to educate the public about the Holocaust are also part of Holocaust education [41-43]. However, research has also shown that people learn about the history and memory of the Holocaust from a variety of sources, including film, literature, and popular and digital media [44]. These sources provide a way for people to gain knowledge about the subject and understand how it has been remembered and commemorated over the years [45]. As a result, people are likely to develop a wide range of ideas, beliefs, understandings and preconceptions about the topic before learning about it formally in their history classes [46].

To complicate matters further, the Holocaust is subject to different processes of cultural appropriation, which vary depending on the specific geographical context. Western and Eastern European countries have different knowledge and understandings of the Holocaust due to the different events during and after the war [47-48]. At the same time, divisions also exist within and between other European regions, or even within the same country, as European integration fosters more ethnically diverse classrooms and challenges established dominant interpretations, leading to their renegotiation [3, 49-50]. As school demographics evolve, it becomes necessary for educators to understand how learners' backgrounds and experiences influence their perspectives on historical events such as the Holocaust [51]. Such an understanding can help educators develop more effective teaching methods and create more meaningful learning experiences for their students.

---

[48] A number of authors have argued that the terms "Holocaust education" and "Teaching and learning about the Holocaust" encompass so many different practices and content that they cannot be considered as a single entity [39]. Although they are not meant to be synonymous, in this study we use Educating about the Holocaust, Holocaust Education, or Teaching and Learning about the Holocaust depending on the specific focus of the discourse.

Furthermore, it is crucial to recognise that Holocaust education presents significant challenges [52] due to its sensitive nature, encompassing topics that touch on national and historical controversies [53], evoke feelings of shame and discomfort [54], and are rooted in the traumatic experiences, suffering, and violent oppression endured by marginalised groups [49]. Indeed, one of the central debates in Holocaust education revolves around whether the primary goal should be historical knowledge or moral lessons [55]. Some argue for prioritising an understanding of the historical context and events, while others emphasise the moral implications and encourage students to reflect on the consequences of hatred and prejudice [26]. However, it is important to recognise that these approaches are not mutually exclusive and can be combined to develop a more comprehensive understanding of the content [51].

In this regard, it is fundamental to consider the biases, preconceptions, understandings, resources, and relationship to the global context of meanings in which both educators and learners engage with the issues of Holocaust education, as well as the perspectives of individuals throughout the process [46]. As a result, the appropriation of Holocaust knowledge in different learning environments is characterised by agency and subjectivity. Agency is defined as a product of power relations and refers to a wider range of practices, institutions and artefacts, and is understood as a system of meaningful practices that create identities and objects [56]. Agency and subjectivity are central to the incorporation of Holocaust material in learning environments because they allow individuals to construct their own understanding of the subject. Agency allows individuals to make decisions about what information to use and how to use it, and subjectivity allows individuals to make meaning from their experiences with the content. As a result, the acquisition of Holocaust knowledge is characterised by the ability to shape identity and create objects [49].

The purpose of the following section is to highlight the potential and opportunities for further reflection and development of the new field of study of digital Holocaust memory and its implications for education. This section will focus on the ways in which digital technologies can be used to facilitate the analysis and exploration of the history of the Holocaust and its legacy. It will also explore the potential and challenges of digital tools to engage students and the public in meaningful conversations about the Holocaust and its impact.

---

[49] A prominent pedagogical approach to teaching about the Holocaust (https://echoesandreflections.org/) emphasises sensitivity and a deep understanding of the subject. Key principles include contextualising history, humanising the Holocaust, creating a supportive learning environment and making it relevant to contemporary society. These principles aim to foster empathy, critical thinking and a comprehensive understanding of the Holocaust.

6.4 The educational media ecology of Digital Holocaust Memory

The rise of systemic organisation of online content and user-generated content enabled by Web 2.0 applications has opened up new possibilities for the mediatisation of the past [57] and new means of formulating, reinforcing and challenging its interpretations [58-60]. The concept of 'virtual Holocaust memory' has been advocated to demonstrate the interconnectedness of digital and non-digital Holocaust memory and to highlight the collaborative nature of contemporary forms of memory, as well as a methodology that can be applied to digital and non-digital projects [61].

Digital Holocaust Memory is seen as a digital phenomenon or an intra-action between a multitude of actors. According to this field of study, it is becoming increasingly difficult to distinguish between memory, education and research, as they are increasingly intertwined. Furthermore, they have always been involved in the history and development of media, from audio recordings and video to the present day of digital media [62]. Finally, as computational, interface, user and broader cultural environments interact, they become integrated as digital phenomena [60]. From this perspective, digital technologies are shaping new ecologies of memory [59, 63] and are contributing to the emergence of new forms of Holocaust commemoration and education [64].

Today, Digital Holocaust Memory encompasses a wide range of projects in museums, archives, corporations, and educational organisations in the USA and Europe. These initiatives include interactive video testimonies, virtual reality films, augmented reality applications, museum installations and online exhibitions, all of which seek to convey the memory of the Holocaust through novel and inventive means [65-66].

Efforts to integrate archival research on the Holocaust, as demonstrated by initiatives such as the European Holocaust Research Infrastructure, have successfully addressed the geographical dispersion of Holocaust-related materials and the challenges faced by historical research due to the fragmented nature of Holocaust documentation [67-68]. On the other hand, mobile and mixed reality technologies offer a unique opportunity to construct individual narratives through active exploration of physical sites associated with Nazi crimes and the Holocaust [69]. These technologies support constructivist educational programmes and facilitate the development of learning activities that encourage personal exploration and understanding of sources [70].

In addition, digital media and teaching strategies related to genocide and the Holocaust are increasingly using interactive 3D digital storytelling to recreate the powerful experience of listening to survivors in person. Through the use of hologram technology, these projects allow visitors to become emotionally engaged and immersed by answering direct questions [20, 71]. Other educational projects create digital spaces to facilitate the transition from physical place to virtual space and allow for the exploration of the intrinsic meaning of digital memory cultures. These projects not only enable the (re)discovery of marginalised memory sites, but also provide "glocal" digital access to their histories and structures, drawing attention to their unique characteristics [72].

However, with the growing influence of artificial intelligence and machine learning on Holocaust memory research [73], the ethical implications of using neural networks, holograms or chatbots, such as advanced language models like ChatGPT-4, in the context of memorialising mass atrocities are becoming increasingly complex and warrant thorough examination. The application of machine learning and artificial intelligence to historical narrative and collective memory has sparked an intense debate within memory and Holocaust studies. On the one hand, the development of artificial intelligence in the field of memory institutions, history and testimony is recognised as a new opportunity for historical research and teaching [74]. On the other hand, imaginary tools such as GPThistory, an adaptation of ChatGPT to become a real tool for history production and support of collective memory, pose unprecedented challenges. For example, the scarcity of training data on mass atrocities can potentially affect how AI interprets queries related to these events. The ability to distinguish between human-generated and AI-generated content related to mass atrocities becomes increasingly important. There are also concerns that AI-generated content could be used to spread false information about atrocities [75]. Understanding how search engines [76] and artificial intelligence algorithms [77-78] work for Holocaust content may be helpful in detecting or being aware of deepfakes and the creation of distorted information. Furthermore, in addition to authenticity and ownership [79], users should be aware that sensitivity and respect should guide the design and implementation of these technologies to avoid causing unnecessary distress or retraumatisation, while any use of holograms or chatbots should be accompanied by contextual information and expert guidance to provide a full understanding of the subject. Indeed, it is crucial to avoid relying solely on technology without appropriate historical context, interpretation and critical engagement, which can lead to a loss of empathy or emotionally disruptive interactions [80].

6.5 Commemorative and educational participatory practices in social media

In addition to the various implementations of Digital Holocaust Memory considered so far, social media platforms have emerged as important contributors, as they have become crucial arenas for shaping Holocaust memory, especially as we enter the post-witness era [81]. These platforms facilitate a global dialogue about the meaning of the Holocaust in the present, allowing for a nuanced understanding of its implications [5, 7]. Social media platforms serve as important "memory ecologies", enabling diverse memory practices such as posting, linking and sharing content [82]. The specific characteristics of each platform [83] influence how they are used to negotiate, commemorate and educate about the Holocaust, providing multiple avenues of engagement beyond traditional public discourse and formal education.

The potential of social media as a space for negotiating participatory practices about the Holocaust is expressed in various ways of disseminating content and engaging with online users, such as "virtual tours", through which Holocaust organisations offer virtual visits to their exhibits and collections, allowing users to explore them remotely [84-85]; "live streams and webinars" for remote learning, allowing participants to learn from experts and interact with peers [84]; educational resources provided by Holocaust organisations, such as lesson plans, videos and materials, through their websites and social media pages [86], as well as online communities and informal resources [87]; and social media campaigns that raise awareness of the Holocaust and promote Holocaust education [84].

While fictionalised stories based on historical documents contribute to the broader Holocaust narrative [88-89], social media have also become a place where survivors and their descendants share personal stories and testimonies, providing unique insights into the Holocaust [90]. Finally, social media is where museums and archives make their collections available online, allowing users to access primary sources such as documents and photographs [91-93]. Grassroots initiatives have also created unofficial social media pages and groups to archive family or local memories of the Holocaust [94-96].

However, social media also represent an ambiguous space for Holocaust remembrance and education, as unregulated debates often lack historical accuracy, exploit history for political purposes, and have the potential to distort historical events and spread antisemitic ideas [10, 12, 97-98]. Paradoxically, the presence of Holocaust references on social media and the intense emotional engagement of users highlights the impact of the globalisation of Holocaust remembrance. Contrary to traditional commemorative practices, the debates and controversies surrounding the Holocaust on social media, including distortion and denial, actually amplify its significance and distinctiveness in the present, forming a "counter-public sphere" that encompasses alternative or counter-memories alongside official ones [81, 99]. This dynamic can lead to forms of "agonistic memory" characterised by contestation and conflict [100-101]. However, the immediacy and interconnectedness of the Holocaust's presence on social media makes Holocaust remembrance a highly relational topic that naturally bridges past and present events [10]. As a result, the Holocaust has become more prominent and relevant in the public consciousness and, through social media, is perceived as a shared memory that connects individuals to the past and to each other.

In addition, social media platforms have also been criticised for their participatory potential and their use in promoting user agency beyond accredited cultural institutions. Two forms of agency and engagement have come under particular scrutiny: the practice of taking selfies as a form of bearing witness to Holocaust memory [102-103], and Instagram projects that aim to engage new generations through alternative accounts and perspectives, such as @ichbinsophiescholl (https://www.instagram.com/ichbinsophiescholl/) and Eva.Stories [88]. While the latter project straddles the line between trivialisation and desacralisation, it offers new ways of translating mediated Holocaust memory into social media patterns that can engage young people. Furthermore, the growing use of TikTok by museums, organisations and survivors highlights the importance of communication styles and media formats tailored to younger audiences, especially in response to the COVID-19 pandemic and related lockdowns [90].

In summary, the field of Digital Holocaust Memory highlights the significant emergence of performative practices that aim to transform individuals from passive spectators into socially and morally responsible agents [104]. These practices are central to many Digital

Holocaust Memory projects, as users are encouraged to play an active role and exercise agency through actions such as liking, sharing and producing new content. Even in seemingly "static" digital environments such as social media, where users can engage in relatively simple interactions, performative behaviours can be observed. For example, images, stories and videos captured by museum visitors are often shared and approved by administrators of Holocaust museums' Facebook and Instagram pages [105].

Several dimensions that come into play in an ecologically understood learning experience are not discussed in the conceptual elaboration and brief examples provided above. As a result, the following section introduces the learning ecologies framework in relation to Digital Holocaust Memory. The learning ecologies framework encompasses a holistic approach to learning experiences, one that considers the social, cultural, technological and ecological dimensions that together form a cohesive learning environment. In other words, the framework considers the physical and virtual elements of the learning experience and how they interact. This approach is particularly relevant to digital Holocaust memory and education, which requires a multifaceted approach to understanding the complexities of the Holocaust.

6.6 Learning ecologies in (digital) practices of Holocaust education

We have seen that the multiple perspectives involved in teaching and learning about the Holocaust require consideration of different resources and situations, such as: educational materials (from textbooks to digital resources); the curriculum; "classroom practises, and the ways in which teachers attempt to relate to students; the relationship of history and memory; what was believed and shared across generations; and how culture and identity shape reactions to other understandings and interpretation" [106]. In light of the growing forms of Digital Holocaust Memory, it is clear that the Internet is more than just a space that allows users greater agency. It is also a complex web of multiple actors, making it necessary to consider Holocaust education and remembrance from an ecological perspective [60].

As discussed above, the transmission of collective memory involves a series of communicative and educational interventions [107]. These measures include diverse activities such as official ceremonies and political speeches [108], visits to memorial sites [109], exploration of museums and memorials [110-111], travel experiences [112], and especially engagement with educational institutions and other spaces where individuals acquire knowledge and understanding through tangible and intangible means [39-40]. In this section, we use the theoretical framework of the learning ecology perspective to explore how individuals participate in both formal and informal learning settings. In doing so, we posit that a learning ecology framework can reflect and adapt to the complexities of teaching and learning about the Holocaust.

Learning ecologies encompass the complex and interconnected systems and environments in which learning takes place. They include a variety of settings, contexts and interactions through which individuals actively engage with different subjects [27-28]. These environments can be formal, such as classrooms and educational institutions, or informal, including online communities, social networks and personal interactions [113]. While traditional pedagogical approaches associated with educational technology often focus on learning theories specific to either formal or informal learning [114], the learning ecology perspective recognises that learning is not limited to formal educational settings, but occurs through diverse interactions, experiences, and everyday life contexts [28]. Furthermore, the learning ecology approach can be applied to different learning situations, whether or not they involve the use of digital technologies. In this regard, we believe that the comprehension demands of Digital Holocaust Memory, which encompasses both digital and non-digital projects [61], can be addressed through a theoretical lens that includes any learning situation and process.

Learning ecologies are based on the idea that each individual's learning ecology is a collection of contexts, relationships and interactions that provide opportunities and resources for learning, development and achievement [27]. Learning ecologies have temporal and spatial dimensions that allow them to connect different spaces and contexts that exist simultaneously and over time throughout an individual's life course. They have two main dimensions: 1) intrinsic "learning dispositions", which consist of individuals' ideas about learning, their motivations and expectations; 2) and "learning processes", which include relationships, resources, actions and contexts [115].

While learning dispositions are linked to an individual's innate motivation to learn, the learning process is shaped by experiential factors that guide a person's learning journey throughout their lifetime [115]. Motivation, beliefs and expectations about learning play a crucial role in an individual's decision to engage in learning activities and contexts. From a learning ecology perspective [115], motivation encompasses different aspects, in particular the influence of goals and self-efficacy expectations that drive learners to engage in different types of tasks [116]. The learning ecology framework sees motivation as a personal inclination that drives individuals to seek resources and build personal and professional relationships that facilitate formal, non-formal and informal learning [117]. It can also be understood as an intrinsic motivational orientation that guides learners' engagement in their learning processes [118] and is deeply intertwined with individuals' personal narratives and social contexts [119]. On the other hand, the learning process includes the actual activities, relationships and resources with which individuals engage to learn. Together, these two dimensions create a holistic framework for learning that incorporates temporal and spatial elements to provide a comprehensive understanding of how learning takes place.

Although the framework has been approached using different methods and techniques [120], its concepts can be applied to both formal educational contexts, where ecologies are shaped primarily by institutions and teachers, and informal learning environments, where individuals and groups shape their own ecologies independently, without the guidance of a coordinator of the educational process [27]. It is common for learning in school to extend to activities outside of school or other formal organisations, and vice versa [28]. Self-initiated learning processes can indeed include a range of activities, such as using text-based sources like books and websites, exploring the Internet through blogs and social media, participating in structured learning opportunities such as courses, self-study materials and MOOCs, and cultivating knowledge-sharing relationships through mentoring, peer learning and personal contacts. On the other hand, a classroom-based learning ecology with a formal teacher-student relationship and a predetermined curriculum or syllabus may also include opportunities for autonomous and self-directed skill development supported by a rich array of resources and relationships [27]. In addition, the learning ecology lens encourages learners to see learning as a process that involves a holistic connection with other people and their environment, and empowers them to take an active role in nurturing their learning ecology.

In addition, the learning ecology perspective encourages educators and teachers to look at learning processes from a holistic point of view. It invites them to facilitate students' learning as an ecological journey that they have planned and equipped, potentially leading to new opportunities to address different contexts, relationships and interactions. Based on the recognition that learning includes "learning to learn" [121], this approach advocates the importance of personalisation, collaboration and informal learning in the future. The underlying idea emphasises the ability of the learner to become empowered and proactive in orchestrating their learning through the use of structures, processes and resources. This means that learners not only become aware of their learning process, but can also use the resources available to them to create a more dynamic and effective learning environment. As a result, learning includes engaging with peers, using technology and participating in self-directed activities to create a learning ecosystem that works for them.

As we have seen, a learning ecology encompasses a wide range of elements, including physical spaces, social interactions, cultural norms, technological tools and resources, with which individuals actively engage to participate in collective memory and cultivate historical thinking [122]. It highlights the dynamic interplay between individuals, their immediate environment, and the broader social and cultural contexts that shape and influence their learning experiences. Within different learning ecologies, individuals discover unique directions and pathways to navigate their engagement with collective memory and consequently shape their understanding, interpretation and use of historical knowledge. In addition to formal school curricula and self-initiated study, informal conversations with family, friends and peers provide valuable opportunities for individuals to exchange perspectives, share personal experiences and collaboratively construct meaning around historical events. These interactions play an important role in shaping individuals' understanding and interpretation of collective memory, as they are influenced by different viewpoints, global and national narratives and emotional connections.

Following the explanations provided in this and previous sections, it is now possible to see how the various conceptual and thematic components are interrelated (Figure 1). On the one hand, there is the socio-cultural context that shapes collective historical memory and the pedagogical tools developed to transmit it. In addition, the media system provides digital and non-digital tools to facilitate the transmission of memory as well as the implementation of formal and informal learning situations. Finally, there are the ways in which people develop their learning ecologies according to the two main dimensions explained above. Each of these components works together to create an environment in which memory and learning can be shared, stored and accessed. The social context provides a common language for understanding and interpreting the past, while educational devices and media systems provide the tools for passing on collective memory. Finally, learning ecologies offer directions for appropriating and transmitting collective memory today.

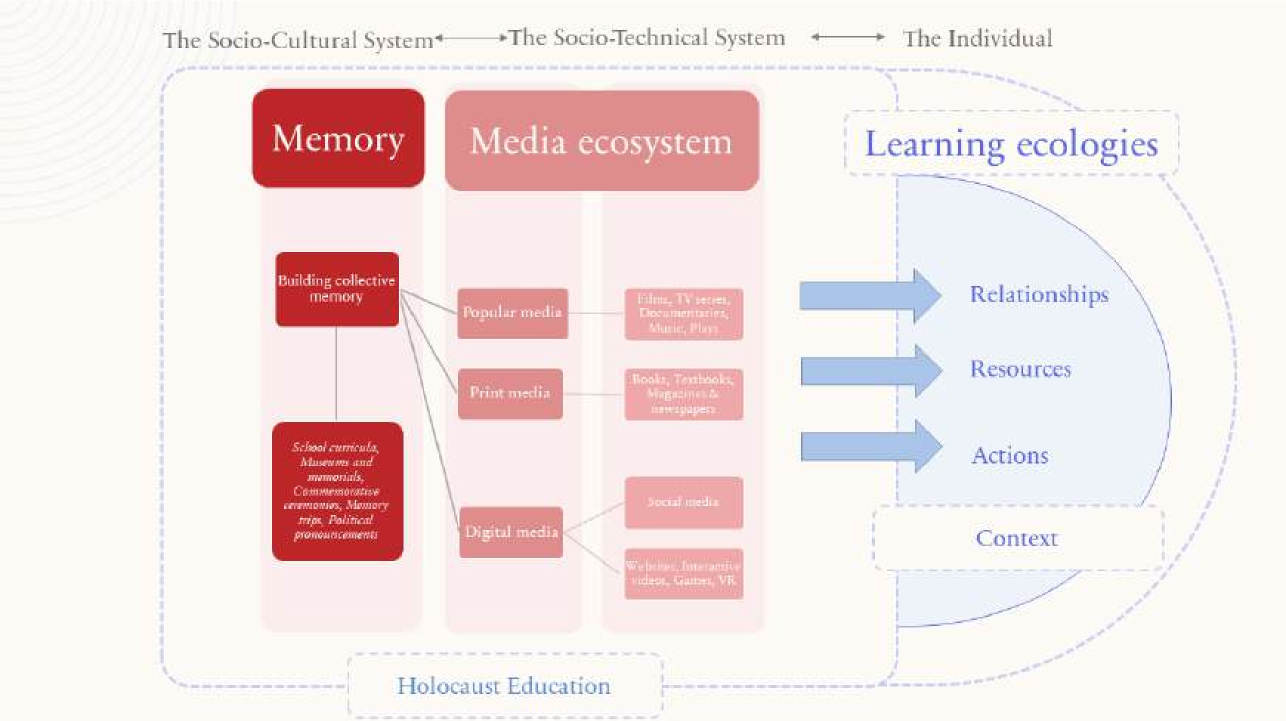

The Socio-Cultural System
The Socio-Technical System
The Individual
Memory
Media ecosystem
Learning ecologies
Building collective memory
School curricula, Museums and memorials, Commemorative ceremonies, Memory trips, Political pronouncements
Popular media
Print media
Digital media
Films, TV series, Documentaries, Music, Plays
Books, Textbooks, Magazines & newspapers
Social media
Websites, Interactive videos, Games, VR
Relationships
Resources
Actions
Context
Holocaust Education

Figure 1. The relationship between collective memory, the media ecosystem and learning ecologies

6.7 A case study: Learning about the Holocaust informally on social media

In this section, we provide a brief overview of how the learning ecology approach was used to investigate the learning ecology of a group of adult learners who use social media platforms to acquire knowledge about the Holocaust and actively engage in remembrance practices.

In this research study [123], our primary aim was to explore the various elements that make up the learning dispositions and processes of online users. Specifically, we focused on investigating these aspects in the context of social media profiles dedicated to Holocaust remembrance. The investigation included an examination of the motivations that drive individuals to seek information on the social media pages of Holocaust memorials and museums, as well as their engagement in Holocaust-related learning experiences. We also looked at the specific activities and strategies that users used to interact with the content, including reading textual and visual information, participating in interactive discussions, exploring digital resources, and engaging in informal learning opportunities.

The decision to adopt the learning ecology approach was influenced by its unique perspective on the study of informal learning. In contrast to formal learning settings where curricula, textbooks and assessment procedures are dictated by institutions and teachers, in personal learning environments for lifelong learning [124] and social media environments [125], individuals take responsibility for shaping their own learning practices [126-127]. Despite academic research exploring the integration of social networking sites and social media platforms to enhance personal learning environments for over a decade [128], the field has yet to establish clear pedagogical theories. Indeed, there is still a prevailing tendency to rely primarily on technology acceptance models rather than pedagogical models [129]. In this light, the learning ecology approach allowed to analyse how adult learners develop their learning ecologies by using social media to learn about the Holocaust informally.

Specifically, the study investigated the interests, expectations and learning process of a group of Italian adult learners (N = 276), and an online survey tool was specifically designed to collect data on this topic. The survey aimed to gather information from online users who follow the social media profiles (Facebook, Twitter, Instagram and YouTube) of four Italian Holocaust museums. In particular, we explored interests and expectations by examining the factors that influence the learning disposition dimension. At the same time, we considered the activities, resources and relationships involved in the learning process. To analyse the data and address the research questions, the researchers used a combination of descriptive and inferential statistics. This approach allowed them to summarise the characteristics of the sample group and draw conclusions from the data collected.

The results show that most respondents are female, have an average age of 50 and are highly educated. The study provides several valuable insights. First, in terms of interest and expectations, users show a strong inclination towards topics related to the intersection of transnational and national Holocaust remembrance. This suggests that they are actively seeking to understand the broader context in which Holocaust remembrance takes place and the connections between different national and international perspectives. It demonstrates a desire to engage with the complexities of collective memory and its implications across different geographical and cultural boundaries. Furthermore, users express a deep sense of civic responsibility when it comes to the legacy of the Holocaust. This indicates their recognition of the importance of remembering and honouring the victims and survivors, as well as their commitment to preventing similar atrocities in the future. Their engagement in Holocaust remembrance on social media platforms reflects a collective consciousness and commitment to promoting awareness and understanding of this historical event. In terms of the learning process, the study shows that users demonstrate proactive behaviour and a preference for individual learning. They actively seek out information, resources and opportunities for autonomous exploration. This indicates their intrinsic motivation and self-directed approach to acquiring knowledge about the Holocaust. However, the findings also suggest that peer interaction is less important to users. While they value the information and content provided by social media platforms, they may rely more on individual reflection and personal learning experiences rather than collaborative engagement with others.

Overall, these findings shed light on the specific interests, expectations and learning tendencies of users participating in Holocaust remembrance on social media. Understanding these aspects can inform the design and development of educational initiatives and resources that meet their needs and preferences, ultimately promoting a more meaningful and effective learning experience.

6.8 Recommendations to develop educational activities that facilitate powerful learning experiences related to Holocaust memory

The links outlined between Digital Holocaust Memory and learning ecologies can contribute to a more meaningful understanding of the Holocaust and its aftermath by providing a framework for integrating different learning perspectives and experiences. By bringing together the digital and physical components of collective memory [60], it opens up the possibility of exploring how different forms of communication, such as digital media, can be used to engage in meaningful dialogue and understanding about the difficult legacy of collective traumatic events [32]. This can also lead to a more reflective and empathetic approach to learning and understanding history [10].

We argue here that by engaging with digital technologies, users can recontextualise their understanding of the Holocaust and its place in history and learn in a more meaningful and immersive way, which can lead to a deeper understanding of the topic and its implications [42]. However, the learning ecology perspective goes a step further by suggesting specific areas for development and intervention, not to ‘teach’ about the Holocaust, but to facilitate active and meaningful learning [27-28]. At the same time, it can provide tools to help users deal with potential challenges and disruptions that may affect their understanding and emotional engagement with such a difficult subject.

Rather than informing or designing decontextualised educational activities, educators are expected to create tools and situations that help learners to facilitate and visualise their ecological learning trajectories [130]. Regardless of whether learning ecology focuses more on formal or informal learning settings, a learning ecology trajectory about the Holocaust involves designing a comprehensive and dynamic learning experience that incorporates different elements and resources. Whether the learning experience is self-directed or guided by others, it is important to set clear learning objectives that define the specific knowledge, skills and attitudes that learners are expected to develop through the learning experience, and to identify the key concepts, historical events and issues related to the Holocaust that learners are expected to understand.

Identifying resources and materials allows to determine how they will be used to support learning. These resources may include books, documentaries, films, survivor testimonies, archival materials, digital resources, websites and educational platforms. At the same time, it is important to plan and implement a variety of learning activities that engage learners and encourage active participation, which may include individual research, group discussions, interactive presentations, (virtual) field trips and creative projects. As the focus here is on the digital component of Holocaust remembrance, it is equally important to integrate the conscious use of technology to enhance the learning experience, such as multimedia resources, online forums or discussion boards, digital archives, virtual reality experiences, social media, and educational applications or platforms that provide access to primary and secondary sources of historical content and remembrance.

At the same time, it is crucial to encourage the development of reflective and critical thinking skills. These skills enable learners to engage in a deeper level of understanding and analysis of the learning experience. When studying the Holocaust, it is essential to reflect on the historical context and significance of this tragic event, taking into account its social, political and cultural dimensions. Furthermore, as digital collective memory continues to evolve, it is necessary to critically examine the ethical implications arising from the latest advances, such as artificial intelligence and machine learning solutions. These technologies have the potential to shape the way we remember and interpret historical events, including the Holocaust. By encouraging critical thinking, learners can explore issues such as the accuracy and bias of digital representations, the role of algorithms in curating information, and the impact of technological advances on the preservation of memory.

Finally, to cultivate meaningful relationships in the context of learning, it is crucial to prioritise collaboration and dialogue between learners. By creating an environment that encourages open discussions, debates and group projects, educators can foster an atmosphere of active engagement and exchange of ideas. Facilitating discussions allows learners to share their thoughts, perspectives and insights with each other. Through respectful dialogue, they can explore different viewpoints, challenge assumptions and deepen their understanding of the Holocaust and its impact. Engaging in dialogue with peers gives learners the opportunity to learn from each other, broaden their perspectives and develop empathy by considering different interpretations and personal experiences related to the subject matter or personal background. Encouraging dialogue and collaboration also fosters a sense of community among learners. By creating a supportive learning environment where individuals feel comfortable expressing their opinions and engaging in respectful discussions, learners can develop a sense of belonging and mutual respect. This sense of community enhances the overall learning process as learners can draw on each other's knowledge and experience, creating a dynamic and enriching learning environment [96].

All these factors help learners to consider the complexity of ecological systems and the impact of their actions on the learning environment. They also enable learners to develop a better appreciation of the interconnectedness of different information systems and the links between human, natural or artificial systems [60]. This approach to education focuses on creating a learning environment that encourages learners to actively engage with their environment, collaborate with their peers and interact with the materials they are working with. In this way, learners can make connections between what they are learning and what they already know from other sources, activities and relationships, thereby creating a holistic comprehension of the subject.

In formal learning settings, it is up to educators to interpret learners' prior knowledge and potential misconceptions [46], identify appropriate dispositions in relation to key resources (digital and non-digital) and establish meaningful relationships. This is beneficial because it allows educators to identify where students are in terms of knowledge and understanding, and then tailor their teaching to best meet their needs. In addition, by identifying appropriate resources and establishing meaningful relationships, teachers can ensure that learning is more engaging and effective [42].

Overall, when applied to teaching and learning about the Holocaust, the learning ecology approach can be effective in cultivating a complex view of the problem [10]. It should also create opportunities to critically relate past events to human puzzles in contemporary society. In this regard, the consideration of subjectivity as a starting point for the learning ecology approach should overcome the orientation of younger generations to see the Holocaust as a distant event in history with little relevance to their lives [131]. As older generations may have a more personal connection, as they may have had family members or friends who were affected by it, bridging narratives and promoting interconnections could be a valuable approach [95, 132]. Consequently, educators should gain a better insight into how their students interact with the topic of the Holocaust and how they process the materials offered or available to them. Potentially, educators could seek a common sense of how these perspectives and opinions evolve over time in order to create a more effective curriculum that can help students learn and engage with the topic in a meaningful way. In addition, this will help educators to create learning environments that are conducive to critical thinking and the development of empathy, essential conditions for learning about the Holocaust [133].

6.9 Conclusion

Building on the conceptual components of the learning ecologies approach, this study contributes to broadening our comprehension of how digital technologies can enable new experiences of teaching and learning about the Holocaust. By applying a specific theoretical lens, it provides a methodological basis upon which pedagogical scenarios can be developed and implemented. From this perspective, the study seeks to identify the various elements of learning ecologies that need to be considered when developing Holocaust education with digital technologies, such as learners' prior knowledge and understanding, their cultural backgrounds, their motivations and attitudes, and the resources available to them. An appreciation of these elements will make it possible to create learning environments that are more responsive to learners' needs and that can provide new experiences of educating about the Holocaust that are still relevant today.

Although not specifically designed for the field of Holocaust education, the learning ecology approach can be used to support the interweaving of formal, non-formal and informal learning settings through learners' motivations and attitudes towards the subject, as well as their practices in terms of activities, resources and relationships. The Holocaust is not an ordinary subject and requires specific pedagogical approaches. In this sense, we believe that the learning ecology approach, which can be applied to any type of learning experience, is particularly useful for exploring the dynamics potentially implicated in Holocaust education interventions. The case study we have presented serves as a tangible illustration of how the learning ecology approach can enrich our knowledge of the complex dynamics between learners, technology, social media platforms and the vast media landscape related to the Holocaust.

However, further implications can be drawn. The use of digital technologies and social media in an ecological learning experience about the Holocaust also involves the development of digital and social media literacy skills at various levels. Digital media literacy means not only developing critical thinking skills and improving cognitive and metacognitive processes, but more importantly facilitating the co-construction of knowledge through social interaction and activity, and engaged participation in civic and public spaces [134]. It also means recognising the value of different perspectives, knowing how to use digital media responsibly and being aware of the implications and consequences of their use in an educational context. It also requires learners to be able to navigate digital media platforms, to assess the accuracy and reliability of digital content, and to be aware of ethical issues that may arise. In this sense, using media literacy skills to study the Holocaust also helps to recognise the role of media in shaping narratives around representations and stereotypes. By critically examining media related to the Holocaust [135], students gain an overview of how media can both perpetuate and challenge stereotypes [136], as well as the global power of media in shaping people's perceptions of events and people [137].

As it has been emphasised throughout this study, the Holocaust remains a sensitive and multidisciplinary issue that is highly significant today. Engaging with the Holocaust involves the task of establishing connections and relevance between this historical event and the lives of individuals in contemporary contexts [10]. Whether it serves psychological functions such as drawing analogies, satisfying the human need for connection and relationship, or constructing personal meaning, the Holocaust continues to influence modern society, giving voice to political perspectives, social identities and cultural concerns [31]. By adopting a learning ecology approach, we can place the individual at the centre of these processes, where interaction and reflection not only contribute to a deeper engagement with the Holocaust, but also help young people to make sense of their exploration and creation of new forms of citizenship in contemporary society.

In conclusion, learning ecologies represent a contemporary and dynamic approach to continuous and professional learning that harnesses the transformative power of digital media. By embracing the concept of learning ecologies, individuals and institutions can adapt to the ever-changing landscape of education and tailor learning experiences to the diverse needs and contexts of learners.

Through the lens of this study, we have also gained valuable insights into the central role of websites, memorials and other digital "places" of interaction in shaping teachers' professional learning. These digital spaces offer not only a wealth of information, but also opportunities for collaboration, reflection and engagement with diverse perspectives. As educators immerse themselves in these digital learning landscapes, they become active participants in a vast network of knowledge exchange and continuous growth.

Beyond the scope of this specific research, we recognise that media consumption for learning extends far beyond the boundaries of formal education. Learning ecologies transcend the traditional classroom setting, recognising the multifaceted nature of learning, intertwined with different facets of an individual's life and identity. Whether through exploring thought-provoking cinema, delving into enriching books, immersing themselves in the interactive world of video games [138], or navigating specialised websites, individuals construct their own unique pathways of knowledge construction.

In light of these observations, a comprehensive self-analysis or facilitated examination of one's learning ecology becomes an essential endeavour. This introspective journey enables individuals to identify their preferred ways of learning, recognise their strengths and address potential gaps. Likewise, educational institutions can use these insights to curate tailored resources, design relevant activities, and cultivate meaningful relationships that resonate with learners, thereby fostering a culture of continuous improvement and professional excellence.

Embracing learning ecologies has the potential to revolutionise the way we approach education and professional development. As we navigate the ever-expanding digital landscape, it is imperative that we harness the vast array of learning opportunities and engage in purposeful exploration. By embracing the philosophy of learning ecologies, we are paving the way for a future where education is not confined to a single space or time, but rather an enriching and lifelong journey of discovery, growth and transformation.

6.10 Statement of ethics

Not applicable. This study did not involve human participants or animals.

6.11 Author contribution statement

Stefania Manca: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; and Wrote the paper.

Juliana Elisa Raffaghelli: Conceived and designed the experiments; Analyzed and interpreted the data; and Wrote the paper.

Albert Sangrà: Conceived and designed the experiments; and Wrote the paper.

6.12 Data availability statement

No data was used for the research described in the article

6.13 Additional information

No additional information is available for this paper

6.14 Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

6.15 Acknowledgements

This study is part of the first author's research project "Teaching and learning about the Holocaust with social media: A learning ecologies perspective"—Doctoral programme in "Education and ICT (e-learning)", Universat Oberta de Catalunya, Spain.

6.16 References

[1] Pakier, M. & Stråth, B. (2010). *A European Memory? Contested Histories and Politics of Remembrance*. New York, NY: Berghahn.

[2] Levy, D., & Sznaider, N. (2006). *The Holocaust and memory in the global age*. Philadelphia, PA: Temple University Press.

[3] Sierp, A. (2014). *History, Memory, and Trans-European Identity. Unifying Divisions*. London, UK: Routledge.

[4] Sierp, A. (2020). The European Union as a Memory Region. *Contemporanea*, 23(1), 128-132.

[5] De Cesari, C., & Rigney, A. (2014). *Transnational Memory: Circulation, Articulation, Scales*. Berlin, München, Boston: De Gruyter.

[6] Fracapane, K. (2015). International Organisations in the Globalisation of Holocaust Education. In Z. Gross, E.D. Stevick (Eds.), *As the Witnesses Fall Silent: 21st Century Holocaust Education in Curriculum, Policy and Practice* (pp. 263-276). Basel: Springer.

[7] Assmann, A. (2017). Transnational Memory and the Construction of history through Mass Media. In L. Bond, S. Craps & P. Vermeulen (Eds.), *Memory Unbound: Tracing the Dynamics of Memory Studies* (pp. 65-82). New York and Oxford: Berghahn Books.

[8] Walden, V. G. (2022). *The Memorial Museum in the Digital Age*. REFRAME Books. https://reframe.sussex.ac.uk/the-memorial-museum-in-the-digital-age/.

[9] Niven, B., & Williams, A. (2020). The Dominance of the National: On the Susceptibility of Holocaust Memory. *Jewish Historical Studies*, 51(1), 142–164.

[10] Novis-Deutsch, N. S., Lederman, S., Adams, T. & Kochavi, A. J. (2023). *Sites of Tension: Shifts in Holocaust memory in Relation to Antisemitism and Political Contestation in*

Europe. Haifa: The Weiss-Livnat International Center for Holocaust Research and Education.

[11] Manca, S. (2022). Digital Holocaust Memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and remembrance practice. *International Journal of Heritage Studies*, 28(10), 1152-1179.

[12] UNESCO (2022). *History under Attack: Holocaust Denial and Distortion on Social Media*. Paris: UNESCO.

[13] Stein, A. (2014). Too Much Memory? Holocaust Fatigue in the Era of the Victim. In *Reluctant Witnesses: Survivors, Their Children, and the Rise of Holocaust Consciousness* (pp. 166–182). Oxford, UK: Oxford University Press.

[14] Lawson, T. (2017). Britain's promise to forget: some historiographical reflections on What Do Students Know and Understand about the Holocaust? *Holocaust Studies*, 23(3), 345-363.

[15] Pew Research Center (2020). *What Americans Know About the Holocaust*. https://www.pewresearch.org/religion/2020/01/22/what-americans-know-about-the-holocaust/

[16] Arolsen Archives (2022). *Gen Z and Nazi History*. https://enc.arolsen-archives.org/en/study/

[17] Garde-Hansen, J., Hoskins, A., Reading, A. (2009). *Save as… Digital memories*. London, UK: Palgrave Macmillan.

[18] Kligler-Vilenchik, N., Tsfati, Y., & Meyers, O. (2014). Setting the Collective Memory Agenda: Examining Mainstream Media Influence on Individuals' Perceptions of the Past. *Memory Studies*, 7(4), 484–499.

[19] Steinhauer, J. (2022). *History, Disrupted: How Social Media and the World Wide Web Have Changed the Past*. London, UK: Palgrave MacMillan.

[20] Marcus, A. S., Maor, R., McGregor, I. M., Mills, G., Schweber, S., Stoddard, J. & Hicks, D. (2022). Holocaust education in transition from live to virtual survivor testimony: pedagogical and ethical dilemmas. *Holocaust Studies*, 28(3), 279-30.

[21] Walden, V. G. (2021). *Playing the Holocaust*. https://reframe.sussex.ac.uk/digitalholocaustmemory/2020/11/24/playing-the-holocaust-part-1/

[22] Jekel, T., Schötz, T., & Wöhs, K. (2020). Remembrance, Space, Education. Emancipatory and Activist Approaches through (Geo-)media. In G. O'Reilly (Ed.), *Places of Memory and Legacies – In an Age of Insecurities and Globalization*. Basel: Springer.

[23] Manca, S. (2021). Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age. *Review of Education, Pedagogy and Cultural Studies*, 43(3), 226-253.

[24] Feldman, J., & Musih, N. (2021). Israeli Memory of the Shoah in a Digital Age: Is it Still "Collective"? In C. Wiese, & S. Vogt (Eds.), *Die Zukunft der Erinnerung: Perspektiven des Gedenkens an Nationalsozialismus und Shoah* (pp. 177-192). Berlin: De Gruyter.

[25] Kansteiner, W. (2017). Transnational Holocaust memory, digital culture and the end of reception studies. In T. S. Andersen & B. Törnquist-Plewa (Eds.), *The Twentieth Century in European Memory: Transcultural Mediation and Reception* (pp. 305–343). Leiden: Brill.

[26] Gray, M. (2014). The digital era of Holocaust education. In *Contemporary debates in Holocaust education* (pp. 99–114). London, UK: Palgrave MacMillan.

[27] Jackson, N. J. (2013). The Concept of Learning Ecologies. In N. J. Jackson & G. B. Cooper (Eds.), *Lifewide Learning Education and Personal Development.* Lifewide Education.

[28] Barron, B. (2006). Interest and Self-Sustained Learning as Catalysts of Development: A Learning Ecology Perspective. *Human Development*, 49, 193–224.

[29] Gioia, D. A., & Pitre, E. (1990). Multiparadigm perspectives on theory building. *Academy of Management Review*, 15(4), 584-602.

[30] Diner, D. (2003). *Restitution and Memory: The Holocaust in European Political Cultures.* New German Critique, 90, 36–44.

[31] Neiger, M., Meyers, O., & Ben-David, A. (2023). Tweeting the Holocaust: social media discourse between reverence, exploitation, and simulacra. *Journal of Communication*, 73(3), 222-234.

[32] Kelpšienė I, Armakauskaitė D, Denisenko V, Kirtiklis K, Laužikas R, Stonytė R, Murinienė L and Dallas C (2022) Difficult heritage on social network sites: An integrative review. *New Media & Society.* https://doi.org/10.1177/14614448221122186

[33] Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.

[34] Gilson, L. L., & Goldberg, C. B. (2015). Editors' comment: So, what is a conceptual paper? *Group & Organization Management*, 40(2), 127–130.

[35] Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Thousand Oaks, CA: Sage Publications.

[36] Mertens, D. M. (2015). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods.* Thousand Oaks, CA: Sage Publications.

[37] Jaakkola, E. (2020). Designing conceptual articles: four approaches. *AMS Review*, 10, 18–26.

[38] Plessow, O. (2017). Agents of transnationalization in the field of "Holocaust Education": An introduction. In M. Henderson & J. Lange (Eds.), *Entangled Memories: Remembering the Holocaust in a global age* (pp. 315– 352). Heidelberg: Universitätsverlag Winter.

[39] Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017). *Research in Teaching and Learning about the Holocaust: A Dialogue Beyond Borders.* Berlin: International Holocaust Remembrance Alliance.

[40] Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017). *Research in Teaching and Learning About the Holocaust: Bibliographies with Abstracts in Fifteen Languages.* Berlin: Metropol.

[41] Carrier, P., Fuchs, E., & Messinger, T. (2015). *The International Status of Education about the Holocaust. A Global Mapping of Textbooks and Curricula.* Paris: UNESCO.

[42] UNESCO (2014). *Holocaust education in a global context.* Paris: UNESCO.

[43] UNESCO (2017). *Education about the Holocaust and Preventing Genocide: A policy guide.* Paris: UNESCO.

[44] Popescu, D. I., & Schult, T. (2015). *Revisiting Holocaust representation in the post-witness era.* London, UK: Palgrave MacMillan.

[45] Rosenfeld, A. H. (2013). *The end of the Holocaust*. Bloomington, IN: Indiana University Press.

[46] Gray, M., & Foster, S. (2014). What do thirteen and fourteen year olds know about the Holocaust before they study it? *International Journal of Historical Teaching, Learning and Research*, 12(2), 64-78.

[47] Kucia, M. (2016). The Europeanization of Holocaust Memory and Eastern Europe. *East European Politics and Societies*, 30(1), 97–119.

[48] Subotić, J. (2019). *Yellow Star, Red Star: Holocaust Remembrance after Communism*. Ithaca and London, UK: Cornell University Press.

[49] Proske, M. (2012). "Why Do We Always Have to Say We're Sorry?" A Case Study on Navigating Moral Expectations in Classroom Communication on National Socialism and the Holocaust in Germany. *European Education*, 44(3), 39-66.

[50] Subotić, J. (2022). Holocaust memory and political legitimacy in contemporary Europe. *Holocaust Studies*. https://doi.org/10.1080/17504902.2022.2116539

[51] Pellegrino, A., & Parker, J. (2022). *Teaching and Learning Through the Holocaust. Thinking About the Unthinkable*. London, UK: Palgrave MacMillan.

[52] Salinas, C. (2022). *Teaching Difficult Histories in Difficult Times: Stories of Practice*. New York, NY: Teachers College Press.

[53] Goldberg, T., Wagner, W., & Petrović, N. (2019). From sensitive historical issues to history teachers' sensibility: a look across and within countries. *Pedagogy, Culture & Society*, 27(1), 7-38.

[54] Wrenn, A., & Lomas, T. (2007). Music, Blood and Terror: Making Emotive and Controversial History Matter. *Teaching History*, 127(4).

[55] Chapman, A. (2020). Learning the Lessons of the Holocaust: A Critical Exploration. In S. Foster, A. Pearce & A. Pettigrew (Eds.), *Holocaust Education: Contemporary Challenges and Controversies* (pp. 50–73). London, UK: UCL Press.

[56] Macgilchrist, F., & Christophe, B. (2011). Translating globalization theories into educational research: thoughts on recent shifts in Holocaust education. *Discourse: Studies in the Cultural Politics of Education*, 32(1), 145–158.

[57] Hjarvard, S. (2017). Mediatization. In P. Rössler (Ed.), *The International Encyclopedia of Media Effects* (pp. 1–20). Hoboken, NJ: Wiley.

[58] González-Aguilar, J. M., & Makhortykh, M. (2022). Laughing to forget or to remember? Anne Frank memes and mediatization of Holocaust memory. *Media, Culture & Society*, 44(7), 1307–1329.

[59] Hoskins, A. (2018). *Digital Memory Studies: Media Pasts in Transition*. London, UK: Routledge.

[60] Walden, V. G. (2021). *Digital Holocaust Memory, Education and Research*. London, UK: Palgrave MacMillan.

[61] Walden, V. G. (2022). What is 'Virtual Holocaust Memory'? *Memory Studies*, 15(4), 621-633.

[62] Neiger, M., Meyers, O., & Zandberg, E. (2011). *On Media Memory. Collective Memory in a New Media Age*. London, UK: Palgrave MacMillan.

[63] Hoskins, A. (2016). Memory Ecologies. *Memory Studies*, 9(3), 348–357.

[64] Walden, V. G. (2022b). Understanding Holocaust Memory and Education in the Digital Age: Before and After COVID-19. *Holocaust Studies*, 28(3), 257-278.

[65] Boswell, M., & Rowland, A. (2023). *Virtual Holocaust Memory*. Oxford, UK: Oxford University Press.

[66] Storeide, A. H. (2023). "…It No Longer Is the Same Place". In D. I. Popescu (Ed.), *Visitor Experience at Holocaust Memorials and Museums*. London, UK: Routledge.

[67] Alexiev, V., Nikolova, I., & Hateva, N. (2019). Semantic Archive Integration for Holocaust Research. The EHRI Research Infrastructure. *Umanistica Digitale*, 3(4).

[68] Blanke, T., Bryant, M., Frankl, M., Kristel, C., Speck, R., Vanden Daelen, V., & Van Horik, R. (2017). The European Holocaust Research Infrastructure Portal. *Journal on Computing and Cultural Heritage*, 10(1), 1–18.

[69] Verschure, P. F. M. J., & Wierenga, S. (2022). Future memory: a digital humanities approach for the preservation and presentation of the history of the Holocaust and Nazi crimes. *Holocaust Studies*, 28(3), 331-357.

[70] Blancas, M., Wierenga, S., Ribbens, K., Rieffe, C., Knoch, H., Billib, S., & Verschure, P. (2021). Active Learning in Digital Heritage: Introducing Geo-localisation, VR and AR at Holocaust Historical Sites. In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 145-176). London, UK: Palgrave MacMillan.

[71] Marrison, K. (2021). Virtually Part of the Family: The Last Goodbye and Digital Holocaust Witnessing. In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 15-30). London, UK: Palgrave MacMillan.

[72] Rothstein, A.-B., Honke, J., & Widmann, T. (2021). MEMOZE: Memory Places, Memory Spaces: 'Glocal' Holocaust Education through an Online Research Portal. In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 99-118). London, UK: Palgrave MacMillan.

[73] Blanke, T., Bryant, M., & Hedges, M. (2020). Understanding memories of the Holocaust—A new approach to neural networks in the digital humanities. *Digital Scholarship in the Humanities*, 35(1), 17–33.

[74] Kansteiner, W. (2022). Digital doping for historians: Can history, memory, and historical theory be rendered artificially intelligent? *History and Theory*, 61(4), 119-133.

[75] Makhortykh, M., Zucker, E. M., Simon, D. J., Bultmann, D., & Ulloa, R. (2023). Shall androids dream of genocides? How generative AI can change the future of memorialization of mass atrocities. *arXiv:2305.14358*, https://doi.org/10.48550/arXiv.2305.14358

[76] Makhortykh, M., Urman, A., & Ulloa, R. (2021). Hey, Google, is it what the Holocaust looked like?: Auditing algorithmic curation of visual historical content on Web search engines. *First Monday*, 26(10).

[77] Makhortykh, M. (2021) Memoriae ex machina: How Algorithms Make Us Remember and Forget. *Georgetown Journal of International Affairs*, 22(2), 180–185.

[78] Presner, T. (2016). The Ethics of the Algorithm: Close and Distant Listening to the Shoah Foundation Visual History Archive. In C. Fogu, W. Kansteiner, and T. Presner (Eds.), *Probing the Ethics of Holocaust Culture* (pp. 167–202). Cambridge: Harvard University Press.

[79] Hazan, S. (2023). The Dance of the Doppelgängers: AI and the cultural heritage community. In *Proceedings of EVA London 2023: EVA London 2023 Conference on Electronic Visualisation and the Arts*, London, UK, July 10-14, 2023.

[80] Schultz, C. K. N. (2023). Creating the 'virtual' witness: the limits of empathy. *Museum Management and Curatorship*, 38(1), 2-17.

[81] Birkner, T., & Donk, A. (2020). Collective memory and social media: Fostering a new historical consciousness in the digital age? *Memory Studies*, 13(4), 367–383.

[82] Hoskins, A. (2014). A New Memory of War. In B. Zelizer & K. Tenenboim-Weinblatt (Eds.), *Journalism and Memory* (pp. 179–191). London, UK: Palgrave MacMillan.

[83] van Dijck, J. (2013). *The Culture of Connectivity. A Critical History of Social Media.* Oxford, UK: Oxford University Press.

[84] Ebbrecht-Hartmann, T. (2021). Commemorating from a Distance: The Digital Transformation of Holocaust Memory in Times of Covid-19. *Media, Culture & Society*, 43(6), 1095–1112.

[85] Marrison, K. (2022). Dachau from a Distance: The Liberation during the COVID-19 Pandemic. In D. I. Popescu (Ed.), *Visitor Experience at Holocaust Memorials and Museums.* London, UK: Routledge.

[86] Manca, S. (2021). Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies. *Information*, 12(1), 31.

[87] Lazar, A., & Hirsch, T. L. (2015). An online partner for Holocaust remembrance education: Students approaching the Yahoo! Answers community. *Educational Review*, 67(1), 121–134.

[88] Henig, L., & Ebbrecht-Hartmann, T. (2022). Witnessing Eva Stories: Media witnessing and self-inscription in social media memory. *New Media & Society*, 24(1), 202–226.

[89] Popescu, D. I. (2019). Eulogy of a different kind: Letters to Henio and the unsettled memory of the Holocaust in contemporary Poland. *Holocaust Studies*, 25(3), 273-299.

[90] Ebbrecht-Hartmann, T., & Divon, T. (2022). Serious TikTok: Can You Learn About the Holocaust in 60 seconds? *MediArXiv.* Available at: https://doi.org/10.33767/osf.io/nv6t2

[91] Bultmann, D., Makhortykh, M., Simon, D., Ulloa, R., & Zucker, E. M. (2022). *Digital Archive of Memorialization of Mass Atrocities (DAMMA) Workshop Whitepaper.* Yale University Genocide Studies Program: Mass Atrocities in the Digital Era Working Paper #3.

[92] Lerner, A. M. (2022). Quantifying the archives: leveraging the norms and tools of data science to conduct ethical research on the Holocaust. *Holocaust Studies*, 28(3), 358-376.

[93] Tait-Ripperdan, R. (2023). Researching the Holocaust in a Digital World. In P. R. Bartrop (Ed.), *Sources for Studying the Holocaust. A Guide.* London, UK: Routledge.

[94] Fritz R (2016) Persönliche Holocaust-Erinnerungen auf Facebook. (Private) Gegenerzählungen in Ungarn im Kontext des Holocaust-Gedenkjahres 2014 [Individual holocaust-memory on facebook: (Private) counter-narratives in Hungary in the context of the holocaust-remembrance year 2014]. *Zeitgeschichte* 43(4), 233-249.

[95] Menyhért, A. (2017). Digital trauma processing in social media groups: Transgenerational Holocaust trauma on Facebook. *Hungarian Historical Review*, 6(2), 355–376.

[96] Mylonas, Y. (2017). Witnessing absences: Social media as archives and public spheres. *Social Identities*, 23(3), 271–288.

[97] Hübscher, M., & von Mering, S. (2022). *Antisemitism on Social Media*. London, UK: Routledge.

[98] Oboler, A. (2016). *Measuring the Hate: The State of Antisemitism in Social Media*. Melbourne, Australia: Global Forum for Combatting Antisemitism.

[99] Friesem, L. (2018). Holocaust Tweets as an Act of Resistance. *Israel Studies Review*, 33(2), 85–104.

[100] Berger, S., & Kansteiner, W. (2021). *Agonistic Memory and the Legacy of 20th Century Wars in Europe*. London, UK: Palgrave MacMillan.

[101] Bull, A. C., & Lauge, H. L. (2016). On Agonistic Memory. *Memory Studies*, 9(4), 390–404.

[102] Ebbrecht-Hartmann, T. & Henig, L. (2021). i-Memory: Selfies and Self-Witnessing in #Uploading_Holocaust (2016). In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 213-236). London, UK: Palgrave MacMillan.

[103] Feldman, J., & Musih, N. (2023). Selfies in Auschwitz: Popular and contested representations in a digital generation. *Memory Studies*, 16(2), 403-420.

[104] Popescu, D. I., & Schult, T. (2020). Performative Holocaust commemoration in the 21st century. *Holocaust Studies*, 26(2), 135-151.

[105] Dalziel, I. (2021). Becoming the 'Holocaust Police'? The Auschwitz-Birkenau State Museum's Authority on Social Media. In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 179-212). London, UK: Palgrave MacMillan.

[106] Stevick, D., & Michaels, D. L. (2012). Editorial Introduction. *European Education*, 44(3), 3-12.

[107] Carretero, M., & Montanero, M. (2008). Teaching and learning History: Cognitive and cultural aspects. *Culture and Education*, 20(2), 133-142.

[108] Adams, T. (2022). Sharing the Same Space: How the Memory of the Holocaust Travels in Political Speech. *The Sociological Quarterly*, 63(2), 247-265.

[109] Bussu, A., Leadbetter, P., & Richards, M. (2023). The Perception of Visiting Holocaust Sites on Undergraduate Students Learning Process. *Innovative Higher Education*, 48, 55–81.

[110] Oztig, L. I. (2023). Holocaust museums, Holocaust memorial culture, and individuals: a Constructivist perspective. *Journal of Modern Jewish Studies*, 22(1), 62-83.

[111] Popescu, D. I. (2023). *Visitor Experience at Holocaust Memorials and Museums*. London, UK: Routledge.

[112] Soulard, J., Stewart, W., Larson, M., & Samson, E. (2023). Dark Tourism and Social Mobilization: Transforming Travelers After Visiting a Holocaust Museum. *Journal of Travel Research*, 62(4), 820–840.

[113] Sangrà, A., Raffaghelli, J.E., & Veletsianos, G. (2019). Lifelong learning Ecologies: Linking formal and informal contexts of learning in the digital era. *British Journal of Educational Technology*, 50, 1615-1618.

[114] Gibson, D., Kovanovic, V., Ifenthaler, D., Dexter, S., & Feng, S. (2023). Learning theories for artificial intelligence promoting learning processes. *British Journal of Educational Technology*. https://doi.org/10.1111/bjet.13341

[115] González-Sanmamed, M., Muñoz-Carril, P.-C. and Santos-Caamaño, F.-J. (2019). Key components of learning ecologies: A Delphi assessment. *British Journal of Educational Technology*, 50(4), 1639-1655.

[116] Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95(4), 667–686.

[117] Romeu-Fontanillas, T., Guitert-Catasús, M., Raffaghelli, J. E., & Sangrà, A. (2020). Mirroring learning ecologies of outstanding teachers to integrate ICTs in the classroom. *Comunicar*, 62, XXVIII, 31-42.

[118] Estévez, I., Souto-Seijo, A., & Romero, P. (2021). Learning Ecologies and Teacher Professional Development: opportunities and challenges in a changing educational context. *Publicaciones*, 51(3), 91–107.

[119] Biesta, G., & Tedder, M. (2007). Agency and learning in the lifecourse: Towards an ecological perspective. *Studies in the Education of Adults*, 39(2), 132-149.

[120] Sangrà, A., Raffaghelli, J., & Guitert, M. (2019). Learning ecologies through a lens: Ontological, methodological and applicative issues. A systematic review of the literature. *British Journal of Educational Technology*, 50(4), 1619-1638.

[121] National Research Council (2012). *Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century*. Washington, DC: The National Academies Press.

[122] Kessner, T. M., & McArthur Harris, L. (2022). Opportunities to practice historical thinking and reasoning in a made-for-school history-oriented videogame. *International Journal of Child-Computer Interaction*, 34, 100545.

[123] Manca, S., & Raffaghelli, J. (2023). An examination of learning ecologies associated with the Holocaust: The role of social media. *Journal of Computer Assisted Learning*. https://doi.org/10.1111/jcal.12848

[124] Dabbagh, N., & Castañeda, L. (2020). The PLE as a framework for developing agency in lifelong learning. *Educational Technology Research and Development*, 68(6), 3041-3055.

[125] Greenhow, C., & Lewin, C. (2015). Recrafting formal education: Shifting the boundaries of formal and informal learning. *Learning, Media & Technology*, 40(3), 128–148.

[126] OECD (2019). *Recognition of non-formal and informal learning. Organisation for Economic Cooperation and Development*. http://www.oecd.org/education/skills-beyond-school/recognitionofnon-formalandinformallearning-home.htm

[127] Rogoff, B., Callanan, M., Gutiérrez, K. D., & Erickson, F. (2016). The Organization of Informal Learning. *Review of Research in Education*, 40, 356–401.

[128] Gil-Fernández, R., Calderón-Garrido, D., & Martín-Piñol, C. (2023). Exploring the effect of social media in Personal Learning Environments in the university settings: analysing experiences and detecting future challenges. *RED. Revista de Educación a Distancia*, 23(71), 1-24.

[129] Perez, E., Manca, S., Fernández-Pascual, R., & Mc Guckin, C. (2023). A systematic review of social media as a teaching and learning tool in higher education: A theoretical grounding perspective. *Education and Information Technologies*. https://doi.org/10.1007/s10639-023-11647-2

[130] Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97-140.

[131] Nesfield, V. L. (2015). Keeping Holocaust Education Relevant in a Changing Landscape: Seventy Years On. *Research in Education*, 94(1), 44–54.

[132] Barnett, R. (2004). The Acculturation of the Kindertransport Children: Intergenerational Dialogue on the Kindertransport Experience. *Shofar*, 23(1), 100-108.

[133] Veprinska, S. (2023). There and un-there: empathy in poetic encounters with Holocaust survivor interviews. *Holocaust Studies*, 29(1), 1-22.

[134] Manca, S., Bocconi, S., & Gleason, B. (2021). "Think globally, act locally": A glocal approach to the development of social media literacy. *Computers & Education*, 160, 104025.

[135] Gabowitsch, M., & Topolska, A. (2003). Visual Literacy in History Education. *Journal of Educational Media, Memory, and Society*, 15(1), 1-19.

[136] Kitson, A. (2001). Challenging stereotypes and avoiding the superficial: a suggested approach to teaching the Holocaust. *Teaching History*, 104, 41-48.

[137] Neiger, M. (2020). Theorizing Media Memory: Six Elements Defining the Role of the Media in Shaping Collective Memory in the Digital Age. *Sociology Compass*, 14(5), 1-11.

[138] Cortez, A., Lizárraga, J. R., & Castro, A. (2023). Interrogating the notion of giving voice: designing for polyphony in game-based learning ecologies. *Mind, Culture, and Activity*. https://doi.org/10.1080/10749039.2023.2238700

7. Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media[50]

Abstract

Digital technologies and social media platforms have been used in museum communication for over a decade now, and Holocaust museums have increasingly adopted them in their modes of commemoration and provision of educational content. Nevertheless, very limited research has been conducted into the potential of social media as new memory ecologies. In this exploratory study, we conceive social media platforms as socio-technical-ecological systems whereby users develop and engage with memory practices of the Holocaust. We adopt a networked socio-ecological approach to analyse how a sample of Holocaust museums (N = 69) develop practices of digital Holocaust memory in social media. The institutions are analysed in terms of "size" (small, medium, or large), how they differ in their attitudes towards these practices, and to what extent they circulate Holocaust memory on social media. The study adopts multiple quantitative approaches and combines the results of a survey with a set of social media metrics analysing how museums engage on Facebook, Twitter, Instagram, and YouTube in terms of generated content, interactivity, popularity, and type of content. Results show that museums have an overall positive attitude towards social media although some concerns were expressed, mostly by smaller institutions; they tend to use mostly Facebook, Instagram and YouTube, and to share educational content and information about the museum's activities. However, despite a tendency to aggregate a large number of fans and followers, especially in the case of larger institutions, interaction with users remains limited. Prospects for more interactive participation and its implications are also discussed.

Keywords: Holocaust museums, Social media, Cultural heritage, Digital holocaust memory, Social media analytics, Survey

7.1 Introduction

With the progressive passing of the generation that witnessed and experienced the Holocaust [1], new modes of Holocaust commemoration and representation have been emerging for some time now [2]. Holocaust memory has been increasingly relying on digital technologies to engage people in immersive, simulative, or counterfactual memories of the Jewish genocide and the atrocities committed against other groups of victims by Nazi Germany and its collaborators [3,4]. The idea of a "virtual Holocaust memory" has been advanced to embrace both digital and non-digital memory related to the Holocaust and to draw attention to the collaborative nature of current forms of memory [5], to the point that, according to some [4], the memory of the Holocaust is regarded as entirely digital. Indeed, today digital Holocaust memory, education and research are increasingly entangled with history and developments in media [6].

---

[50] Accepted version of: Manca, S., Passarelli, M., & Rehm, M. (2022). Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media. *Technology in Society*, 68, 101889. https://doi.org/10.1016/j.techsoc.2022.101889

If digital technologies are shaping new memory ecologies [7,8], social media and the participatory culture of which they are imbued [9] are contributing to the emergence of new forms of Holocaust commemoration. In this sense, we are witnessing the transition from the "era of the witness" [1] to the "era of the user" [10,11], where users are encouraged to choose from a large number of testimonies and navigate the wide range of resources available. Besides, the new memory ecology generated by social media participation provides a form of "multidirectional memory" of the Holocaust [12], which opens up new communication modes. Projects such as Eva.Stories on Instagram (https://www.instagram.com/eva.stories/) and the Anne Frank video diary on YouTube (https://www.youtube.com/annefrank) mark a paradigm shift in social media memory. Although the former has raised numerous controversies for its insisted use of selfie aesthetics, hashtags and geo-tagging, it nonetheless offers new ways of translating previous forms of mediated Holocaust memory [13] into social media patterns [14].

Holocaust museums, memorials, and remembrance centres are the most notable gatekeepers responsible for preserving the memory of the Holocaust, and key institutions in implementing Holocaust and global citizenship education. Museums and memorials play a significant role as "lieux de mémoire" [15] - whether physical or virtual - in establishing the presence of the past and specific experiential connections to the past [16]. In this respect, they are located at the intersection between commemorative memory – as physical monuments – and mediated memory – as mediated and virtual spaces [17]. In this regard, Holocaust museums can be considered particular "lieux de mémoire" for their epistemic or knowledge-creation function in mediating memory of the past [18].

More recently, Holocaust museums have been subjected to the disruptions that the COVID-19 pandemic has brought in many ways to the day-to-day operation of museums and cultural institutions [19,20]. At the same time, the pandemic has accelerated the willingness of Holocaust memorials to experiment and engage with the use of social media, which has led to an intensification of the ongoing generational change and broader opportunities for experimenting with digital media [16,21]. Practical examples of this evolution became manifest in Spring 2020, when hashtags such as #RememberingFromHome, #ShoahNames - used in coincidence with Yom HaShoah in Israel - #DigitalMemorials, #ClosedButOpen, and #Liberation1945, all became quite popular during the Holocaust commemoration ceremonies marking the end of the Holocaust and liberation from the camps.

However, despite the recent growth of digital technology in Holocaust memory and education, the extent to which Holocaust museums utilize social media as an integral part of communication and educational practices remains to be fully understood. While several studies have yielded interesting results on remarkable individual institutions [22–26], little is known about the global situation, and specifically about the attitudes and practices of a large group of institutions engaged in developing practices of Holocaust memory in social media. In this study, we specifically focus on Holocaust museums as they are defined by the Encyclopaedia Britannica: "any of several educational institutions and research centres dedicated to preserving the experiences of people who were victimized by the Nazis and their collaborators during the Holocaust (1933–45)" [27]; n.a.). The museums sampled here cover a variety of commemorative entities involved in preserving the memory of the Holocaust and of the crimes committed during WWII.

The study deploys different theoretical lenses that consider social media for Holocaust memory as socio-technical-ecological systems [28, 29] whereby users develop and engage with practices of Holocaust memory. The field of study is characterised by an increasing entanglement between diverse actants – material and non-material, human and non-human – which contribute to define Holocaust memory and education both in the living world and in the digital space [6]. Specifically, we focus on the microlevel of communication protocols and interface interaction between users and social media profiles. We seek to establish the extent of museums' social media engagement and interaction based on the most recurrent type of social media content and to determine how the size of a Holocaust museum affects its inclination to circulate Holocaust memory on social media.

7.2 Theoretical background

7.2.1 Social media as socio-technical-ecological systems

According to socio-technical approaches to the design and use of technologies [30,31], information technologies can be considered as systems which are shaped by both social forces and technological features. They are the result of interactions and negotiations between technology, users and organizational contexts [32]. In this light, digital scholarship practices that occur on academic social network sites, for instance, have been conceptualized as a complex techno-cultural system that includes technological innovations and dominant cultural values [33]. More generally, some scholars have proposed an approach that combines emergent user practices and content with the platform's organizational level to study social media and social network sites as microsystems [29]. In this approach, social media are systems that encompass coevolving networks of people and technologies with economic infrastructure and legal-political governance, and blend techno-cultural and political economy views. This interconnection is illustrated in a two-layered approach that analyses social media platforms as socio-economic structures and techno-cultural constructs [29]. Further derivations of this approach have resulted in conceptualising a third level that explicitly encompasses the individual use of social platforms and the ways in which single users exploit these sites for specific purposes [28]. The interaction functionalities provided by social media include "following", posting comments, expressing a reaction through a "like" or an "emoji", and replying to comments by other users, in addition to those posted on the page or profile. Advanced features for network connectivity include the ability to share by commenting on content, to build a network of contacts and to boost reputation and identity in terms of visibility [34].

An interrelation can be seen between sociality and digital platforms like social media, as well as between systemic and individual employment of these platforms. Similarly, digital technologies and social media can be considered interrelated to the digital memory of the Holocaust. Some scholars have drawn attention to the need to consider Digital Holocaust Memory as a field of studies where digital humanities, computer science and media and cultural studies converge [6]. In this inter-and multidisciplinary perspective, issues arise such as "how might surveillance capitalism affect online Holocaust memory projects?" or "to what extent do social media enable potential visitors to become ethical and active co-producers of memory within participatory cultures?" [6]; p. 4). In digital Holocaust memory, the different actants working at different levels in the "digital" environment – computation, interface, institution, user experience, and cultural contexts – are all entangled and interact with other actants on the same or distinct levels. However, while traditional approaches tend to distinguish between different types of interactivity - human-computer interface and participatory culture [9] – recent developments call for the adoption of the notion of "intra-action" instead of interactivity [35]. As already stressed in early studies about digital interactivity in memory culture, there is a conflation of interactivity with agency [36], which is especially advocated today to highlight the creative dimension of ethical and educational encounters with the past [37]. In this sense, participation is more about granting users agency and less about considering them already as actants of memory and social change [9,37]. According to this perspective, Holocaust memory may be considered as a digital phenomenon or intra-action between a multitude of actants, which "emerges through the meeting of operations, processes, sites, materials, and people, some of which with a direct relationship" to the complexity of the Holocaust memoryscape [37]; p. 291).

The idea that digital Holocaust memory is not fixed but constantly evolving and emerging has been investigated in several studies. Among these, for instance, one study has analysed how filtering and ranking algorithms and search engines shape individual perception of the visual historical content of the Holocaust [38], another study has investigated how content creators on YouTube document their visits to the Auschwitz-Birkenau State Museum in vlog form [39], and another has focused on the use of Virtual Interactive Holocaust Survivor Testimony (VIHST) in place of live survivor testimony [40]. Less emphasis has been placed on building ecological memory in social systems and, specifically, on understanding widespread use of social media for Holocaust memory. By "ecological memory" [41], we mean the study of memory as it operates in digital platforms through which users develop practices of Holocaust memory.

In this study, we will focus on the social media presence of cultural heritage institutions such as Holocaust museums, which deploy historical content and remembrance practice of the Holocaust, and how users engage in these platforms. The participatory culture imbued in social media [9] is reflected in the ways in which museums act as intermediaries of historical knowledge and cultural heritage through the exploitation of social media as socio-technical systems and through leveraging their affordances ecologically. In the next section, we provide an overview of social media use by cultural institutions with particular regard to the problems and tensions emerging in the participatory turn of Holocaust museums.

7.2.2 The connected museum and the tensions that arise

For over a decade now, social media have been at the forefront of museums' communication spaces [42]. They are supposed to challenge and change museum practice because of their participatory nature and their social activism and democratizing practices [43–45]. Social media are also challenging the traditional flow of museum-based information and exposing tensions and synergies when the museums relinquish direct control over their media content [46,47]. The "participative turn" and the democratisation process, which have been accelerated exponentially by social media [48,49], are resulting in pressure on museum leaders and their internal organization for greater readiness to change [50].

In the social media era, the "connected museum" is taking shape as a new hybrid place in which physical and virtual exhibition spaces are evolving into digital ones, and conversations taking place on social media are reconfiguring traditional forms of visitor engagement and learning, outreach, and inclusion [51]. The focus of recent studies has shifted to the extent to which museums and audiences are co-constructing one another while using particular modes of communication and discursive genres that serve to generate mutual online positionings [52]. The idea of museums as cultural intermediaries is also connected with the concept of online value creation, which is manifest in the diverse organizational forms in which museums may engage: marketing, which promotes the image of the institution; inclusivity, which nurtures a real online community; and collaboration, which goes beyond communication and promotes constructive interaction with the audience [53,54].

At all these different levels, Holocaust museums are using social media ecologically as instruments of promotion, education, and global scale outreach [24]. A notable example is provided by the Auschwitz-Birkenau Memorial and Museum, which is one of the pioneers in the use of social media among Holocaust memory institutions. Identified as the "most recognizable symbol and place of genocide in the world" [24]; p. 235), the Museum uses social media to reinforce educational programmes and commemoration events by informing the online community about the everyday history of the camp and involving followers and fans in celebrations, events and anniversaries. In line with the common approach to teaching and learning about the Holocaust, based on humanizing Holocaust statistics [55,56], the framework of a Twitter project includes the publication of a short note about an Auschwitz prisoner who was born or died on that given day.

However, despite the increasing role of digital technologies and social media in converting museums to hybrid spaces that go beyond the "physical" boundaries of the physical/virtual museum, there are many challenges the "connected museum" is still facing. Recent studies have shown, for instance, that lack of technical and digital competencies among museum staff prevents the museum from offering real-time data for visitor entertainment and interaction, and dialogue between the museum and its online visitors [57]. A number of museum leaders perceive social media as conflicting with museum functions and values; this attitude is mainly found among those with the fewest available resources for social media activities, who are also less likely to commit to social media engagement [50]. In other cases, a significant social media presence does not automatically ensure high levels of interaction with the museum's online followers, unless features that allow online reactions from the public are provided [48]. Getting involved in users' conversations, instead of merely providing interaction, is at the core of user engagement [58]. Analysis of social media posts tend to show museums' social media communication as still unilateral and promotional in all cases, including the case of anchor museums [59].

More tensions behind limited interactivity have also been reported in the case of Holocaust museums. Previous studies have shown that Holocaust memorials perform limited activity via Facebook and Twitter and the levels of engagement of their public are diverse in terms of generated content, interactivity, and popularity [60]. When investigating three major Holocaust organisations - Yad Vashem, the United States Holocaust Memorial Museum, and the Auschwitz–Birkenau Memorial and Museum – it was found that only the United States Holocaust Memorial Museum exhibits some interactivity with its Facebook fan community, while there is an overall tendency to use social media as a one-way broadcast mode of communication [61].

One of the factors for limiting interaction with users may be ascribed to the phenomena of Holocaust denial, distortion and misinformation which are found to be increasingly pervasive on Internet sites and social media. Institutions such as the Auschwitz-Birkenau Memorial and Museum, which have made it their mission to "battle against Holocaust denial, misinformation, glorification, and other forms of human rights violations referring to Auschwitz which are eagerly spread via social media" [24]; p. 241), has launched a Twitter campaign against Holocaust denial and antisemitism which has attracted notable response from social media users, for instance in the recent campaign against #POVholocaust memes by young users who pretended to be Holocaust victims as part of a TikTok challenge [62]. However, although Holocaust museums are rightly concerned about the rising visualisation of Holocaust distortion and denial, and antisemitism online, resulting in tensions between institutional and amateur online memory in social media [21], according to some authors [6], the "produser" culture of social media should not be undermined and users should be encouraged to feel empowered to contribute to political, social and memory discourses.

In this study, we explore how patterns of content distribution and institutional practices of Holocaust memory by Holocaust museums may collide with users' need to be actively engaged in the development of grass-roots memory practices. In this light, specific engagement and interaction metrics are used to investigate the level reached by users' interaction and participation in memory practice [63].

7.3 Rationale and research questions

In this study we adopt a socio-ecological perspective to analyse the complex interactions between users and social media environments [64]. This ecological perspective offers a lens to simultaneously analyse individual and contextual systems and their interdependent relationships through multiple interrelated systems that influence each other [65,66]. A networked approach has been conceptualized to emphasise how ecological systems are an overlapping arrangement of structures in which the direct and indirect social interactions of participants are connected to each other [67]. In this light, a networked socio-ecological approach to social media focuses on the relationships between individuals and the socio-technical systems implemented by social media platforms conceived as ecological environments, where diverse structures overlap directly or indirectly by the social interactions of the participants.

Working on this conceptual approach, we examine how a comprehensive sample of Holocaust museums engage on social media platforms intended as ecological systems. Specific focus is on analysing how they produce patterns of Holocaust memory in terms of interactivity, generated content and popularity. Banking on the results of a survey and a set of social media metrics and data-driven methods, the study also seeks to analyse the relationship between the museums' attitudes towards social media and users' engagement. A further aim is to observe possible differences between three groups of museums in terms of their size (small, medium, large). Specific research questions are:

1) What attitudes and communication patterns do Holocaust museums have regarding their social media channels?

2) What are the levels of activity, interaction and popularity in the social media profiles of the various museums?

7.4 Methods

7.4.1 Sampling and procedures

A list of 227 museums and memorials was derived from the International Directory of Holocaust Organisations of the Holocaust Remembrance Alliance (IHRA) (https://www.holocaustremembrance.com/resources/overview-holocaust-related-organizations), an intergovernmental organization founded in 1998 which unites governments and experts to strengthen, advance and promote Holocaust education, research and remembrance worldwide. With over 40 member countries, the IHRA is considered the most important transnational organisation in this field. As of February 4, 2021, the directory list, which includes survivor organisations, educational and research institutions and historical sites from 44 countries, comprised 896 organisations. The list was further inspected and only organisations labelled as "museums" or "memorials" were selected. A functioning email address was identified for 203 of the 227 institutions, and an email invitation to participate in a survey was addressed to these institutions.

The survey was implemented online through LimeSurvey (http:// www.limesurvey.org/), an open-source platform, and invitations to fill in the questionnaire were sent out via email by the software. Data were collected in the period 12th February-22nd April 2021. After one month, a first reminder was sent to help increase response rate and a second reminder was sent after three weeks. Although no incentive was offered for participation, respondents were, however, told that they would be informed of the results. The full results are available at [68].

The final sample of respondents is composed of 69 institutions, which correspond to 34.0% of the invited recipients. The 69 museums/ memorials were subsequently classified into small (SM), medium (MM) or large (LM) institutions mostly according to their international, national or local reach. Unlike previous studies [18] which have proposed a Holocaust museum taxonomy in terms of national, regional and local standing, we considered that many Holocaust institutions qualify as international for their prominence in the field and for attracting thousands of international visitors every year [25]. In this sense, Holocaust memorials such as the Gedenkstätte Bergen-Belsen in Germany or the Dallas Holocaust and Human Rights Museum in the USA, for instance, are considered "large" museums, along with notable institutions like the Auschwitz-Birkenau State Museum, Yad Vashem or the United States Holocaust Memorial Museum (USHMM). Two coders independently classified the 69 respondent institutions into the three categories on the basis of their standing at international/national/local level and the physical size of each museum/memorial. Initial coding resulted in Cohen's $k = 0.84$ [69], while disagreements were resolved through discussion until a total consensus was reached.

The coding process resulted in the following classification: 34 (49.3%) museums were classified as SM (e.g., Beit Theresienstadt; Muzeum-Miejsce Pamięci KL Plaszow w Krakowie; Mahn-und Gedenkstätten Wöbbelin; KZ-Gedenk-und Begegnungsstätte Ladelund); 20 (29.0%) as MM (e.g., Jasenovac Memorial Site; Shoah Memorial of Milan; The Florida Holocaust Museum; Herinneringscentrum Kamp Westerbork); and 15 (21.7%) as LM (e.g., The Auschwitz-Birkenau State Museum; United States Holocaust Memorial Museum; Yad Vashem; Gedenkstätte Bergen-Belsen). With regard to their geographical distribution, 25 (36.2%) are located in Germany, 9 (13.0%) in the United States, 7 (10.1%) in Italy, while the others are distributed across a wide variety of countries in South America, Western and Eastern Europe, the Middle-East and South Africa. The 69 organisations have the same geographical distribution as the full list of invited institutions ($p = .945$ for Fisher's exact test for count data), which means that the sample comprises a high proportion of institutions based in Germany, USA, and Italy ($N = 25$, 9, and 6, respectively).

The museums that declared they do not use social media ($N = 8$; 11.6%) are all SM located in Germany or Austria. The remaining 61 (88.4%) museums reported using at least one social media profile between Facebook, Twitter, Instagram, and YouTube, with an average of 2.9 channels ($SD = 1.4$), and with 36 (59.0%) institutions having used them for over three years. Facebook is the most frequently used platform ($N = 53$; 86.9% use it daily or weekly), followed by Instagram ($N = 38$; 62.3%, weekly and daily use), Twitter ($N = 28$;

45.9%, weekly and daily use) and YouTube (N = 23; 37.7% of monthly use). Blogs are used only by 10 institutions (16.4% of monthly use), while platforms such as LinkedIn (N = 15; 24.6%), Pinterest (N = 5; 8.2%), Flickr (N = 5; 8.2%) and Snapchat/TikTok (N = 1; 1.6%) are only used in a small number of cases.

We then searched the Facebook, Twitter, Instagram and YouTube profiles of the 61 museums using social media and analysed them according to a set of metrics offered by FanPage Karma (https://www. fanpagekarma.com/), a service platform which provides valuable insights into posting metrics, strategies, and profile performance on various social media platforms. Unfortunately, FanPage Karma only analyses business or professional social media profiles, therefore not all selected profiles were analysed. Our analysis was thus focused on the profiles in Table 1.

For each social platform examined, we observed that almost all LM institutions had an active page, while several of the SM institutions had no active page on some of the platforms (especially Instagram and Twitter). This analysis considered social media activity in the timespan 1 February-30 April 2021.

	SM	MM	LM	Total
Facebook	20 (76.9%)	20 (100.0%)	15 (100.0%)	55 (90.2%)
				Fisher exact test, p =.007
Twitter	9 (34.6%)	13 (65.0%)	12 (80.0%)	34 (55.7%)
				Fisher exact test, p =.009
Instagram	7 (26.9%)	14 (70.0%)	12 (80.0%)	33 (54.1%)
				Fisher exact test, p =.001
YouTube	11 (42.3%)	16 (80.0%)	13 (86.7%)	40 (65.6%)
				Fisher exact test, p =.004

Table 1. Number of institutions investigated through FanPage Karma

7.4.2 Instruments and analysis

In the light of the research stance outlined in section "Rationale and research questions", we adopt a mixed method approach that relies on "the primary importance of the question asked rather than the methods, and […] the use of multiple methods of data collection to inform the problems under study" [70]; p. 41). Accordingly, we adopted a variety of different quantitative tools given that, in a mixed method approach, researchers combine diverse "elements of research approaches […] for the broad purposes of breadth and depth of understanding and corroboration" [71]; p. 123). Specifically, we combined the results of a survey directed at institutions' managers with metrics derived from social media analytics, allowing us to explore attitudes, modes of commemoration, and social media engagement.

The questionnaire was developed from previous studies and based on indications available on the social media profiles and websites of the institutions involved. In particular, two studies [20,50] provided the basis for exploring attitudes to the organisational change required by the use of social media.

The questionnaire consists of 22 items of various nature (multiple choice questions, Likert-type questions, short open-ended questions), grouped into three main sections. The first section collects background information about the museum/memorial and its communication channels; the second section investigates the museum/memorial's experience in social media use; the third section is dedicated to the impact that the COVID-19 pandemic has had on the museum/memorial's activities. Only the Museums/Memorials that declared they use social media were asked to answer the questions in the second and third sections. However, participants were encouraged to engage at least in the first part of the survey in order to collect information on the possible reasons why social media are not currently used.

For the purposes of this study, we used data collected through the questions regarding attitudes and the type of content that museums tend to distribute on social media. Specifically, attitudes were measured through 14 items using a five-point agree-disagree response scale. The items all broadly refer to attitudes towards social media, and their Cronbach's alpha (0.78) could be considered satisfactory for a unidimensional scale [72]. However, the set of items was not validated as a single measure of attitudes towards social media since we opted for considering each item separately as a single item indicator of the narrow facet of the construct described by the item itself.

Content type was assessed through a number of subcategories - Educational contents; Educational events; Museum/Memorial activities and service communications; Material intended to counter Holocaust distortion; Hashtag campaigns; and Fundraising campaigns - and respondents were asked about frequency of publication of this type of content across all platforms (1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often; 5 = Very often).

In social media research, analytics are considered a powerful means not only for providing information about social media activity, but also for transforming "existing practices in politics, marketing, investing, product development, entertainment, and news media" [73]; p. 328). In particular, the use of voluminous and structured social media data is able to generate actionable insights of strategic value for incremental value co-creation [74].

In studies focusing on museums' use of social media, social media analytics have been used to evaluate the impact of museums' events and extract inspiring pronouncements [75]. In this study, social media analytics are also used to solve some of the biases the study can have when administering a survey-based research methodology [76].

Recent approaches have suggested that measuring museums' social media presence involves gauging social media effectiveness by considering both content and relational communication strategies [58]. According to this approach, engagement may be expressed in terms of three consumer dimensions: popularity (e.g., the number of followers and likes); generated content (e.g., the number of posts and comments); and virality (e.g., the number of reposts/shares).

In this study, social media metrics analysed on FanPage Karma were derived from a set of metrics developed in previous studies [61], which are arranged into three macro-categories: content, interactivity and popularity (for a complete list of definitions of the diverse metrics, see https://academy.fanpagekarma.com/en/metrics/). For the purposes of this study, we used a simplified set of categories mostly focusing on user interactivity, content shares and popularity (Table 2). We also decided to investigate English language use as an indicator of internationalisation [77].

We primarily used descriptive statistics to summarize the characteristics of the sample and inferential statistics to elaborate data in order to provide answers to the research questions. The IBM Statistical Package for Social Sciences (SPSS 23.0) and the software statistics package R 4.0.2 were used. Differences across institution size categories between the three groups were analysed using ANOVA, and multiple comparisons were corrected using Tukey's HSD method for comparing a family of 3 estimates [78].

As social media metrics are frequently distributed according to a power-law distribution [79], distribution is decidedly non-normal, as reflected by the magnitude of the differences between means and medians. However, a simple logarithmic transformation can normalize these distributions [80–82], which allowed us to use Tukey's HSD-corrected ANOVAs for data analysis.

Finally, in order to investigate the languages used by the various Holocaust museums, all collected data were imported into the software statistics package R 4.0.2 and subsequently analysed using the cld3 library, published and maintained by Jeroen Ooms at the University of California, Berkeley. The underlying algorithm relies on a neural network, based on Google's Compact Language Detector, and automatically identifies the language in designated pieces of textual data.

	Facebook page	Twitter profile	Instagram profile	YouTube channel
Content	•Number of posts •Posts per day	•Number of tweets •Tweets per day •Number of new content- tweet •Tweets per day (new content)	•Number of posts •Posts per day	•Number of videos

Interactivity	•Comments per post •Reactions per posts •Post interaction (%) •Engagement (%) •Posts per fan •Comments on posts by fans •Fans' posts with reaction by page •Page's comments on posts by fans	•Number of likes •Number of likes per tweet •Tweet interaction (%) •Engagement (%) •Conversations	•Number of comments •Number of comments per post •Post interaction (%) •Engagement (%)	•Number of views •Number of views per video •Number of likes •Number of likes per video •Number of dislikes •Number of dislikes per video •Number of comments •Number of comments per video •Post interaction (%)
Popularity	•Shares per post •Number of fans	•Average number of retweets per tweet •Number of followers	•Number of fans	•Number of subscribers

Table 2. List of metrics per platform

7.5 Results

In this section, we present the results obtained in response to the two research questions and focus specifically on analyses carried out to identify possible differences between the three size-based groups (LM, MM, and SM).

7.5.1 Attitudes and patterns of use

Table 3 shows that museums value social media as a very important innovation. In particular, they consider social media: beneficial for the future of museums (M = 4.5 ± 0.8) - with MM tending to greater agreement than SM (p = .045); as important means for outreach (M = 4.5 ± 0.8); and a welcome change (M = 4.3 ± 0.8). Social media also provide museums with the freedom to try new things (M = 4.2 ± 0.8) - with MM tending to agree more than SM (p = .018) - and are considered a worthwhile investment (M = 4.1 ± 0.8) - with greater agreement found in MM over SM (p = .046) - and should be used to counter Holocaust distortion (M = 4.1 ± 0.9). However, these considerations are accompanied by a number of concerns, such as awareness of the need for a well-defined social media policy (M = 4.4 ± 0.7), that dedicated resources for social media need to be set aside (M = 3.8 ± 1.1), and that social media requires more resources than the museum can currently afford (M = 3.5 ± 1.2). On the other hand, very few believe that social media divert museum resources from their primary function (M = 1.9 ± 1.0) - with greater agreement found in SM over MM (p = .005) and LM (p = .028) - or that they have usurped the role of museums (M = 1.8 ± 0.9) - with SM that tend to agree more than MM (p = .022) and LM (p = .015). The item "Time spent by the museum's communication department on social media would be better used elsewhere" (M = 1.8 ± 1.0) raised greater agreement in SM than in LM (p = .021). Finally, respondents are eager to support innovative social media projects (M = 3.8 ± 1.1) and to have the best social media presence if compared to all other museums (M = 3.2 ± 1.2).

	Small (N = 34)	Medium (N = 20)	Large (N = 15)	Total N=(69)	F (2,66)	p-value	Post-hoc analysis
If the museum uses social media, the museum will benefit in the future	4.2 ± 1.0 (4.0)	4.8 ± .4 (5.0)	4.7 ± .5 (5.0)	4.5 ± .8 (5.0)	3.99	.023	Medium > small (*p* = .045)
Social media is a welcome change for the museum	4.2 ± .9 (4.0)	4.6 ± .6 (5.0)	4.1 ± 1.0 (4.0)	4.3 ± .8 (4.0)	1.69	.293	–
Social media is an important means for museum outreach	4.3 ± .9 (4.5)	4.7 ± .6 (5.0)	4.7 ± .6 (5.0)	4.5 ± .8 (5.0)	2.51	.089	–
Museums need to have a defined social media policy	4.3 ± .9 (4.5)	4.8 ± .4 (5.0)	4.4 ± .6 (4.0)	4.4 ± .7 (5.0)	2.90	.062	–
Social media distracts museum's resources from its primary function	2.3 ± 1.1 (2.0)	1.5 ± .7 (1.0)	1.6 ± .6 (2.0)	1.9 ± 1.0 (2.0)	6.72	.002	Small > medium (*p* = .005), small > large (*p* = .028)
Digital media has usurped the role of museums	2.1 ± 1.0 (2.0)	1.5 ± .6 (1.0)	1.4 ± .6 (1.0)	1.8 ± .9 (2.0)	5.84	.005	Small > medium (*p* = .022), small > large (*p* = .015)
The museum has to set aside dedicated resources for social media	3.6 ± 1.0 (4.0)	3.8 ± 1.4 (4.0)	4.4 ± .6 (4.0)	3.8 ± 1.1 (4.0)	2.69	.076	–
Social media provide museums with the freedom to try new things	4.0 ± .8 (4.0)	4.6 ± .6 (5.0)	4.3 ± .8 (5.0)	4.2 ± .8 (4.0)	4.05	.022	Medium > small (*p* = .018)
Social media requires more resources than the museum can currently employ on them	3.4 ± 1.2 (4.0)	3.6 ± 1.1 (3.5)	3.6 ± 1.3 (4.0)	3.5 ± 1.2 (4.0)	.17	.846	–
We want our museum to have the best social media presence, compared to all other museums	2.8 ± 1.2 (3.0)	3.6 ± 1.2 (4.0)	3.3 ± .9 (3.0)	3.2 ± 1.2 (3.0)	2.96	.059	–

We are eager to support innovative social media projects at our museum	3.7 ± 1.1 (4.0)	3.9 ± 1.2 (4.0)	4.0 ± 1.1 (4.0)	3.8 ± 1.1 (4.0)	.28	.755	–
Expending resources on social media communication is a worthwhile investment	3.9 ± .8 (4.0)	4.5 ± .8 (5.0)	4.3 ± .6 (4.0)	4.1 ± .8 (4.0)	3.20	.047	Medium > small (*p* = .046)
Any time spent by the museum's communication department on social media would be better used elsewhere	2.1 ± 1.1 (2.0)	1.6 ± 1.0 (1.0)	1.3 ± .5 (1.0)	1.8 ± 1.0 (1.0)	4.45	.015	Small > large (*p* = .021)
Museums should use social media to counter Holocaust distortion	4.1 ± 1.0 (4.0)	4.2 ± 0.8 (4.0)	4.0 ± 0.8 (4.0)	4.1 ± 0.9 (4.0)	.12	.884	–

Table 3. Attitudes towards social media (mean ± SD (median)).

In terms of communication patterns, results reported in Table 4 show that the sampled institutions mainly tend to publish educational contents (e.g., historical content, moral education content, personal stories of victims/survivors) (M = 4.2 ± 1.0), information about museum/memorial activities and service communications (M = 4.0 ± 1.0), and information about educational events (e.g., workshops, conferences, podcasts, webinars, virtual/audio tours) (M = 3.9 ± 1.1). In terms of size, LM tend to publish more educational content than SM (p = .025), while for all other content types differences are not statistically significant. When comparing content types via repeated-measures ANOVA and Tukey's HSD method for multiple comparison adjustment, we observed that type of content tends to cluster into three categories. The most commonly posted types are educational content, educational events, and information about activities (p < .001 when compared with other types, non-significant differences when compared to each other). Less commonly posted content includes hashtag campaigns and materials intended to counter Holocaust distortion (p < .001 when compared with other types, non-significant differences when compared to each other). At the very bottom, the least frequently published type of content are fundraising campaigns (p < .001 for all comparisons).

	Small (N = 26)	Medium (N = 20)	Large (N = 15)	Total (N = 61)	F (2,58)	p-value	Post-hoc analysis
Educational contents (e.g., historical content, moral education content, personal stories of victims/survivors)	3.8 ± 1.0 (4.0)	4.3 ± .9 (5.0)	4.6 ± .6 (5.0)	4.2 ± 1.0 (4.0)	3.95	.025	Large > small (*p* = .025)
Educational events (e.g., workshops, conferences, podcasts, webinars, virtual/audio tours)	3.7 ± 1.0 (4.0)	4.3 ± 1.0 (4.0)	3.8 ± 1.2 (4.0)	3.9 ± 1.1 (4.0)	1.52	.226	–
Museum/memorial activities and service communications (e.g., information about Museum operation)	3.9 ± .9 (4.0)	4.3 ± .9 (4.5)	3.7 ± 1.1 (4.0)	4.0 ± 1.0 (4.0)	1.65	.202	–

Material intended to counter Holocaust distortion	2.7 ± 1.2 (3.0)	2.9 ± 1.0 (3.0)	2.9 ± 1.1 (3.0)	2.8 ± 1.1 (3.0)	.23	.799	–
Hashtags campaigns	2.5 ± 1.2 (2.5)	2.5 ± 1.4 (2.0)	2.7 ± 1.0 (3.0)	2.5 ± 1.2 (2.0)	.11	.901	–
Fundraising campaigns	1.7 ± 1.0 (1.0)	2.2 ± 1.2 (2.0)	1.9 ± 1.2 (1.0)	1.9 ± 1.1 (1.0)	1.41	.254	–

Table 4. Types of content (mean ± SD (median))

7.5.2 Content published, interaction and popularity

Analysis of social media metrics has revealed that most museums mainly focus on Facebook (N = 55) and YouTube (N = 40) rather than Twitter (N =34) and Instagram (N =33), although with various levels of content sharing, interaction and popularity.

These analyses show that, on Facebook (Table 5), LM (p = .008) and MM (p = .030) tend to publish more content than SM, while no significant difference was found for the proportion of content in English. The number of comments and reactions per post was found to be higher in LM than in MM (p = .033 and p = .008, respectively) and SM (p < .001, p < .001). In terms of metrics of interaction, while post interaction was not significantly different between the three groups, engagement was found to be higher in LM than in MM (p = .006) and SM (p < .001). Moreover, the number of users' posts published is higher in LM than in MM (p = .019) and SM (p =.036). However, posts by fans with reactions by page and with comments by page were found to be not significantly different in the three groups. Finally, as for popularity, LM's posts tend to be shared more than those by MM (p =.002) and SM (p <.001), while LM are those with the highest number of fans from the three groups (p = .039, p < .001), with MM having a higher number than SM (p = .002).

		Small (N = 20)	Medium (N = 20)	Large (N = 15)	Total (N = 55)	F (df), p-value	Post-hoc analysis
Content	Number of posts	30.6 ± 24.2 (28.0)	60.6 ± 53.9 (46.5)	73.1 ± 55.0 (52.0)	53.1 ± 48.3 (36.0)	F (2,52) = 5.75, *p* = .006	Medium > small (*p* = .030), large > small (*p* = .008)
	Content in English (%)	9.97 ± 27.36 (0)	31.63 ± 43.35 (0)	34.19 ± 46.81 (0)	25.29 ± 40.67 (0)	F (2,49) = 1.85, *p* = .168	–
Interactivity	Comments per post	.6 ± .6 (.5)	2.8 ± 2.9 (1.7)	56.3 ± 130.1 (1.8)	16.6 ± 70.7 (1.1)	F (2,52) = 9.20,	Large > small (*p* < .001), large

						p < .001	> medium (*p* = .033)
	Reactions per posts	13.4 ± 10.6 (12.4)	43.1 ± 37.8 (38.0)	1254.0 ± 2658.2 (35.9)	362.5 ± 1461.6 (27.3)	F (2,52) =14.06, *p* <.001	Large > small (*p* < .001), large > medium (*p* = .008)
	Post interaction	.02 ± .03 (.02)	.01 ± .01 (.01)	.01 ± .01 (.01)	.01 ± .02 (.01)	F (2,52) =3.34, *p* = .043	–
	Engagement (%)	.13 ± .12 (.08)	.27 ± .38 (.08)	.62 ± .39 (.47)	.31 ± .37 (.21)	F (2,52) =10.62, *p* <.001	Large > small (*p* < .001), large > medium (*p* = .006)
	Posts by fans	.5 ± .8 (.0)	1.6 ± 3.0 (.0)	17.7 ± 50.0 (.0)	5.6 ± 26.6 (.0)	F (2,52) =4.23, *p* = .020	Large > small (*p* = .017)
	Comments on posts by fans	1.0 ± 3.1 (.0)	.6 ± 1.6 (.0)	9.9 ± 18.9 (.0)	3.3 ± 10.7 (.0)	F (2,52) =4.59, *p* = .015	Large > small (*p* = .036), large > medium (*p* = .019)
	Fans' posts with reaction by page	.0 ± .0 (.0)	.0 ± .0 (.0)	2.3 ± 8.8 (.0)	.6 ± 4.6 (.0)	F (2,52) =1.91, *p* = .158	–
	Page's comments on posts by fans	.0 ± .0 (.0)	.0 ± .0 (.0)	.0 ± .0 (.0)	.0 ± .0 (.0)	–	–
Popularity	Shares per post	2.9 ± 2.4 (2.4)	9.0 ± 8.9 (6.4)	258.8 ± 544.4 (14.0)	74.9 ± 299.6 (5.3)	F (2,52) =14.35, *p* <.001	Large > small (*p* < .001), large > medium (*p* = .002)
	Number of fans	1911.3 ± 3097.5 (798.5)	8497.9 ± 6676.1 (8045.0)	192276.2 ± 349974.1 (7843.0)	56224.1 ± 218042.6 (3671.0)	F (2,52) = 17.94, *p* <.001	Medium > small (*p* = .002), large > small (*p* < .001), large > medium (*p* = .039)

Table 5. Content, interactivity and popularity of museums' Facebook pages (mean ± SD (median))

Looking at Twitter (Table 6), LM tend to tweet more than SM (p =.017), and to publish more new content-tweet than MM (p = .037) and SM (p = .010). However, no significant difference was found for English language use. As for interactivity, LM tend to receive more likes than MM (p = .008) and SM (p = .002), as well as more likes per tweet (p = .020, p = .005). However, when analysing metrics such as Twitter interaction, Engagement and Conversations, no difference was found between the three groups. Finally, in terms of popularity, LM tend to receive an average number of retweets per tweet which is higher than in MM (p = .008) or SM (p = .002), while MM (p = .014) and LM (p < .001) have a higher number of followers than SM.

		Small (N = 9)	Medium (N = 13)	Large (N = 12)	Total (N = 34)	F (df), p-value	Post-hoc analysis
Content	Number of tweets	76.3 ± 126.2 (10.0)	56.2 ± 53.8 (54.0)	683.0 ± 1235.8 (213.0)	282.8 ± 777.2 (66.5)	F (2,31) = 5.72, *p* = .008	Large > small (*p* = .017)
	Number of new content-tweet	48.2 ± 73.2 (9.0)	46.6 ± 44.0 (39.0)	452.5 ± 1043.8 (163.5)	190.3 ± 1043.8 (42.5)	F (2,31) = 4.80, *p* = .015	Large > small (*p* = .010), large > medium (*p* = .037)
	Content in English (%)	1.59 ± 2.75 (.00)	43.90 ± 46.56 (40.00)	51.60 ± 39.40 (35.59)	42.52 ± 42.15 (31.58)	F (2,22) = 2.59, *p* = .098	–
Interactivity	Number of likes	384.4 ± 605.7 (22.0)	613.3 ± 869.1 (99.0)	609112.6 ±2058727.4 (5237.0)	215317.2 ±1224718.7 (503.0)	F (2,31) = 8.69, *p* = .001	Large > small (*p* = .002), large > medium (*p* = .008)
	Number of likes per tweet	3.6 ± 5.5 (2.0)	8.1 ± 8.9 (3.7)	314.3 ±603.1 (17.8)	115.0 ± 379.0 (6.3)	F (2,31) = 6.90, *p* = .003	Large > small (*p* = .005), large > medium (*p* = .020)
	Tweet interaction (%)	.27 ± .45 (.00)	.20 ± .21 (.16)	.82 ± .99 (.47)	.44 ± .69 (.18)	F (2,31) = 3.27, *p* = .051	–
	Engagement (%)	.16 ± .29 (.00)	.02 ± .02 (.01)	1.24 ± .2.34 (.49)	.49 ± 1.47 (.04)	F (2,31) = 2.78, *p* = .078	–
	Conversations	.3 ± .3 (.2)	.2 ± .3 (.0)	.3 ± .3 (.3)	.3 ± .3 (.2)	F (2,31) = .58, *p* = .563	–
Popularity	Average number of retweets per tweet	1.0 ± 1.5 (.3)	2.2 ± 2.5 (1.0)	70.5 ± 122.6 (7.1)	26.0 ± 78.3 (1.7)	F (2,31) = 8.22, *p* = .001	Large > small (*p* = .002), large > medium (*p* = .008)
	Number of followers	640.6 ± 944.4 (299.0)	3353.3 ±2355.8 (2821.0)	138684.5 ±3111000.6 (5661.0)	50399.2 ±202302.3 (2687.5)	F (2,31) =12.56, *p* < .001	Medium > small (*p* = .014), large > small (*p* < .001)

Table 6. Content, interactivity and popularity of museums' Twitter profiles (mean ± SD (median))

As far as Instagram profiles (Table 7) are concerned, while no difference was found in terms of number of posts, LM tend to use English language more than SM (p = .014). In terms of interactivity, no significant difference was found for number of comments, number of comments per post, post interaction and engagement. Finally, LM were found to be the most popular, with the highest number of fans compared to the MM (p = .018) and SM (p = .001).

		Small (N = 7)	Medium (N = 14)	Large (N = 12)	Total (N = 33)	F (df), p-value	Post-hoc analysis
Content	Number of posts	17.4 ± 16.2 (10.0)	38.8 ± 30.1 (25.5)	41.2 ± 44.3 (28.0)	35.1 ± 34.4 (24.0)	F (2,30) = 1.57, *p* = .224	–
	Content in English (%)	.38 ± 1.00 (.00)	34.78 ± 46.60 (3.33)	58.02 ± 45.33 (76.67)	35.51 ± 44.87 (.00)	F (2,28) = 4.61, *p* = .019	Large > small (*p* = .014)
Interactivity	Number of comments	13.3 ± 17.4 (4.0)	52.6 ± 93.2 (14.0)	1507.2 ± 3485.3 (50.5)	573.2 ± 2166.4 (20.0)	F (2,30) = 2.42, *p* = .106	–
	Number of comments per post	.9 ± .6 (.6)	1.8 ± 2.6 (.6)	22.0 ± 40.3 (2.1)	8.9 ± 25.7 (.8)	F (2,30) = 3.78, *p* = .078	–
	Post interaction (%)	4.04 ± 3.33 (4.17)	2.90 ± 1.83 (2.48)	3.04 ± 1.87 (3.66)	3.19 ± 2.20 (3.45)	F (2,30) = .62, *p* = .547	–
	Engagement (%)	.40 ± .69 (.04)	.31 ± .38 (.24)	.99 ± 1.24 (.47)	.58 ± .88 (.28)	F (2, 30) = 2.64, *p* = .121	–
Popularity	Number of fans	954.0 ± 1274.5 (556.0)	2546.0 ± 2691.7 (1844.0)	43756.1 ±60931.3 (3349.0)	17193.8 ±41177.7 (1875.0)	F (2,30) = 8.68, *p* = .001	Large > small (*p* = .001), large > medium (*p* = .018)

Table 7. Content, interactivity and popularity of museums' Instagram profiles (mean ± SD (median))

Finally, as for YouTube (Table 8), LM tend to publish more videos than SM (p = .038), although no difference was found for English language use. In terms of interactivity, while no difference was found for number of views and number of views per video, videos posted by LM tend to receive more likes (p = .028), and a higher number of dislikes (p = .010) and comments (p = .043) than those by SM. No difference was found for number of likes, dislikes and comments per video, as well as for video interaction. Finally, LM tend to have a higher number of subscribers than MM (p = .047) and SM (p < .001).

Content	Number of videos	2.9 ± 3.9 (2.0)	5.0 ± 5.6 (3.5)	17.4 ± 18.8 (14.0)	8.5 ± 12.8 (3.0)	F (2,37) = 3.52, *p* = .040	Large > small, *p* = .038
	Content in English (%)	7.64 ± 17.55 (.00)	33.44 ± 41.09 (.00)	13.15 ± 22.14 (.00)	20.02 ± 31.83 (.00)	F (2,29) = .96, *p* = .397	–
Interactivity	Number of views	294.8 ± 327.5 (131.0)	1396.9 ± 1865.3 (684.0)	26402.1 ±59151.8 (1433.0)	9220.5 ±34984.9 (500.5)	F (2,37) = 2.38, *p* = .107	–
	Number of views per video	89.1 ± 82.8 (83.0)	396.4 ± 736.7 (142.4)	764.9 ± 1325.6 (148.3)	431.7 ± 906.5 (121.3)	F (2,37) = 1.24, *p* = .302	–
	Number of likes	7.5 ± 7.2 (5.0)	55.4 ± 101.2 (16.5)	649.5 ± 1396.6 (41.0)	235.4 ± 830.2 (14.0)	F (2,37) = 3.87, *p* = .030	Large > small (*p* = .028)
	Number of likes per video	2.8 ± 3.2 (1.6)	16.6 ± 44.9 (2.2)	19.1 ± 32.5 (6.0)	13.6 ± 33.9 (3.0)	F (2,37) = 1.77, *p* = .184	–
	Number of dislikes	.3 ± .6 (.0)	3.2 ± 7.1 (,0)	28.6 ± 58.0 (3.0)	10.7 ± 34.8 (.0)	F (2,37) = 5.14, *p* = .011	Large > small (*p* = .010)
	Number of dislikes per video	.0 ± .1 (.0)	1.1 ± 3.5 (,0)	.9 ± 1.6 (.3)	.7 ± 2.4 (.0)	F (2,37) = 1.85, *p* = .171	–
	Number of comments	1.0 ± 2.4 (.0)	3.0 ± 7.5 (.0)	39.9 ± 109.2 (4.0)	14.5 ± 63.3 (.0)	F (2,37) = 3.97, *p* = .028	Large > small (*p* = .043)
	Number of comments per video	0.2 ± 0.4 (.0)	0.4 ± 0.9 (.0)	1.6 ± 4.1 (.2)	.7 ± 2.3 (.0)	F (2,37) = 1.03, *p* = .368	–
	Post interaction (%)	.09 ± 0.20 (.00)	.04 ± 0.14 (.00)	.01 ± .02 (.00)	.04 ± 0.14 (.00)	F (2,37) = 1.18, *p* = .318	–
Popularity	Number of subscribers	164.2 ± 345.2 (33.0)	320.7 ± 151.3 (332.0)	26927.1 ± 54547.7 (538.0)	8907.5 ±32701.6 (280.0)	F (2,34) = 10.27, *p* < .001	Large > small (*p* < .001), large > medium (*p* = .047)

Table 8. Content, interactivity and popularity of museums' YouTube channels (mean ± SD (median))

In order to further investigate museums and memorials' usage patterns and effectiveness on social media, we examined Spearman's correlations between several key social media metrics. Specifically, within each social media channel we analysed the associations between number of fans, number of posts (or videos, in the case of YouTube) and number of comments per post (or, in the case of Twitter, number of likes). These metrics can be considered indicators of popularity, interactivity, and amount of content provided, respectively. The associations are reported in Table 9.

		Number of fans	Number of posts[a]
Facebook	Number of posts	0.48	–
	Comments per post	0.86	0.22
Twitter	Number of posts	0.45	–
	Likes per tweet	0.68	.40
Instagram	Number of posts	0.19	–
	Comments per post	0.73	0.49
YouTube	Number of videos	0.06	–
	Comments per video	0.22	0.81

Table 9. Spearman's correlations between key social media metrics for each social media channel. Correlations in bold are statistically significant for $\alpha = 0.05$. [a] In the case of YouTube, 'posts' refers to 'videos'

These results suggest that the number of posts (i.e., the amount of page activity) is associated with a higher number of fans for Facebook and Twitter, while no association is present for Instagram and YouTube.

The number of fans and the number of comments per post are highly correlated for Facebook, Twitter, and Instagram, as expected, while no correlation is present for YouTube. This is probably due to the fact that the average number of comments per video in the sample is very low (see Table 8).

Lastly, the number of posts is associated with the number of comments per post for Instagram and YouTube, but not for Facebook and Twitter (although, in the case of Twitter, the correlation is moderate and bordering significance).

We subsequently correlated the number of fans, the number of posts, and the number of comments per post across social media. Results are reported in Table 10.

	Number of fans			Number of posts/videos			Number of comments/likes per post/tweet		
	Facebook	Twitter	Instagram	Facebook	Twitter	Instagram	Facebook	Twitter	Instagram
Twitter	**0.69**	-	-	0.09	-	-	**0.66**	-	-
Instagram	**0.68**	**0.86**	-	**0.59**	0.22	-	**0.53**	**0.48**	-
YouTube	**0.75**	**0.65**	**0.59**	0.35	0.03	0.32	0.27	0.09	**0.46**

Table 10. Spearman's correlations between key social media metrics across social media channels. Correlations in bold are statistically significant for $\alpha = 0.05$

These results sh

ow that popularity is highly associated between all social media channels: institutions that are popular on a social media platform are very likely to be popular on all social media. The amount of institutional activity conducted through social media platforms, however, is not associated. This suggests that institutions tend to concentrate their efforts on a limited number of platforms, rather than trying to be active on all of them. The only exceptions seem to be Facebook and Instagram, possibly due to the ease of porting content across these two platforms (which are run by the same company). Finally, as for user activity, we observe moderate correlations between all platforms except for YouTube.

7.6 Discussion

This study has sought to contribute to expanding knowledge of the use of social media by Holocaust museums through the investigation of attitudes, patterns of communication and user engagement in a large cohort of cultural institutions. In contrast to previous studies, which examined a smaller number of Holocaust museums [22–26,61] or in a limited geographical domain [60], the sample examined in this research study allows broader and more general considerations, as well as conclusions.

Through a triangulation of methodological tools based on quantitative data, social media for Holocaust memory explored in this study have been regarded as socio-technical-ecological systems in which digital memory practices are entangled with living world memory practices [6]. The adoption of a networked socio-ecological approach has made it possible to explore the micro-level dimensions of both museum and user engagement in the co-construction of intra-actions related to the development of digital Holocaust memories [36,37,51].

Regarding the first research question, which investigated attitudes and communication patterns, Holocaust museums seem to have embraced social media as one of the most important tools available for communicating with the public. It appears that Facebook and Instagram are the predominately used social media platforms, while YouTube is found quite useful. Unlike other studies that have investigated users' propensity to interact with museums in social media [59], here we have primarily focused on museums' attitudes and intentions. We found that overall attitude towards social media, despite noticeable differences between the museums, is overwhelmingly favourable. Results from survey items investigating attitudes paint a consistent picture in which large and medium-sized institutions tend to view social media more favourably than smaller museums, but even small institutions demonstrate overall favourable attitudes. Still, the concerns expressed by the latter - such as conflicting roles and lack of resources - need careful consideration. Previous studies show that museums with the fewest available resources for social media activities are also less likely to commit to social media engagement [50]. In our sample, this is also evidenced by the fact that the only institutions that reported not using social media are all small museums. These institutions have limited staff, a highly localized audience and possibly low technological and digital skills, which are required for social media communication. As stressed in previous studies [57], lack of social media competencies prevents museums from offering real-time data for visitor entertainment and interaction, as well as dialogue between the museum and its online visitors. Future studies should examine in greater detail the obstacles that prevent smaller Holocaust institutions from embracing social media as part of an ongoing generational change accelerated by the pandemic [16]. They should also investigate the factors that keep larger ones from expanding their plethora of platforms and diversifying their communication strategies according to the perceived key target audiences of each platform. However, as reported in recent studies [83], the COVID-19 pandemic is accelerating the digital transformation of many sectors and a progressive ability to use ICT can be expected also in those museums that so far have had fewer resources at their disposal. In this light, future studies should also consider how functional and emotional values, which underpin the marketing strategies of cultural institutions as well, drive the choice of which social platforms to invest in most [84]. In this sense, as social media use and social media validation positively influence public entities' brand value [85], museums are likely to invest more in the use and monitoring of these platforms. As highlighted recently, even though the central core of these memory institutions remains their educational mission and their function in mediating memory of the past [18], it is important to stress that professionalization and commercialization of museums and memorials of genocide and crimes against humanity have become requirements for "making the past present" and "the local global" [86].

As for the type of content being published, respondents report that educational content, information regarding educational events, and information regarding institutional activities are the most frequently posted types of content, consistently with museums' role as providers of education and awareness regarding the Holocaust. Hashtag campaigns, which are commonly used on Twitter and Instagram but not so much on Facebook, are not very frequent in postings by these museums, probably for the very reason that their prevalent platform is Facebook. However, it is expected that this mode of communication may increase in the future, as underlined by other initiatives in the field of cultural heritage [87] and in recent initiatives by Holocaust organisations [6]. Materials countering Holocaust distortion are also infrequently posted, which is in contrast with museums' shared commitment to counter Holocaust distortion, and may be related to the concerns about politicization and political attacks [24]. However, future investigation is needed to understand how marketing strategies combine with the educational mission in general and specifically with the purpose of countering distortion in social media. In addition, we found that fundraising campaigns are rarely posted on social media, although they are expected to grow in the near future as they can also be seen as a powerful mode of outreach [88]. Finally, institutions of all sizes seem to post all types of content with the same frequency, with the exception of educational content, which is more frequently shared by larger institutions, possibly because its production requires resources and effort [50].

In terms of the second research question, which analysed levels of activity, user interaction and popularity, a number of social media metrics were used to extract patterns of shared content, interactivity and popularity, and to counter possible biases while administering a survey-based research methodology [76]. Although there may be concerns about using metrics to derive meaningful information about memory of the past on social media, social media spaces have facilitated the counting of memories and have moved into the domain of remembrance [63]. This has become particularly significant in the field of memory studies and specifically in Holocaust memory [3,8], in which digital and non-digital memory related to the Holocaust are increasingly intertwined, with one shaping the other [4,5]. In this perspective, if Holocaust memory may be considered as a digital phenomenon or intra-action between a multitude of actants [37], where communication protocols and interface interaction between users and social media profiles are all entangled and contribute to the development of digital Holocaust memory in specific cultural contexts [6], it is important to investigate what happens at the micro-level of user experience.

If we look at content metrics for the various platforms examined, it emerges that the amount of content published on the three most interactive platforms (Facebook, Twitter and Instagram) shows similar trends, except for activity on Twitter, which is more intense for larger institutions. This discrepancy can be explained not only by the more dynamic nature of Twitter, which acts as a quick way to disseminate information [89], but also by the greater 'political' and civic engagement that large institutions tend to have on this platform [90,91]. In line with previous studies [61], the case of the Auschwitz-Birkenau museum is emblematic for the preponderance of tweets it attracts compared to the other two large institutions analysed (Yad Vashem and the United States Holocaust Memorial Museum), testifying to the intense activity of the Polish museum in conducting Twitter campaigns against Holocaust denial and antisemitism [24].

Interestingly, when considering the languages being used by the different museums, no significant differences by institution size were found in terms of English being used as the main language for communication. For example, the Facebook page of the Buchenwald Memorial, despite its size, publishes close to none of its content in English, relying on Facebooks' built-in automatic translation. Yet, English continues to be a dominant language in the context of the investigated social media channels. Consequently, in order to further contribute to the "virtual Holocaust memory" [5], one might expect that museums - and especially large institutions with an international audience - would decide to post at least part of their information and materials in English, so as to enable a wider audience to read and understand their contributions [77].

Regarding Interaction metrics, Facebook posts tend to receive more reactions than Twitter posts, although great diversity in terms of reactions/likes was observed across the three groups. Post interaction was found to be higher on Instagram than on the other three platforms. This is also in line with the metrics of Engagement, which is found to be greater on Instagram. One explanation might be that, on Instagram, user experience is enhanced by widespread use of pictures, short videos and stories, contributing to a higher rate of engagement than on Facebook and Twitter and more average interactions per post, as also reported in previous studies [61] and in other research areas [92,93]. However, further research is still needed to investigate how the format of a post, its language and its content all affect the level and nature of user engagement with the content [94], as well as how high accessibility influences remoted people across the diverse countries [95].

If we look at popularity metrics, large museums are a "high card" that tends to aggregate most of the interest. With the exception of the Auschwitz-Birkenau museum's Twitter profile, which accounts for more than one million followers, most of the following is on Facebook. However, we also found that the popularity of an institution's Instagram page or YouTube channel is more likely to be led by the institution's offline fame than by its level of activity. For example, the three most outstanding institutions in terms of fans/posts ratio on Instagram are the Auschwitz-Birkenau State Museum, the concentration camp memorial site of Dachau, and Anne Frank's house – all widely known institutions, whose fame alone may lead to attracting a larger number of fans even with relatively little online activity. The level of activity, however, is associated to the number of fans for Facebook and Twitter, which means that these social media dynamics could probably reward a bit more those institutions that show an active involvement in managing their institutional page. This is also highlighted by the fact that for Instagram and YouTube the amount of content does not promote page popularity, but it does increase the amount of interactivity (although, as noted, for YouTube interactivity is usually very low). In the case of Facebook, this association does not occur, perhaps suggesting that Facebook's readership is relatively more passive: easier to engage on a superficial level (subscribing to the page), but harder to engage on a deeper level (having post conversations). Although this tendency has been analysed as a general phenomenon [96], future studies should investigate what is the main target group interested in following these types of pages and profiles, and their socio-demographic characteristics.

Despite considerable numbers of fans and followers, overall engagement and interaction remain low on all analysed platforms, and the percentage of comments and reactions from Facebook pages with respect to user comments is equally low. Comments and interactions were found to be particularly scarse on YouTube, where comments are often disabled, and users are overall far less likely to leave comments [97]. If interaction with users remains limited, as reported in previous studies [60,61] and in the cultural heritage sector [48,98], the management of contentious contents is still a complex and delicate issue for this type of museum, mainly preoccupied with limiting cases of denial, distortion, misuse, and superficial representations. Some scholars have emphasised the "passivity" of Holocaust institutions, resulting from fear of trivialization or distortion, and the risk of harbouring conflicting memories [99,100], which might in turn have brought about an over-cautious attitude by Holocaust agencies in soliciting users' interaction. These institutions would prefer one-directional communication and the broadcasting of a "carefully shaped, widely acceptable message via social media" [4]; p. 324).

However, new memory ecologies developed in digital technologies are starting to question this cautiousness concerning the interactive and participatory potentials of social media use [101]. Memory ecologies heavily rely on the participation of users, by implicating them in the process [7,8]. While Holocaust museums act as gatekeepers of Holocaust memory or as "Holocaust police" [102], they are also expected to overcome their hesitancy about the "produser" culture of social media [9] and enable potential visitors to become ethical and active co-producers of memory within participatory cultures [6]. As recently stated, it has become a priority "to find constructive ways to negotiate between necessary security measures and still encouraging critical thinking and networking within and beyond these events" [21]; p. 12).

Increasing digitalization will probably result in a "paradigm shift" [26] and new forms of Holocaust memory will be observed in the future [16]. Further studies should monitor these transformations, which were already apparent in recent Instagram projects [14]. As stressed by Ebbrecht-Hartmann and Divon [103], in their provocative title "Let TikTok Creators Pretend to Be Victims of the Nazis. It Strengthens Holocaust Memory", however, "a new, creative and necessary kind of testimony is emerging" (p. n.a.). There is much we need to understand even about these "provocative" forms of Holocaust remembrance, especially created by younger generations.

7.7. Limitations and conclusions

Along with the positive insights outlined above, a number of limitations need to be highlighted. The difficulty in obtaining a higher number of answers might have been caused by using the institutions' general email address (e.g. info@), which in times of lockdown and prolonged museum closure may not have been checked regularly. Furthermore, the study sample generated for this review was self-selected and hence possibly biased in terms of (either positive or negative) interest and perceived importance of the topic. Another limitation of the study is strictly derived from the research method, based on self-reporting and quantitative analyses. Although we have highlighted the growing importance of metrics usage in assessing the engagement and reconstruction of the digital past in multiple ways [63], future studies should also adopt mixed-method research approaches that combine computational and data-driven methods with narrative approaches based on ethnographic and auto-ethnographic observations, content analysis and other qualitative research methods [104]. In this light, interviews with museums' social media staff and heads of communication, along with investigation of the views of users through targeted surveys, may help to obtain a broader and more complete picture of digital memory practices and learning benefits on issues concerning memory of the past and its relevance for the present. Content analysis may contribute to exploring the content of social media engagement and the nature of online interaction in greater detail, by investigating the most frequent kinds of debate that occur in social media and how social media content is framed within each museum.

Another line of research that deserves greater attention is that of learning. The IHRA [105], for example, recommends deploying social media in Holocaust education, which may pave the way for engaging forms of teaching and learning about the subject. As stressed in recent reviews, although Holocaust remembrance is a well-established research field, very few studies or theoretical works are available about social media use for Holocaust teaching and learning [106]. This is of paramount importance if we consider that museums are playing an increasingly important role in out-of-school and informal learning [107] and that education, whether in formal or informal learning settings, remains at the heart of Holocaust museums' mission.

7.8 Credit author statement

Stefania Manca: Conceptualisation, Methodology, Formal analysis, Funding acquisition, Project administration, Resources, Data curation, Supervision, Writing – original draft, Writing – review & editing. *Marcello Passarelli*: Conceptualisation, Methodology, Formal analysis, Data curation, Software, Writing – review & editing. *Martin Rehm*: Conceptualisation, Methodology, Formal analysis, Data curation, Software, Writing – review & editing.

7.9 Funding

This work was supported by the International Holocaust Remembrance Alliance (IHRA) under grant no. 2020–792 "Countering Holocaust Distortion on Social Media. Promoting the positive use of Internet Social Technologies for teaching and learning about the Holocaust".

7.10 Declaration of competing interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

7.11 Acknowledgments

The authors would like to thank Ilaria Bortolotti for her contribution to the conceptualisation and implementation of the questionnaire.

7.12 References

[1] A. Wieviorka, The Era of the Witness, Cornell University Press, Ithaca, NY, 2006.
[2] D.I. Popescu, T. Schult, Revisiting Holocaust Representation in the Post-witness Era, Palgrave Macmillan, London, UK, 2015.
[3] J. Garde-Hansen, A. Hoskins, A. Reading, Save as… Digital Memories, Palgrave Macmillan, London, UK, 2009.
[4] W. Kansteiner, Transnational Holocaust memory, digital culture and the end of reception studies, in: T.S. Andersen, B. Tornquist-Plewa (Eds.), The Twentieth¨ Century in European Memory: Transcultural Mediation and Reception, Brill, Leiden, Belgium, 2017, pp. 305–343.
[5] V.G. Walden, What is 'virtual Holocaust memory'? Memory Studies. https://doi.org/10.1177/1750698019888712, 2019.

[6] V.G. Walden, Defining the digital in digital Holocaust memory, education and research, in: V.G. Walden (Ed.), Digital Holocaust Memory, Education and Research, Palgrave MacMillan, London, UK, 2021, pp. 1–12.

[7] A. Hoskins, Memory ecologies, Mem. Stud. 9 (3) (2016) 348–357.

[8] A. Hoskins, Digital Memory Studies: Media Pasts in Transition, Routledge, London, UK, 2018.

[9] H. Jenkins, S. Ford, J. Green, Spreadable Media: Creating Value and Meaning in a Networked Culture, New York University Press, New York, NY, 2013.

[10] M. Ebbrecht-Hartmann, L. Henig, I-memory: selfies and self-witnessing in #Uploading_Holocaust (2016), in: V.G. Walden (Ed.), Digital Holocaust Memory, Education and Research, Palgrave MacMillan, London, UK, 2021, pp. 213–235.

[11] S. Hogervorst, The era of the user. Testimonies in the digital age, Rethink Hist. 24 (2) (2020) 169–183.

[12] M. Rothberg, Multidirectional Memory: Remembering the Holocaust in the Age of Decolonization, Stanford University Press, Stanford, CA, 2009.

[13] J.E. Young, At Memory‘s Edge: After-Images of the Holocaust in Contemporary Art and Architecture, Yale University Press, London, UK, 2002.

[14] L. Henig, T. Ebbrecht-Hartmann, Witnessing Eva Stories: media witnessing and self-inscription in social media memory, New Media Soc. 24 (1) (2022) 202–226.

[15] P. Nora, Between memory and history: les Lieux de M´emoire, Representations 26 (1989) 7–24.

[16] T. Ebbrecht-Hartmann, Commemorating from a distance: the digital transformation of Holocaust memory in times of COVID-19, Media Cult. Soc. 43 (6) (2021) 1095–1112.

[17] P. O'Connor, The unanchored past: three modes of collective memory, Mem. Stud. (2019), https://doi.org/10.1177/1750698019894694.

[18] P. Morrow, Are Holocaust museums unique? Roy. Inst. Philos. Suppl. 79 (2016) 133–157.

[19] D. Agostino, M. Arnaboldi, A. Lampis, Italian state museums during the COVID-19 crisis: from onsite closure to online openness, Museum Manag. Curatorship 35 (4) (2020) 362–372.

[20] M. Samaroudi, K. Rodriguez Echavarria, L. Perry, Heritage in lockdown: digital provision of memory institutions in the UK and US of America during the COVID-19 pandemic, Museum Manag. Curatorship 35 (4) (2020) 337–361.

[21] V.G. Walden, Understanding Holocaust memory and education in the digital age: before and after Covid-19, Holocaust Studies (2021), https://doi.org/10.1080/17504902.2021.1979175.

[22] I. Dalziel, "Romantic Auschwitz": examples and perceptions of contemporary visitor photography at the Auschwitz-Birkenau State Museum, Holocaust Studies 22 (2016) 185–207.

[23] M. Lundrigan, #Holocaust #Auschwitz: performing Holocaust memory on social media, in: S. Gigliotti, H. Earl (Eds.), A Companion to the Holocaust, John Wiley & Sons, Hoboken, NJ, 2020, pp. 639–654.

[24] E. Manikowska, Museums and the traps of social media: the case of the auschwitz-birkenau memorial and museum, Santander Art and Culture Law Review 2/2020 (6) (2020) 223–250.

[25] A.C. Wight, Visitor perceptions of European Holocaust Heritage: a social media analysis, Tourism Manag. 81 (2020) 104142.

[26] M. Zalewska, Selfies from Auschwitz: rethinking the relationship between spaces of memory and places of commemoration in the digital age, Digital Icons: Studies in Russian, Eurasian and Central European New Media 18 (2017) 95–116.

[27] C. Parrott-Sheffer, Holocaust museum, Encyclopaedia Britannica (2019). https://www.britannica.com/topic/Holocaust-museum.

[28] S. Manca, An analysis of ResearchGate and Academia.edu as socio-technical systems for scholars' networked learning: a multilevel framework proposal, Italian J. Edu. Technol. 25 (3) (2017) 20–34.

[29] J. van Dijck, The Culture of Connectivity. A Critical History of Social Media, Oxford University Press, Oxford, UK, 2013.

[30] W.E. Bijker, T.P. Hughes, T.J. Pinch (Eds.), The Social Construction of Technological Systems, The MIT Press, Cambridge, MA, 1987.

[31] R. Williams, D. Edge, The social shaping of technology, Res. Pol. 25 (6) (1996) 865–899.

[32] M. Huysman, V. Wulf, IT to support knowledge sharing in communities, towards a social capital analysis, J. Inf. Technol. 21 (1) (2006) 40–51.

[33] B.E. Stewart, Abundance: networked participatory practices as scholarship, Int. Rev. Res. Open Dist. Learn. 16 (3) (2015) 318–340.

[34] C. Haythornthwaite, Social networks and Internet connectivity effects, Inf. Commun. Soc. 8 (2) (2005) 125–147.

[35] G. Calleja, In-Game: from Immersion to Incorporation, The MIT Press, Cambridge, MA, 2011.

[36] A. Reading, Digital interactivity in public memory institutions: the uses of new technologies in Holocaust museums, Media Cult. Soc. 25 (2003) 67–85.

[37] V.G. Walden, Digital Holocaust memory futures: through paradigms of immersion and interactivity and beyond, Afterword, in: V.G. Walden (Ed.), Digital Holocaust Memory, Education and Research, Palgrave MacMillan, London, UK, 2021, pp. 267–296.

[38] M. Makhortykh, A. Urman, R. Ulloa, Hey, Google, is it what the Holocaust looked like? : auditing algorithmic curation of visual historical content on Web search engines, Clin. Hemorheol. and Microcirc. 26 (10) (2021).

[39] T. Łysak, Vlogging Auschwitz: new players in Holocaust commemoration, Holocaust Studies. (2021), https://doi.org/10.1080/17504902.2021.1979180.

[40] A.A. Marcus, R. Maor, M. McGregor, G. Mills, S. Schweber, J. Stoddard, D. Hicks, Holocaust education in transition from live to virtual survivor testimony: pedagogical and ethical dilemmas, Holocaust Studies (2021), https://doi.org/10.1080/17504902.2021.1979176.

[41] B. Bruce, The how and why of ecological memory, J. Exp. Psychol. Gen. 114 (1) (1985) 78–90.

[42] A. Russo, J. Watkins, L. Kelly, S. Chan, Participatory communication via social media. Curator, Mus. J. 51 (2008) 21–31.

[43] R.R. Janes, R. Sandell, Museum Activism, Routledge, London, UK, 2019.

[44] A. Reynolds, Circulation, impact and the use of twitter in contemporary museum activism, Participations: J. Audience Recep. Stud. 17 (1) (2020) 126–146.

[45] A. Wong, Social media towards social change: potential and challenges for museums, in: R. Sandell, E. Nightingale (Eds.), Museums Equality and Social Justice, Routledge, London, UK, 2012, pp. 281–293.

[46] R. Gonzales, Keep the conversation going: how museums use social media to engage the public, Museum Scholar 1 (2017) 1–11.

[47] A.S. Wong, Ethical issues of social media in museums: a case study, Museum Manag. Curatorship 26 (2) (2011) 97–112.

[48] M. Arnaboldi, Diaz Lema, M. L, The participatory turn in museums: the online facet, Poetics 89 (2021) 101536.

[49] L. Bonet, E. Negrier, The participative turn in cultural policy: paradigms, models,´ contexts, Poetics 66 (2018) 64–73.

[50] P. Booth, A. Ogundipe, S. Røyseng, Museum leaders‘ perspectives on social media, Museum Manag. Curatorship 35 (4) (2020) 373–391.

[51] K. Drotner, K.C. Schrøder, Museum Communication and Social Media. The Connected Museum, Routledge, London, UK, 2013.

[52] S.T. Gronemann, E. Kristiansen, K. Drotner, Mediated co-construction of museums and audiences on Facebook, Museum Manag. Curatorship 30 (2015) 174–190.

[53] J. Kidd, Enacting engagement online: framing social media use for the museum, Inf. Technol. People 24 (1) (2011) 64–77.

[54] A. Padilla-Melendez, A.R. del´ Aguila-Obra, Web and social media usage by museums: online value creation. International, J. Inf. Manag. 33 (5) (2013) 892–898.

[55] S. Foster, A. Pearce, A. Pettigrew, Holocaust Education. Contemporary Challenges and Controversies, UCL Press, London, UK, 2020.

[56] M. Gray, Contemporary Debates in Holocaust Education, Palgrave Macmillan, London, UK, 2014.

[57] D. Agostino, M. Arnaboldi, From preservation to entertainment: accounting for the transformation of participation in Italian state museums, Account. Hist. 26 (1) (2021) 102–122.

[58] C. Camarero, M.-J. Garrido, R. San Jose, What works in Facebook content versus relational communication: a study of their effectiveness in the context of museums, Int. J. Hum. Comput. Interact. 34 (12) (2018) 1119–1134.

[59] P. Ruggiero, R. Lombardi, S. Russo, Museum anchors and social media: possible nexus and future development, Curr. Issues Tourism (2021), https://doi.org/10.1080/13683500.2021.1932768.

[60] S. Manca, Holocaust memorialisation and social media. Investigating how memorials of former concentration camps use Facebook and Twitter, in: W. Popma, F. Stuart (Eds.), Proceedings of the 6th European Conference on Social Media – ECSM 2019, 2019, pp. 189–198. Brighton, UK, 13-14 June 2019.

[61] S. Manca, Digital memory in the post-witness era: how Holocaust museums use social media as new memory ecologies, Information 12 (1) (2021) 1–17.

[62] J. Fink, Auschwitz museum calls for education after "hurtful" TikTok Holocaust "victim" videos posted, Newsweek (2020), 27 August 2020, https://www.newsweek.com/auschwitz-museum-calls-education-after-hurtful-tiktok-holocaust-victi m-videos-posted-1528116.

[63] B.N. Jacobsen, D. Beer, Quantified nostalgia: social media, metrics, and memory. *Social media + society*, April-June 2021 (2021) 1–9.

[64] L. Steinberg, Contextual studies: methodology, Int. Encyclopedia Soc. Behav. Sci. (2001) 2705–2709.

[65] U. Bronfenbrenner, The Ecology of Human Development: Experiments by Nature and Design, Harvard University Press, Cambridge, MA, 1979.

[66] U. Bronfenbrenner, P.A. Morris, The ecology of developmental processes, in: W. Damon, R. Lerner (Eds.), Handbook of Child Psychology. Theories of Development vol. 4, Wiley, London, UK, 1998, pp. 999–1058.

[67] J.W. Neal, Z.P. Neal, Nested or networked? Future directions for ecological systems theory, Soc. Dev. 22 (4) (2013) 722–737.

[68] S. Manca, Use of social media by Holocaust museums and memorials. IHRA project report. https://holocaust-socialmedia.eu/wp-content/uploads/Report-Survey_museums.pdf, 2021.

[69] M. Capozzoli, L. McSweeney, D. Sinha, Beyond kappa: a review of interrater agreement measures, Can. J. Stat. 27 (1) (1999) 3–23.

[70] J.W. Creswell, Plano Clark, V. L, Designing and Conducting Mixed Methods Research, third ed., SAGE Publications, Thousand Oaks, CA, 2017.

[71] R.B. Johnson, A.J. Onwuegbuzie, L.A. Turner, Towards a definition of mixed methods research, J. Mix. Methods Res. 1 (2) (2007) 112–133.

[72] J.M. Cortina, What is coefficient alpha? An examination of theory and applications, J. Appl. Psychol. 78 (1) (1993) 98–104.

[73] N.B. Lassen, L. la Cour, R. Vatrapu, Predictive Analytics with Social Media Data, in: L. Sloan, A. Quan-Haase (Eds.), The SAGE Handbook of Social Media Research Methods, SAGE Publications, London, UK, 2018, pp. 328–341.

[74] A. Adikari, D. Burnett, D. Sedera, D. de Silva, D. Alahakoon, Value co-creation for open innovation: an evidence-based study of the data driven paradigm of social media using machine learning, Int. J. Info. Manag. Data Insights 1 (2) (2021) 100022.

[75] D. Gerrard, M. Sykora, T. Jackson, Social media analytics in museums: extracting expressions of inspiration, Museum Manag. Curatorship 32 (3) (2017) 232–250.

[76] A.K. Kar, Y.K. Dwivedi, Theory building with big data-driven research – moving away from the "What" towards the "Why", Int. J. Inf. Manag. 54 (2020), 102205.

[77] C. Bartolini, Internationalisation and marketing strategies for university museums, Les Cahiers de Mus´eologie, 1-Actes du colloque "Les mus´ees universitaires & leurs publics", Communications (2015) 137–147.

[78] H. Abdi, L.J. Williams, Tukey's honestly significant difference (HSD) test, Encyclopedia Res. Design 3 (1) (2010) 1–5.

[79] V. Gadepally, J. Kepner, Using a power law distribution to describe big data, in: 2015 IEEE High Performance Extreme Computing Conference (HPEC), IEEE, 2015, pp. 1–5.

[80] R. Baeza-Yates, D. Saez-Trumper, Wisdom of the crowd or wisdom of a few? An analysis of users‘ content generation, In Proceedings of the 26th ACM conference on hypertext & social media (2015) 69–74.

[81] J. Mascaro, C.M. Litton, R.F. Hughes, A. Uowolo, S.A. Schnitzer, Is logarithmic transformation necessary in allometry? Ten, one-hundred, one-thousand-times yes, Biol. J. Linn. Soc. 111 (1) (2014) 230–233.

[82] D.R. Raban, E. Rabin, Statistical inference from power law distributed web-based social interactions, Internet Res. 19 (3) (2009) 266–278.

[83] J.M. Barrutia, C. Echebarria, Effect of the COVID-19 pandemic on public managers‘ attitudes toward digital transformation, Technol. Soc. 67 (2021) 101776.

[84] T. Kato, Functional value vs emotional value: a comparative study of the values that contribute to a preference for a corporate brand, Int. J. Info. Manag. Data Insights 1 (2) (2021), 100024.

[85] P.D. Nguyen, L.T.T. Tran, J. Baker, Driving university brand value through social media, Technol. Soc. 65 (2021), 101588.

[86] A. Bjorkdahl, S. Kappler, The creation of transnational memory spaces:¨professionalization and commercialization, Int. J. Polit. Cult. Soc. 32 (2019) 383–401.

[87] P. Uimonen, #MeToo in Sweden: museum collections, DigitalArchiving and hashtag visuality, Ethnos 85 (5) (2020) 920–937.

[88] H.L. Barnes, Kickstarting archives: crowdfunding and outreach in the digital age, in: E. Benoit III, A. Eveleigh (Eds.), Participatory Archives: Theory and Practice, Facet Publishing, London, UK, 2019, pp. 117–129.

[89] J. Ahn, H. Son, A.D. Chung, Understanding public engagement on twitter using topic modeling: the 2019 Ridgecrest earthquake case, Int. J. Info. Manag. Data Insights 1 (2) (2021) 100033.

[90] F. Meier, A. Bazo, D. Elsweiler, Using social media data to analyse issue engagement during the 2017 German federal election, ACM Trans. Internet Technol. 22 (1) (2022) 1–25.

[91] C. Waeterloos, M. Walrave, K. Ponnet, Designing and validating the Social Media Political Participation Scale: an instrument to measure political participation on social media, Technol. Soc. 64 (2021), 101493.

[92] L.V. Casalo, C. Flav´ ian, S. I´ ba´nez-˜ Sanchez, Understanding consumer interaction´ on Instagram: the role of satisfaction, hedonism, and content characteristics, Cyberpsychol., Behav. Soc. Netw. 20 (6) (2017) 369–375.

[93] A. Gruzd, J. Lannigan, K. Quigley, Examining government cross-platform engagement in social media: Instagram vs Twitter and the big lift project, Govern. Inf. Q. 35 (4) (2018) 579–587.

[94] T. Laor, N. Steinfeld, From FM to FB: radio stations on Facebook, Isr. Aff. 24 (2) (2018) 265–284.

[95] T. Laor, Hello, is there anybody who reads me?” radio programs and popular Facebook posts, Int. J. Interact. Multimedia Artific. Intell. 5 (7) (2019) 80–87.

[96] N.B. Ellison, P. Triệu, S. Schoenebeck, R. Brewer, A. Israni, Why we don‘t click: interrogating the relationship between viewing and clicking in social media contexts by exploring the “non-click“, J. Computer-Mediated Commun. 25 (6) (2020) 402–426.

[97] M.-Q. Liao, A.K.Y. Mak, “Comments are disabled for this video“: a technological affordances approach to understanding source credibility assessment of CSR information on YouTube, Publ. Relat. Rev. 45 (5) (2019) 101840.

[98] P. Capriotti, C. Carreton, A. Castillo, Testing the level of interactivity of´ institutional websites: from museums 1.0 to museums 2.0, Int. J. Inf. Manag. 36 (1) (2016) 97–104.

[99] S. de Smale, Memory in the margins: the connecting and colliding of vernacular war memories, Media War Conflict 13 (2) (2020) 188–212.

[100] D. Katz, Is eastern European ‘double genocide‘ revisionism reaching museums? Dapim: Studies on the Holocaust 30 (3) (2016) 191–220.

[101] S.K. Maben, C.C. Gearhart, Organizational social media accounts: moving toward listening competency, Int. J. List. 32 (2) (2018) 101–114.

[102] I. Dalziel, Becoming the ‘Holocaust police‘? The auschwitz-birkenau state museum‘s authority on social media, in: V.G. Walden (Ed.), Digital Holocaust Memory, Education and Research, Palgrave MacMillan, London, UK, 2021, pp. 179–212.

[103] T. Ebbrecht-Hartmann, T. Divon, (2020). Let TikTok creators Pretend to Be victims of the Nazis. It strengthens Holocaust memory, Haaretz (Sep. 10, 2020). https://www.haaretz.com/us-news/.premium-let-tiktok-users-pretend-to-be-victims-of-the-nazis-it-strengthens-holocaust-memory-1.9141182.

[104] R.V. Kozinets, Netnography: the Essential Guide to Qualitative Social Media Research, third ed., SAGE Publications, London, UK, 2020.

[105] International Holocaust Remembrance Alliance, Recommendations for teaching and learning about the Holocaust. https://holocaustremembrance.com/sites/default/files/inlinefiles/IHRA-Recommendations-Teaching-and-Learning-about-Holocaust.pdf, 2019

[106] S. Manca, Bridging cultural studies and learning science: an investigation of social media use for Holocaust memory and education in the digital age, Rev. Educ. Pedagog. Cult. Stud. 43 (3) (2021) 226–253.

[107] M. Ennes, Museum-based distance learning programs: current practices and future research opportunities, Int. Rev. Res. Open Dist. Learn. 22 (2) (2021).

8. Digital Holocaust Memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and remembrance practice[51]

Abstract

This study takes a social-technical systems approach to investigate how national and transnational memory of the Holocaust are intertwined on the social media profiles of a set of Italian museums and memorials. We examine how Italy's four most important Holocaust museums and memorials use social media as ecosystems to provide historical content and engage their audiences in digital remembrance about the Holocaust on four social media platforms: Facebook, Twitter, Instagram and YouTube. Results show that posts on Facebook led to a higher volume of interactivity and positive responses than posts on the other platforms, while user activity in terms of creating new posts remains low on all four platforms. The four institutions tend to address a national audience and interweave transnational Holocaust memorial themes with distinctively national ones. Although the examined social media profiles demonstrate that museums and memorials are reliable sources of historical and trustworthy information through which they shape memory ecologies, their use reflects a conservational attitude, with a preference for a target audience over the age of 25, expressed both in the choice of platforms adopted and in the mostly one-way communication approach employed. The paper outlines implications for further social media practice in Digital Holocaust Memory.

Keywords: Digital Holocaust Memory; Social Media; Holocaust museums; Italy

8.1 Introduction

Digital technologies and social media platforms have been used in museum communication for over a decade now, and cultural heritage institutions have increasingly adopted them in their modes of communication and provision of educational content to their online audiences (Giaccardi 2012). In addition to digital services for archival curation and for providing online access to their collection catalogues and collection management systems (Gil-Fuentetaja and Economou 2019), social media have attracted the attention of museum stakeholders as a way of attracting (online) visitors (Chang et al. 2022) and to detect content features that are more likely to generate interest (Furini et al. 2022).

---

[51] Accepted version of: Manca, S. (2022). Digital Holocaust Memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and remembrance practice. *International Journal of Heritage Studies*, 28(10), 1152–1179. https://doi.org/10.1080/13527258.2022.2131879

In this new scenario, Holocaust museums are no exception, and new modes of Holocaust commemoration and representation have been emerging for some time now (Popescu and Schult 2015). The progressive passing of Holocaust survivors and witnesses has led to increasing reliance on digital technologies to engage audiences in immersive, simulative, or counterfactual memories of the Jewish genocide and of other groups of victims persecuted and murdered by Nazi Germany and its collaborators (Garde-Hansen, Hoskins, and Reading 2009; Kansteiner 2017). In the transition from the 'era of the witness' (Wieviorka 2006) to the 'era of the user' (Ebbrecht-Hartmann and Henig 2021; Hogervorst 2020), users are encouraged to choose from a large number of testimonies and navigate the wide range of digital resources available online. In this sense, digital technologies are shaping new memory ecologies (Hoskins 2016, 2018), and the participatory culture of social media (Jenkins, Ford, and Green 2013) is contributing to the emergence of new forms of Holocaust commemoration (Walden 2021).

One of the latest frontiers of Holocaust remembrance on social media is the massive adoption of TikTok by Holocaust organisations and users. TikTok has established itself as one of the top online platforms for younger generations (Vogels, Gelles-Watnick, and Massarat 2022), and a growing number of Holocaust organisations, museums and memorials are entering the scene with the clear intention of reaching this target group, offering input to combat misperceptions, misinformation and distortion (Divon and Ebbrecht-Hartmann 2022; Ebbrecht-Hartmann and Divon 2022).

The explosion in the use of TikTok and in social media more generally has coincided with the outbreak of the COVID-19 pandemic and the restrictive measures caused by the various lockdowns. In addition, the pandemic has brought various disruptions to the way that museums and cultural institutions, including Holocaust museums, conduct their daily operations (Agostino, Arnaboldi, and Lampis 2020; Samaroudi, Rodriguez Echavarria, and Perry 2020). At the same time, the pandemic has accelerated the willingness of Holocaust memorials to experiment with and engage in the use of social media, which has led to greater opportunities for experimenting with digital media and thus intensified ongoing change in how memorials operate (Ebbrecht-Hartmann 2021; Walden 2022a).

In the light of the pandemic, and the appreciable differences between the various platforms – each having its own socio-technical characteristics (van Dijck 2013), its own target audience and its own modes of expression – the memory of the Holocaust is increasingly becoming mostly digital and transcultural (Kansteiner 2017). Digital Holocaust Memory, education and research have been increasingly entwined with history and developments in media, and today social media occupy a prominent place in the development of new educational and remembrance practices (Walden 2021).

As digitalisation has increasingly transformed Holocaust memory over the years and fostered new forms of remediation (Kansteiner 2017), it has also helped shape a global and transcultural memory of the Holocaust (Levy and Sznaider 2006; Probst 2003). Today, most of World War II museum representation (Jaeger 2020) and Holocaust museums are characterised by 'transnational memory', which refers to a broad range of historical phenomena surpassing national boundaries (Tyrrell 2009) and to the enduring role of national memories and their simultaneous reconfiguration under globalisation (De Cesari and Rigney 2014). By contrast, even though Holocaust memory has become one of the strongest Western collective memories and identities (Pakier and Stråth 2010), the Holocaust was a profoundly geographical event, rooted in specific physical spaces, times, and locations. As recently analysed (Manca, Rehm, and Haake 2022), even in Western Europe, national memories of the events of World War II may still differ and focus more on one aspect than others, thus intertwining local and transcultural memory of the Holocaust differently. For instance, countries such as Italy and Germany which were initially allied during World War II and later became enemies, today perpetuate different official and vernacular narratives of the Holocaust, mostly as part of intricate narratives of perpetration and victimhood (Sierp 2012). The dominance of national perspectives and how diverse countries create connections between Holocaust memory and other events in their traumatic pasts (Sievers 2016) is also reflected in the efforts to restrict standardisation of Holocaust memory (David 2017; Echikson 2019) and in the recognition of the distinctions between national 'centralized' memory projects and local commemoration practices (Vanderbeek 2022). This is despite increasing homogenisation of Holocaust memory, at least in Europe (Kovács 2018), resulting from ever-greater digital globalisation (Pakier and Stråth 2010). For instance, recent analysis (Manca, Rehm, and Haake 2022) shows that during the COVID-19 lockdown in 2020, German Holocaust museums increased their use of languages other than German in their Facebook communication, while Italian Holocaust museums tended to publish only in Italian, thus targeting mostly the nationally based community. These two sets of Holocaust institutions demonstrate diverse degrees of digital internationalisation and globalisation intensified by the pandemic and show different degrees of priority in seeking to enable a wider audience to read and understand their contributions (see Bartolini 2021).

In the light of the context briefly explained above, in this study we concentrate on the Holocaust commemoration practices conducted through social media in Italy, a country where such practices have not been as thoroughly investigated as they have in some other nations (Dalziel 2021; Łysak 2022; Manca 2019, 2021b). Specifically, in terms of collective elaboration of the memory of WWII and the Holocaust, Italy has struggled with two antagonistic public memories from the moment the war ended. On one side, the public memory developed by the Resistance movement presents Italy as the victim of a war perpetrated by Mussolini and Hitler; on the other side, another public memory has developed in opposition to antifascist rhetoric and is marked by widespread anti-Communist attitudes. More than half a century after the end of the war, Italian government commemoration and official remembrance events still tend to focus on German rather than Italian guilt in the persecution and deportation of the Jews, while highlighting the role of the Italian resistance movement and the numerous massacres of civilians perpetrated by Nazi Germany (Sierp 2012). This intertwining of national memories and transnational memorials related to the remembrance of Holocaust events is also reflected in the calendar of the most important national commemorations and celebrations, and in the ways these are conceived and established, raising the question of the complex relationship between history and memory, and the present (Sarfatti 2017).

On the one hand, the 'Festa della Liberazione' [Liberation Day], established in 1946, is celebrated on 25 April and marks the end of the Nazi-Fascist occupation and of the Second World War in Italy. On the other hand, since 2000, Italy has celebrated the 'Giorno della Memoria' [Remembrance Day] on the anniversary of the liberation of the Nazi extermination camp at Auschwitz on January 27. This event emphasises the role of the German Nazis in the deportation of Italian and foreign Jews, but not the responsibility of fascism and Mussolini. Later, the 'Giorno del Ricordo' [National Memorial Day of the Exiles and Foibe[52]], was established in 2004 to commemorate Italian victims in the border conflicts between Italy and Yugoslavia and is celebrated on 10 February.

We believe that investigations carried out for this case study can contribute to greater understanding of how Holocaust memory can be susceptible to a predominantly national perspective (Niven and Williams 2020) by focusing on how the main Italian Holocaust organisations develop Digital Holocaust Memory on social media. The broad aim is to help expand knowledge of Digital Holocaust Memory and its interweaving of national and transcultural memories. In this effort, a theoretical and methodological approach has been adopted that might be applied to the study of other lesser-known national situations. The dissemination of historically accurate information provided by authoritative institutions such as museums and memorials, and conveyed in two-way communication with their user communities, is indeed to be considered as a prerequisite for the development of new and original forms of Digital Holocaust Memory that are relevant especially for younger generations (Henig and Ebbrecht-Hartmann 2022; Walden 2021).

Another contribution the study makes regards the methodological approach. This study adopts a mixed-method approach to analyse (i) patterns of interactivity and most successful content published on a set of social media channels – Facebook, Twitter, Instagram and YouTube – by means of social media analytics and (ii) the results of quantitative-qualitative analysis of the content that received the highest post interaction. By combining quantitative and qualitative research methods to triangulate results of user engagement and social media communication in a specific localised context, the reported research extends previous understanding of new ecological memories (Bruce 1985) conveyed on social media by Holocaust museums and memorials. It also employs a broader range of technological analysis tools than is conventionally used in contexts of this kind, which traditionally rely either on quantitative analysis tools (e.g. social media metrics) or on qualitative content analysis alone.

---

[52] The *foibe massacres* (Italian: *massacri delle foibe*; Slovene: *poboji v fojbah*; Croatian: *masakri fojbe*), or simply the foibe, refers to mass killings both during and after World War II, mainly committed by Yugoslav Partisans and OZNA, against the local ethnic Italian population (Istrian Italians and Dalmatian Italians), mainly in Julian March, Istria, Kvarner and Dalmatia, against people associated with Fascism, Nazism and collaboration with Axis, and against Croat and Slovene anti-communists (https://en.wikipedia.org/wiki/Foibe_massacres, accessed 25 September 2022).

8.2 Related literature

8.2.1 Digital Holocaust memory on social media

Recently, scholars have promoted the idea of a 'virtual Holocaust memory' to indicate the interconnection between digital and non-digital memory related to the Holocaust and to highlight the collaborative nature of contemporary forms of Holocaust memory (Walden 2022b). Digital Holocaust Memory is considered a digital phenomenon or intra-action between a multitude of actants, which 'emerges through the meeting of operations, processes, sites, materials, and people, some of these have a direct relationship to this past and others less so' (Walden 2021, 291).

When expressed on social media, Digital Holocaust Memory has to take account of the socio- technical characteristics of the platforms, which are the results of continuous interactions and negotiations between technological features, social forces and human behaviours (Huysman and Wulf 2006). In this light, social media are conceived as microsystems that encompass coevolving networks of people and technologies with economic infrastructure and legal-political governance, and blend techno-cultural and political economy views (van Dijck 2013). A further level explicitly encompasses the individual use of social platforms and the ways in which single users interpret and employ these sites for specific purposes (Manca 2017). Actions such as 'following', posting comments, expressing a reaction through a 'like' or an 'emoji', and replying to comments by other users, are some of the more common interactivity functionalities social media provide to users for digital participation. This micro-layer of connectivity may be further exploited to build a network of contacts and to boost reputation and identity in terms of visibility (Haythornthwaite 2005). In this perspective, by fostering collective social interaction around content, social media use potentially corresponds to the highest level of social participation in museums (Simon 2007).

Today, Digital Holocaust Memory and social media are considered intrinsically interrelated. While interactivity and agency ended up converging (Reading 2003), participation in social media spaces is more about granting users agency and less about considering them already as actants of memory and social change (Jenkins, Ford, and Green 2013; Walden 2021). The idea that Digital Holocaust Memory is not fixed but constantly evolves and emerges in diverse digital spaces is the focus of current research, which for instance has investigated the role of filtering and ranking algorithms and search engines in shaping individual perception of the visual historical content of the Holocaust (Makhortykh, Urman, and Ulloa 2021). Virtual Interactive Holocaust Survivor Testimony (VIHST) in place of live survivor testimony has been identified as one of the latest frontiers of digital technology applied to Holocaust memory (Marcus et al. 2022). Specifically regarding social media, research has focused on several areas: how content creators on YouTube document their visits to the Auschwitz-Birkenau State Museum in vlog form (Łysak 2022); the various ways young people engage around Holocaust remembrance on Instagram, specifically using the #Auschwitz hashtag (Commane and Potton 2019); and young visitors' reasons and motivations for taking photographs in so-called ‘dark tourism sites’ about the Holocaust for memorialisation and commemoration (Dalziel 2016). Other research investigations, such as Eva Stories on Instagram (https://www.instagram.com/eva.stories/) and the Anne Frank video diary on YouTube (https://www.youtube.com/annefrank) specifically concern social media. Although initial reactions to the former project have given rise to much controversy (Henig and Ebbrecht-Hartmann 2022), today such studies highlight an interest in involving new generations of youth via alternative accounts and perspectives. These are finding new directions for social media platforms dedicated specifically to this demographic (Ebbrecht-Hartmann and Divon 2022).

Another stream of investigation regards how cultural heritage institutions, such as Holocaust museums, engage their audience via social media platforms. Study into the ways museums act as intermediaries of historical knowledge and cultural heritage through the employment of social media as socio-technical systems and through leveraging their affordances ecologically has led to a number of important results. For instance, early studies reported the tensions and synergies between traditional and modern museum practice which arise when museums lose control over media content (Wong 2011). Other works show great variance in the way former concentration and extermination camps’ use Facebook and Twitter, with many showing limited activity and diverse levels of public engagement in terms of generated content, interactivity, and popularity (Manca 2019). More recently, investigation of attitudes towards social media by a sample of 69 Holocaust museums across the world revealed museums have an overall positive attitude, although concerns were expressed by smaller institutions (Manca, Passarelli, and Rehm 2022). Overall, museums mostly tend to use Facebook, Instagram and YouTube, and to share educational content and information about the museum’s activities. Further studies show that Facebook is considered the preferred platform for more detailed ‘historical narration’ featuring lengthy description of events and people, while Instagram appears to be more appealing as a platform for live events and sharing pictures, stories and videos captured either by Museum visitors or by the institutions themselves (Dalziel 2021). However, studies focusing on larger institutions (Manca, Passarelli, and Rehm 2022) reveal that these are more active on Twitter than on Facebook and Instagram, with the Auschwitz-Birkenau Museum and Memorial occupying a prominent position in Twitter discourse given it has over 1.3 million followers (Manca 2021b; Dalziel 2021). Overall, Twitter is preferred when engaging with other institutions but also for promoting online resources, such as virtual tours and educational resources, or for getting involved in political conversations locally and internationally (Dalziel 2021).

8.2.2 The connected museum

At the forefront of museums’ communication spaces (Russo et al. 2008), social media have changed museum practice towards more participatory and democratising practices (Janes and Sandell 2019; Reynolds 2020; Wong 2012). Social media are also posing significant challenges to the way traditional museum information flow is usually handled, as tensions and synergies often emerge when museums relinquish direct control of their media content (Gonzales 2017; Wong 2011). Social media have exponentially accelerated the 'participatory turn' and the process of democratisation (Arnaboldi and Diaz Lema 2021; Bonet and Négrier 2018), leading to pressure on museum leaders and their internal organisation to be more willing to change (Booth, Ogundipe, and Røyseng 2020). In this newly expanded context, the 'connected museum' is emerging as a new hybrid place of contamination between physical and virtual exhibition spaces, which are progressively evolving into digital spaces. Conversations taking place on social media are also reconfiguring traditional forms of visitor engagement and learning, dissemination and inclusion (Drotner and Schrøder 2013). Some recent studies have focused on the ways in which museums and audiences co-construct each other through the use of particular modes of communication and discursive genres that serve to generate reciprocal online placements (Gronemann, Kristiansen, and Drotner 2015). The idea of museums as cultural intermediaries is also linked to the concept of online value creation, which manifests itself in the different organisational forms in which museums can be active and engage their audiences: marketing, which promotes the institution's image; inclusivity, which nurtures a genuine online community; and collaboration, which goes beyond communication and promotes constructive interaction with the public (Kidd 2011; Padilla-Meléndez and Del Águila-Obra 2013).

However, the 'connected museum' still faces many challenges. Studies have shown the importance of having recourse to the strong technical and digital skills needed to offer real-time data for visitor engagement and interactivity, and to ensuring dialogue between the museum and its online visitors (Agostino and Arnaboldi 2021). On one hand, social media are sometimes perceived as being in conflict with the museum's main functions and values (Booth, Ogundipe, and Røyseng 2020). On the other hand, concentrating on building a strong content-oriented presence on social media does not automatically guarantee high levels of interactivity between the museum's online followers if functions that enable online reactions from the public are not provided (Arnaboldi and Diaz Lema 2021; Camarero, Garrido, and San Jose 2018).Furthermore, despite increased social media use by cultural institutions (ICOM International Council of Museums 2020) during the recent COVID-19 lockdown,, a digital divide concerning the emergency use of digital technologies was still found (Morse et al. 2022; UNESCO 2020); smaller institutions in particular struggled to engage in social media communication and create a participatory commemorative culture that involves not only institutions, but also a variety of content creators and other users.

The same changes and challenges facing cultural heritage institutions in general are also significantly affecting museums and organisations involved in transmitting knowledge and memory of the Holocaust. Holocaust museums and memorials are among the main agents for Holocaust education, awareness-raising and memorialisation. Through online and on-site exhibitions, conferences and seminars, educational activities and social media strategies, Holocaust museums play a major role in disseminating awareness and knowledge of the Holocaust among broad segments of the population (Oztig 2022). One reason for their prominence is that they do not operate as isolated actors but are embedded in Holocaust memorial cultures (re)constituted through the practices of international organisations, ceremonies and personal stories of survivors. Holocaust museums are using social media ecologically as instruments of promotion, education, and global scale outreach (Manikowska 2020).

One of the most notable examples is the Auschwitz-Birkenau Memorial and Museum, which has been a pioneer in the use of social media by Holocaust memory institutions. The Museum uses social media to support educational programmes and commemoration events, informing the online community about the everyday history of the camp and involving followers and 'fans' in celebrations, events and anniversaries (Dalziel 2021; Manikowska 2020). On Twitter, the Museum publishes a short daily note about an Auschwitz prisoner who was born or died on that day; this practice is in line with the widely adopted approach to teaching and learning about the Holocaust by humanising Holocaust statistics (Foster, Pearce, and Pettigrew 2020; Gray 2014). Museum's online presence is its online community of users, who report distorting tweets and tweets that deserve the attention of the Museum, which is always ready to respond or 'condemn' them. By communicating with individual users directly or redistributing content shared by individuals on Twitter and Instagram, the Museum validates users' experience (Dalziel 2021).

However, beyond this particular institution, limited interactivity is reported in most cases. Studies have shown limited activity by Holocaust memorials on Facebook and Twitter, with varying levels of engagement among their audiences in terms of generated content, interactivity, and popularity expression (Manca 2019). Indeed, even in the case of major Holocaust organisations, there is an overall tendency to use social media primarily as a one-way broadcast mode of communication (Manca 2021b).

8.3 Research aims and questions

This study is based on the idea that Holocaust memory is nationally structured and susceptible to 'local' variance and adjustment, even though it refers to a global and transcultural memory (Niven and Williams 2020). As cultural memory institutions, museums and memorials are one of the key reference points for understanding how the national memory of the Holocaust is reconfigured under cosmopolitanism and evolves in terms of its digital representation. In this light, the focus of this study is on how a group of four museums and memorials in Italy use social media to convey historical content about the Holocaust and deploy educational and remembrance practices that engage users online; this involves analysing patterns of engagement and the types of content most commonly distributed. By investigating Digital Holocaust Memory in a specific country, as conveyed by a set of museums and memorials, the study sheds light on the intertwining dynamics between the local/national and transcultural dimensions of Holocaust memory. The intention is that this can then be extended to other geographical contexts.

This study also contributes to advancement in the application of methodological approaches and empirical research tools in the field of Digital Holocaust Memory, which has so far relied on separate quantitative (e.g. social media metrics) or qualitative methods of investigation based on content analysis. The specific aims are (i) to analyse patterns of content distribution and institutional practices of Holocaust memory and education by considering specific engagement and interactivity metrics (Jacobsen and Beer 2021), and (ii) to ascertain the level of users' interaction and participation in memory and remembrance practice.

The analysis is based on a socio-ecological perspective (Steinberg 2001) that considers social media as ecosystems (Hanna, Rohm, and Crittenden 2011; Levine et al. 2001) which are the result of the complex interactions between users and social media environments. In this perspective, individual and contextual systems and their interdependent relationships are investigated as multiple interrelated systems that influence each other (Bronfenbrenner 1979; Bronfenbrenner et al. 1998). We focus on the relationships between individuals and the socio-technical systems implemented by the different social media platforms examined. These platforms are conceived as ecological environments, where diverse structures overlap directly or indirectly in response to the social interactions of the participants (Huysman and Wulf 2006). The specific research questions that the study examines are:

1. What levels of activity, interactivity, and popularity are attained by the social media profiles of the four museums?
2. What type of social media content generated most interactivity?

8.4 Methods

8.4.1 The investigated museums

The history of the complex path leading to the commemoration of the Holocaust in Italy (where the use of the term 'Shoah' is preferred, see Michman 2021) has long been marked by a lack of high profile, nationally representative museums; only a few memorials have been built – in fairly recent times – at the sites of deportation and persecution. During the period of Jewish deportation (1943–1945), a number of transit camps operated in Italy (of which virtually no trace remains today except for a commemorative plaque) together with two concentration camps (Fossoli and the Risiera di San Sabba), which now each house a memorial. Most wartime deportation in Italy was conducted from common prisons or improvised sites that had been temporarily converted into places of detention. This is one of the reasons why there is currently no national Holocaust museum in Italy or, at least, a major reference point for the collective memory of the Holocaust. Moreover, in post-war Italy, the Holocaust was also long considered a marginal event within the general context of the Second World War, with far more attention being paid to the process of national pacification and reconciliation between (former) fascists and the political class that emerged from the Resistance.

For the purpose of this study, four memorials and museums were selected as the most significant cultural heritage agencies in Italy's Holocaust memory landscape with an active presence on at least on two social media platforms. The latter requirement unfortunately led to the exclusion of the earlier-mentioned Risiera di San Sabba Memorial Museum from the study, which simultaneously functioned as an extermination and transit camp and was the only site with a crematorium oven. Nevertheless, the four selected institutions are considered reference points for Holocaust memory in Italy, either because they were established on the remains of concentration camps or deportation sites, or because they host permanent or temporary exhibition spaces on Jewish persecution and deportation during the Holocaust, with education centres visited by schools and students during the school year. In the following, a short history of the four museums/memorials is provided.

The Fondazione Fossoli (https://www.fondazionefossoli.org/) was established in January 1996 by the Municipality of Carpi and the Associazione Amici del Museo Monumento al Deportato. Its objectives include dissemination of historical memory through the conservation, recovery and enhancement of the former Fossoli concentration camp itself. Located in the village of Fossoli in the region of Emilia-Romagna, Fossoli was established as a concentration camp during World War II. It began as a prisoner of war camp in 1942, later becoming a Jewish concentration camp, then a police and transit camp, and a German-controlled labour collection centre. After the war, it was designated as a refugee camp, before closing in 1970. It is estimated that 2,844 Jews passed through this camp, 2,802 of whom were deported to Germany.

Fondazione Museo della Shoah (https://www.museodellashoah.it/) was established in July 2008 by the Committee promoting the Shoah Museum project, which was formed at the end of 2006. The Foundation's mission is to give impetus to the construction of a National Shoah Museum in Rome, which will allow the Italian capital to join the great cities in the world like Jerusalem, Washington, Berlin, London and Paris that have museums dedicated to the Holocaust. At the moment, the Fondazione Museo della Shoah has a small exhibition space located in the area of the former Roman ghetto (the Portico d'Ottavia), which hosts temporary exhibitions on various themes.

The Memoriale della Shoah di Milano (https://www.memorialeshoah.it/) is located deep within the city's Central Station on a sublevel below the main tracks. Originally used for loading and handling mail cars, in the years 1943–1945 this place was where thousands of Jews and political opponents of Italy's fascist regime arriving from San Vittore Prison were loaded onto livestock waggons. These were then lifted to the track level above and joined to trains headed for Auschwitz-Birkenau, Mauthausen, and other death or concentration camps, both abroad and on Italian soil. Of all the locations in Europe that had been theatres of deportation, the Memoriale della Shoah di Milano is the only one that has remained intact.

Finally, the Museo Nazionale dell'Ebraismo Italiano e della Shoah – MEIS (https://meis.museum/) was founded in 2017 with the mission to recount over two thousand years of Jewish history in Italy. Located in Ferrara, this public history museum traces the history of the Jewish people in Italy starting from the Roman empire through to the Holocaust of the twentieth century. Chartered by the Italian government in 2003, MEIS contains over 200 artefacts and exhibits that chronologically span across Jewish history in Italy. The museum continues to expand to this day.

8.4.2 Preliminary analysis

Preliminary research for this study involved analysis of the digital communication policies and strategies of the four above-mentioned museums. Semi-structured interviews were conducted with social media managers (e.g. director, head of the communications department, social media manager, etc.) from the participating museums to gain information about their organisation, its mission and identity, and their communication and social media strategies (Manca et al. 2022b).

These interviews revealed that the museums' main target groups are younger people (especially school children), teachers, university students and researchers. In terms of demographics, their actual audience is mostly composed of school students aged between 10 and 18 and women between 50 and 60 years of age with a high level of education. All institutions pay special attention to activities related to Holocaust education, running workshops, exhibitions, school projects, and training courses addressed to teachers. Some activities are also carried out in collaboration with external partners, especially when dealing with measures to counter Holocaust distortion and hate speech on social media.

In terms of communication policy and social media use, all the interviewed museum staff reported encountering barriers to the implementation of digital strategies due to limited human resources allocated to their communications team. Due to budget constraints, those in charge of digital communication are also in charge of traditional communications. They generally consider the museum website as a highly significant means for disseminating information, announcing exhibitions, and presenting educational aims. All four social media managers mentioned the considerable importance of using social media, mainly Facebook, followed by Instagram and YouTube. Twitter is considered less relevant and is occasionally used only by a few of them. In terms of target groups addressed on the different platforms, the interviewees reported that Facebook reaches young adults and middle-aged people (45–70 years), whereas Instagram mostly reaches younger audiences (25–45 years). The main purpose of museums' postings is to convey historical information, provide details about activities and symbolic dates, and give access to in-depth background posts, videos, as well as podcasts of meetings and workshops. Posts are usually published according to a pre-set schedule; some museums use specific digital tools to prepare their own output, while outside services are rarely used for this purpose.

8.4.3 Instruments and analysis

This study adopts a mixed-method approach (Creswell et al. 2017) based on analyses of social media metrics and qualitative-quantitative content to investigate what type of content and level of interactivity museums exhibit on their social media channels. In social media research, analytics are considered a powerful means not only for providing information about social media activity, but also for transforming 'existing practices in politics, marketing, investing, product development, entertainment, and news media' (Lassen, la Cour, and Vatrapu 2018, 328), and for generating actionable insights of strategic value for incremental value co-creation (Adikari et al. 2021). From the point of view of heritage institutions and Holocaust memorialisation, co-creation is the principal means through which visitors are granted agency via co-production of their own acknowledged experiences, which complement official narratives proposed by managers of institutional social media accounts (Dalziel 2021; Shaw, Bennett, and Kottasz 2021; Walden 2021). Besides, co-creation is also indicator of how a community co-produces heritage records and negotiates new forms of value and significance (Jeffrey et al. 2020).

The study adopts user engagement perspective (McCay-Peet and Quan-Haase 2016) to investigate interaction with institutional social media profiles by analysing what kind of activities (viewing, posting, sharing content, discussion) fans and followers engage in. The collection of these data is based on principles of unobtrusive (or external) observation and is done without collecting identifiable personal information.

The social media profiles of the four museums were inspected and analysed through a set of metrics offered by FanPage Karma (https://www.fanpagekarma.com/), a commercial service that provides valuable insights into posting metrics, strategies, and profile performance on various social media platforms. The activity around the social media profiles of Facebook, Twitter, Instagram and YouTube was analysed in terms of (1) content (e.g. post frequency and format, type of information), (2) interactivity (e.g. user response and engagement), and (3) popularity (e.g. number of fans/followers, shares, etc.). This approach is derived from an analysis framework that distinguishes between content and relational communication strategies, and that measures the degree of engagement with fan pages and posts (Camarero, Garrido, and San Jose 2018; Manca 2021b; Manca, Passarelli, and Rehm 2022).

Specifically, quantitative analysis based on social media analytics (Gerrard, Sykora, and Jackson 2017) concerning content, interactivity, and popularity was applied to the volume of posts generated over one year of activity from 1 September 2020 to 31 August 2021 (N = 1951). All the analysed content was produced in Italian, regardless of platform. The corpus of data is reported in Table 1.

	Fondazione Fossoli	Fondazione Museo della Shoah	Memoriale della Shoah di Milano	Museo Nazionale dell'Ebraismo Italiano e della Shoah	TOT
Facebook posts	978 (10)	121 (10)	172 (10)	231 (10)	1502 (40)
Twitter posts	0	23 (10)	-	12 (8)	35 (18)
Instagram posts	197 (10)	47 (10)	56 (10)	63 (10)	363 (40)
YouTube videos	18 (10)	5 (2)	10 (10)	18 (10)	51 (32)

Table 1. The corpus of data. The number of posts or videos subject to qualitative analysis is shown in brackets

In order to shed further light on the provision of Holocaust content, investigation of Holocaust museums' use of social media was conducted with qualitative research methods that permit a deeper understanding of national perspectives, which are generally rooted in the national language (Kozinets 2020). Unlike other studies that use open coding systems (Corbin et al. 2014), in this study we rely on a pre-defined set of coded categories to investigate social media content specifically related to knowledge and memory of the Holocaust (see Sloan and Quan-Haase 2018) and treated them quantitatively (Coe and Scacco 2017). The qualitative analysis was conducted through a coding scheme based on a framework specially devised to analyse Holocaust-related content published on the social media profiles of Holocaust museums. This framework had been designed and validated through a Delphi Study involving a panel of 22 international Holocaust experts (Manca 2021a) and was used to analyse the 10 posts on each platform that generated the highest degree of post interaction. The framework provides guidance on how to classify published information pertaining to three major domains (macro-categories): Historical content of the Holocaust, Contemporary issues related to the Holocaust, and Museum activities and communication.

Macro-Category A 'Historical content of the Holocaust' covers any information about the period, places, actions, and events that created, influenced, or formed the backdrop to the historical development of the Holocaust. This macro-category includes historical content related to the Holocaust, its antecedents and its immediate consequences, such as the Nuremberg Trials, closure of the last Displace Persons (DP) camps, etc. It is intended to encompass every possible type of historical content related to the Holocaust and its material evidence. Micro-categories comprised in this domain are: Places (Local; Regional; National; Transnational); Timeline (Pre-1933; 1933–1939; 1939–1941; 1941–1945; 1945–1950); Agency (Murdered; Survive; Perpetration; Collaboration; Bystanding; Combat and resistance; Rescue; Liberation); Groups (Jews; Roma and Sinti; Political opponents; People with disabilities; Slavic peoples; Forced labourers; Homosexuals; Jehovah's Witnesses; Soviet prisoners of war; Other); Stages of the Holocaust (Pre-Holocaust; Classification, Dehumanisation and symbolisation; Discrimination, Isolation and segregation; Organisation; Persecution and deportation; Mass murder or 'Extermination'; Liberation and aftermath); Context and society (Jews; Jewish identity, history, religion, and culture; Nazi ideology and attitudes towards Jews and other categories; The camp system; Prejudice, discrimination, racism, antisemitism and antigypsyism; War and German occupation in Western and Eastern Europe; The elderly, children and women; Fates of individuals; International response); Artefacts and authentic representation (Artefacts; Photographic and filmic evidence; Literary and documentary production; Music and theatre; Sculptural and visual art; Architecture).

Macro-Category B 'Contemporary issues related to the Holocaust' includes a set of categories which refer to the period immediately after the liberation and its aftermath (e.g. the Nuremberg Trials, closure of the last DP camps, etc.), namely from the early 1950s until today. The subcategories included here are directly related not only to the Holocaust itself (and its parallels), but also to academic research and its artistic representation. They also encompass matters concerning education and commemoration, and a number of subjects relevant to the contemporary challenges and risks posed to Holocaust memory. These micro-categories comprised in the domain are: Holocaust scholarship (Holocaust research; Archaeology of the Holocaust); Heritage of the Holocaust (Political, legal, cultural and social developments; Testimonies and their lessons for the present; The Righteous Among the Nations; Iconic places and people; Second and third generations); Parallels and challenges (Countering Holocaust denial and distortion; Antisemitism, racism and hate; Other genocides); Remembrance and education (Remembrance and commemoration; Public discourse about various aspects of the Holocaust in the press, social media and other media; Holocaust education: Teaching and learning about the Holocaust); Contemporary representation of the Holocaust (Films and documentaries; Photographs; Literary and documentary production; Music and theatre; Sculptural and visual art; Artefacts and architecture; Digital and virtual representation).

Macro-Category C 'Museum activities and communication' is composed of a set of categories related to museum events (e.g. the announcement of a new exhibition, a virtual tour, a webinar, etc.), including communications about museum services (e.g. operating times), communication with the audience, and endorsements from related institutions and individuals. Micro-categories comprised in this domain are: Museum event; Social media event; Communication and responses to audience; Collaborations and endorsements; Information about museum operation; Other.

For each macro and micro-category in the framework, a definition and examples are given (see Manca 2021a).

A total of 130 published content items − 40 Facebook posts, 18 Tweets, 40 Instagram posts and 32 YouTube videos – were analysed and coded according to the set of categories in the framework. Two independent coders applied the same set of macro and micro-categories to code this content dataset. For the purpose of ensuring an acceptable level of inter-rater reliability (comparable outcomes when different coders categorise the same qualitative dataset using the same coding criteria), an iterative process of data analysis was carried out to lend rigour to the research and ensure that any bias is consistent (Creswell 2014). Accordingly, the derived coding results were double-checked by comparing results, and dataset coding reliability was calculated (Cohen's k = 0.99). Instances of coding disagreement were resolved through discussion and subsequently total consensus was reached.

8.5 Results

In the following, we describe the results of our analyses across the two phases of the study: the inspection of social media metrics of content, interactivity and popularity, and the quantitative- qualitative content analysis of the subset of posts selected on the basis of the highest post interaction value.

8.5.1 Social media metrics of content, interactivity and popularity

As shown in Table 2, as far as the published content is concerned, most of the activity is on Facebook (N = 1502) and Instagram (N = 363), although the number of daily posts is always around 1 or less than 1 (N = 1.0 and N = 0.3, respectively) in both cases. Twitter activity is to be considered rather low (N = 35), also bearing in mind that one of the four museums does not have a profile on this social media, while another that does did not exhibit any activity during the period considered. The overall volume of activity on YouTube is also to be considered low, with a total of 51 videos published in the reporting period.

		Facebook	Twitter	Instagram	YouTube
Content	Posts	1502	35	363	51
	Posts per day	1.0 ± 1.1	0.0 ± 0.1	0.3 ± 0.2	-
Interactivity	Comments	8,525	-	577	22
	Comments per post	8.5 ± 6.7	-	1.8 ± 1.1	0.3 ± 0.5
	Views per video	-	-	-	640.7 ± 563.8
	Reactions per posts	122.4 ± 77.5	3.3 ± 2.9	77.5 ± 37.1	28.7 ± 33.7
	Post interaction (%)	1.0 ± 0.5	0.4 ± 0.4	4.4 ± 1.8	12.3 ± 13.4
	Posts by fans	23.5 ± 17.5	-	-	-
	Comments on posts by fans	35.5 ± 45.9	-	-	-
	Fans' posts with reaction by page	2.5 ± 3.8	-	-	-
	Page's comments on posts by fans	0.0 ± 0.0	-	-	-
Popularity	Shares/Retweets per post	24.8 ± 17.2	1.4 ± 1.3	-	-
	Fans/followers	16,611.5 ± 7,087.6	1,384.3 ± 857.7	2,160.5 ± 1,008.0	268.8 ± 225.2

Table 2. Comparison of metrics across the four platforms (the symbol ± refers to the values of the mean – value to the left of the symbol – and the standard deviation – value to the right of the symbol)

In terms of interactivity, Facebook is the platform that attracts the most comments, both overall (N = 8,525) and per post (N = 8.5), followed once again by Instagram (N = 577 and N = 1.8 respectively). On YouTube, a significant number of total views (N = 640.7) was found, however, against a small number of comments per video (N = 0.3). As to reactions, Facebook posts receive the highest number (N = 122.4), followed by Instagram (N = 77.5) and YouTube (N = 28.7). Twitter is the platform with the lowest number of likes (N = 3.3). However, post interaction was found to be higher on YouTube (12.3%), followed by Instagram (4.4%), while much less post interaction was found on Facebook (1.0%) and Twitter (0.4%). Inspection of metrics related to user-generated Facebook posts – and reactions and comments by the page to users' posts and comments – revealed that user creation of new posts is rather low. On average, only 35.5 comments per account were posted by fans on other users' posts. Reactions and comments by the page to users' posts and comments remains scarce (N = 2.5) or non-existent (N = 0.0).

Finally, in terms of popularity, the largest following is on Facebook, with an average of 16,611.5 fans/followers, followed by Instagram with an average of 2,160.5 fans, and Twitter, with an average of 1,384.3 followers. When comparing data on content sharing through shares and retweets, it was found that on Facebook, posts are shared on average 24.8 times, while tweets are retweeted only 1.4 times.

8.5.2 Content categories

If we look at Figure 1, we find that there is a prevalence of content related to macro-categories B and C on all four social platforms, while macro-category A is of lower importance. However, there are differences between the four platforms: the historical content of macro-category A is mainly concentrated on Facebook (20.0%) and to a lesser extent on Twitter (16.7%) and Instagram (5.0%), while it is completely absent from YouTube videos.

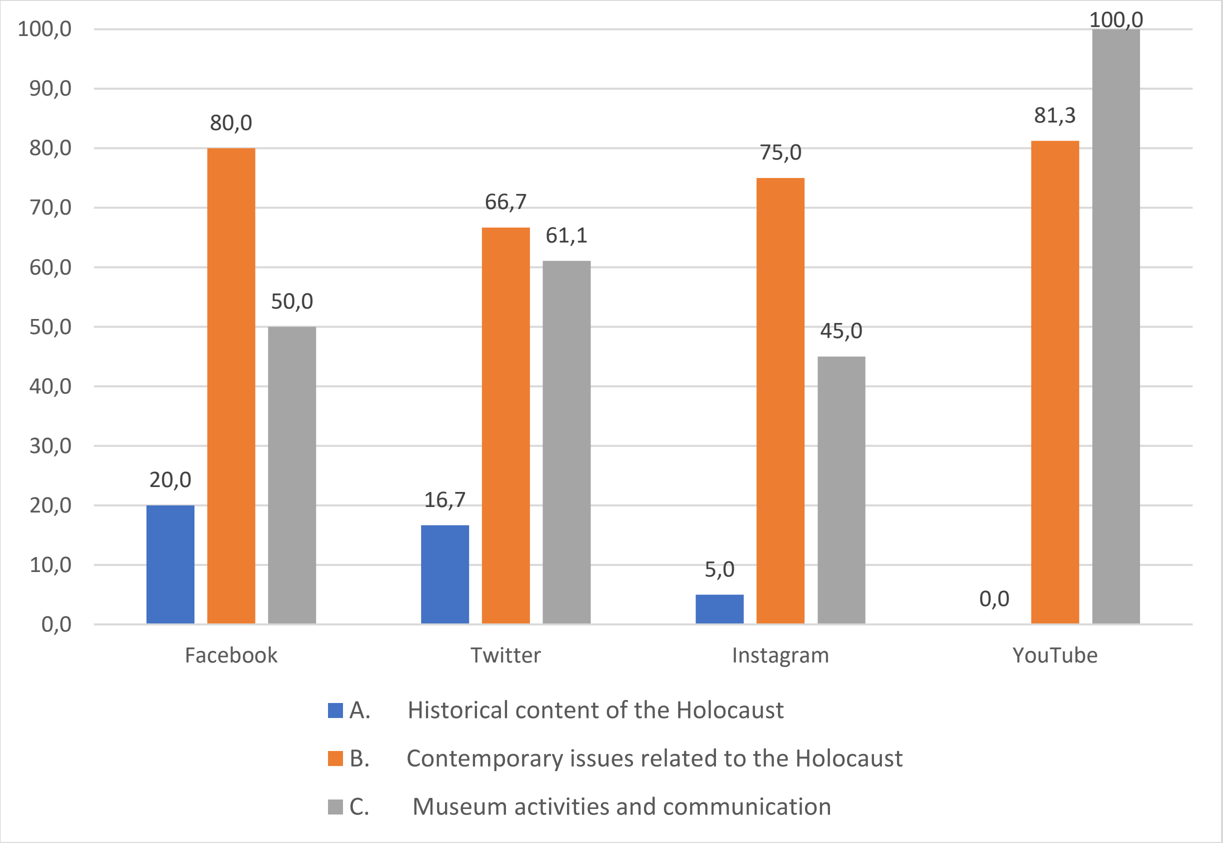


Figure 1. Percentage of content types on the four social media platforms.

All four platforms contain a significant amount of content related to macro-category B, particularly on Facebook (80.0%), YouTube (81.3%) and Instagram (75.0%). Finally, macro-category C is dominant on YouTube (100.0%) and Twitter (61.1%).

In the following, we provide more details about the type of contents for each macro-category across the four platforms.

8.5.2.1 Facebook

On Facebook, historical content (macro-category A) is mostly focused on local events which occurred in the 1941–1945 timespan and involved either victims or survivors in addition to perpetrators. Jews and, to a lesser extent, political opponents are the two groups covered in the posts, while for the stage of the Holocaust, the most frequently recurring phase is that of Persecution and Deportation. In terms of the social context of the historical facts, the major reference is to the War and German occupation and to individual or family stories of victims/survivors. Concerning the media content of the posts, the use of film or photographic material from the historical period under consideration is prevalent.

With regard to the type of content pertaining to macro-category B, there is a prevalence of testimonies actively engaged in the dissemination of the memory of the Holocaust (many of whom are iconic figures within the Italian context), on commemoration events (e.g. marking the birth or death of significant figures, anniversaries and celebrations etc.) and on recent historical research results.

Finally, as to the type of content pertaining to macro-category C, there is a predominance of announcements of events organised by museums online or onsite and of communications to the public (information on opening hours, opening of temporary exhibitions, etc. Figure 2 shows the distribution of macro and micro categories of which at least one occurrence was found, while an example of a popular post is given in Figure 3.

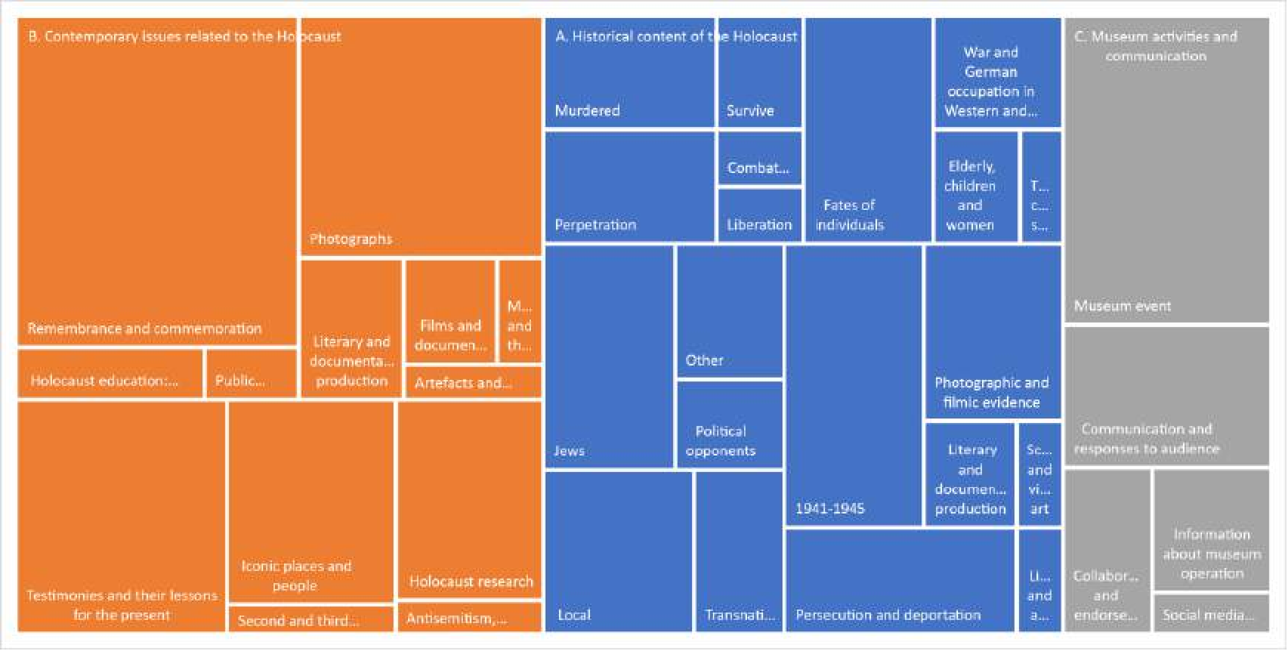
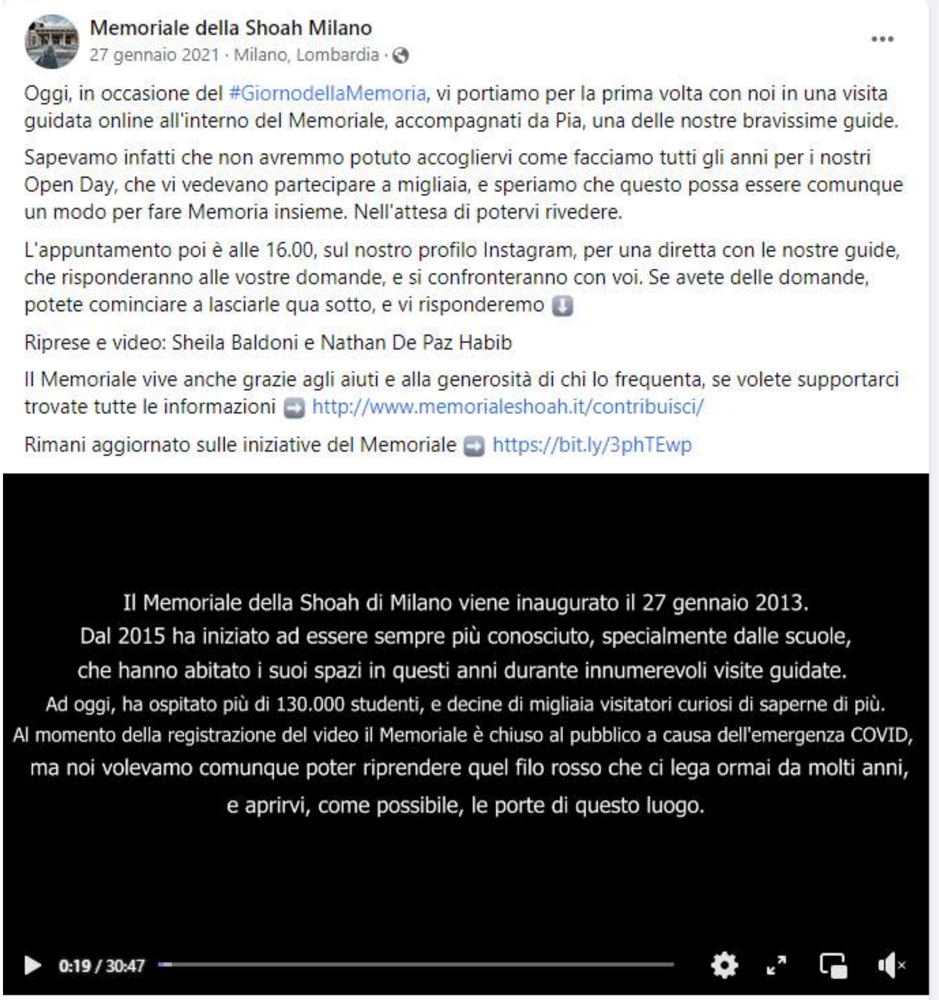


Figure 2. Distribution of micro-categories across the three macro-categories on Facebook



Memoriale della Shoah Milano
27 gennaio 2021 · Milano, Lombardia ·

Oggi, in occasione del #GiornodellaMemoria, vi portiamo per la prima volta con noi in una visita guidata online all'interno del Memoriale, accompagnati da Pia, una delle nostre bravissime guide.

Sapevamo infatti che non avremmo potuto accogliervi come facciamo tutti gli anni per i nostri Open Day, che vi vedevano partecipare a migliaia, e speriamo che questo possa essere comunque un modo per fare Memoria insieme. Nell'attesa di potervi rivedere.

L'appuntamento poi è alle 16.00, sul nostro profilo Instagram, per una diretta con le nostre guide, che risponderanno alle vostre domande, e si confronteranno con voi. Se avete delle domande, potete cominciare a lasciarle qua sotto, e vi risponderemo ⬇

Riprese e video: Sheila Baldoni e Nathan De Paz Habib

Il Memoriale vive anche grazie agli aiuti e alla generosità di chi lo frequenta, se volete supportarci trovate tutte le informazioni ➡ http://www.memorialeshoah.it/contribuisci/

Rimani aggiornato sulle iniziative del Memoriale ➡ https://bit.ly/3phTEwp

Il Memoriale della Shoah di Milano viene inaugurato il 27 gennaio 2013.
Dal 2015 ha iniziato ad essere sempre più conosciuto, specialmente dalle scuole,
che hanno abitato i suoi spazi in questi anni durante innumerevoli visite guidate.
Ad oggi, ha ospitato più di 130.000 studenti, e decine di migliaia visitatori curiosi di saperne di più.
Al momento della registrazione del video il Memoriale è chiuso al pubblico a causa dell'emergenza COVID,
ma noi volevamo comunque poter riprendere quel filo rosso che ci lega ormai da molti anni,
e aprirvi, come possibile, le porte di questo luogo.

Figure 3. An example of a popular Facebook post

8.5.2.2 Twitter

As to Twitter, the prevailing macro-category B is mainly represented by content about commemoration and remembrance events and by testimonies actively engaged in the dissemination of the memory of the Holocaust (Figure 4). The second most frequent macro-category (B) concerns the promotion of online and on-site events organised by the museum and communications to the public on various topics (changes in opening hours, inauguration of temporary exhibitions, etc.). Finally, historical content (macro-category A) mainly concerns events that occurred in Italy in the 1941–1945 timespan, which regarded Jewish victims or survivors and Nazi Germany occupation of Italy. Holocaust research and topics about antisemitism are also found, along with a range of diverse media formats. Figure 5 provides an example of a popular Tweet.

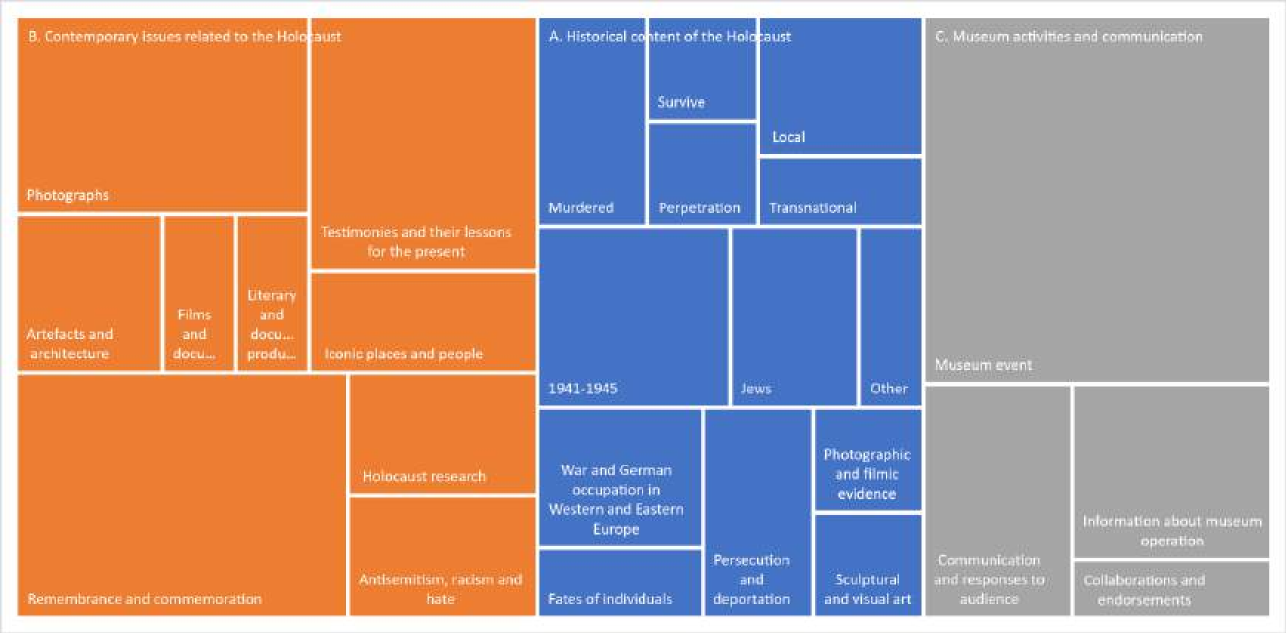
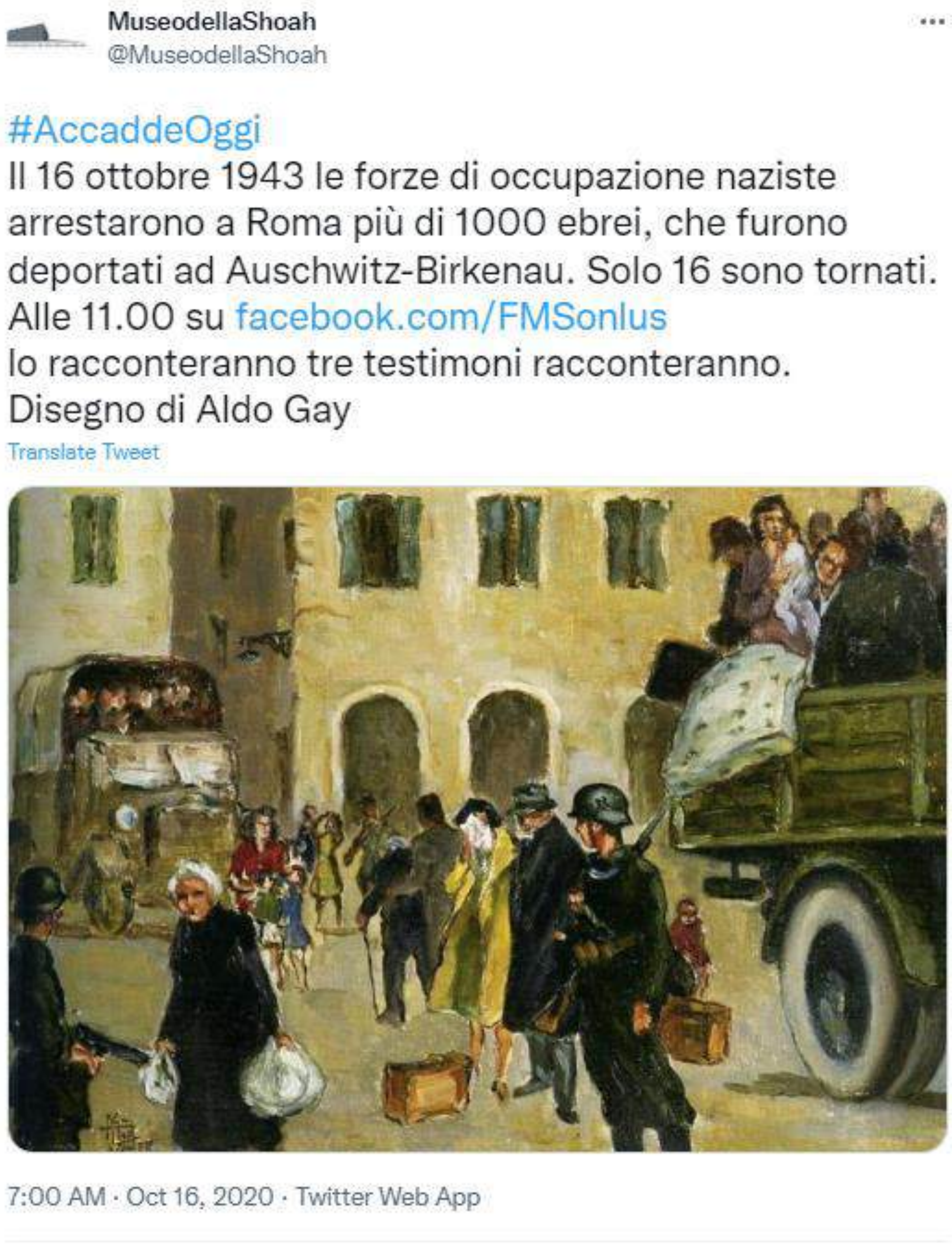


Figure 4. Distribution of micro-categories across the three macro-categories on Twitter



MuseodellaShoah
@MuseodellaShoah

#AccaddeOggi
Il 16 ottobre 1943 le forze di occupazione naziste arrestarono a Roma più di 1000 ebrei, che furono deportati ad Auschwitz-Birkenau. Solo 16 sono tornati.
Alle 11.00 su facebook.com/FMSonlus
lo racconteranno tre testimoni racconteranno.
Disegno di Aldo Gay

7:00 AM · Oct 16, 2020 · Twitter Web App

Figure 5. An example of a popular Twitter post

8.5.2.3 Instagram

On Instagram, the prevailing macro-category (B) regards contemporary testimonies and their engagement in disseminating the memory of the Holocaust and remembrance and commemoration events (Figure 6). In terms of media formats, the use of photographs prevails in Instagram stories. Macro-category C mostly comprises promotion of museum and social media events, as well as mentions of collaborations with other bodies and institutions and direct communication with the public. Finally, content in macro-category A largely deals with local events occurring in the 1941– 1945 timespan involving Jews, while the prevailing stage is Liberation and aftermath. Figure 7 provides an example of popular a post.

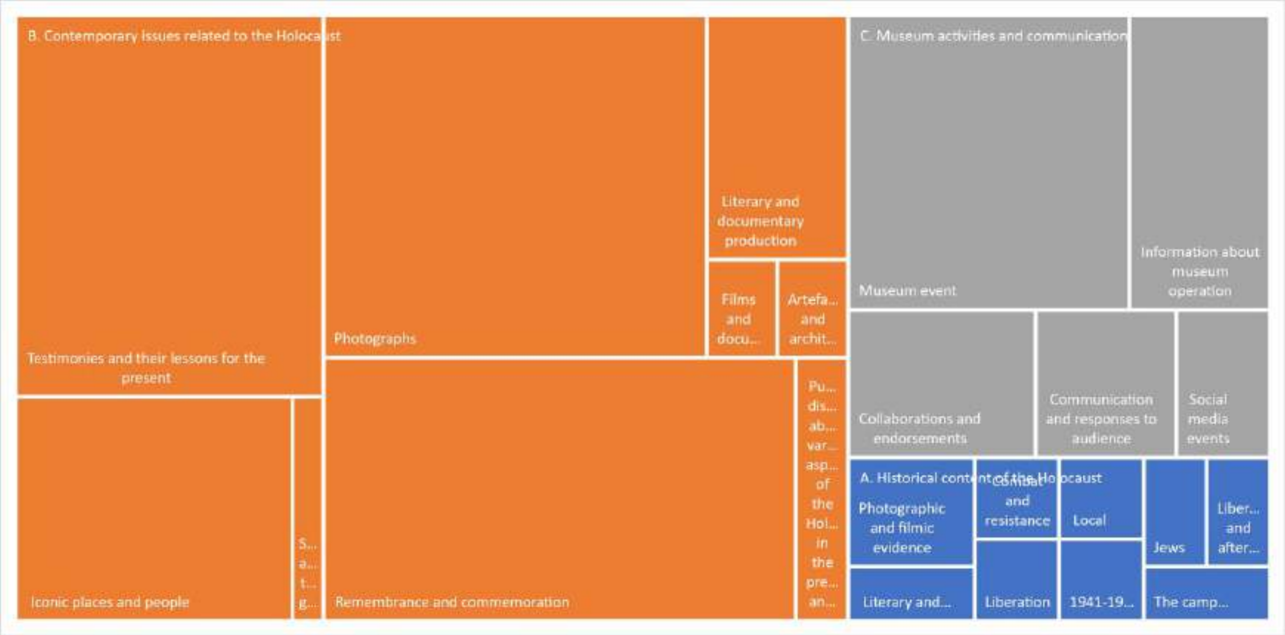
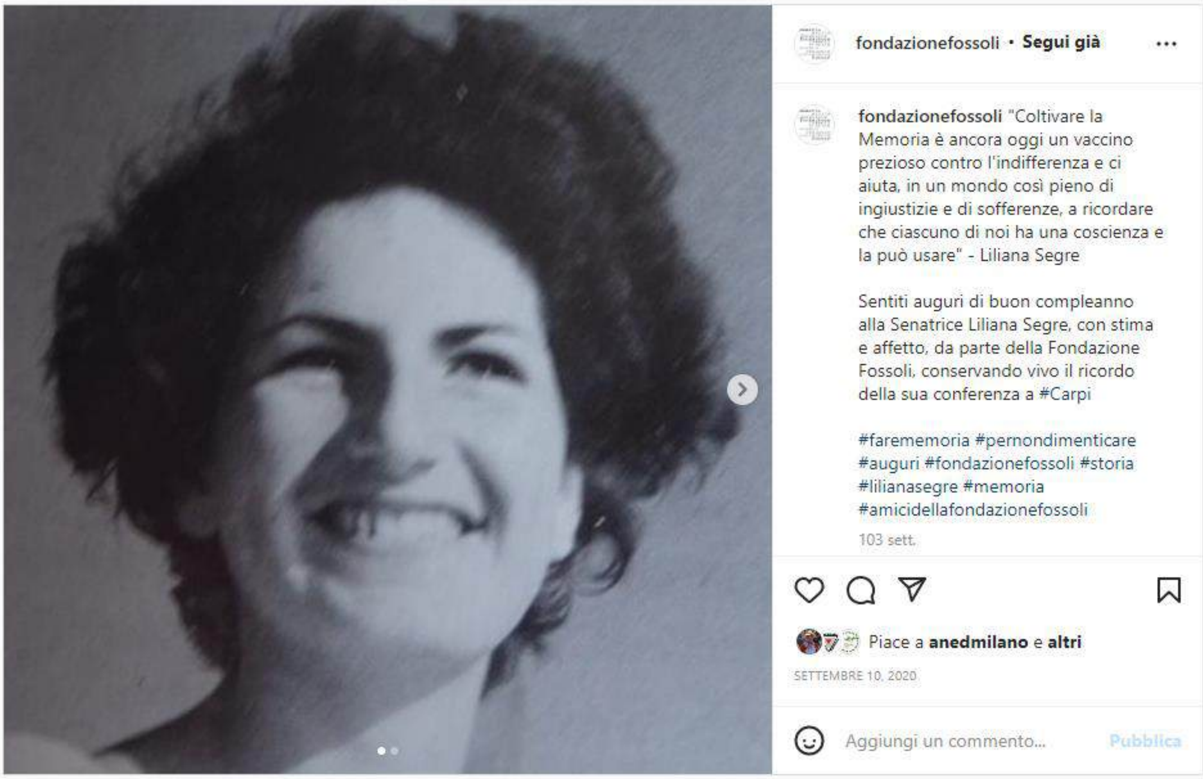


Figure 6. Distribution of micro-categories across the three macro-categories on Instagram


fondazionefossoli • Segui già
Piace a **anedmilano** e **altri**
Aggiungi un commento...
Pubblica

fondazionefossoli "Coltivare la Memoria è ancora oggi un vaccino prezioso contro l'indifferenza e ci aiuta, in un mondo così pieno di ingiustizie e di sofferenze, a ricordare che ciascuno di noi ha una coscienza e la può usare" - Liliana Segre

Sentiti auguri di buon compleanno alla Senatrice Liliana Segre, con stima e affetto, da parte della Fondazione Fossoli, conservando vivo il ricordo della sua conferenza a #Carpi

#farememoria #pernondimenticare #auguri #fondazionefossoli #storia #lilianasegre #memoria #amicidellafondazionefossoli

103 sett.

SETTEMBRE 10, 2020

Figure 7. An example of a popular Instagram post

8.5.2.4 YouTube

Finally, YouTube content focuses on macro-categories B and C, which mostly coincide with live streaming or recorded events such as lectures, presentations of new publishing initiatives, sometimes featuring survivors or testimonies of the Holocaust, or second and third generation descendants (Figure 8). During the COVID lockdown, virtual museum tours by volunteer museum guides also took place. Figure 9 provides an example of a popular video.

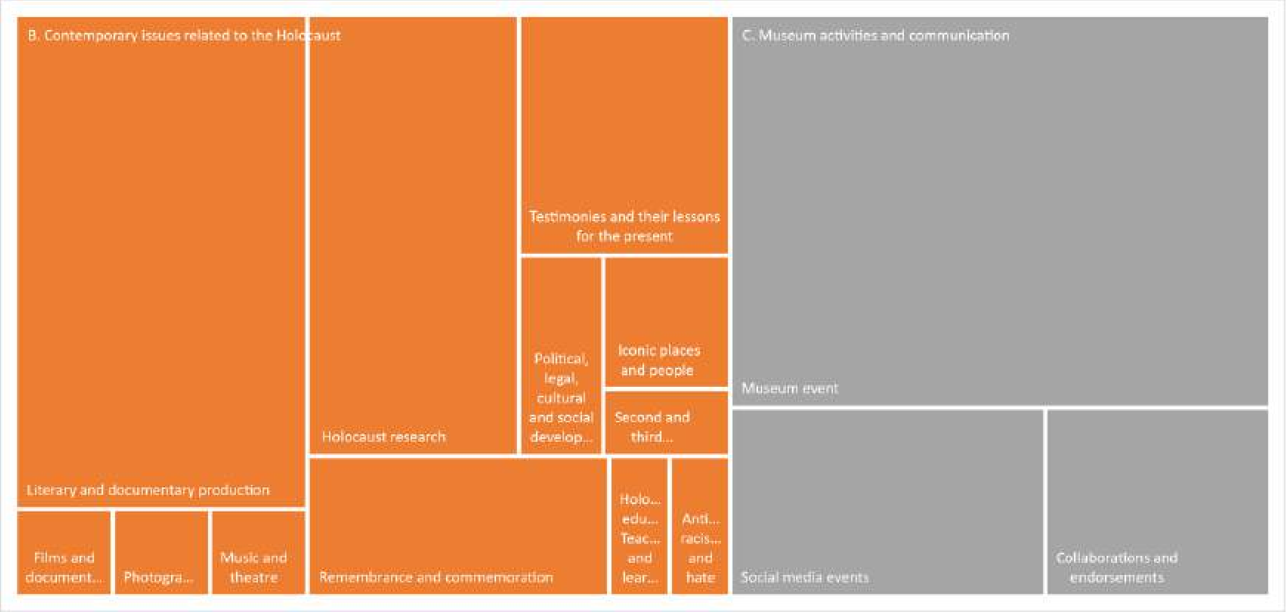
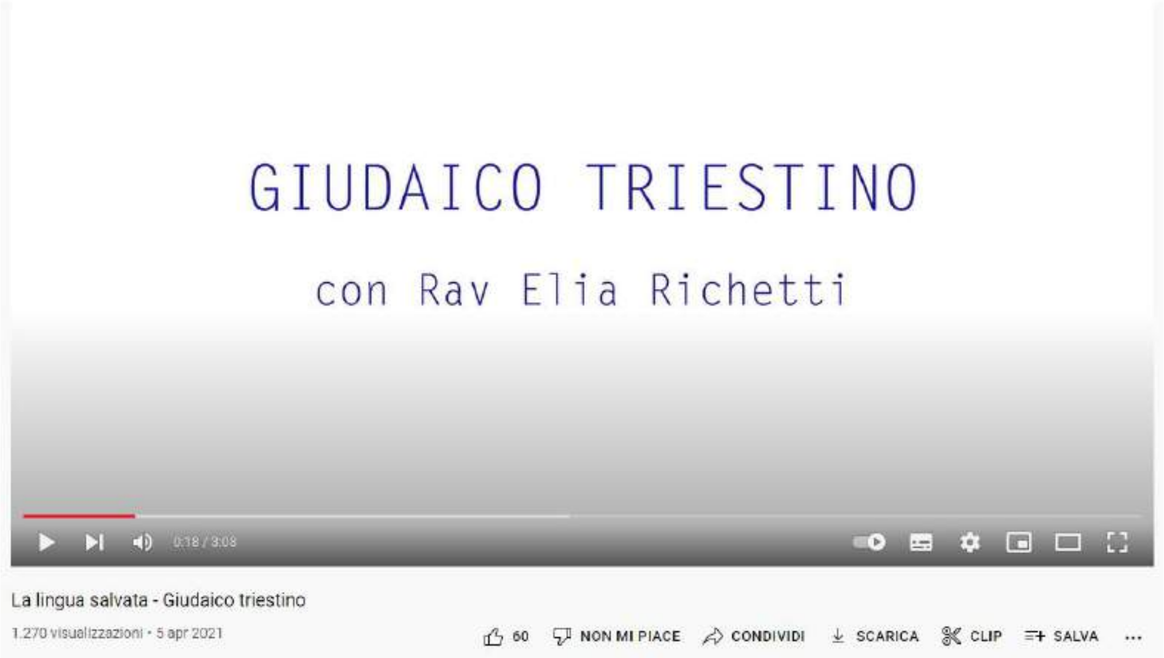


Figure 8: Distribution of micro-categories across the three macro-categories on YouTube


GIUDAICO TRIESTINO
con Rav Elia Richetti
0:18 / 3:08
60
NON MI PIACE
CONDIVIDI
SCARICA
CLIP
SALVA
...

La lingua salvata - Giudaico triestino

1.270 visualizzazioni • 5 apr 2021

Figure 9. An example of a popular YouTube video.

8.6 Discussion

This study has sought to expand knowledge about the use of social media by Holocaust museums through investigation of patterns of communication and user engagement in a group of museums and memorials in Italy dedicated to promoting knowledge and memory of the Holocaust. Unlike similar studies, which have investigated internationally relevant Holocaust institutions (Manca 2021b) or large sets of Holocaust memorials in other countries (Manca 2019; Manca, Passarelli, and Rehm 2022), this study concentrates on the digital ecosystems of Holocaust-oriented cultural institutions located in a specific country, Italy. The specific aim was to analyse how the iconic status of Holocaust memory in many countries is interwoven with the national collective memory of the Second World War.

Although the context described may be considered as a specific case study with limited scope for generalisation, it is important to stress that this research has investigated local Holocaust agencies that usually are somewhat neglected by the academic community, which prioritises large institutions with international visibility (Dalziel 2016; Lundrigan 2020; Manca 2021b; Wight 2020). In this sense, investigating the potential and critical issues that museums and memorials of a single country face, both in disseminating historical content and dealing with commemoration practice of the Holocaust, has the advantage of helping expand knowledge for future studies. Besides, to our knowledge, this is the first time that social media metrics combined with thorough content analysis has been used in tandem with a qualitative analysis approach in the study of cultural heritage institutions of this type. The adoption of a networked socio-ecological research design based on a mixed-method approach has made it possible to explore the micro-level of digital ecosystems that consider museum activity and user engagement in the co-construction of intra-actions related to the development of Digital Holocaust Memory practices (Drotner and Schrøder 2013; Reading 2003; Walden 2021).

Regarding the first research question concerning levels of activity, user interactivity and popularity, a number of social media metrics were used to extract patterns of shared content, interactivity and popularity. If we compare the volume of activity of the four museums with larger institutions investigated in other studies (Manca 2021b), the Italian museums appear to be less active on social media. In particular, most of the activity is concentrated on Facebook, while Twitter is the least commonly used social media platform. In previous studies, Twitter use was found to be more prominent among large institutions (Dalziel 2021; Manca 2021b), which are more active in political and civic engagement. As reported above, the case of the Auschwitz-Birkenau Museum and Memorial is emblematic in terms of its intense civil and social commitment against Holocaust denial and antisemitism on Twitter, which however is not without risks and dangers (Dalziel 2021; Manikowska 2020). Instead, it seems that the four Italian museums somehow shy away from this kind of activity, preferring the 'slower-paced' communication typical of Facebook and Instagram, and addressing the two specific target audience reported in the interviews, namely young adults and middle-aged people (45–70 years) and younger audiences (25–45 years). This confirms results reported in recent studies about social media use. These show that Facebook is the most popular social media platform for men and women aged 35–44, with over one-third of the audience being 45 or older. Conversely, the same platform is least popular with users aged 16–24 (Barnhart 2022; Beveridge 2022), the share of teens who say they use Facebook plummeting to 32% (Vogels, Gelles- Watnick, and Massarat 2022). As to Instagram, figures from April 2022 show that over two-thirds of the platform's users were aged 18–34 years (Statista 2022), while nearly 60% of Twitter users were between 25 and 49 years old as of April 2021 (Statista 2021). Finally, along with Facebook, YouTube continues to dominate the online landscape among users aged 18–29, while adults under 30 predominantly use Instagram, Snapchat and TikTok (Auxier and Anderson 2021). That said, results obtained across the four platforms are not directly comparable because of their different aims and audience.

Recent studies show that social media users interested in Holocaust topics are predominantly women with an average age of about 50 years and a higher education qualification (Manca et al. 2022b). This means that if Holocaust museums want to reach a younger people, they must also centre their efforts on platforms popular with this age group, such as Instagram for young adults and TikTok for teens. As pointed out in the Introduction, new Holocaust projects such as Eva Stories have helped reopen the debate on how to reach young people to talk about the Holocaust by using their preferred media channels. While this project sits on the borderline between trivialisation and desacralisation on the one hand, and involvement and motivation on the other, it nonetheless offers new ways of translating previous forms of mediated Holocaust memory into social media patterns that can engage youth (Henig and Ebbrecht-Hartmann 2022). Furthermore, largely in response to the COVID-19 pandemic and related lockdowns, TikTok is beginning to be used by major Holocaust cultural agencies (Ebbrecht-Hartmann and Divon 2022) and the first timid attempts are also being seen in the group of four Italian museums (https://www.tiktok.com/@museoshoahroma). However, since this TikTok profile was established only recently (April 2022), at the time of writing no data were available for analysis in this study. Future studies should investigate how Holocaust survivors, Holocaust museums and historians are using TikTok to teach younger generations about the Holocaust and how it might be employed to combat antisemitism in engaging and innovative ways.

As far as interactivity metrics are concerned, Facebook posts tend to receive more reactions than the posts on other platforms, although post interaction was found to be higher on YouTube and Instagram than on Facebook and Twitter. One possible explanation for this might be that, on YouTube and Instagram, user experience is enhanced by widespread use of videos, pictures, short videos and stories, contributing to a higher rate of engagement than on Facebook and Twitter, as also reported in previous studies (Manca 2021b) and in other research areas (Casaló, Flavián, and Ibáñez-Sánchez 2017; Gruzd, Lannigan, and Quigley 2018). However, further investigation is required to understand how the format of a post, its language and content may influence the level and nature of user engagement across platforms.

In terms of pages' active interaction with users, results show that overall interactivity levels are low, including the number of comments and reactions from Facebook pages. In addition, comments were found to be particularly rare on YouTube; here, the comments function is often disabled, and anyway users are far less likely to comment videos generally (Liao and Mak 2019). In line with results from other studies concerned with the cultural heritage sector (Arnaboldi and Diaz Lema 2021; Capriotti, Carretón, and Castillo 2016) and Holocaust memory (Manca 2019, 2021b), interactivity with users is low in this study as well. One explanation lies in the fear of trivialisation or distortion, along with the risk of harbouring conflicting memories (de Smale 2020), factors that have induced some 'passivity' among Holocaust museums. This has resulted in a cautious attitude in soliciting users' interaction, with a preference for unidirectional communication and the broadcasting of a 'carefully shaped, widely acceptable message via social media' (Kansteiner 2017, 324).

As for the second research question, results show that Facebook is considered the preferred platform for more detailed 'historical narration', with lengthy description of events and people. Instagram appears to be more appealing to museums for live events and the sharing of pictures, stories and videos. Twitter is rarely used, being employed mainly for engaging with other institutions but also for promoting online resources. Finally, YouTube is the elected platform for dissemination of commemoration events and museums' online lectures and debates. Preliminary analyses conducted through interviews with those responsible for communication and the use of social media revealed that the four museums and memorials prefer more 'static' and unidirectional communication, probably also justified by the type of target group they address (as discussed above). However, although a plethora of studies analyse museums' objectives for using a specific social platform, depending on the target audience to be reached (Bosello and van den Haak 2022; Chang et al. 2022; Gronemann, Kristiansen, and Drotner 2015; Morse et al. 2022; Suess and Barton 2022), future studies should also explore in greater depth the selective strategies that lead Holocaust museums to diversify the types of content they post across different platforms.

If we look at the qualitative content published on the different platforms, we found that location is an important aspect in the commemoration of the Holocaust in countries which were directly affected by the Holocaust (Duffy 1997; Oztig 2022). In particular, the stories told highlight the persecution and deportation of Jews, on the one hand, and, on the other, political opposition and resistance to Nazi-Fascism and final liberation. These two components are often found to be intertwined in Italian Holocaust narratives, as the Resistance movement has always played a central role in Italian collective memory of the Second World War (Sierp 2012). In fact, the most popular contents analysed reflect the specificities of the collective narrative relating to the events of the Second World War and the Holocaust in Italy, in a weave in which the global transcultural dimension is intertwined with the national historical dimension (Niven and Williams 2020).

Overall, much of the content is about survivors and testimonies actively engaged in the dissemination of the memory of the Holocaust. Along with posts about collective historical events, there is an emphasis on personal stories. Memorial museums tend to articulate collective memory from the prism of victims' perspectives (Oztig 2022) and the role of personal stories (i.e. fates of individuals) is at the core of Holocaust representation in emphasising individual experiences and memories; these express the authenticity of testimonies and highlight the function of history as a form of remembrance by adding an ethical orientation (Assmann 2016; Jaeger 2020). Here too, Italian museums and memorials are in line with the global and transcultural trend that favours the humanisation of statistics (Foster, Pearce, and Pettigrew 2020; Gray 2014). Stories of victims and survivors, as well as iconic witnesses, are almost in all cases stories of people well known or less known in Italy, thus highlighting again a national dimension of the narrative.

8.7 Limitations and conclusions

Along with the positive insights emerging from this study, a number of limitations need to be recognised. A proprietary platform, Fanpage Karma, was used to derive metrics related to content, interactivity and popularity of social media profiles; as a commercial service, the metrics it makes available may change over time in accordance with market demands. The sampling of content for qualitative analysis does not proportionally represent the overall volume of content published on each specific platform, so there may have been an over-representation of some platforms compared to others that had a very high number of posts. Furthermore, the qualitative sampling was based on the posts attracting the highest post interaction (the posts that attracted users the most), rather than using a random sample. This means that the analysed sample cannot be considered representative of the global set of activity instances. In addition, the study only offers a categorisation of the most significant posts and does not engage in elaborated analysis such as discourse analysis, which would open the way to establishing how concepts are used in discussion and for what means and inform about the communication strategies related to Holocaust memory in general.

Despite these limitations, this study offers an insight into the reality of Holocaust remembrance in a specific country, Italy. In this respect, the study is part of a growing strand of studies that is highlighting a changing scenario. Accelerated by the COVID-19 pandemic, the field of Digital Holocaust Memory is undergoing major changes, and indications from scholars are that further changes are possible. In conclusion, it is important to emphasise that new memory ecologies are starting to question the prevailing cautiousness concerning the interactive and participatory potentials of social media use (Maben and Gearhart 2018).

As explained above, the limited interactivity observed in the study is intertwined with the fact that the memory of the Holocaust is a complex and delicate issue, and museums are mainly preoccupied with limiting cases of denial, distortion, misuse, and superficial representations (International Holocaust Remembrance Alliance 2021). However, as recently highlighted (Manca et al. 2022a), Holocaust distortion and abuse is considered a fringe phenomenon which requires a holistic approach comprising diverse measures, among which the active involvement of the fan/follower community in creating a safe and cooperative environment. User communities may help disseminate trustworthy information by engaging with authentic stories and developing new and original forms of digital commemoration, but this can only happen if Holocaust institutions trust their audience and involve them in participative historical storytelling. Expanding knowledge about the Holocaust by adapting the provision of content and tone of communication to the different habits of different social media users is another important measure to consider, especially if we want to keep the memory of the Holocaust relevant and current, especially for younger generations.

8.8 Acknowledgments

This work was supported by the International Holocaust Remembrance Alliance (IHRA) under grant no. 2020–792 "Countering Holocaust Distortion on Social Media. Promoting the Positive Use of Internet Social Technologies for Teaching and Learning about the Holocaust". The study is also part of the author's research project "Teaching and learning about the Holocaust with social media: A learning ecologies perspective"—Doctoral programme in "Education and ICT (e-learning)", Universat Oberta de Catalunya, Spain.

8.9 Disclosure statement

No potential conflict of interest was reported by the author(s).

8.10 Funding

The work was supported by the International Holocaust Remembrance Alliance [2020-792].

8.11 Notes on contributor

Stefania Manca is Research Director at the Institute of Educational Technology of the Italian National Research Council. She has been active in the field of educational technology, technology-based learning, distance education and e-learning since 1995. Her research interests are social media and social network sites in formal and informal learning, teacher education, professional development, digital scholarship, and Student Voice-supported participatory practices in schools. She is the research manager of the project "Countering Holocaust Distortion on Social Media. Promoting the Positive Use of Internet Social Technologies for Teaching and Learning about the Holocaust", funded by International Holocaust Remembrance Alliance (IHRA) under grant no. 2020-792, and working on a research study entitled "Teaching and Learning about the Holocaust with Social Media: A Learning Ecologies Perspective".

8.12 References

Adikari, A., D. Burnett, D. Sedera, D. de Silva, and D. Alahakoon. 2021. "Value Co-Creation for Open Innovation: An Evidence-Based Study of the Data Driven Paradigm of Social Media Using Machine Learning." *International Journal of Information Management Data Insights* 1 (2): 100022. doi:10.1016/j.jjimei.2021.100022.

Agostino, D., and M. Arnaboldi. 2021. "From Preservation to Entertainment: Accounting for the Transformation of Participation in Italian State Museums." *Accounting History* 26 (1): 102–122. doi:10.1177/1032373220934893.

Agostino, D., M. Arnaboldi, and A. Lampis. 2020. "Italian State Museums During the COVID-19 Crisis: From Onsite Closure to Online Openness." *Museum Management and Curatorship* 35 (4): 362–372. doi:10.1080/09647775. 2020.1790029.

Arnaboldi, M., and M. L. Diaz Lema. 2021. "The Participatory Turn in Museums: The Online Facet." *Poetics* 89: 101536. doi:10.1016/j.poetic.2021.101536.

Assmann, A. 2016. *Shadows of Trauma: Memory and the Politics of Postwar Identity*. New York: Fordham UP.

Auxier, B., and M. Anderson. 2021. *Social Media Use in 2021*. Washington, DC: Pew Research Center. https://www. pewresearch.org/internet/2021/04/07/social-media-use-in-2021/ .

Barnhart, B. 2022. *20 Must-Know Facebook Stats for Marketers in 2022*. https://sproutsocial.com/insights/facebook- stats-for-marketers/

Bartolini, C. 2021. "Internationalisation and Marketing Strategies for University Museums." *Les Cahiers de Muséologie, 1-Actes du Colloque "Les Musées Universitaires and Leurs Publics", Communications* 137–147.

Beveridge, C. 2022. *19 Facebook Demographics to Inform Your Strategy in 2022*. https://blog.hootsuite.com/facebook- demographics/

Bonet, L., and E. Négrier. 2018. "The Participative Turn in Cultural Policy: Paradigms, Models, Contexts." *Poetics* 66: 64–73. doi:10.1016/j.poetic.2018.02.006.

Booth, P., A. Ogundipe, and S. Røyseng. 2020. "Museum Leaders' Perspectives on Social Media." *Museum Management and Curatorship* 35 (4): 373–391. doi:10.1080/09647775.2019.1638819.

Bosello, G., and M. van den Haak. 2022. "#arttothepeople? An Exploration of Instagram's Unfulfilled Potential for Democratising Museums." *Museum Management and Curatorship* 1–18. Advance online publication. doi:10.1080/ 09647775.2021.2023905.

Bronfenbrenner, U. 1979. *The Ecology of Human Development: Experiments by Nature and Design*. Cambridge: Harvard University Press.

Bronfenbrenner, U., and P. A. Morris. 1998. "The Ecology of Developmental Processes." In *Handbook of Child Psychology. Theories of Development*Vol. 4, edited by W. Damon and R. M. Lerner, 999–1058. London: Wiley.

Bruce, D. 1985. "The How and Why of Ecological Memory." *Journal of Experimental Psychology General* 114 (1): 78–90. doi:10.1037/0096-3445.114.1.78.

Camarero, C., M.-J. Garrido, and R. San Jose. 2018. "What Works in Facebook Content versus Relational Communication: A Study of Their Effectiveness in the Context of Museums." *International Journal of Human– Computer Interaction* 34 (12): 1119–1134. doi:10.1080/10447318.2017.1418475.

Capriotti, P., C. Carretón, and A. Castillo. 2016. "Testing the Level of Interactivity of Institutional Websites: From Museums 1.0 to Museums 2.0." *International Journal of Information Management* 36 (1): 97–104. doi:10.1016/j. ijinfomgt.2015.10.003.

Casaló, L. V., C. Flavián, and S. Ibáñez-Sánchez. 2017. "Understanding Consumer Interaction on Instagram: The Role of Satisfaction, Hedonism, and Content Characteristics." *Cyberpsychology, Behavior and Social Networking* 20 (6): 369–375. doi:10.1089/cyber.2016.0360.

Chang, M., T. Yi, S. Hong, P. Yan Lai, J. Young Jun, and J.-H. Lee. 2022. "Identifying Museum Visitors via Social Network Analysis of Instagram." *ACM Journal on Computing and Cultural Heritage* 15 (3): 1–19. doi:10.1145/ 3505635.

Coe, K., and J. M. Scacco, J. Matthes, C. S. Davis, and R. F. Potter. 2017. "Content Analysis, Quantitative." In *The International Encyclopedia of Communication Research Methods*, edited by J. Matthes, C. S. Davis, and R. F. Potter London: Wiley.

Commane, G., and R. Potton. 2019. "Instagram and Auschwitz: A Critical Assessment of the Impact Social Media Has on Holocaust Representation." *Holocaust Studies* 25 (1–2): 158–181. doi:10.1080/17504902.2018.1472879.

Corbin, J., and A. Strauss. 2014. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. fourth. Thousand Oaks: SAGE Publications.

Creswell, J. W. 2014. *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*. fourth. Thousand Oaks: Sage Publications.

Creswell, J. W., & V. L. Plano Clark. 2017. *Designing and Conducting Mixed Methods Research. Third Edition*. Thousand Oaks: SAGE Publications.

Dalziel, I. 2016. "“Romantic Auschwitz”: Examples and Perceptions of Contemporary Visitor Photography at the Auschwitz-Birkenau State Museum." *Holocaust Studies* 22 (2–3): 185–207. doi:10.1080/17504902.2016.1148874.

Dalziel, I. 2021. "Becoming the 'Holocaust Police'? The Auschwitz-Birkenau State Museum's Authority on Social Media." In *Digital Holocaust Memory, Education And Research*, edited by V. G. Walden, 179–212. London: Palgrave MacMillan.

David, L. 2017. "Against Standardization of Memory." *Human Rights Quarterly* 39 (2): 296–318. doi:10.1353/hrq. 2017.0019.

De Cesari, C., and A. Rigney. 2014. *Transnational Memory: Circulation, Articulation, Scales*. Berlin, München, Boston: De Gruyter. de Smale, S. 2020. "Memory in the Margins: The Connecting and Colliding of Vernacular War Memories." *Media, War and Conflict* 13 (2): 188–212. doi:10.1177/1750635219828772.

Divon, T., and T. Ebbrecht-Hartmann. 2022. “#jewishtiktok. The JewToks’ Fight Against Antisemitism.” In *TikTok Cultures in the United States*, edited by T. Boffone, 47–58. London: Routledge.

Drotner, K., and K. C. Schrøder. 2013. *Museum Communication and Social Media. The Connected Museum*. London: Routledge.

Duffy, T. 1997. “The Holocaust Museum Concept.” *Museum International* 49 (7): 54–58. doi:10.1111/1468-0033. 00077.

Ebbrecht-Hartmann, T. 2021. “Commemorating from a Distance: The Digital Transformation of Holocaust Memory in Times of COVID-19.” *Media, Culture and Society* 43 (6): 1095–1112. doi:10.1177/0163443720983276.

Ebbrecht-Hartmann, T., and T. Divon. 2022. *Serious TikTok: Can You Learn About the Holocaust in 60seconds?* https://reframe.sussex.ac.uk/digitalholocaustmemory/2022/03/24/can-you-learn-about-the-holocaust-in-60- seconds-on-tiktok/

Ebbrecht-Hartmann, T., and L. Henig. 2021. “I-Memory: Selfies and Self-Witnessing in #uploading_holocaust (2016).” In *Digital Holocaust Memory, Education And Research*, edited by V. G. Walden, 213–236. London: Palgrave MacMillan.

Echikson, W. 2019. *Holocaust Remembrance Project: How European Countries Treat Their Wartime Past*. https:// archive.jpr.org.uk/object-eur216

Foster, S., A. Pearce, and A. Pettigrew. 2020. *Holocaust Education. Contemporary Challenges and Controversies*. London: UCL Press.

Furini, M., F. Andreoli, R. Martoglia, and M. Montangero. 2022. “A Predictive Method to Improve the Effectiveness of Twitter Communication in a Cultural Heritage Scenario.” *ACM Journal on Computing and Cultural Heritage* 15 (2): 1–18. Article 21 doi:10.1145/3470786.

Garde-Hansen, J., A. Hoskins, and A. Reading. 2009. *Save as . . . Digital Memories*. London: Palgrave Macmillan.

Gerrard, D., M. Sykora, and T. Jackson. 2017. “Social Media Analytics in Museums: Extracting Expressions of Inspiration.” *Museum Management and Curatorship* 32 (3): 232–250. doi:10.1080/09647775.2017.1302815.

Giaccardi, E. 2012. *Heritage and Social Media. Understanding Heritage in a Participatory Culture*. London: Routledge.

Gil-Fuentetaja, I., and M. Economou. 2019. “Communicating Museum Collections Information Online: Analysis of the Philosophy of Communication Extending the Constructivist Approach.” *ACM Journal on Computing and Cultural Heritage* 12 (1): Article 3. doi:10.1145/3283253.

Gonzales, R. 2017. "Keep the Conversation Going: How Museums Use Social Media to Engage the Public." *Museum Scholar* 1 (1): 1–11.

Gray, M. 2014. *Contemporary Debates in Holocaust Education*. London: Palgrave Macmillan.

Gronemann, S. T., E. Kristiansen, and K. Drotner. 2015. "Mediated Co-Construction of Museums and Audiences on Facebook." *Museum Management and Curatorship* 30: 174–190. doi:10.1080/09647775.2015.1042510.

Gruzd, A., J. Lannigan, and K. Quigley. 2018. "Examining Government Cross-Platform Engagement in Social Media: Instagram Vs Twitter and the Big Lift Project." *Government Information Quarterly* 35 (4): 579–587. doi:10.1016/j. giq.2018.09.005.

Hanna, R., A. Rohm, and V. L. Crittenden. 2011. "We're All Connected: The Power of the Social Media Ecosystem." *Business Horizons* 54 (3): 265–273. doi:10.1016/j.bushor.2011.01.007.

Haythornthwaite, C. 2005. "Social Networks and Internet Connectivity Effects." *Information, Communication and Society* 8 (2): 125–147. doi:10.1080/13691180500146185.

Henig, L., and T. Ebbrecht-Hartmann. 2022. "Witnessing Eva Stories: Media Witnessing and Self-Inscription in Social Media Memory." *New Media and Society* 24 (1): 202–226. doi:10.1177/1461444820963805.

Hogervorst, S. 2020. "The Era of the User. Testimonies in the Digital Age." *Rethinking History* 24 (2): 169–183. doi:10. 1080/13642529.2020.1757333.

Hoskins, A. 2016. "Memory Ecologies." *Memory Studies* 9 (3): 348–357. doi:10.1177/1750698016645274.

Hoskins, A. 2018. *Digital Memory Studies: Media Pasts in Transition*. London: Routledge.

Huysman, M., and V. Wulf. 2006. "IT to Support Knowledge Sharing in Communities, Towards a Social Capital Analysis." *Journal of Information Technology* 21 (1): 40–51. doi:10.1057/palgrave.jit.2000053.

ICOM International Council of Museums. 2020. "Museums, Museum Professionals and COVID-19: Survey Results." Technical Report. https://icom.museum/wp-content/uploads/2020/05/Report-Museums-and-COVID-19.pdf

International Holocaust Remembrance Alliance. 2021. *Understanding Holocaust Distortion. Contexts, Influences and Examples.* https://holocaustremembrance.com/resources/publications/understanding-holocaust-distortion- contexts-influences-examples

Jacobsen, B. N., and D. Beer. 2021. "Quantified Nostalgia: Social Media, Metrics, and Memory." *Social Media + Society* 7 (2): 1–9. doi:10.1177/20563051211008822.

Jaeger, S. 2020. *The Second World War in the Twenty-First-Century Museum: From Narrative, Memory, and Experience to Experientiality*. Berlin, München, Boston: De Gruyter.

Janes, R. R., and R. Sandell. 2019. *Museum Activism*. London: Routledge.

Jeffrey, S., S. Jones, M. Maxwell, A. Hale, and C. Jones. 2020. "3D Visualisation, Communities and the Production of Significance." *International Journal of Heritage Studies* 26 (9): 885–900. doi:10.1080/13527258.2020.1731703.

Jenkins, H., S. Ford, and J. Green. 2013. *Spreadable Media: Creating Value and Meaning in a Networked Culture*. New York: New York University Press.

Kansteiner, W. 2017. "Transnational Holocaust Memory, Digital Culture and the End of Reception Studies." In *The Twentieth Century in European Memory: Transcultural Mediation and Reception*, edited by T. S. Andersen and B. Törnquist-Plewa, 305–343. Leiden: Brill.

Kidd, J. 2011. "Enacting Engagement Online: Framing Social Media Use for the Museum." *Information Technology and People* 24 (1): 64–77. doi:10.1108/09593841111109422.

Kovács, É. 2018. "Limits of Universalization: The European Memory Sites of Genocide." *Journal of Genocide Research* 20 (4): 490–509. doi:10.1080/14623528.2018.1522825.

Kozinets, R. 2020. *Netnography: The Essential Guide to Qualitative Social Media Research*. third. London: SAGE.

Lassen, N. B., L. la Cour, and R. Vatrapu. 2018. "Predictive Analytics with Social Media Data." In *The SAGE Handbook of Social Media Research Methods*, edited by L. Sloan and A. Quan-Haase, 328–341. London: SAGE Publications.

Levine, R., C. Locke, D. Searle, and D. David Weinberger. 2001. *The Cluetrain Manifesto: The End of Business as Usual*. New York: Basic Books.

Levy, D., and N. Sznaider. 2006. *The Holocaust and Memory in the Global Age*. Philadelphia: Temple University Press.

Liao, M.-Q., and A. K. Y. Mak. 2019. ""Comments are Disabled for This Video": A Technological Affordances Approach to Understanding Source Credibility Assessment of CSR Information on YouTube." *Public Relations Review* 45 (5): 101840. doi:10.1016/j.pubrev.2019.101840.

Lundrigan, M. 2020. "#holocaust #auschwitz: Performing Holocaust Memory on Social Media." In *A Companion to the Holocaust*, edited by S. Gigliotti and H. Earl, 639–654. Hoboken: John Wiley and Sons.

Łysak, T. 2022. "Vlogging Auschwitz: New Players in Holocaust Commemoration." *Holocaust Studies* 28 (3): 377–402. doi:10.1080/17504902.2021.1979180.

Maben, S. K., and C. C. Gearhart. 2018. "Organizational Social Media Accounts: Moving Toward Listening Competency." *International Journal of Listening* 32 (2): 101–114. doi:10.1080/10904018.2017.1330658.

Makhortykh, M., A. Urman, and R. Ulloa. 2021. "Hey, Google, is It What the Holocaust Looked Like? Auditing Algorithmic Curation of Visual Historical Content on Web Search Engines." *First Monday* 26 (10). doi:10.5210/ fm.v26i10.11562.

Manca, S. 2017. “An Analysis of ResearchGate and Academia.Edu as Socio-Technical Systems for Scholars’ Networked Learning: A Multilevel Framework Proposal.” *Italian Journal of Educational Technology* 25 (3): 20–34. doi:10.17471/2499-4324/985.

Manca, S. 2019. “Holocaust Memorialisation and Social Media. Investigating How Memorials of Former Concentration Camps Use Facebook and Twitter.” In *Proceedings of the 6th European Conference on Social Media – ECSM 2019*, edited by W. Popma and S. Francis, 189–198. Brighton, June 13-14.

Manca, S. 2021a. “A Framework for Analysing Content on Social Media Profiles of Holocaust Museums. Results of a Delphi Study.” *IHRA Project Report.* https://holocaust-socialmedia.eu/wp-content/uploads/Report- Survey_Delphi.pdf .

Manca, S. 2021b. “Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies.” *Information* 12 (1): 31. doi:10.3390/info12010031.

Manca, S., S. Haake, M. Rehm, and S. Guetta. 2022a. “Addressing Holocaust Distortion on Social Media. Guidelines and Recommendations for Memorials and Museums.” *IHRA Project Report.* https://holocaust-socialmedia.eu/wp- content/uploads/Addressing-Holocaust-distortion-website.pdf .

Manca, S., M. Passarelli, and M. Rehm. 2022. “Exploring Tensions in Holocaust Museums’ Modes of Commemoration and Interaction on Social Media.” *Technology in Society* 68: 101889. doi:10.1016/j.techsoc. 2022.101889.

Manca, S., M. Rehm, and S. Haake, S. Gensburger and O. Fridman 2022. “Holocaust Remembrance on Facebook During the Lockdown: A Turning Point or a Token Gesture?” In *Unlocked Memory: Did the Covid Pandemic Change Commemoration?*, edited by S. Gensburger and O. Fridman London: Palgrave McMillan.

Manca, S., M. Rehm, S. Haake, and S. Guetta. 2022b. “Countering Holocaust Distortion on Social Media. White Paper.” IHRA Project Report. https://holocaust-socialmedia.eu/wp-content/uploads/Countering-Holocaust- distortion-on-social-media-White-Paper-HD.pdf

Manikowska, E. 2020. “Museums and the Traps of Social Media: The Case of the Auschwitz-Birkenau Memorial and Museum.” *Santander Art and Culture Law Review* 2 (6): 223–250. doi:10.4467/2450050XSNR.20.017.13020.

Marcus, A. A., R. Maor, I. M. McGregor, G. Mills, S. Schweber, J. Stoddard, and D. Hicks. 2022. “Holocaust Education in Transition from Live to Virtual Survivor Testimony: Pedagogical and Ethical Dilemmas.” *Holocaust Studies* 28 (3): 279–301. doi:10.1080/17504902.2021.1979176.

McCay-Peet, L., and A. Quan-Haase. 2016. “A Model of Social Media Engagement: User Profiles, Gratifications and Experiences.” In *Why Engagement Matters: Cross-Disciplinary Perspectives and Innovations on User Engagement with Digital Media*, edited by H. L. O’Brien and L. Sloan, 199–217. New York: Springer-Verlag.

Michman, D. 2021. "Why is the Shoah Called 'The Shoah' or 'The Holocaust'? On the History of the Terminology for the Nazi Anti-Jewish Campaign." *The Journal of Holocaust Research* 35 (4): 233–256. doi:10.1080/25785648.2021. 1994764.

Morse, C., B. Landau, C. Lallemande, L. Wieneke, and V. Koenig. 2022. "From #museumathome to #athomeatthemuseum: Digital Museums and Dialogical Engagement Beyond the COVID-19 Pandemic." *ACM Journal on Computing and Cultural Heritage* 15 (2): 1–29. doi:10.1145/3480955.

Niven, B., and A. Williams. 2020. "The Dominance of the National: On the Susceptibility of Holocaust Memory." *Jewish Historical Studies* 51 (1): 142–164. doi:10.14324/111.444.jhs.2020v51.010.

Oztig, L. I. 2022. "Holocaust Museums, Holocaust Memorial Culture, and Individuals: A Constructivist Perspective." *Journal of Modern Jewish Studies* 1–22. Advance online publication. doi:10.1080/14725886.2021.2011607.

Padilla-Meléndez, A., and A. R. Del Águila-Obra. 2013. "Web and Social Media Usage by Museums: Online Value Creation. International." *Journal of Information Management* 33 (5): 892–898. doi:10.1016/j.ijinfomgt.2013.07. 004.

Pakier, M., and B. Stråth. 2010. *A European Memory? Contested Histories and Politics of Remembrance*. New York: Berghahn.

Popescu, D. I., and T. Schult. 2015. *Revisiting Holocaust Representation in the Post-Witness Era*. London: Palgrave Macmillan.

Probst, L. 2003. "Founding Myths in Europe and the Role of the Holocaust." *New German Critique* 90 (90): 45–58. doi:10.2307/3211107.

Reading, A. 2003. "Digital Interactivity in Public Memory Institutions: The Uses of New Technologies in Holocaust Museums." *Media, Culture and Society* 25 (1): 67–85. doi:10.1177/016344370302500105.

Reynolds, A. 2020. "Circulation, Impact and the Use of Twitter in Contemporary Museum Activism." *Participations: Journal of Audience and Reception Studies* 17 (1): 126–146.

Russo, A., J. Watkins, L. Kelly, and S. Chan. 2008. "Participatory Communication via Social Media." *Curator The Museum Journal* 51 (1): 21–31. doi:10.1111/j.2151-6952.2008.tb00292.x.

Samaroudi, M., K. Rodriguez Echavarria, and L. Perry. 2020. "Heritage in Lockdown: Digital Provision of Memory Institutions in the UK and Us of America During the COVID-19 Pandemic." *Museum Management and Curatorship* 35 (4): 337–361. doi:10.1080/09647775.2020.1810483.

Sarfatti, M. 2017. "Notes and Reflections on the Italian Law Instituting Remembrance Day. History, Remembrance and the Present." *Quest Issues in Contemporary Jewish History Journal of Fondazione CDEC* 12: 112–134. doi:10. 48248/issn.2037-741X/819.

Shaw, S. J., R. Bennett, and R. Kottasz. 2021. "Making Space for Co-Creation: Heritage Attractions That Host Contemporary Art." *International Journal of Heritage Studies* 27 (9): 869–883. doi:10.1080/13527258.2020. 1861065.

Sierp, A. 2012. "Italy's Struggle with History and the Europeanisation of National Memory." In *Erinnerungskulturen in Transnationaler Perspektive*, edited by U. Engel, M. Middell, and S. Troebst, 212–234. Leipzig: Leipziger Universitätsverlag.

Sievers, L. A. 2016. "Genocide and Relevance: Current Trends in United States Holocaust Museums." *Dapim: Studies on the Holocaust* 30 (3): 282–295. doi:10.1080/23256249.2016.1257218.

Simon, N. 2007. "Discourse in the Blogosphere: What Museums Can Learn from Web 2.0." *Museums and Social Issues* 2 (2): 257–274. doi:10.1179/msi.2007.2.2.257.

Sloan, L., and A. Quan-Haase. 2018. *The SAGE Handbook of Social Media Research Methods.* London: SAGE Publications.

Statista. 2021. *Distribution of Twitter Users Worldwide as of April 2021, by Age Group.* https://www.statista.com/ statistics/283119/age-distribution-of-global-twitter-users/

Statista. 2022. *Distribution of Instagram Users Worldwide as of April 2022, by Age Group.* https://www.statista.com/ statistics/325587/instagram-global-age-group/

Steinberg, L. 2001. "Contextual Studies: Methodology". In *International Encyclopedia of the Social and Behavioral Sciences* 2705–2709. Amsterdam: Elsevier.

Suess, A., and G. Barton. 2022. "Instagram and the Museum Experience: Theorising the Connection Through Aesthetics, Space and Sharing." *Museum Management and Curatorship* 1–16. Advance online publication. doi:10.1080/09647775.2022.2073563.

Tyrrell, I. 2009. "Reflections on the Transnational Turn in United States History: Theory and Practice." *Journal of Global History* 4 (3): 453–474. doi:10.1017/S1740022809990167.

UNESCO. 2020. *Museums Around the World in the Face of COVID-19.* Paris: UNESCO. https://unesdoc.unesco.org/ ark:/48223/pf0000373530/PDF/373530eng.pdf.multi .

Vanderbeek, T. G. 2022. "Marginalization and Local Commemoration of Third Reich Victims in Germany." *The Journal of Holocaust Research* 36 (2–3): 128–145. doi:10.1080/25785648.2022.2062921.

van Dijck, J. 2013. *The Culture of Connectivity. A Critical History of Social Media.* Oxford: Oxford University Press. Vogels, E. A., R. Gelles-Watnick, and N. Massarat. 2022. *Teens, Social Media and Technology 2022.* Washington, DC:

Pew Research Center https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology- 2022/ .

Walden, V. G. 2021. *Digital Holocaust Memory, Education and Research.* London: Palgrave MacMillan.

Walden, V. G. 2022a. "Understanding Holocaust Memory and Education in the Digital Age: Before and After COVID-19." *Holocaust Studies* 28 (3): 257–278. doi:10.1080/17504902.2021.1979175.

Walden, V. G. 2022b. "What is 'Virtual Holocaust Memory'?" *Memory Studies* 15 (4): 621–633. doi:10.1177/ 1750698019888712.

Wieviorka, A. 2006. *The Era of the Witness*. Ithaca: Cornell University Press.

Wight, A. C. 2020. "Visitor Perceptions of European Holocaust Heritage: A Social Media Analysis." *Tourism Management* 81: 104142. doi:10.1016/j.tourman.2020.104142.

Wong, A. 2011. "Ethical Issues of Social Media in Museums: A Case Study." *Museum Management and Curatorship* 26 (2): 97–112. doi:10.1080/09647775.2011.566710.

Wong, A. 2012. "Social Media Towards Social Change: Potential and Challenges for Museums." In *Museums Equality and Social Justice*, edited by R. Sandell and E. Nightingale, 281–293. London: Routledge.

9. An examination of learning ecologies associated with the Holocaust: The role of social media[53]

Abstract

Background: Holocaust memory and learning processes have become increasingly mediatised as a result of rapid technological advances. There is, however, little information available regarding how people learn about this topic informally through social media.

Objectives: This paper explores how adult learners develop their learning ecologies by using social media to learn about the Holocaust informally.

Methods: The study uses a learning ecology perspective to analyse the interests, expectations and learning process of a group of adult learners (N=276). An online survey tool was developed to collect information on the interests, expectations, and benefits of learning about Holocaust-related topics among online users of four Italian Holocaust museums' social media profiles (Facebook, Twitter, Instagram and YouTube). Descriptive and inferential statistics were used to summarise the characteristics of the sample and to answer the research questions.

Results and Conclusions: The results show that most of the respondents are mostly women, with an average age of 50 and a higher level of education. In terms of interest and expectations, they are particularly interested in issues related to the intertwining of transnational and national memory. They also express a sense of civic responsibility with regard to the legacy of the Holocaust. Finally, components of the learning process show proactive behaviour and a preference for individual learning, while interaction with peers is considered less important.

Takeaways: There is an urgent need to understand how learners' preferences influence the development of learning ecologies and the types of content they are most likely to be exposed to as a result. It is also important for social media content providers to understand that learners are looking for quality resources and trustworthy content to further their education.

Keywords: adult learning, Digital Holocaust Memory, informal learning, Italian Holocaust museums, social media, survey tool

---

[53] Published version of: Manca, S., & Raffaghelli, J. (2023). An examination of learning ecologies associated with the Holocaust: The role of social media. *Journal of Computer Assisted Learning*, 39(6), 1874–1887. https://doi.org/10.1111/jcal.12848

9.1 Introduction

As one of the most important collective memories shaping Western and European identities, the memory of the Holocaust continues to capture the interest of younger and older generations alike (Arolsen Archives, 2022; Claims Conference, 2023). The Holocaust has undoubtedly become one of the most significant collective memories in history as a result of its commemoration and remembrance around the world especially over the past 30 years (Andersen & Törnquist-Plewa, 2017). In Europe, the emergence and development of a global dimension of Holocaust remembrance (Subotic, 2022; van der Poel, 2019) has led to a proliferation of public activities related to the Second World War and the Holocaust at many levels of society (Sierp, 2020). Indeed, the European Union considers the Holocaust to be a defining event in European history and the basis for a shared system of values based on democratic principles, equality and human rights (Novis-Deutsch et al., 2023). As the domain through which remembrance is formally transferred to the next generation, educating about the Holocaust has undergone a progressive expansion and institutionalisation, with the subject being incorporated into formal school curricula through its inclusion in (official) school syllabi and in teacher training institutions (Eckmann et al., 2017). Currently, Holocaust education encompasses curricula, textbooks, and informal or formal efforts to teach and learn about the Holocaust in multiple learning settings (Carrier et al., 2015; Foster et al., 2020; Garber & Hanson, 2023; UNESCO, 2017).

In addition to traditional educational settings such as school classrooms and university lecture halls, a variety of media sources such as film, literature, and popular and digital media have become sites of learning about the Holocaust for younger and older generations (Makhortykh et al., 2021; Popescu & Schult, 2015; Rauch, 2018). Furthermore, the field of Holocaust memory and education has been profoundly affected by the rapid development of digital technologies (Walden, 2021), which have played an ever more important part in the globalisation and internationalisation of Holocaust memory (Assmann, 2017; Hoskins, 2018). The result is the development of new ecologies of memory (Hoskins, 2016) and participative forms of Holocaust remembrance and education (Bodziany & Matkowska, 2023). There are several examples of this type of technology, including virtual survivor testimonies (Marcus et al., 2022), serious games that enhance historical understanding (Kolek et al., 2021), geomedia-based tools (Jekel et al., 2020), and social media (Łysak, 2022; Manca, 2021a).

As digital media, technology and culture continue to evolve, social media platforms have gradually emerged as a popular medium for virtual Holocaust remembrance and commemoration used by many Holocaust organisations (Ebbrecht-Hartmann, 2021; Manca, 2022; Manca, Passarelli, & Rehm, 2022) and other content creators (Commane & Potton, 2019; González-Aguilar & Makhortykh, 2022). The former category includes museums and memorials which, through their educational, awareness-raising and commemorative functions, contribute significantly to the construction of collective historical memory (Oztig, 2023). Today, museums use various technologies for informal museum learning (Xu et al., 2022) and major social media platforms to engage with their audiences (Manca, Passarelli, & Rehm, 2022). More recently, a growing number of them have begun to use TikTok with the clear intention of reaching the younger generation (Ebbrecht-Hartmann & Divon, 2022).

In terms of technology choice, recent research suggests that Holocaust museums prefer to share educational content and information about museum activities via Facebook, Instagram and YouTube (Manca, Passarelli, & Rehm, 2022). These preferences, which reflect the socio-technical characteristics of the different platforms (van Dijck, 2013), are expressed in the social media use of one of the most prominent Holocaust museums, which prefers Facebook for more detailed 'historical narratives' with lengthy descriptions of events and people. In contrast, Instagram appears to be more attractive as a platform for live events and the sharing of images, stories and videos taken by museum visitors or the institutions themselves (Dalziel, 2021). Meanwhile, Twitter is preferred for collaborating with other institutions, promoting virtual tours and educational resources, and engaging in political discussions locally and internationally (Dalziel, 2021). However, although a number of studies have been published on this topic (Dalziel, 2021; Manca, 2021b; Manca, Passarelli, & Rehm, 2022; Manikowska, 2020), there is a research gap when it comes to exploring users' perspectives and their benefits for informal learning. The purpose of this study is to analyse the learning ecologies of a group of adult learners interested in Holocaust topics who use social media as an informal learning tool. The analysis focuses on the components of the learning process, including activities, resources and relationships, as well as on learners' interests and expectations.

To investigate the interactions between people and social media environments to gain knowledge about the Holocaust, we adopt a socio-ecological perspective that draws on the conceptual framework of learning ecologies (Barron, 2006; Jackson, 2013, 2016). An ecological perspective provides a means of simultaneously emphasising the interdependence of individual and contextual systems. Multiple interconnected environmental systems contribute to the development of these relationships, ranging from smaller, proximal environments in which individuals interact directly, to larger, distal environments in which individuals interact indirectly (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998). Using this approach, an individual's learning ecology includes the set of contexts, relationships and interactions that provide opportunities and resources for learning, development and achievement (Jackson, 2013).

This article is based on a survey study, analysing quantitative data obtained from a questionnaire distributed to online users of four Italian Holocaust museums' social media profiles. It complements the information obtained from the analysis of how the four museums use social media to provide historical content and engage their audiences in digital Holocaust remembrance (Manca, 2022). On one hand, the study contributes to a fuller comprehension of how learners use social media to enhance their knowledge of the Holocaust and, on the other hand, to a greater understanding of how Holocaust remembrance can be susceptible to a predominantly national perspective (Niven & Williams, 2020).

9.2 Conceptual framework

In informal learning contexts, individuals are responsible for shaping their own learning practices (OECD, 2019; Rogoff et al., 2016), as opposed to formal learning settings where institutions and teachers dictate curricula, textbooks, and assessment procedures. Out-of-school learning, professional learning, civic associations, and cultural clubs are traditionally considered the main avenues for informal learning. However, especially in personal learning environments for lifelong learning (Dabbagh & Castañeda, 2020) and social media environments (Greenhow & Lewin, 2016), formality and informality should not be rigidly separated, but rather seen as a continuum or integrally connected. While the incorporation of social networking sites and social media to enrich the personal learning environment has been the subject of academic research for more than a decade (Gil-Fernández et al., 2023), the field has yet to develop clear pedagogical theories, as there is still a tendency to rely primarily on technology acceptance models rather than pedagogical models (Perez et al., 2023).

From this perspective, the framework of learning ecologies allows for further theoretical elaboration of the shift from traditional teaching models to a more learner-driven and personalised model of learning. Although the concept of learning ecologies has been contested and applied in different ways in empirical research (Sangrà, Raffaghelli, & Guitert, 2019), in this study we refer to learning ecologies as the physical, socio-cultural and historical contexts in which learning takes place (Barron, 2006; Jackson, 2013). Learning ecosystems share some physical characteristics with natural ecosystems, such as easy access to schools, museums, libraries and other non-profit educational organisations, as well as some non-physical characteristics, such as the digital or the immaterial in general (Barron, 2006). This concept comprises a conceptualisation of learning environments in which personalised and self-initiated learning can be integrated with formal instruction through multiple and non-linear pathways of reciprocal relationships and influences (Bruguera et al., 2022; Sangrá et al., 2021).

As an individual's learning ecology is largely the result of the interrelationship of multiple contexts (Barron, 2006), the concept has proved useful in understanding how people activate their learning opportunities over time in formal or informal learning contexts. Furthermore, the learning ecology approach has important conceptual value regardless of the specific characteristics that differentiate each individual learning ecology. Understanding learning as a process that connects learners to other people and their environment, and empowers them to recognise their active role in nurturing their learning ecology (Jackson, 2013), is the most relevant conceptual value of this approach. In fact, it promotes personalisation, collaboration and informal learning as cornerstones of the future of learning or 'learning to learn'. Besides, learning ecology provides a lens through which to examine the independent and self-initiated learning of different target groups involved in lifelong learning practices by emphasising the learner's ability to become proactive and empowered in orchestrating structures, processes and resources for learning (Sangrà, Raffaghelli, & Veletsianos, 2019).

A learning ecosystem is defined as an individual's process, as well as the set of contexts, relationships and interactions that provide opportunities and resources for learning and personal/professional development (Jackson, 2013; Sangrà, Raffaghelli, & Guitert, 2019). Individuals' learning ecologies have both temporal and spatial dimensions, allowing them to connect multiple spaces and contexts over the course of their lives. They essentially comprise two dimensions: (1) an intrinsic 'learning disposition', made up of individuals' ideas about learning, their motivations and expectations; (2) the 'learning processes', which include relationships, resources, activities and contexts (González-Sanmamed et al., 2019; Romeu-Fontanillas et al., 2020), where 'each context is comprised of a unique configuration of activities, material resources, relationships, and the interactions that emerge from them' (Barron, 2006: 195).

While learning dispositions are related to intrinsic motivation to learn, the learning process has an experiential dimension and includes elements that are part of the person's learning path due to their successive learning processes throughout their life (González-Sanmamed et al., 2019). As part of learning dispositions, motivation, conceptions and expectations about learning are relevant factors in an individual's decision to engage in activities and learning contexts. In particular, the literature shows that learners' motivation is positively related to how they behave, perform and perceive the learning environment (Drachsler et al., 2021). From a learning ecology perspective (González-Sanmamed et al., 2019), motivation encompasses different aspects, especially the role of goals and self-efficacy expectations that lead learners to engage in and take on different types of tasks (Pintrich, 2003). However, in the learning ecology framework, there is no explicit theory of motivation, but rather it is referred to as a motivational component. Motivation is understood as a personal positioning that reflects an impulse to seek resources and build personal and professional relationships that lead to formal, non-formal and informal learning (Romeu-Fontanillas et al., 2020). It can also be understood as an intrinsic motivational orientation of the learner to engage in his or her training process (Estévez et al., 2021) and can be conceived under the lens of a theory of agency (Bandura, 2006). Agency is indeed the continuing effort and driver of self-expression and realisation in a given specific context. In this regard, motivation is not only an internal force, but it is tightly connected to the individuals' story and social context (Biesta & Tedder, 2007). In this study we explore two elements of this motivational component, namely the interests and expectations expressed in terms of reasons associated with the learning content on museums' social media pages, although this does not exhaust their full scope.

Regarding the experiential dimension of learning (González-Sanmamed et al., 2019), activities refer to the specific events and experiences that mediate learning and are generated by the learner's personal interest and initiative. Understood as temporal sequences, activities constitute learning strategies (Jackson, 2016), such as acquiring textual information, designing informal interactive activities, exploring technological means, seeking formal or non-formal learning and building knowledge networks (Barron, 2006). Materials and technological tools are seen as resources that mediate the subject's activity towards the learning goal and serve for the generation of knowledge in the person (Jackson, 2016). The use of material resources can lead the learner to find a network of people who make new learning possible. This in turn generates initiatives that develop and strengthen the learner's interest in the subject, positively reinforcing their sense of agency. In terms of interpersonal relationships, people who make up family spaces, peers, teachers and generally those who encounter the learner and contribute in some way to facilitating learning would become part of their learning ecology. Social relationships provide the fundamental basis for building knowledge networks and play a crucial role in the emergence and persistence of learning ecologies (Barron, 2006). The purpose of this study is to explore how learners engaged in informal learning use social media sites to initiate activities, find resources and build relationships as part of their learning process.

This study explores the learning ecologies of adult learners who use social media to increase their knowledge of the Holocaust and to participate in remembrance practices. In the field of professional learning and academic development, social media have proven to be valuable learning environments where human practices, professional and personal identities are shaped, and new professional learning ecologies emerge because of interactions between diverse networks (Carpenter et al., 2022; Greenhow et al., 2019; Heidari et al., 2021). Unlike other works that have examined the varying degrees of usefulness of social media for formal or informal learning (Bruguera et al., 2022), this study examines the learning ecologies of adult learners that occur on a selected set of social media platforms. We seek to explore how adult learners engage with different learning opportunities and resources on social media, and how these social media platforms can be used to facilitate learning in an informal setting. The goal is to gain a better understanding of how adult learners interact with, and are affected by, their learning environment on social media. To do this, this study analyses the different types of learning opportunities available on social media, how adult learners engage with them, and how such opportunities can be used to foster learning in an informal setting.

The research questions addressed in this exploratory study are:

1. What is the socio-demographic profile of the learners who are involved in the social media pages of the Holocaust museums?
2. How do their interests and expectations about Holocaust content relate to their learning dispositions?
3. How do they shape their learning process on the basis of the resources, activities and relationships that are available to them?

9.3 Methods

9.3.1 Participant recruitment and procedure

This study is part of a larger research focused on Holocaust commemorative practices through social media, which examined how four Italian museums and memorials use social media as an ecosystem to provide historical content and engage their audiences in digital Holocaust remembrance (Manca, 2022). In addition to being considered reference points for Holocaust remembrance and education in Italy, the four museums and memorials are actively engaged on at least two social media platforms, including Facebook, Twitter, Instagram and YouTube.

In response to the research team's request, the four museums and memorials issued an invitation to their users to participate in the survey via their social media channels and institutional mailing lists. Although there was no incentive for participation, the museums and memorials were informed of the results. The survey received 276 responses between February and June 2021. Full results can be found in Manca, Rehm, Haake, and Guetta (2022).

Selecting one of the four museums and memorials listed, respondents were asked to give their answers based on their favourite social media channel for that museum/memorial. The majority of respondents were Facebook users (N = 222, 80.4%), while only a small number chose YouTube (N = 39, 14.1%), Twitter (N = 8, 2.9%) and Instagram (N = 7, 2.5%) as the social platform they referred to in their responses (Table 1; Fisher's exact test = $p > 0.05$). As can be seen from this distribution of users, Italian museums and memorials tend to use Facebook more than other platforms, where they receive a higher volume of interactions and positive responses than on the other platforms (Manca, 2022).

	Fondazione Fossoli	*Memoriale della Shoah Milano*	*Museo Nazionale dell'Ebraismo Italiano e della Shoah – MEIS*	*Fondazione Museo della Shoah*	Total
Facebook page	72 (86.7%)	55 (87.3%)	60 (71.4%)	35 (76.1%)	222 (80.4%)
Twitter profile	0 (0.0%)	1 (1.6%)	3 (3.6%)	4 (8.7%)	8 (2.9%)
Instagram profile	4 (4.8%)	1 (1.6%)	2 (2.4%)	0 (0.0%)	7 (2.5%)
YouTube channel	7 (8.4%)	6 (9.5%)	19 (22.6%)	7 (15.2%)	39 (14.1%)
Total	83 (100.0%)	63 (100.0%)	84 (100.0%)	46 (100.0%)	276 (100.0%)

Table 1. Distribution of responses across the four museums and memorials and their social media channels.

9.3.2 Instruments and analysis

A survey tool was developed from previous studies based on information provided in social media profiles regarding the type of institutions involved. Items related to interest and expectations in following the profiles of museums and memorials were derived and modified from Isaac and Çakmak (2014), Isaac et al. (2019), while Kansteiner (2017) provided suggestions on satisfaction with relationships. Previous studies on social media were adapted to analyse practices related to the use of social media (Ranieri et al., 2012). The different elements were grouped in relation to the concept of lifelong learning ecologies (Romeu-Fontanillas et al., 2020; Sangrá et al., 2021). Specifically, we explored interests and expectations through reasons for the learning disposition dimension, while activities, resources and relationships were considered for the learning process. The adopted tool is the first to explore informal learning about Holocaust-related content on the social media pages of museums and memorials, as there are currently no validated tools to explore lifelong learning ecologies.

A total of 36 items were included in the final questionnaire, grouped into three sections and using a variety of response options (e.g., multiple choice questions, Likert scale questions, and short open-ended questions). The first section collected information about the respondents (gender, age, location, occupation, and educational level); the second section explored their personal experiences and interests in various Holocaust topics; the third section examined how respondents use social media to engage with the content published by Holocaust museums on their social media pages. The survey was conducted online using LimeSurvey (http:// www.limesurvey.org/), an open-source platform, and participating institutions were invited to complete the survey.

In this study, we focus on a subset of data related to our research questions.

1. One question ('How interested are you in the following topics related to the Holocaust?') asked respondents to indicate their level of interest in 19 Holocaust-related topics on a five-point scale (1 = not at all; 2 = slightly; 3 = moderate; 4 = very; 5 = extremely) (RQ #2).
2. Reasons for following social media pages were assessed by two questions ('How important is it for you to follow this page/profile for the following reasons?'; 'How important are the following factors for you to follow this page/profile?'). There were 17 and 7 items respectively, which were scored on a five-point scale (1 = not at all; 2 = slightly; 3 = moderately; 4 = very; 5 = extremely) (RQ #2).
3. Access to resources was examined using three questions ('How did you discover this page/profile?'—seven responses; 'Which other profiles/pages of this museum do you follow/like?'—three responses; 'Which of the following social media pages/profiles do you follow/like?'—nine answers) (RQ #3).
4. Activities were analysed using two questions ('How often do you access the content of this page/profile?'—eight response options; 'How often do you perform the following activities on the page/profile?'—five answer options: 1 = never; 2 = rarely; 3 = sometimes; 4 = often; 5 = very often) (RQ #3).
5. Finally, 11 items were used to determine relationships using a fivepoint agree/disagree scale ('How much do you agree or disagree with the following statements?') (RQ #3).

In this study, we consider aggregate data from the four museums and memorials without taking into account possible differences between them. Descriptive and inferential statistics were used to summarise the characteristics of the sample and to answer the research questions. The IBM Statistical Package for Social Sciences (SPSS 23.0) and the R 4.1.1 software package were used for the analysis.

The item sets related to issues 1 (interests) and 2 (reasons) were not validated as single measures of interest and reasons, as we chose to consider each item individually as a single indicator of a narrow aspect of the construct described by the item. We used repeated measures ANOVA to analyse groups of dependent variables representing different measures of the same attribute.

9.4 Results

9.4.1 Profiles of learners

The user profiles (Table 2) show that most of the respondents were women (N=208; 75.4%), with an average age of 52.3 years (SD=13.6) and a higher education qualification (73.2% of respondents had a higher education degree). The respondents represented a wide range of professional backgrounds, including teachers and educators (N=85, 30.8%), retirees (N=52, 18.8%), clerical workers (N=36, 13.0%), scientists/academics/cultural workers (N=28, 10.1%) and students (N=11, 4.0%). In terms of geographical origin, most respondents belong to the northern regions (N=190, 68.8%), while only a small percentage do not live in Italy (N=10, 3.6%).

Lastly, regarding the experience related to educational or informal learning activities on Holocaust topics, "Visiting Holocaust museums and places" prevails (N=259, 93.8%), followed by "Taking part in events, courses, initiatives, competitions, and educational trips" (N=232, 84.1%). It is also noteworthy that the experience related to "Teaching in schools or museums educational activities, educational trips" was significant (N=191, 69.2%); however, the experience related to "Organizing school or museum educational activities, educational trips" and "Planning school or museum educational activities, educational trips" scored the same (N=180, 65.2%).

Gender	Female	208 (75.4%)
	Male	65 (23.6%)
	Prefer not to say	3 (1.1%)
Geographical region	Northern Italy	190 (68.8%)
	Central Italy	45 (16.3%)
	Southern Italy	31 (11.2)
	I do not live in Italy	10 (3.6%)
Higher education degree	Yes	202 (73.2%)
	No	74 (26.8%)
Position	Teacher/educator	85 (30.8%)
	Retired	52 (18.8%)
	Clerical staff	36 (13.0%)
	Scholar/Academic/Cultural operator	28 (10.1%)
	Self-employed	25 (9.1%)
	Student	11 (4.0%)
	Other	39 (14.1%)
Educational and informal experiences related to the Holocaust	Teaching	191 (69.2%)
	Organization	180 (65.2%)
	Planning	180 (65.2%)
	Participation	232 (84.1%)
	Visits to memory sites	259 (93.8%)

Table 2. Socio-demographics and professional characteristics.

9.4.2 Learning dispositions

Participants' interest in a range of Holocaust-related topics and their reasons for following a particular social media page or profile were examined to investigate learning dispositions. A list of 19 items covering key topics relevant to Holocaust history and remembrance was used to measure interest (Table 3). Results of ANOVA repeated measures (F(1, 269) = 12473.7, p = .000, $\eta 2$ = .979) followed by post-hoc analysis show that respondents are mostly interested in 'Human Rights' (4.4 ± 0.8) and at the same extent (4.3 ± 0,7) in 'Historical events', 'Cultural heritage' and 'Antisemitism'. Also of great interest are topics such as 'Personal stories of victims or survivors' (4.2 ± 0.8) and 'Holocaust denial and distortion' (4.2 ± 0.9). At the other end of the spectrum, we find 'Trauma psychology' (3.7 ± 1.0), 'Wars and conflicts' (3.6 ± 0.9) and 'Nazi ideology' (3.5 ± 1.1).

	Mean ± SD	95% confidence interval
Antisemitism	4.3 ± 0.7	4.206, 4.380
Cultural heritage	4.3 ± 0.7	4.173, 4.346
Dark tourism	4.1 ± 0.9	3.997, 4.225
Fascism and other Nazi accomplices' ideology	4.1 ± 0.9	4.001, 4.214
Heritage from the Holocaust: Hope, Faith and Resilience	4.1 ± 0.9	3.991, 4.202
Historical events	4.3 ± 0.7	4.230, 4.400
Holocaust denial and distortion	4.2 ± 0.9	4.050, 4.269
Human rights	4.4 ± 0.8	4.273, 4.453
Jewish culture	4.1 ± 1.0	3.953, 4.188
Nazi ideology	3.5 ± 1.1	3.372, 3.628
Other genocides	3.8 ± 0.9	3.680, 3.890
Personal stories of victims or survivors	4.2 ± 0.8	4.133, 4.334
Racism	4.0 ± 0.9	3.913, 4.131
Refugees and immigration	3.9 ± 0.9	3.784, 4.001
Remembrance and commemoration	4.1 ± 0.8	3.981, 4.182
The Righteous among the Nations	4.1 ± 0.9	3.991, 4.202
Totalitarian regimes	3.8 ± 0.9	3.711, 3.933
Trauma psychology	3.7 ± 1.0	3.623, 3.873
Wars and conflicts	3.6 ± 0.9	3.453, 3.680

Table 3. Interest related to a range of Holocaust-related topics.

We measured the second component, the reasons for following the selected social media profile or page, using a list of 17 and 7 items (Table 4). The first group of items includes reasons related to the importance of being a witness and the desire to perpetuate the memory of the Holocaust. Results of ANOVA repeated measures for this first group of items (F(1, 238) = 11085.9, p = .000, $\eta 2$ = .979) followed by post-hoc analysis show that the most important reason is 'I want that such a horrific occurrence may never happen again' (4.8 ± 0.6), followed by 'I want to understand what happened during the Holocaust' (4.4 ± 0.7), 'I want to be able to tell the story to future generations' (4.3 ± 0.8), 'I feel empathy for the victims' (4.3 ± 0.7) and 'I want to be informed about the museum's expositions/evidence/artefacts' (4.3 ± 0.7). Much less important are reasons such as 'I want to share personal opinions/ideas on the topic with others' (3.6 ± 1.0), 'I want to expand my study/professional network of contacts in the field of the Holocaust' (3.5 ± 1.2), 'I want to share my study/professional interests with others' (3.5 ± 1.2) and 'I want to expand my personal network of contacts in the field of the Holocaust' (3.4 ± 1.2).

The second group of items relates to specific reasons for following the particular page or profile. Results of ANOVA repeated measures (F (1, 219) = 6466.4, p = .000, η2 = .967) followed by post-hoc analysis show that the most important reason to follow the page is 'Accuracy of the information published on the page / profile' (4.4 ± 0.7). In contrast, factors such as popularity (e.g., number of likes, number of followers) are much less important (2.3 ± 1.1).

	Mean ± SD	95% confidence interval
I feel responsible for the coming generations	4.2 ± 0.8	4.080, 4.279
I feel empathy for the victims	4.3 ± 0.7	4.175, 4.361
I want to be informed about expositions/evidence/artefacts of the museum	4.3 ± 0.7	4.178, 4.358
I want to expand my study/professional network of contacts in the field of the Holocaust	3.5 ± 1.2	3.347, 3.648
It is a part of my history/heritage that I want to know more about	3.9 ± 1.1	3.739, 4.019
I want to expand my personal network of contacts in the field of Holocaust	3.4 ± 1.2	3.229, 3.524
I want to speak for those who no longer can, but also for humanity more generally	3.9 ± 1.0	3.739, 4.002
I want to share personal opinions/ideas on the topic with others	3.6 ± 1.0	3.504, 3.751
I want to commemorate the victims	4.0 ± 0.9	3.882, 4.110
It's a way of coming to one's senses and thankfulness	3.7 ± 1.0	3.657, 3.933
I want to learn more about the Holocaust/Second World War	4.2 ± 0.7	4.050, 4.260
I want to be able to tell the story further to next generations	4.3 ± 0.8	4.191, 4.403
I want to understand what happened during the Holocaust	4.4 ± 0.7	4.264, 4.447
I want to share my study/professional interests with others	3.5 ± 1.2	3.346, 3.650
I am curious to know what happened during the Holocaust	4.1 ± 0.9	3.938, 4.171
I want that such a horrific occurrence may never happen again	4.8 ± 0.6	4.684, 4.839
I am afraid that something can happen in the future again	3.9 ± 1.0	3.791,

		4.042
Direct knowledge of the administrator/s of the page/profile	2.5 ± 1.2	2.342, 2.667
Quality of the comments by followers/fans	2.7 ± 1.0	2.556, 2.826
Reputation of the Institution in the field	3.9 ± 0.9	3.756, 3.999
Accuracy of the information published on the page/profile	4.4 ± 0.7	4.349, 4.541
Relevance of the posts and comments	4.0 ± 0.9	3.848, 4.097
Frequency with which new content is published	3.7 ± 0.9	3.526, 3.774
Popularity of the page/profile (e.g., number of "likes", number of followers)	2.3 ± 1.1	2.134, 2.429

Table 4. Reasons for following the chosen social media page or profile.

9.4.3 Learning process

We looked at the learning process in terms of three main components: Resources, Activities and Relationships. The study took into account the degree of proactive search for resources (Table 5), the breadth of interest in comparison with other social profiles or pages of the chosen institution, and in comparison with other museums and memorials, whether Italian, foreign or international. Almost half of the respondents made a personal search (n=113, 43.0%), others found the reference on another social page or website (n=53, 20.2%) or received a suggestion/invitation from someone (n=47, 17.9%). The majority follow at least one other social media profile of the same institution (n=107, 40.7%), more than half follow the social pages of other Italian or foreign museums or memorials (n=143, 51%) and almost half follow the social pages of another international Holocaust museum (n=114, 41.3%).

		N=263
How the page or profile were found	Personal search	113 (43.0%)
	Via other pages or websites	53 (20.2%)
	Invited by administrators, friends or other followers	47 (17.9%)
	Other	17 (6.5%)
	Don't remember	33 (12.5%)
People following other profiles or pages of the same institution	Yes	107 (40.7%)
	No	156 (59.3%)
People following social media profiles of other museums	Italian museums	143 (51.8%)
	International museums	114 (41.3%)
	None	25 (9.1%)

Table 5. Access to resources.

The type of activity performed on the page or profile was assessed based on the frequency with which people accessed their selected social pages (Table 6). Almost half of respondents access the page or profile when they receive a notification (n=108, 41.1%), with weekly use being the most common (n=65, 24.7%), followed by daily use (n=48, 18.3%).

	N=263
Only when I receive notifications of new posts	108 (41.1%)
Daily	48 (18.3%)
Weekly	65 (24.7%)
Monthly	34 (12.9%)
Other	8 (3.0%)

Table 6. Frequency of access to the page or profile.

Regarding the activities performed on the selected page or profile (Table 7), the results of the repeated measures ANOVA (F(1, 208) = 2057.2, p = .000, η2 = .908) followed by post-hoc analysis show that the most frequently performed activities are 'Like a content' (3.4 ± 1.2), 'Retweet/share a content' (2.6 ± 1.2) or 'Like comments' (2.6 ± 1.2). Activities such as 'Post new content (e.g. text, photo, video)' (1.6 ± 0.8) or 'Use direct or private message to interact with administrators' (1.6 ± 0.8) are much less common.

	Mean ± SD	95% confidence interval
Like a content	3.4 ± 1.2	3.251, 3.582
Like comments	2.6 ± 1.2	2.452, 2.782
Post a comment	2.0 ± 0.8	1.889, 2.111
Reply to a comment	1.9 ± 0.8	1.808, 2.030
Reply to a content/comment with new content (e.g., comment with text/photo/video/link)	1.7 ± 0.8	1.638, 1.855
Post new content (e.g., text, photo, video)	1.6 ± 0.8	1.484, 1.702
Retweet/share a content	2.6 ± 1.2	2.381, 2.700
Mention or tag other users/accounts/pages	1.9 ± 1.0	1.735, 2.007
Use direct or private message to interact with other users	1.7 ± 1.0	1.603, 1.861
Use direct or private message to interact with the administrators	1.6 ± 0.8	1.498, 1.708
Use page/profile hashtags in my posts	1.7 ± 1.0	1.558, 1.811
Participate to donation campaign organized by the page/profile	1.9 ± 0.9	1.750, 2.001

Table 7. Activities performed on the selected page or profile.

Finally, relationships were examined through a set of items designed to assess the behaviour of page or profile administrators and their relationship with other online users (Table 8). Results of ANOVA repeated measures (F(1, 143) = 7016.0, p = .000, $\eta2 = .980$) followed by post-hoc analysis show that users mostly appreciate how administrators filter fake news (4.2 ± 1.0) or hate speech (4.1 ± 0.9), how 'The content is communicated by administrators' (4.2 ± 0.9), and how 'Administrators interact with fans/followers' (3.9 ± 0.9). In contrast, users are less interested in interactions with other users (3.5 ± 0.7).

	Mean ± SD	95% confidence interval
I am satisfied with how the administrator interacts with fans/followers	3.9 ± 0.9	3.615, 3.899
I am satisfied with how the administrator interacts with me	3.7 ± 0.9	3.469, 3.753
I am satisfied with how other fans/followers interact with me	3.5 ± 0.7	3.345, 3.585
I am satisfied with how the fans/followers interact with each other	3.6 ± 0.8	3.444, 3.695
I think something in the way administrators handle communication with fans/followers should change	2.9 ± 0.9	2.689, 2.992
I think the way in which the content is communicated by the administrators is consistent with my expectations	4.2 ± 0.9	3.925, 4.227
I think that the administrators censor the discussions	2.1 ± 1.1	2.118, 2.479
I think administrators filter hate messages properly	4.1 ± 0.9	3.874, 4.181
I think administrators filter fake news properly	4.2 ± 1.0	3.995, 4.310
I feel safe in the follower/fan community	4.1 ± 0.9	3.869, 4.172
I feel that administrators respond to fan/follower questions and comments in a timely manner	3.9 ± 0.9	3.712, 3.996

Table 8. Evaluation of relationships on the selected page or profile.

9.5 Discussion

In this study, we sought to further our understanding of how adult learners interested in Holocaust remembrance use social media for informal learning. While very few studies have explored the use of informal learning approaches to engage with the general population on these issues (Shapiro et al., 2014), this article examines how a cohort of social media users holistically develop their learning ecologies to learn about the Holocaust through social media. Holocaust memory and education through digital means is a relatively new field of study (Walden, 2021). To date, it has largely focused on history-centred information behaviour in online environments (Makhortykh et al., 2021), digital interactive Holocaust testimonies (Marcus et al., 2022), and digital activities of Holocaust memorials and museums (Ebbrecht-Hartmann, 2021; Manca, 2021b, 2022; Manca, Passarelli, & Rehm, 2022), but little emphasis has been placed on the role of online users (Hogervorst, 2020). Therefore, this study is the first to examine the learning dispositions and learning processes of ethical digital practices (Walden, 2022b) developed on social media to learn about the Holocaust. Furthermore, while teaching about the Holocaust in lifelong learning or professional development programmes has been documented in a few professions other than teachers and educators (Copeland, 2021; Stephens et al., 2021), to our knowledge no research has been conducted in an adult general population.

The study also contributes to a broader understanding of informal learning by using a theoretical approach that specifically considers the relationships between formal, non-formal and informal learning as a continuum of learning practices that are increasingly included in adult and lifelong learning (Dabbagh & Castañeda, 2020; Nørgård, 2021). Heutagogical approaches to building human agency over time are increasingly being used to promote the development of skills and knowledge in the different domains that can affect people's lives (Lock et al., 2021). It is therefore important to advance knowledge about technology-enhanced lifelong learning that is theoretically grounded and pedagogically modelled. In this sense, this study contributes to a first step in this direction. From this perspective, the learning ecology approach provides a conceptual lens which, when applied to the landscape of dispositions and practices for learning about a particular subject, can provide a careful study for developing appropriate educational interventions aimed at further fostering effective strategies embedded in the learning ecologies uncovered. By examining learning from a holistic perspective, learning ecologies as natural ecosystems contribute to the study of the interconnectedness of content, processes, spaces, relationships and resources, including tools, technologies and mediating artefacts, as well as perceptions of achievement and cultural values (Jackson, 2016). This is particularly relevant to our study, as the Holocaust has profound ethical and moral value in the construction of shared identity and citizenship, especially in the Western world and European context. Understanding the link between the dispositions and processes involved in learning about this topic helps to provide a basis for educational interventions that focus on the development of democratic citizenship skills and how the content still applies to people's own lives and values (Bussu et al., 2023).

The discussion of the three research questions is presented below. The research questions were designed to explore the impact of the topic on a specific population, namely online users of social media pages of Holocaust museums in Italy. Through this discussion, the research findings will be analysed and discussed in order to provide insight into the issue at hand and its impact on the population in question. Although the context described can be seen as a specific case study with limited scope for generalisation, it is important to emphasise that this research investigated informal learning about the Holocaust among adult learners, whereas most academic research on Holocaust education focuses on formal learning programmes conducted in English-speaking countries. In this sense, this study may help to increase knowledge in less studied geographical areas and with a less known target population.

9.5.1 The demographic profile of learners

In relation to the first research question, which analysed the socio-demographic profiles of learners, the majority of respondents indicated that Facebook was the most commonly used social media platform. Higher levels of interactivity and positive responses are reported for Facebook posts than for posts on other platforms, which is not surprising given that the four museums and memorials tend to use Facebook primarily to communicate with their audiences (Manca, 2022). The socio-demographic characteristics of the group show a majority of women, an average age of around 50 years and a higher level of education. Although these characteristics tend to reflect the general composition of Facebook users - recent data shows that more than half are female (Statista, 2022b), more than half are over 35 years old (Statista, 2022a), and 73% of users have a university degree (Statista, 2021) - they also correspond to the preference for a Facebook target audience of middle-aged people (45-70 years old) expressed by the four museums and memorials (Manca, 2022). Furthermore, the users seem to be mainly concentrated in the northern and central regions of Italy, where the museums and memorials are located (Manca, 2022). In this sense, users and institutions seem to have a privileged direct relationship based on spatial proximity (Pennington, 2018). When examining the configuration of lifelong learning ecologies around Holocaust remembrance, this element can be considered of primary importance. The data were collected during the COVID-19 pandemic, which resulted in a significant increase in the number of virtual visitors who were unable to travel to the museums in person. As noted in recent studies (Ebbrecht-Hartmann, 2021; Manca et al., 2022b), pandemic-related closures have been recognised as a powerful accelerator for the digital transformation of Holocaust organisations. The results of this study suggest that geographical proximity is also associated with cultural proximity, which is expressed in the configuration of digital spaces. However, future studies should aim to reach target users other than those covered in our analysis. Due to the convenience sampling nature of this work, it is important to consider the extent to which this composition represents the geographical distribution of the general public of the four museums, and whether this has changed over the last two years. Finally, in terms of professional background, almost half are teachers, educators, academics or cultural operators. The remainder come from a variety of professions, are retired or unemployed. While there seems to be a predominant professional motivation for following these profiles, there is also a broader general interest on the part of citizens who are not actively involved in Holocaust education and remembrance practices. The ability to create a community of interest among different groups united by a common concern reflects the general tendency of history museums to strengthen social cohesion by consolidating the identity of their audiences (Rosenberg, 2011).

9.5.2 Learning dispositions

The results of the second research question, which examined learning dispositions based on the interests and expectations expressed as reasons, indicate that respondents are primarily interested in human rights, historical knowledge, antisemitism and cultural heritage, all of which are usually considered major topics in Holocaust education (Gray, 2014). As a result of the cosmopolitan memory of the Holocaust and the intensification of global remembrance, it has recently been demonstrated that a common European cultural memory, based on the concept of human rights and the interdependencies between the Holocaust and human rights, is gradually emerging (Novis-Deutsch et al., 2023). The content preferences are also consistent with other indications from the theoretical-practical tradition of Holocaust education, which emphasises individual experience over ethically oriented collective memory and humanises statistics (Foster et al., 2020; Gray, 2014). Our respondents seem to be representative of the tendency of memorial museums to articulate collective memory through the lens of the victims' perspective (Oztig, 2023), focusing on the Righteous Among the Nations' rescue of the Jews (Yelich Biniecki & Donley, 2016). Thus, the content analysis of the social media profiles of the four museums considered (Manca, 2022) shows that users' interests reflect the intertwining of transnational and national memories found in our participants' responses. For example, there is a general lack of interest in topics such as Nazi ideology, probably because it is perceived as distant from the historical specificity of the Italian context. It is important to point out that this configuration of preferred topics has implications for the development of learning ecologies and the type of content that users are most frequently exposed to, highlighting which content could enrich the ecologies and which should be avoided or left in the background.

Among the factors contributing to the reasons for following the social media profiles considered in this study is a sense of civic responsibility for the legacy of the Holocaust (Achilles & Winnick, 2021). As expressed in the mantra 'never forget, never again', the lessons of the Holocaust are seen as an integral part of collective memory, which is the basis for Holocaust memorials to reshape collective conceptions of mass murder, prejudice and morality (Svoboda, 2006). This is perfectly reflected in the motivations of our respondents. Respondents also express a high level of trust in the institutions that manage social media profiles, placing a high priority on the accuracy and relevance of the information published and the reputation of the institution. As such, Holocaust museums and memorials are recognised as one of the most important educational and informational institutions, as well as gatekeepers of Holocaust memory (Oztig, 2023). As part of a lifelong learning ecology, opportunities should be provided for learners to critically reflect on their own learning practices, to interact with other learners, and to work with Holocaust education experts represented by museum staff (Foster, 2013). This type of learning environment can enable learners to develop a more holistic understanding of the history of the Holocaust by engaging with multiple perspectives and deeper knowledge from experts and peers. It can also provide a space for learners to discuss and reflect on their own learning experiences.

9.5.3 Learning processes

The results of the third research question, which aimed to identify the resources, activities and relationships that shaped the respondents' learning ecologies, indicate that the majority of respondents conducted a personal search of the profiles or found the link on another page or similar profile. According to previous research (Ranieri et al., 2012), users in thematic Facebook groups tend to be more proactive than those in generic groups, which confirms the general attitude reflected in this study. Furthermore, half of the respondents follow the social profiles of other Italian museums and 40% follow those of foreign museums and memorials, while only 40% follow other social media profiles of the same institution. Thus, our respondents can be considered as actors who, from a constructivist perspective (Oztig, 2023), exercise agentic capacities in relation to Holocaust memorial culture and express their loyalty to this institution as part of (online) value co-creation (Padilla-Meléndez & del Águila-Obra, 2013). Research has shown that identity plays a significant role in the willingness and motivation to engage with museum content in order to continue learning (Romeu-Fontanillas et al., 2020). In this sense, identity resources are an integral part of the learning process as they play a crucial role in the learning process of the ecosystem (González-Sanmamed et al., 2019; Romeu-Fontanillas et al., 2020). Identity resources help learners identify with the wider community of people interested in Holocaust issues, understand their place in the learning environment, and foster a sense of belonging and inclusion. They also allow them to develop a sense of ownership of their learning, which in turn can increase engagement and motivation (Jackson, 2013, 2016).

In terms of access to resources, almost half of respondents only accessed the page or profile after receiving a notification that new content had been posted, but over 40% accessed it regularly on a daily or weekly basis. Looking at the frequency of activity on the profile or page, the most common activities are liking posts or comments and sharing/retweeting content, while more interactive behaviours such as replying to comments, posting new content or using hashtags to tag content remain limited. An examination of the social media metrics of the profiles of the four museums shows that the overall level of interaction is low (Manca, 20-22). Our findings confirm a general trend regarding both cultural institutions on social media (Arnaboldi & Diaz Lema, 2021) and Holocaust museums in particular (Manca, 2021; Walden, 2022a). Given the growing importance of user-generated content (UGC), which allows individuals to formulate, reinforce and challenge interpretations of the past (González-Aguilar & Makhortykh, 2022), Holocaust museums have experienced a kind of 'passivity' due to the fear of trivialisation or distortion, coupled with the possibility of harbouring conflicting memories (Walden, 2022a). As a result, there is generally a cautious approach to soliciting user interaction, with a preference for unidirectional communication and the dissemination of a carefully crafted, widely accepted message via social media (Kansteiner, 2017). Further research is needed to determine why this level of proactivity remains low, and the extent to which self-censorship of Holocaust-related content affects the richness of the learning ecology. Understanding these issues could facilitate the development of more effective learning ecologies that are both robust and insightful (Jackson, 2013, 2016). Such learning ecologies should be able to help learners explore their own identities and confront difficult issues, enabling them to make informed choices about their own lives and the world around them.

Finally, respondents valued factors related to communication with site administrators or the ability to filter fake news or hate speech within the community to promote a sense of safety. They also value interaction and communication between administrators and the user community, while placing less importance on interaction with other users. While this finding is consistent with recent research highlighting the importance of museums creating safe online spaces for their visitors (Kist, 2021), social media communication staff appear to be committed to protecting online spaces that may be considered unsafe due to potential hate content (antisemitism, distortion, etc.). In terms of learning ecologies, this could include the creation of networks involving experts or key actors and the development of meaningful relationships with peers (González-Sanmamed et al., 2019; Romeu-Fontanillas et al., 2020). These networks would also provide an opportunity for further discussion and collaboration, enabling the exchange of ideas, resources and experiences. This type of collaboration would be particularly beneficial for museums seeking to strengthen their capacity to provide educational and social experiences that are meaningful and inclusive for all visitors.

9.5.4 Limitations

Despite the positive results of this study, caution should be exercised in generalising from these data due to the sampling procedure and the limitations of the survey approach. Although the questionnaire was sent to all fans/followers of the selected profiles, the response rate was low and cannot be considered representative of the user community. A number of factors may have contributed to the low response rate. The posts on the social media pages or profiles inviting people to take part in the survey disappeared quickly and were likely to have been seen by only a few people. Many users may not have subscribed to the mailing list that distributed the invitation. There was also an explosion of online research using rating scales during the period of the COVID-19 pandemic (De Man et al., 2021). This may have affected willingness to participate in the online survey due to lack of familiarity with the research topic or the length of time required to complete the questionnaire. A second set of limitations relates to the identification of a sample of responses with a strong bias towards positive interest and importance of the topic. As a result, self-reported motivation may have been influenced by social desirability bias (Krumpal, 2013). While non-probability online surveys cannot replace probability surveys, they can support the use of social media in exploratory studies of small and emerging non-demographic subpopulations (Lehdonvirta et al., 2021).

9.6 Conclusion

While this study contributes to the body of knowledge on the learning ecology approach to understanding informal learning processes that increasingly characterise social media use (Greenhow & Lewin, 2016), several implications and directions for practice and future research can be drawn. With the expansion of personal learning environments supported by social media (Dabbagh & Castañeda, 2020), access to quality resources and the curation of facilitation of meaningful relationships mediated through social media spaces becomes an imperative. The growing importance of 'learning in the wild' on and through social media as a cornerstone of lifelong learning (Haythornthwaite et al., 2018) further emphasises the need for such access and curation. It is essential that learners not only have access to these resources, but are also able to create, share and curate them for their own learning purposes in a more creative and positive vision of what it takes to learn. Social media has opened up new opportunities for learners to build their own personal learning networks and to engage with others to support their own learning. This encourages learners to become self-directed, reflective and collaborative in their learning. It is therefore important, on the one hand, to focus on how we want learners to interact, learn by doing and express their ideas using digital learning resources and, on the other hand, for content producers to be aware that learners demand and expect high quality learning resources and tools that facilitate interaction and support relationship building. Increasing social interaction and engagement, providing authentic communication and contextually rich learning practices, emphasising critical thinking, communication, collaboration, creativity and culture are all factors that contribute to the development of learning ecologies appropriate for a subject as challenging as the Holocaust.

Future research should explore learning dispositions and components of learning processes in different target populations and subject areas. Studies can also be conducted among the general population or among individuals interested in particular subjects to understand their learning preferences in relation to lifelong learning. In addition, research should focus on how to better support lifelong learning by identifying ways of equipping learners with the necessary skills, knowledge and resources to continue learning in close association with agentic development. There is also a need to explore the impact of technology on lifelong learning and how it can be used to make learning more accessible and engaging for different types of learners.

This research should also explore how technology can facilitate learning and benefit learners. In addition to stimulating lifelong learning, there is a need to understand the motivations and needs of different types of learners in terms of agency, that is, a unique developmental process in which the learner becomes aware and protagonist, and to identify cost-effective ways of encouraging and sustaining continuous learning.

9.7 Acknowledgments

This study is part of the first author's research project 'Teaching and learning about the Holocaust on social media: A learning ecology perspective' (Education and ICT [E-Learning] Doctoral Programme, Open University of Catalonia). The work was also supported by the International Holocaust Remembrance Alliance (IHRA) under grant no. 2020-792 'Countering Holocaust Distortion on Social Media. Promoting the Positive Use of Internet Social Technologies for Teaching and Learning about the Holocaust'. We are grateful for the statistical assistance of Marcello Passarelli.

9.8 Conflict of interest statement

There are no conflicts of interest to disclose on the part of the authors.

9.9 Peer review

The peer review history for this article is available at https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/jcal.12848.

9.10 Data availability statement

A reasonable request can be made to the corresponding author for the data that support the findings of this study.

9.11 ORCID

Stefania Manca https://orcid.org/0000-0002-0348-7139

Juliana Elisa Raffaghelli https://orcid.org/0000-0002-8753-6478

9.12 References

Achilles, M., & Winnick, H. (2021). Memory, responsibility, and transformation: Antiracist pedagogy, Holocaust education, and community outreach in transatlantic perspective. *The Journal of Holocaust Research*, 35(2), 123–138.

Andersen, T. S., & Törnquist-Plewa, B. (2017). *The twentieth century in European memory: Transcultural mediation and reception*. Brill.

Arnaboldi, M., & Diaz Lema, M. L. (2021). The participatory turn in museums: The online facet. *Poetics*, 89, 101536.

Arolsen Archives. (2022). Gen Z and Nazi history. https://arolsen-archives.org/en/learn-participate/study-gen-z-nazi-history/

Assmann, A. (2017). Transnational memory and the construction of history through mass media. In L. Bond, S. Craps, & P. Vermeulen (Eds.), *Memory unbound: Tracing the dynamics of memory studies* (pp. 65–82). Berghahn Books.

Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science*, 1(2), 164–180.

Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development*, 49, 193–224.

Biesta, G., & Tedder, M. (2007). Agency and learning in the lifecourse: Towards an ecological perspective. *Studies in the Education of Adults*, 39(2), 132–149.

Bodziany, M., & Matkowska, J. (2023). Holocaust education in digital media. In A. Visvizi, O. Troisi, & M. Grimaldi (Eds.), *Research and innovation forum 2022. RIIFORUM 2022* (pp. 445–453). Springer.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Harvard University Press.

Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon & R. Lerner (Eds.), *Handbook of child psychology. Theories of development* (Vol. 4, pp. 999–1058). Wiley.

Bruguera, C., Guitert, M., & Romeu, T. (2022). Social media in the learning ecologies of communications students: Identifying profiles from students' perspective. *Education and Information Technologies*, 27, 13113–13129.

Bussu, A., Leadbetter, P., & Richards, M. (2023). The perception of visiting Holocaust sites on undergraduate students learning process. *Innovative Higher Education*, 48, 55–81.

Carpenter, J. P., Krutka, D. G., & Trust, T. (2022). Continuity and change in educators' professional learning networks. *Journal of Educational Change*, 23, 85–113.

Carrier, P., Fuchs, E., & Messinger, T. (2015). *The international status of education about the Holocaust. A global mapping of textbooks and curricula.* UNESCO.

Claims Conference. (2023). *New study reveals nearly one quarter of Dutch Millennials and Gen Z believe the Holocaust was a myth or exaggerated.* https://www.claimscon.org/netherlands-study/

Commane, G., & Potton, R. (2019). Instagram and Auschwitz: A critical assessment of the impact social media has on Holocaust representation. *Holocaust Studies*, 25(1–2), 158–181.

Copeland, D. (2021). Nurses' participation in the Holocaust: A call to nursing educators. *Journal of Professional Nursing*, 37(2), 426–428.

Dabbagh, N., & Castañeda, L. (2020). The PLE as a framework for developing agency in lifelong learning. *Educational Technology Research and Development*, 68(6), 3041–3055.

Dalziel, I. (2021). Becoming the 'Holocaust police'? The AuschwitzBirkenau state museum's authority on social media. In V. G. Walden (Ed.), *Digital Holocaust memory, education and research* (pp. 179–212). Palgrave MacMillan.

De Man, J., Campbell, L., Tabana, H., & Wouters, E. (2021). The pandemic of online research in times of COVID-19. *BMJ Open*, 11, e043866.

Drachsler, H., Jansen, J., & Kirschner, P. A. (2021). Adoption of learning technologies in times of pandemic crisis. *Journal of Computer Assisted Learning*, 37, 1509–1512.

Ebbrecht-Hartmann, T. (2021). Commemorating from a distance: The digital transformation of Holocaust memory in times of COVID-19. *Media, Culture and Society*, 43(6), 1095–1112.

Ebbrecht-Hartmann, T., & Divon, T. (2022). Serious TikTok: Can you learn about the Holocaust in 60 seconds? *MediArXiv*. https://doi.org/10. 33767/osf.io/nv6t2

Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017). *Research in teaching and learning about the Holocaust: A dialogue beyond borders*. International Holocaust Remembrance Alliance.

Estévez, I., Souto-Seijo, A., & Romero, P. (2021). Learning ecologies and teacher professional development: Opportunities and challenges in a changing educational context. *Publica*, 51(3), 91–107.

Foster, S. (2013). Teaching about the Holocaust in English schools: Challenges and possibilities. *Intercultural Education*, 24(1–2), 133–148.

Foster, S., Pearce, A., & Pettigrew, A. (2020). *Holocaust education. Contemporary challenges and controversies*. UCL Press.

Garber, Z., & Hanson, K. L. (2023). *Teaching the Shoah: Mandate and momentum*. Cambridge Scholars Publishing.

Gil-Fernández, R., Calderon-Garrido, D., & Martín-Piñol, C. (2023). Exploring the effect of social media in personal learning environments in the university settings: Analysing experiences and detecting future challenges. *RED. Revista de Educacion a Distancia*, 23(71), 1–24.

González-Aguilar, J. M., & Makhortykh, M. (2022). Laughing to forget or to remember? Anne Frank memes and mediatization of Holocaust memory. *Media, Culture & Society*, 44(7), 1307–1329.

González-Sanmamed, M., Muñoz-Carril, P.-C., & Santos-Caamaño, F.-J. (2019). Key components of learning ecologies: A Delphi assessment. *British Journal of Educational Technology*, 50(4), 1639–1655.

Gray, M. (2014). *Contemporary debates in Holocaust education*. Palgrave Macmillan.

Greenhow, C., Gleason, B., & Staudt Willet, K. B. (2019). Social scholarship revisited: Changing scholarly practices in the age of social media. *British Journal of Educational Technology*, 50(3), 987–1004.

Greenhow, C., & Lewin, C. (2016). Social media and education: Reconceptualizing the boundaries of formal and informal learning. *Learning, Media and Technology*, 41, 6–30.

Haythornthwaite, C., Kumar, P., Gruzd, A., Gilbert, S., Esteve del Valle, M., & Paulin, D. (2018). Learning in the wild: Coding for learning and practice on Reddit. *Learning, Media and Technology*, 43(3), 219–235.

Heidari, E., Mehrvarz, M., Marzooghi, R., & Stoyanov, S. (2021). The role of digital informal learning in the relationship between students' digital competence and academic engagement during the COVID-19 pandemic. *Journal of Computer Assisted Learning*, 37, 1154–1166.

Hogervorst, S. (2020). The era of the user. Testimonies in the digital age. *Rethinking History*, 24(2), 169–183.

Hoskins, A. (2016). Memory ecologies. *Memory Studies*, 9(3), 348–357.

Hoskins, A. (2018). *Digital memory studies: Media pasts in transition*. Routledge.

Isaac, R. K., & Çakmak, E. (2014). Understanding visitor's motivation at sites of death and disaster: The case of former transit camp Westerbork, The Netherlands. *Current Issues in Tourism*, 17(2), 164–179.

Isaac, R. K., Nawijn, J., van Liempt, A., & Gridnevskiy, K. (2019). Understanding Dutch visitors' motivations to concentration camp memorials. *Current Issues in Tourism*, 22(7), 747–762.

Jackson, N. J. (2013). The concept of learning ecologies. In N. J. Jackson & G. B. Cooper (Eds.), *Lifewide learning education and personal development*. Lifewide Education.

Jackson, N. J. (2016). *Exploring learning ecologies*. Chalk Mountain. http://www.normanjackson.co.uk/uploads/1/0/8/4/10842717/lulu_ print_file.pdf

Jekel, T., Schötz, T., & Wöhs, K. (2020). Remembrance, space, education. Emancipatory and activist approaches through (geo-)media. In G. O'Reilly (Ed.), *Places of memory and legacies – In an age of insecurities and globalization*. Springer.

Kansteiner, W. (2017). Transnational Holocaust memory, digital culture and the end of reception studies. In T. S. Andersen & B. TörnquistPlewa (Eds.), *The twentieth century in European memory: Transcultural mediation and reception* (pp. 305–343). Brill.

Kist, C. (2021). Repairing online spaces for "safe" outreach with older adults. *Museums & Social Issues*, 15(1–2), 98–112.

Kolek, L., Sisler, V., Martinková, P., & Brom, C. (2021). Can video gamesˇ change attitudes towards history? Results from a laboratory experiment measuring short- and long-term effects. *Journal of Computer Assisted Learning*, 37(5), 1348–1369.

Krumpal, I. (2013). Determinants of social desirability bias in sensitive surveys: A literature review. *Quality & Quantity*, 47, 2025–2047.

Lehdonvirta, V., Oksanen, A., Räsänen, P., & Blank, G. (2021). Social media, web, and panel surveys: Using non-probability samples in social and policy research. *Policy & Internet*, 13, 134–155.

Lock, J., Lakhal, S., Cleveland-Innes, M., Arancibia, P., Dell, D., & De Silva, N. (2021). Creating technology-enabled lifelong learning: A heutagogical approach. *British Journal of Educational Technology*, 52, 1646–1662.

Łysak, T. (2022). Vlogging Auschwitz: New players in Holocaust commemoration. *Holocaust Studies*, 28(3), 377–402.

Makhortykh, M., Urman, A., & Ulloa, R. (2021). Hey, Google, is it what the Holocaust looked like?: Auditing algorithmic curation of visual historical content on web search engines. *First Monday, Monday*, 26(10). https://firstmonday.org/ojs/index.php/fm/article/view/11562

Manca, S. (2021a). Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age. *Review of Education, Pedagogy and Cultural Studies*, 43(3), 226–253.

Manca, S. (2021b). Digital memory in the post-witness era: How Holocaust museums use social media as new memory ecologies. *Information*, 12(1), 1–17.

Manca, S. (2022). Digital Holocaust memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and remembrance practice. *International Journal of Heritage Studies*, 28(10), 1152–1179.

Manca, S., Passarelli, M., & Rehm, M. (2022). Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media. *Technology in Society*, 68, 101889.

Manca, S., Rehm, M., & Haake, S. (2023). Holocaust remembrance on Facebook during the lockdown: A turning point or a token gesture? In S. Gensburger & O. Fridman (Eds.), *Unlocked memory: Did the Covid pandemic change commemoration?* Routledge.

Manca, S., Rehm, M., Haake, S., & Guetta, S. (2022). *Countering Holocaust distortion on social media. White Paper.* IHRA Project Report. https:// holocaust-socialmedia.eu/wp-content/uploads/CounteringHolocaust-distortion-on-social-media-White-Paper-HD.pdf

Manikowska, E. (2020). Museums and the traps of social media: The case of the Auschwitz-Birkenau memorial and museum. *Santander Art and Culture Law Review*, 2(6), 223–250.

Marcus, A. S., Maor, R., McGregor, I. M., Mills, G., Schweber, S., Stoddard, J., & Hicks, D. (2022). Holocaust education in transition from live to virtual survivor testimony: Pedagogical and ethical dilemmas. *Holocaust Studies*, 28(3), 279–301.

Niven, B., & Williams, A. (2020). The dominance of the national: On the susceptibility of Holocaust memory. *Jewish Historical Studies*, 51(1), 142–164.

Nørgård, R. T. (2021). Theorising hybrid lifelong learning. *British Journal of Educational Technology*, 52, 1709–1723.

Novis-Deutsch, N. S., Lederman, S., Adams, T., & Kochavi, A. J. (2023). *Sites of tension: Shifts in Holocaust memory in relation to antisemitism and political contestation in Europe*. The Weiss-Livnat International Center for Holocaust Research and Education.

OECD. (2019). *Recognition of non-formal and informal learning. Organisation for Economic Cooperation and Development.* http:// www.oecd.org/education/skills-beyond-school/recognitionofnonformalandinformallearning-home.htm

Oztig, L. I. (2023). Holocaust museums, Holocaust memorial culture, and individuals: A constructivist perspective. *Journal of Modern Jewish Studies*, 22(1), 62–83.

Padilla-Meléndez, A., & del Aguila-Obra, A. R. (2013). Web and social´ media usage by museums: Online value creation. *International Journal of Information Management*, 33(5), 892–898.

Pennington, L. K. (2018). Hello from the other side: Museum educators’ perspectives on teaching the Holocaust. *Teacher Development*, 22(5), 607–631.

Perez, E., Manca, S., Fernández-Pascual, R., & Mc Guckin, C. (2023). A systematic review of social media as a teaching and learning tool in higher education: A theoretical grounding perspective. *Education and Information Technologies*, 1–30. https://doi.org/10.1007/s10639-02311647-2

Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95(4), 667–686.

Popescu, D. I., & Schult, T. (2015). *Revisiting Holocaust representation in the post-witness era.* Palgrave Macmillan.

Ranieri, M., Manca, S., & Fini, A. (2012). Why (and how) do teachers engage in social networks? An exploratory study of professional use of Facebook and its implications for lifelong learning. *British Journal of Educational Technology*, 43, 754–769.

Rauch, S. (2018). Understanding the Holocaust through film: Audience reception between preconceptions and media effects. *History and Memory*, 30(1), 151–188.

Rogoff, B., Callanan, M., Gutiérrez, K. D., & Erickson, F. (2016). The organization of informal learning. *Review of Research in Education*, 40, 356–401.

Romeu-Fontanillas, T., Guitert-Catasús, M., Raffaghelli, J. E., & Sangrà, A. (2020). Mirroring learning ecologies of outstanding teachers to integrate ICTs in the classroom. *Comunicar*, 62(XXVIII), 31–42.

Rosenberg, T. J. (2011). History museums and social cohesion: Building identity, bridging communities, and addressing difficult issues. *Peabody Journal of Education*, 86(2), 115–128.

Sangrà, A., Raffaghelli, J., & Guitert, M. (2019). Learning ecologies through a lens: Ontological, methodological and applicative issues. A systematic review of the literature. *British Journal of Educational Technology*, 50(4), 1619–1638.

Sangrá, A., Raffaghelli, J. E., González-Sanmamed, M., & MuñozCarril, P. C. (2021). Primary school teachers’ professional development through the learning ecologies lens: New ways for keeping up to date in uncertain times. *Publica*, 51(3), 47–70.

Sangrà, A., Raffaghelli, J. E., & Veletsianos, G. (2019). Lifelong learning ecologies: Linking formal and informal contexts of learning in the digital era. *British Journal of Educational Technology*, 50, 1615–1618.

Shapiro, A., McDonald, B., & Johnston, A. (2014). Gathering the voices: Disseminating the message of the Holocaust for the digital generation by applying an interdisciplinary approach. *Social Sciences*, 3(3), 499–513.

Sierp, A. (2020). The European Union as a memory region. *Contemporanea*, 23(1), 128–132.

Statista (2021). *Percentage of U.S. adults who use Facebook as of February 2021, by educational background.* https://www.statista.com/ statistics/246225/share-of-us-internet-users-who-use-facebook-byeducation-level/

Statista. (2022a). *Share of Facebook users in the United States as of September 2022, by age group.* https://www.statista.com/statistics/ 187549/facebook-distribution-of-users-age-group-usa/

Statista. (2022b). *Share of Facebook users in the United States as of September 2022, by gender.* https://www.statista.com/statistics/ 266879/facebook-users-in-the-us-by-gender/

Stephens, T. M., Bigger, S., Cabage, L., & Tobias, R. (2021). Novel use of experiential learning in an online doctor of philosophy theory course. *Journal of Nursing Education*, 60(7), 391–393.

Subotic, J. (2022). Holocaust memory and political legitimacy in contemporary Europe. *Holocaust Studies*, 1–18. https://doi.org/10.1080/ 17504902.2022.2116539

Svoboda, E. (2006). Never forget, never again: Holocaust memorials are reshaping our conception of mass murder, prejudice, and morality by raising awareness and demanding a permanent place in our collective memory. But is that enough to help stave off future genocides? *Science & Spirit*, 17(5), 40+.

UNESCO. (2017). *Education about the Holocaust and preventing genocide: A policy guide.* UNESCO.

van der Poel, S. (2019). Memory crisis: The Shoah within a collective European memory. *Journal of European Studies*, 49(3–4), 267–281.

van Dijck, J. (2013). *The culture of connectivity. A critical history of social media.* Oxford University Press.

Walden, V. G. (2021). *Digital Holocaust memory, education and research.* Palgrave MacMillan.

Walden, V. G. (2022a). *The memorial museum in the digital age.* REFRAME Books. https://reframe.sussex.ac.uk/the-memorial-museum-in-thedigital-age/

Walden, V. G. (2022b). Understanding Holocaust memory and education in the digital age: Before and after COVID-19. *Holocaust Studies*, 28(3), 257–278.

10. Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators[54]

Abstract

Holocaust education, which refers to the teaching and learning of the Holocaust - the systematic genocide of six million Jews by Nazi Germany and its collaborators during World War II - is an essential component of history and social studies education in many countries. Its primary aim is to raise awareness of the Holocaust, promote understanding of its historical significance and develop critical thinking and empathy in students. However, despite the increasing specialisation and institutionalisation of Holocaust education, there is still a lack of understanding of how Holocaust educators acquire the knowledge and skills necessary to teach the subject effectively. This study aims to explore the learning ecologies of a group of Italian Holocaust educators, focusing on their motivations for initial and lifelong learning and their learning practices. Ten in-depth interviews were conducted with teachers from different subject areas. The results showed that participants were driven by either personal or curricular motivations and interests and used a range of learning approaches for both initial and lifelong learning. Although few participants considered digital technologies and social media as a learning environment, they were found to be useful resources. The study concludes with practical implications for further research

Keywords: Holocaust education, Learning ecologies, Professional development, Informal learning

Key insights

What is the main issue that the paper addresses?

The main issue addressed in the paper is the lack of understanding of how Holocaust educators acquire the knowledge and skills necessary to teach the subject effectively. The study focuses on Italian Holocaust educators and examines their motivations for initial and lifelong learning, as well as their learning practices.

What are the main insights that the paper provides?

Several key findings emerge from the paper. Firstly, participants in the study were motivated by personal or curricular interests and used different learning approaches for both initial and lifelong learning. Secondly, while digital technologies and social media were not widely perceived as learning environments, they were found to be valuable resources by those who used them.

---

[54] Published version of: Manca, S., Raffaghelli, J., & Sangrà, A. (2024). Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators. *British Educational Research Journal*, 50(1), 307-330. https://doi.org/10.1002/berj.3927

10.1 Introduction

The transmission of Holocaust memory to the younger generation is a crucial aspect of education, encompassing historical knowledge and the cultivation of values, morals and identity (UNESCO, 2017). As agents of remembrance, teachers and educators have a profound responsibility that goes far beyond the transmission of historical information. They have a crucial role to play in conveying contemporary messages and values to their students and learners, and in fostering a deeper understanding of the significance of the Holocaust in the context of the present (Novis-Deutsch et al., 2023).

In recent decades, extensive research has been conducted in the field of Holocaust education, collecting data from a diverse range of educational settings (Carrier et al., 2015; Eckmann et al., 2017; Foster et al., 2020; Gross & Stevick, 2015; Nesfield, 2015). This area of academic inquiry and educational practice has undergone significant development, emerging as a discipline of global and transcultural significance. Over time, there has been a gradual expansion, professionalisation and institutionalisation within the field, and Holocaust education has been integrated into formal school curricula, teacher training programmes and university education departments (Eckmann et al., 2017).

Due to the diversity of experiences, tracking educational practices in the international context has proven challenging (Eckmann et al., 2017). Holocaust education encompasses a wide range of approaches and programmes aimed at teaching and facilitating learning about the Holocaust in a variety of settings (Carrier et al., 2015; UNESCO, 2017). One of the notable features of the field is the lack of uniformity in national guidelines and regulations, regardless of the main subject area of the teachers dealing with the topic (Eckmann et al., 2017). In some countries, the Holocaust has a prominent place in the national curriculum and secondary school teachers often participate in comprehensive professional development programmes for the whole teaching staff that focus on Holocaust education (Foster, 2013). In other countries, the recent integration of Holocaust education into the global framework of nations committed to its promotion highlights specific challenges, including a lack of formal professional development programmes for teachers and inconsistency in teachers' pedagogical practices with students (Baer & Sznaider, 2020). These differences have led the International Holocaust Remembrance Alliance (IHRA) to publish Recommendations for Teaching and Learning about the Holocaust in 2019 (IHRA, 2019), which aim to provide educators of 45 countries with fact-based and pedagogically sound techniques for teaching the complex and nuanced history of the Holocaust.

However, there is still limited understanding of how teachers acquire holistic knowledge about the Holocaust and become professionally prepared to teach it. This refers to the learning dispositions and processes of individuals and the different factors that contribute to their understanding, such as their relationships, available resources, activities and contextual elements (González-Sanmamed et al., 2019). Examining the most common opportunities and resources for learning, development and achievement is essential to understanding how educators acquire comprehensive knowledge of the Holocaust and develop their learning ecologies (Barron, 2006).

The aim of this study is to examine the learning ecologies (Barron, 2006; Jackson, 2013) of a group of Italian educators teaching about the Holocaust, specifically exploring their use of different media resources such as film, literature and digital media (Neiger et al., 2011; Popescu & Schult, 2015). Given the current significant impact of technology on teaching and learning about the Holocaust, which has led to the digitisation and transculturalisation of Holocaust memory (Kansteiner, 2017) and the emergence of new pedagogical approaches (Walden, 2021), this study also aims to explore educators' attitudes towards digital technologies and social media as learning tools to enhance their understanding of the Holocaust and incorporate it into their teaching with students (Adamson, 2023; Manca, 2021). By focusing on a small-scale case study in the Italian context, where there is currently no comprehensive national professional learning programme for Holocaust educators, we can gain deeper insights into the interaction between formal and informal learning contexts in the professional development of teachers about the Holocaust. This analysis can serve as a model for the study of other geographical contexts facing similar training challenges.

10.2 Context of the research

In contrast to countries that have long had a legal obligation to include Holocaust education in their curricula (Davis & Rubinstein-Avila, 2013; Eckmann et al., 2017; Novis-Deutsch et al., 2023), Italian teachers were not subject to such an obligation until the early 2000s (Santerini, 2003). As a direct result of the new legislation passed by the Italian Parliament (Law 211/2000), the national competition "I giovani ricordano la Shoah"[55] (Young People Remember the Shoah) was established to promote the study and in-depth analysis of this tragic event and was linked to the establishment of the "Giorno della Memoria" (Holocaust Remembrance Day).

There are several institutions and organisations dedicated to Holocaust education and remembrance, such as the Union of Italian Jewish Communities (UCEI) and the Centro di Documentazione Ebraica Contemporanea (CDEC, Centre for Contemporary Jewish Documentation). The Italian Ministry of Education also cooperates with prominent international Holocaust organisations (e.g., Yad Vashem, the Mémorial de la Shoah in Paris), which provide valuable support by organising training seminars and study trips for teachers and students to Holocaust memorial sites (Saba, 2012). Some Italian universities support Holocaust education through master's and postgraduate programmes (University of Roma Tre, University of Florence), while museums and memorial sites play an important role in disseminating knowledge to the wider public.

---

[55] Shoah is the term preferred in Italy, see Michman (2021).

Despite these collective efforts, challenges remain in the field of education and professional development. Holocaust education can vary between regions and schools due to the autonomy of educational institutions and their proximity to memorial sites. This variation can lead to inconsistencies in the depth and quality of Holocaust education provided. In recent years, significant efforts have been made at the national level to provide resources and guidance to teachers and educators. In January 2018, the Italian delegation to the IHRA, in collaboration with the Ministry of Education, developed national guidelines entitled 'Linee guida nazionali per una didattica della Shoah a scuola' (National Guidelines for Holocaust Education in Schools), which serve as a comprehensive resource for educators and provide a clear framework for teaching the Holocaust. In January 2022, the Ministry of Education published the "Linee guida sul contrasto all'antisemitismo nella scuola" (Guidelines for Combating Antisemitism in Schools), prepared by the Joint Committee Ministry of Education - UCEI under the guidance of the National Coordinator for Combating Anti-Semitism.

However, there is still a significant gap in our knowledge of how teachers and educators develop their learning ecologies about the Holocaust and acquire the skills necessary for effective teaching. The aim of this study is to explore the process by which a group of Italian Holocaust educators acquire the knowledge and skills necessary to teach the subject effectively.

10.3 Conceptual framework and related literature

10.3.1 The learning ecology approach

Similar to other areas of professional development, teacher learning has increasingly emphasised multiple learning contexts and self-directed learning, focusing on topics such as expanded learning contexts and personal learning environments (Attwell, 2007; Dabbagh & Kitsantas, 2012; Macià & García, 2016). In recent years, research has examined how individuals select, experience, navigate and participate in learning experiences that span multiple contexts, both physical and digital, by conceptualising learning as a complex phenomenon that includes formal, non-formal and informal learning experiences (Greenhow & Lewin, 2016; Malcolm et al., 2003; Zhou et al., 2022). The ability to identify and create appropriate learning environments is critical to successful lifelong learning, as learning can occur in a variety of formal and informal ways (Dabbagh & Castañeda, 2020; Goodyear, 2021).

The lifelong learning ecology is a complex and multi-layered concept that explores the development of learning resources and the relationship between beliefs and attitudes in different contexts (Sangrà et al., 2019b). The concept applies to all life domains and related beliefs (Jackson, 2013) and has been studied in different educational settings, including primary school teachers (Estévez et al., 2021; Sangrá et al., 2021; Soszyński, 2022), higher education (González-Sanmamed et al., 2020; Peters & Romero, 2019), and learners' use of ICT and social media (Bruguera et al., 2022; Carpenter & Staudt Willet, 2021; van den Beemt & Diepstraaten, 2016).

While different authors have conceptualised the framework in different ways (Sangrà et al., 2019a), two essential dimensions of a learning ecology are intrinsic 'learning dispositions' and 'learning processes' (González-Sanmamed et al., 2019). The former refers to a person's beliefs, motivations and expectations about learning, while the latter includes relationships, resources, activities and context. As Barron (2006) notes, each ecology is a unique combination of activities, materials, relationships and interactions that emerge from them.

The specific focus of learning ecology is on learning that takes place outside the classroom or teacher-led instruction. This is particularly relevant in the context of teacher professional development as it encompasses informal and non-formal learning processes that occur outside of traditional training programmes (Reinders, 2020). According to Hutchins' (1996) book 'Cognition in the Wild', informal learning or 'learning in the wild' occurs when questions are asked, answers are given and knowledge is gained at the discretion of the learner and teacher (Haythornthwaite et al., 2018). This study aims to explore Holocaust educators' learning ecologies and learning dispositions, such as interest and motivation, and learning processes, including activities, resources and relationships, as they unfold in different contexts. Specifically, the study aims to explore how educators use professional development programmes and their preference for informal learning processes in 'learning in the wild' learning ecologies.

10.3.2 Learning interests and motivations of Holocaust educators

Teaching about the Holocaust is increasingly seen as linked to the history and society in which it is taught, with factors such as international politics, power relations, religious and ideological perspectives (Gross & Stevick, 2010). As an important means of shaping and transmitting collective memory, Holocaust education in local classrooms is influenced by both national and personal factors (Plessow, 2017). The national element is seen in the curriculum, teacher training and standardised tests, while the personal aspect is brought in by the beliefs and attitudes of students and teachers (Novis-Deutsch et al., 2023). Teachers' personal connections, such as family history, can help students reflect on the human stories and the relevance of the Holocaust today.

These factors, along with educators' personal experiences, can influence their interest, motivation, and instructional orientation (Deutsch et al., 2018). For example, many Polish teachers who teach about the Holocaust are motivated by personal responsibility and the need to understand their own history (Gross, 2013). Their teaching aims to address a painful past, fill historical gaps and promote empathy, awareness and appreciation of Jewish contributions to national culture (Ambrosewicz-Jacobs & Büttner, 2014).

In Germany, Holocaust education has traditionally been seen as a national obligation, with students required to learn about the Holocaust because of their parents' and grandparents' involvement in the crimes (Gryglewski, 2010). In Israel, teachers are motivated by a variety of factors, including the atrocities of annihilation, the lives of survivors, the power of the Nazi regime, Jewish resistance, the impact of the Holocaust on Jews and Israel, and broader historical and religious knowledge (Cohen, 2013). Arab teachers in Israel who participate in Holocaust courses may be driven by curiosity, a desire for better understanding, improved relations with Jews, and the promotion of good neighbourliness (Shiloah et al., 2003).

Overall, the phenomenon of the globalisation of Holocaust remembrance has also had a significant impact on Holocaust education over the last thirty years, fostering the emergence of a shared European cultural memory centred on teaching values such as empathy, human rights and the rejection of discrimination (Novis-Deutsch et al., 2023). The connection between the Holocaust and human rights, both morally and politically, has extended beyond European states to influence other countries (Harbaugh, 2015; Pellegrino & Parker, 2022).

10.3.3 Resources, activities, and relationships of Holocaust educators

Holocaust education varies considerably from country to country. In England, a national study found that the majority of teachers were self-taught and had no formal training in Holocaust education (Foster, 2013). In Israel, on the other hand, a high percentage of teachers had received formal training, with a significant number having completed university-level courses on the Holocaust (Cohen, 2013). In the United States, teacher training had a limited impact on pedagogy, but teachers expressed a strong motivation to learn about Holocaust content and pedagogy (Harbaugh, 2015). In countries where teaching the Holocaust is more controversial, such as Lithuania and Eastern Europe, teachers need additional administrative support to deal with peer pressure (Beresniova, 2015).

Study trips to Holocaust memorial sites, such as former concentration and extermination camps, have become increasingly important in creating high-impact learning experiences (Flennegård & Mattsson, 2021; Saba, 2012). Holocaust museums and memorials play an important role in providing educational opportunities for teacher training, lifelong learning, and raising awareness about education and remembrance (Oren & Shani, 2012; Oztig, 2023). In addition, popular media, including films, documentaries, and television series, serve as informal platforms for Holocaust education across generations (Ginsberg, 2004; Perra, 2010). Finally, survivors and testimonies are recognised as valuable sources of information for teachers and students. They provide first-hand accounts of historical events, personal experiences and perspectives that can bring history to life in a unique and powerful way (Gross, 2017; Richardson, 2021).

Digital media, including interactive websites, social media, virtual reality applications and computer games, have attracted considerable interest from educators and teachers (Manfra & Stoddard, 2008). Recognising the potential of digital media to engage younger students, they are exploring new forms of digital Holocaust remembrance and education (Walden, 2021). This includes using testimonies (Marcus et al., 2022) and presenting Holocaust survivors in novel ways (Henig & Ebbrecht-Hartmann, 2022; Ebbrecht-Hartmann & Divon, 2022). Projects in the United States and Europe are actively developing various digital Holocaust remembrance initiatives, such as interactive video testimonies, virtual reality films, augmented reality applications, museum installations, and online exhibitions (Boswell & Rowland, 2023; Storeide, 2022). These efforts aim to convey the memory of the Holocaust through innovative and immersive approaches.

Finally, there remains a dearth of research that explores the dynamics of how Holocaust educators cultivate connections with their peers and experts. Furthermore, the study of communities of practice within the field of Holocaust education remains underexplored (Kerr-Lapsley, 2023). Predominant scholarly research focuses primarily on the methods by which teachers enhance their relationships with students (Pistone et al., 2023).

10.3.4 Research objectives and questions

A qualitative research methodology using in-depth interviews was deemed appropriate to explore the learning ecologies of educators in relation to the Holocaust. The aim of this exploratory study is to address the following research questions:

1) What motivates and triggers educators' interest in learning about the Holocaust?

2) How do educators shape their learning processes based on the available resources, activities, and relationships?

3) How do educators perceive digital resources, especially social media, for professional learning and teaching?

10.4 Methods

10.4.1 Procedure and analysis

A semi-structured interview protocol was developed to allow teachers to provide in-depth explanations of their perspectives and learning methods. The interviews were designed to explore the connection between the teachers' personal and professional roles in Holocaust education. The interviews revolved around three main themes:

1) Teachers' approach to learning about the Holocaust, including a preference for self-directed learning and learning activities provided by others.
2) Teachers' preferences in terms of access to resources, primary activities for developing their professional skills and competencies, and how they build relationships with peers and experts.
3) Teachers' use of digital resources and social media for professional learning and teaching, particularly in relation to examples of Holocaust-related content on some selected pages and profiles on Facebook (https://www.facebook.com/FMSonlus),

Instagram (https://www.instagram.com/fondazionefossoli/), and TikTok (https://www.tiktok.com/@lilyebert).

The interviews were conducted via Zoom in Italian and lasted between one and two hours. They were recorded in both video and audio formats and transcribed verbatim. The data were analysed using NVivo software. A member checking system (Denzin & Lincoln, 2017) was used to ensure the triangulation and validity of the data. The narratives were analysed according to the principles of consensual qualitative research, an approach to qualitative data analysis that emphasises collaboration, consensus building and rigorous data interpretation (Hill et al., 2005). In consensual qualitative research, the research team undertakes several key tasks, including collecting qualitative data; coding the data to identify recurring themes, patterns and categories within the text; participating in a consensus-building process; organising the themes and categories into broader domains that encompass different aspects of the phenomenon being studied; and reviewing and validating the researchers' interpretations and findings. To ensure confirmability, credibility and consistency (Leung, 2015; Strauss & Corbin, 1998) in the data analysis, two researchers worked with a smaller sample of data to identify key themes and then coded the educators' responses using pre-existing categories such as motivation and interest in learning dispositions; resources, activities and relationships for the learning process; and attitudes towards digital tools and social media. The coding scheme was developed under three main themes, corresponding to the three research questions presented earlier, using bottom-up observations and theory-based notes (see Table 1 for a list of themes and topics). The two researchers then independently analysed the transcripts according to the above criteria. To ensure inter-rater reliability, Cohen's k was calculated and showed a high level of agreement between the coders with $k=.83$ (95% CI, $p<.0001$). Where there were differences in interpretation, consensus was reached using the consensual qualitative research (CQR) discussion method (Hill et al., 2005). All the names and identifying details of participants have been changed to protect their anonymity.

Themes	**Topics**	**Sub-topics**	**Examples**
Learning dispositions	Interest	Childhood trauma	"I have been studying the Holocaust since the age of twelve, ever since I had a traumatic encounter with the subject. Like many others, I saw a video on Mixer that was a dramatic moment because it was unfiltered. So this adolescent viewing of a video of the [gas] chambers, in an educational but not ideal situation, was a complex moment".
		Direct or indirect family connections	"My interest is linked to my family history, to my father and my uncle. My father told me how they left Florence: they were both wanted men - that's how it happened, he told me, and my uncle confirmed it too - and basically they were victims of denunciation - as you know, there were bounties on their heads".

		Passion for history	“The interest came precisely from the fact that I have always been passionate about history, since high school when I was a student, so I have always had this interest”.
		Connection to local history	“I am in the province of [omitted] and I want to see what happened in the school buildings at the time when the racist laws were promulgated. I want to find out exactly what happened”.
		Interest stemming from academic studies	“I began to study the Holocaust in an interdisciplinary way. I studied languages, but my dissertation was on Anglo-American literature. In my third year I took a course on American Jewish writers. We had American history professors who came to teach us once a week, and we also studied the rules of Jewish life. So, in order to understand better, we delved into many details, always coming back to this theme, including some of the language choices and the setting of the novels and so on. That’s where I started.”
		Visiting memorial sites	“There have been very difficult moments from an emotional point of view, for example a visit to Dachau, which particularly affected me. It had such a significant psychological impact on me that I still feel it today”.
	Motivation	As part of the curriculum	“I approached the Holocaust when I started teaching because I found it in history books. Then, in 2000 - I started teaching in 2001 - there was a day of remembrance, which I really knew nothing about because I had neglected it. So gradually I began to take an interest, also because at some point I asked myself: “What is this story, where six million people died in this way?”
		To create social interest and awareness	“So my perspective is always to approach this tragedy, because as a teacher and educator I cannot guarantee “never again” (because I think the phrase “never again” is highly hypocritical). However, I can certainly help to ensure that in the future there are more righteous individuals who are able to deal with such a situation in a very different way.”

Learning process	Activities	Self-taught learning	“I learned [how to teach the Holocaust] on my own. When I conducted this conference, I did it with my own resources and based on what I had learned”.
		Searching for material on the Internet	“I also work very well on my own, because now you can find everything on Wikipedia. For example, at the moment I am personally researching all the ghettos in Europe”.
		Seeking advice from experts	“So first there was the selection of experts. The choice of experts was crucial for me. As I have a research-oriented approach to my work, I always look for the highest level of expertise on any topic”.
		Learning from peers	“When I started teaching, the experience of colleagues who had taught the subject before me was valuable”.
		Attending institutional training courses	“From there, I approached the one-week summer course at Yad Vashem, and that’s where I got the idea of delving into a more specific study of the subject, to learn about a topic that I could teach and implement in school”.
		Visits to museums and memorials	“When the Milan Memorial was opened, I read about it in La Stampa. I was probably one of the first teachers to take students there, and since then I have followed the activities of the Memorial”.
	Resources	Books and printed materials	“It was a journey with different stages that led me to read, in particular Anne Frank’s diary, as well as other texts in diary form that are suitable for a certain age, although perhaps not for 9 or 10 year olds”.
		Films and documentaries	“I also found the two DVDs from UTET very useful, one on the Nuremberg trials and the other on the Eichmann trial”.
		Websites	“On this subject, the Holocaust, I have used resources such as the website of the Memorial, the website of the Association of Shoah Archives, Yad Vashem, and for the Righteous Among the Nations, Gariwo. I have also consulted the Museum of Italian Judaism and the Shoah (MEIS)”.
		Academic courses	“There is a lot of enthusiasm in new seminars because you can see how historiography has progressed. So you can hear historians discussing the progress of historical research”

		Local network contacts	“The involvement in the local network was also very important in a second phase, because through the local network I established various connections to the teaching of the Holocaust that were more local. This was particularly useful for my teaching in this context”.
	Relationships	Collaboration/tutoring	“I collaborate with other teachers in the school, for example with special needs teachers or colleagues in the history department. But about 95% of the time, the spark for my work comes from my own autonomy, because that is a characteristic of me, I suppose”.
		Professional networking	“I belong to both formal and informal groups. There are two different elements. The formal groups are the ones that are specifically set up by Foundation [omitted], for example. Then there are other groups that have been formed through connections made during webinars and have now become stable, meaning that we meet every week to discuss educational initiatives and exchange ideas”.
Attitudes to digital resources and social media	Professional learning		“During the COVID-19 pandemic, I attended all the conferences with Holocaust survivors organised by the Museum of Tolerance, creating a personal interaction with them. It was incredibly important for my own development to have this online but very personal interaction, something I had never expected before”.
	Teaching use		“I think it is important to address the use of these tools and to work with students on this, whatever the topic. In general, I think it’s something we need to work on because we can’t just criticise social media and then not change our own use of it. I think it is the responsibility of schools to use it responsibly and to teach how to use it responsibly”.

Table 1. The list of themes and topics.

10.4.2 Participants

Participants were selected using snowball sampling based on four criteria: (a) school level - although the focus was on high school teachers, teachers from primary and middle schools were also invited; (b) teaching experience - both new and experienced teachers were recruited; (c) gender - an equal representation of men and women, although the majority of teachers in the profession are women; (d) subject area - although most teachers were from the humanities, participants from a variety of subject areas were invited. Table 2 provides some general information about the ten participants, and all names and identifying details have been changed to ensure anonymity.

The participants in the study were ten teachers who taught about the Holocaust at various grade levels and schools, including five males and five females. On average, they were 51.2 years old (SD=9.6) and had 20.2 years of teaching experience (SD=9.0). Of the participants, 50% taught humanities/literature, 20% taught technical/scientific subjects, 20% taught primary subjects, and 10% taught ESL.

#	Nome	Gender	Age	Educational qualification	Educational experience (years)	Teaching subject	School level
1	Leonardo	M	45	Master's Degree, SPSSE*	20	humanities/literature	high school
2	Francesco	M	46	Master's Degree	17	humanities/literature	middle school
3	Sofia	F	58	Master's Degree	40	ESL	high school
4	Aurora	F	50	Master's Degree	22	humanities/literature	middle school
5	Alice	F	58	Master's Degree	25	primary school subjects	primary school
6	Lorenzo	M	44	Master's Degree	20	primary school subjects	primary school
7	Mattia	M	38	Master's degree	4	technical-scientific subjects	high school
8	Emma	F	43	Master's Degree; SPSSE*; PhD	18	humanities/literature	high school
9	Gabriele	M	65	Master's Degree	15	technical-scientific subjects	high school
10	Giorgia	F	65	Master's Degree	21	humanities/literature	high school

Table 2. Demographic data of participants. *School of Postgraduate Studies in Secondary Education

10.5 Results

10.5.1 Interest and motivations of Holocaust educators

With regard to the first component of the learning ecology, educators' initial interest in the Holocaust was influenced by various factors that shaped their learning dispositions. For Leonardo, a transformative encounter with a Holocaust documentary[56] at the age of twelve sparked a deep engagement with the subject. The raw portrayal of historical events left a lasting impression, fostering empathy, curiosity and a desire for further study. Similarly, Alice's fascination with the Holocaust stemmed from her immersion in the writings of authors such as Primo Levi. These influential works provided an insight into the depths of human experience during this dark period. The desire to understand the unimaginable atrocities committed during the Holocaust served as a compelling motivation for these educators, as in the case of Alice:

> The question, as I saw it, was [...] to what extent man can reach wickedness and rational insanity. I was always preoccupied with this question, so I had an almost bulimic desire to read even the crudest and most violent books.

Gabriele's personal family history played a crucial role in his deep commitment to Holocaust education. His father and uncle were tragically denounced and listed for transport to the Fossoli transit camp, which deeply affected Gabriele. This family connection sparked a strong desire to delve into the historical context, to explore and understand the immense significance of the Holocaust and its lasting consequences.

Francesco and Emma's interest in the Holocaust stemmed from their passion for history in high school, which continues to be an important part of their identity. Their commitment to the subject grew stronger after studying history and philosophy at university, deepening their understanding and enthusiasm for exploring its complexity and significance.

For Mattia, his interest in the Holocaust went back to his childhood. At the age of eight, during a family holiday in Austria, he visited the Mauthausen concentration camp. This experience had a profound impact on him, sparking his curiosity and driving him to seek a deeper understanding of the history of the Holocaust. The visit to the camp stirred his young mind and led him to question and explore the events of that dark period.

---

[56] The Italian television programme "Mixer" was broadcast on Mondays at prime time from 1980 to 1998 and covered news from the fields of politics, culture and entertainment. It is believed that the specific episode referred to by the educator who had a traumatic encounter with the Holocaust was broadcast in June 1989. During that episode, the programme screened Sidney Bernstein and Alfred Hitchcock's 1945 Holocaust documentary 'German Concentration Camps Factual Survey' in its entirety.

Participants' reported experiences revealed a variety of reasons for their interest in Holocaust education, often driven by strong emotional connections or intellectual curiosity. Giorgia, Aurora and Lorenzo shared similar explanations for their choices. Giorgia's interest in the Shoah developed when she began her teaching career and encountered the subject in history books. The establishment of Holocaust Remembrance Day in 2000 further aroused her curiosity, although she initially overlooked its significance. Over time, she actively researched and engaged with the topic, deepening her interest in the Holocaust. For Aurora, Holocaust Remembrance Day played a pivotal role in sparking her interest in the Holocaust. Before the day was established, her knowledge and understanding of the subject was limited. However, as the celebration gained recognition, it caught her attention and motivated her to delve deeper into the history and experience of the Holocaust. For Lorenzo, on the other hand, the challenge was

> …always to look at this tragedy from a different perspective, because I cannot guarantee that 'never again' will never happen (a phrase I find extremely hypocritical). However, I can help to create more just people tomorrow, who might be better equipped to deal with such a situation in the future.

His motivation was to make a positive impact on his students by shaping their minds and characters. He believed that by fostering a sense of righteousness and morality, he could prepare individuals to confront and deal with similar situations in the future.

For other educators, their journey as Holocaust educators began with a teaching project that grew out of a personal connection. Sofia, for example, was fascinated by the persecution of the Carabinieri[57] during the Holocaust, a topic she encountered during her professional learning and which connected her to her husband, who is a marshal in the Carabinieri. This aspect, which she had not considered before, aroused her curiosity and led her to study the subject in depth.

The ten educators demonstrated a wide range of motivations and interests in Holocaust education, reflecting a mixture of emotional and cognitive inclinations. Emotional motivations were fuelled by personal experiences, family histories, encounters with survivors and a desire to honour the victims. On the other hand, cognitive motivations were driven by academic curiosity and a thirst for knowledge. These educators recognised the historical significance of the Holocaust and sought to understand its causes, consequences and ethical implications. It is worth noting that these categories were not mutually exclusive, as many educators displayed a combination of emotional and cognitive motivations. This interplay influenced their teaching methods, curriculum design and efforts to cultivate empathy, critical thinking and moral responsibility in their students.

---

[57] Carabinieri are the national gendarmerie of Italy responsible for domestic and foreign policing. Together with the Polizia di Stato and the Guardia di Finanza, it is one of the principal law enforcement agencies in Italy. In contrast to the Polizia di Stato, the Carabinieri are a military force.

10.5.2 Learning process of Holocaust educators

10.5.2.1 How to become a Holocaust educator

Regarding the second component of the learning ecology, the analysis of the interviews highlighted that the ten teachers took different paths to becoming Holocaust educators. Some chose to attend academic and professional development courses, while others preferred self-directed and informal learning methods. Some teachers used a combination of formal and informal approaches, while others moved between the two over time.

Sofia's interest in the Holocaust grew during her interdisciplinary studies, where she explored the connection between American Jewish writers and history. This led her to take a specialised history course on the Holocaust at university. She also participated in a teachers' meeting at an Italian Jewish centre, where she was involved in Shoah-related projects.

Giorgia took a comprehensive approach to Holocaust education, combining formal, non-formal and informal methods. She started with textbooks, magazines and visits to memorials to gain a basic understanding. Understanding the importance of continuing education, she actively pursued Holocaust-related training courses.

Leonardo and Emma initially focused on formal or non-formal education, but later incorporated informal learning approaches. They engaged with experts, read specialist literature, attended training courses and connected with local and external networks to deepen their understanding of the Holocaust. Leonardo emphasised the importance of relying on experts in this learning process:

> I have been very careful in my choice of experts. Since I tend to approach my work very much like a researcher, I always strive for the highest level of competence in whatever subject I am working on. I looked for foundations that were specifically concerned with the Shoah. I decided to go beyond the local network, which is also in place, in order to gain access to those who, in my opinion, would be able to give a greater scientific dimension to the subject.

Lorenzo and Mattia, on the other hand, took a different approach, starting with self-directed learning and establishing links with local networks to initiate outreach activities. They then enrolled in institutional training courses and continued their education at university. Mattia's interest in the Holocaust began at a young age, sparked by Anne Frank's diary. He gradually immersed himself in the subject, collecting films and documentaries related to the diary and eventually becoming a public speaker.

Four out of ten educators prioritised informal or self-directed learning as their main approach. They engaged in a variety of activities, including self-study, watching films, entering competitions, conducting online research, reading books and connecting with local networks. Some educators expressed the limited pedagogical opportunities they initially encountered when addressing the Holocaust in their schools. They highlighted the lack of comprehensive training and the scarcity of easily accessible and up-to-date materials on the Internet at the time. Aurora, for example, recalled the challenges of finding educational resources before the Internet provided an abundance of materials:

> I don't remember any real training because the Internet didn't offer any of this great up-to-date material. It was your responsibility to attend an event if there was one.

Like other educators, Francesco discovered that taking advantage of educational opportunities not only engaged students, but also enhanced their own knowledge and connects them to a network of experts. For Francesco, the Young People Remember the Shoah competition played a key role in his professional development. Working with experts enriched Francesco's knowledge and provided him with valuable tools and strategies to effectively engage and educate his students. The combination of personal growth and professional guidance played a crucial role in his continued development as an effective Holocaust educator.

10.5.2.2 Continuous learning of Holocaust educators

The study participants demonstrated a more consistent approach to lifelong learning compared to their initial steps as Holocaust educators. They used a combination of formal, non-formal and informal learning settings and a variety of tools and resources. These included reading books, attending institutional training programmes, enrolling in academic courses, taking study trips, visiting museums and memorials, and engaging with both experts and non-experts. Many participants recognised the importance of attending courses offered by organisations, institutions and universities as part of their lifelong learning journey. Some emphasised the importance of incorporating the latest historical research, which was often only accessible through academic institutions, as Mattia explained:

> There is a lot of enthusiasm in new seminars because you can see how historiography has progressed. So you can hear historians discussing the progress of historical research.

Educators like Giorgia and Francesco valued the credibility and prestige of institutions that offer Holocaust education courses. Giorgia preferred proposals from respected organisations such as Yad Vashem because of their expertise and deep understanding of the subject. Francesco was more discerning and tended to favour proposals associated with official institutions or recognised expertise. Both preferred reputable institutions to ensure the accuracy and quality of the knowledge they acquired and passed on to their students. Lorenzo and other educators emphasised the importance of obtaining a certificate or diploma as evidence of their commitment to Holocaust education. This formal recognition not only acknowledged their efforts, but also provided external validation of their expertise and competence in the field. Some educators, like Gabriele, placed great emphasis on personal connections and experiences. He enjoyed a seminar in Paris, organised by the Mémorial de la Shoah, which included not only the study history of the Shoah but also seminars and workshop activities. By prioritising personal connections and practical experiences, educators like Gabriele enriched their own learning and created powerful educational experiences for their students. Similarly, educators like Leonardo saw study trips and visits to museums and memorials as essential to the learning process. These study tours and visits were not just optional additions to their teaching methods, but essential components that fostered creativity, provided unique learning experiences and allowed for deeper engagement with the subject matter.

A minority of educators, such as Sofia and Aurora, used a blended approach, combining formal and informal learning methods. By embracing these blended approaches, they enhanced their professional development and enriched their teaching practices by taking advantage of the flexibility and variety of learning opportunities offered by summer schools, online seminars, conferences and museum visits.

Some educators preferred informal learning, which they called ‘learning in the wild’, where they took it upon themselves to find learning resources, mainly through online platforms. Living in a place with limited access to conferences, Alice turned to alternative methods to improve her knowledge and teaching. While this approach offered flexibility and personalisation, Alice recognised the need for a more systematic and structured approach:

> There is a part of my preparation that is lacking. They are more the result of my reading, of raids on the Internet in search of other teachers’ experiences, and probably need to be structured in a more systematic way. They are not driven by systemic preparation, but by my sensibility.

Some educators, like Emma, broadened their exploration of the Holocaust to include wider angles and issues. When it came to pursuing new learning opportunities, they were chosen with careful consideration:

> There has to be something very specific that can make me look at it from a perspective I haven't considered before.

Among the ten educators, there was an even split between a preference for organised training provided by others and for self-directed learning, with some expressing a preference for a combination of the two approaches. Leonardo preferred others to take control of the learning situation, but found that such opportunities were rare. Sofia, on the other hand, valued both organised training and self-directed learning. She recognised the importance of filling knowledge gaps through museum visits, audio guides and actively seeking out learning opportunities, taking an autonomous and curiosity-driven approach to her learning ecology.

A minority of participants, approximately 20% of educators, reported active involvement in a specific group or network focused on Holocaust education. This suggests that a significant number of educators may be working individually or within their respective schools without the support of a larger network. Some expressed feelings of isolation in their work on Holocaust education. They faced challenges in finding a supportive community or network specifically dedicated to this topic. The complex and sensitive nature of Holocaust education, which requires specialised knowledge and pedagogical approaches, may contribute to this sense of isolation.

10.5.3 Use of digital resources and social media

When it comes to educators' use of digital technologies for Holocaust education, most participants declared to rely on institutional websites, museums and memorials in their own country. Very few used international archives or databases such as Yad Vashem or the USHMM Holocaust Encyclopaedia. Of the ten educators surveyed, only two reported using social media platforms, including one who maintained a TikTok channel sharing different views about the Holocaust.

Overall, educators were positive about digital technologies. They appreciated the vast access to resources and expertise available online. For example, Leonardo valued Yad Vashem's expertise in discussing music related to the Holocaust and the Mémorial de la Shoah's multifaceted approach to studying the Shoah. Social media platforms also enhanced the study of the subject, as Leonardo mentioned, who engaged with lectures by Holocaust survivors during the Covid pandemic.

While the majority of the interviewed educators did not personally use social media for Holocaust education, they recognised the ability of platforms such as Instagram to present images, spark curiosity, encourage discussion and promote deeper exploration of the subject. Sofia suggested using Instagram to share Holocaust-related images and follow profiles that inspire learning and research. Leonardo considered the possibility of using TikTok in the future, based on his recent encounters with the platform:

> I recently discussed this issue with a teacher who is much more knowledgeable than I am. She referred me to one of her TikTok projects in which her pupils had undertaken a very comprehensive study of antisemitism. As a result of the teacher's ability to use a specific skill she had acquired in a training session with a CDEC Foundation expert, the social tool was extremely effective in motivating the students.

While acknowledging the benefits of social media, some educators expressed concern and caution about its use. Francesco stressed the need for caution and awareness of the potential negative effects that social media interactions can have, especially on impressionable individuals in the 13-14 age group:

> I have realised that certain issues on social media can be very dangerous. They scare me a lot and I realise that they do a disservice to society.

As educators continue to explore and navigate the digital landscape, it is clear that additional research, training, and support are needed to fully realize the potential of digital technologies and social media for Holocaust education. The effective use of these technologies requires educators to be skilled in both pedagogy and technology. It is also crucial to understand and address the ethical considerations associated with the use of digital media.

10.6 Discussion

While many studies have focused on examining the pedagogical choices Holocaust educators make in the classroom (Ben-Bassat, 2000; Carrier et al., 2015; Deutsch et al., 2018; Gross & Stevick, 2015; Pettigrew et al., 2009), our article takes a unique approach by highlighting their learning ecology and commitment to lifelong learning in the field. By adopting a learning ecology perspective, we acknowledge that learning extends beyond the classroom or lecture hall to include multiple contexts, resources, and interactions that shape educators' knowledge and practices (Barron, 2006; Jackson, 2013). Through the adopted conceptual framework, we gained valuable insights into educators' learning dispositions and their initial and ongoing learning strategies and practices (González-

Sanmamed et al., 2019). This framework provided us with a rich pool of information that allowed for an in-depth analysis of their teaching experiences and professional development (Sangrà et al., 2019a). By considering the ecology of learning, we can better understand the multiple sources of knowledge and support that educators draw upon to deepen their understanding of the Holocaust and their approaches to teaching. This approach recognises the importance of continuous learning and the dynamic nature of professional development in Holocaust education (Foster et al., 2020).

The findings of this study highlight the diverse learning ecologies of Holocaust educators, particularly in terms of their attitudes and preferences towards learning (Stevick, 2017). The analysis of the first research question sheds light on the motivations that lead individuals to become Holocaust educators. These motivations can be broadly categorised into two directions, illustrating the complex interplay between personal experience and intellectual curiosity within educators' learning ecologies.

On the one hand, personal motivations often stem from significant childhood or adolescent experiences, such as interactions with Holocaust survivors, exposure to narratives of anti-Jewish persecution or deportation, or direct family connections to Holocaust victims (Hepworth, 2019). These experiences have a profound impact, fostering a strong sense of empathy, compassion and commitment to preserving the memory and lessons of the Holocaust for future generations (Bos, 2014). Within the learning ecology of educators, these personal motivations act as influential drivers of their commitment to Holocaust education.

On the other hand, intellectual curiosity and a deep desire to understand the motivations behind the systematic extermination of Jews play a significant role in attracting educators to the field. These educators perceive the Holocaust as an unprecedented and unfathomable event in human history that requires thorough research and analysis (Porat, 2021). Within their learning ecologies, they embark on a quest for knowledge and understanding, seeking answers to profound questions about human behaviour, moral responsibility and the mechanisms of genocide.

In examining personal motivations, the Holocaust has had a profound and lasting impact on teachers in Italy, spanning several generations (Gross & Stevick, 2010). Many educators feel a strong sense of civic and social responsibility towards the victims of the Holocaust and the relatively unknown Jewish heritage in their country (Achilles & Winnick, 2021; Ambrosewicz-Jacobs & Buttner, 2014; Gross, 2013). While the globalisation of Holocaust remembrance and its associated human rights dimensions may be less influential in Italy (Eckmann, 2015), academic and professional development programmes for Italian teachers place great emphasis on the Shoah within the Italian context, highlighting local histories and experiences (Manca, 2022).

Regarding the second research question, which examines how educators develop their learning ecologies in terms of the learning process composed of available resources, activities and relationships, the initial steps taken by the ten educators reveal a diverse range of learning processes. Three different types of initial learning ecologies can be identified. The first group consists of older educators, typically in their 50s and 60s, who had to rely on self-study due to the lack of specific training initiatives when they started their teaching careers. As they entered the profession before 2000, a key period in Italian educational policy on the Holocaust (Santerini, 2003), they had limited opportunities for institutionalised training. Conversely, younger educators have benefited from systematic and organised initial training opportunities, often integrated into their university studies. They have been able to combine formal training with non-formal or informal learning from an early stage, resulting in a more comprehensive learning ecology. Furthermore, individuals in the younger age group, around 40 years old, have experienced a shift from self-directed learning to formal education at an earlier stage. This shift has been influenced by the wide range of educational opportunities and the proliferation of cultural materials provided by the publishing and film industries, which have gained significant popularity since the 1990s (Ginsberg, 2004; Neiger et al., 2011; Perra, 2010; Popescu & Schult, 2015). In addition, although not directly explored in the interviews, it is possible that their initial motivations and interests influenced their learning processes, either in terms of the resources and activities they preferred to engage in, or in terms of a preference for formal or informal learning. However, no conclusive conclusion can be drawn as personal learning preferences may have influenced the choice of available opportunities. While the sample size of teachers surveyed is relatively small, it is worth noting that less than half of them reported being completely self-taught in Holocaust education. Generalisations from this sample should be made with caution, but this finding provides a contrast to larger surveys conducted on a broader scale which highlight that most teachers had not received any formal training or professional development specifically focused on the Holocaust (Foster, 2013; Harbaugh, 2015; Stevick & Gross, 2015). Our findings may indicate a positive shift in recent years, with educators increasingly recognising the importance of acquiring the necessary knowledge and pedagogical skills to teach effectively about the Holocaust, although various factors should be taken into account. These include regional or cultural differences, the specific demographics of the sample, or the availability of training initiatives in different educational contexts.

When it comes to the preferred forms of lifelong learning ecologies, many teachers emphasise the importance of credibility, prestige, and the possibility of gaining a final certification. They also value experiential initiatives, such as summer schools, which offer a combination of theoretical and practical learning experiences and the opportunity to expand their network of contacts among fellow educators and teachers. As a result of their commitment to preserving the integrity of Holocaust education, many teachers are constantly on the lookout for qualified experts who can help prevent the trivialisation and distortion of the Holocaust. This commitment is evident in their active search for experts who possess the knowledge and expertise necessary to ensure accurate and meaningful Holocaust education.

Another consideration is the importance of critical reflection in building on teachers' existing practice to improve Holocaust education. To articulate, share, discuss and apply new knowledge and understanding, both teachers and Holocaust education specialists would benefit greatly from engaging in critical reflection (Adamson, 2023; Foster, 2013).

Engaging in critical reflection and being exposed to different interpretations of the Holocaust through professional development opportunities enables teachers to enhance their pedagogical skills and knowledge.

Informal learning settings such as visits to memorials, museums or events focusing on the Holocaust are generally highly valued by educators (Cohen, 2016; Flennegård & Mattsson, 2021; Oren & Shani, 2012; Oztig, 2023; Saba, 2010). In our study, we found a balance between formal and informal learning preferences. While personal diversity is also evident in educators' preferences for independent study and personal exploration or group learning situations, for those who prefer learning situations organised by others, the need for accurate, up-to-date and certified information from institutions recognised as leaders in the field remains constant. For some of them, access to peer comparison and learning through sharing in groups or networks is equally important. Unfortunately, the educational work of Holocaust teachers is often an isolated endeavour with limited opportunities for collaboration (Brown & Davies, 1998). Many teachers find it difficult to overcome the isolation built into public school structures, which prevents them from learning from their highly qualified colleagues (Schweber, 2004). Therefore, there is a constant need to create the conditions for the development of professional learning networks (Dabbagh & Castañeda, 2020; Macià & García, 2016) that make use of online technologies and not only of face-to-face learning situations.

In summary, in the absence of strong homogenising and centralising forces, the diversity of continuous learning is likely to remain as diverse as the teachers themselves (Eckmann et al., 2017). Although no significant differences were found between teachers in different subject areas, further research is needed to examine how their preferences for such learning ecologies are reflected in their engagement in the classroom (Schweber, 2004).

Regarding the third research question on how educators perceive digital resources, particularly social media, this study highlights that while there is a substantial body of literature on teachers' digital literacy (List, 2019), research specifically focused on this area remains limited. Our findings suggest that educators often rely on specialised websites, which are predominantly available in Italian, and that access to international resources is limited to those who are proficient in English. The use of social media for acquiring historical content or implementing teaching practices remains relatively limited, with only a small number of educators regularly exploring related social media platforms. Italian Holocaust museums and memorials predominantly serve national audiences, intertwining transnational Holocaust commemorative themes with distinctive national narratives (Manca, 2022). Although the COVID-19 pandemic has accelerated the willingness of Holocaust memorials to engage with social media (Ebbrecht-Hartmann, 2021), teachers are still reluctant to incorporate social media technology into their professional development and teaching methods. It would be beneficial to explore ways in which professional development programmes, museums and memorials can promote the wider adoption of these technological platforms among educators in the future.

Expanding research in this area could provide a deeper understanding of the potential benefits and challenges associated with integrating digital resources, particularly social media, into the learning ecologies of Holocaust educators. By exploring the pedagogical strategies that educators employ within their learning ecologies, researchers can identify effective approaches to integrating digital resources and technology into Holocaust education.

In addition, research could explore the role of social media in fostering collaboration and networking opportunities (Trust et al., 2016). This could include exploring how educators use social media platforms to connect with peers, share resources, and engage in professional discourse. Understanding the dynamics of these online communities can inform the development of strategies to foster collaboration and knowledge sharing among educators, ultimately enriching their learning experiences and professional growth (Trust et al., 2017).

10.7 Conclusions and recommendations

The small scale of the study prevents us from drawing general conclusions about broader patterns within teachers' learning ecologies. It also has several methodological limitations, including collecting data at a single point of time and selecting a specific group of participants consisting of experienced and motivated educators, which may lead to biased conclusions. In addition, the lack of other data sources should be taken into account when interpreting the results.

Despite these limitations, the study provided valuable insights into teachers' understanding of their own learning in a way that would not have been possible with a survey study. It contributes to a neglected area of research on teachers' learning ecologies in relation to their role as Holocaust educators, particularly in countries without a Holocaust curriculum. As an exploratory study, it lays the groundwork for future research to build on and expand our understanding of this important area.

There are also important implications for teacher education and professional development. The interviews revealed that most academic teacher education programmes in Italy prioritise an in-depth historical approach over a more pedagogical or didactic one. While this may be specific to the Italian context and not reflective of other countries or regions, it appears that this approach also permeates non-academic training initiatives, such as online or residential seminars. This leaves many teachers with a wealth of valuable information but little operational and practical guidance. In the absence of a nationally defined pedagogical approach, they often must rely on guidance from other cultural contexts, sometimes even from abroad.

To address these issues, it is important that teacher education programmes and professional development initiatives provide a more balanced approach that prioritises both historical knowledge and pedagogical strategies. By providing more practical guidance and support, teachers will be better equipped to integrate the Holocaust into their curriculum and to engage their students in meaningful and effective ways.

The study also has implications for practice, suggesting that teacher education and lifelong learning ecologies need to consider multiple approaches. Teachers should be provided with opportunities to reflect on their teaching practice, philosophical approaches, and personal and professional connections to the Holocaust in both formal and non-formal learning settings. Although this study did not identify clustering intentions, it is clear that different approaches to lifelong learning need to be considered.

Finally, formal and non-formal educational initiatives could benefit from encouraging the establishment of professional learning networks and communities of practice for Holocaust educators. These educators are responsible for a subject area that often falls outside of typical disciplinary curricula and can benefit from sharing values and concerns, as well as interacting regularly to improve their practice. Previous research has highlighted the value of communities of practice in other contexts, and this approach may prove useful for Holocaust educators (Chalmers & Keown, 2006; Patton & Parker, 2017).

10.8 Acknowledgments

This study is part of the first author's research project 'Teaching and learning about the Holocaust on social media: A learning ecology perspective' (Education and ICT (E-Learning) Doctoral Programme, Open University of Catalonia). Our sincere gratitude is extended to the educators who participated in the study and contributed their valuable time and insight. The study would not have been possible without their help.

10.9 Conflict of interest statement

The authors have no competing interests to declare.

10.10 Data availability statement

The authors do not have permission to share data. No funding was received for this study.

10.11 Ethical guidelines

The research for this paper was pursued in accordance with the BERA Ethical Guidelines. This study was approved by the Ethics Committee of the Universitat Oberta de Catalunya, Spain.

10.12 References

Achilles, M., & Winnick, H. (2021). Memory, Responsibility, and Transformation: Antiracist Pedagogy, Holocaust Education, and Community Outreach in Transatlantic Perspective. *The Journal of Holocaust Research*, 35(2), 123-138. https://doi.org/10.1080/25785648.2021.1901403

Adamson, D. (2023). From theory to praxis in genocide education: to what extent are IHRA guidelines reflected in the opinions and classroom experiences of independent-school educators? *Holocaust Studies*, *29*(2), 197-222. https://doi.org/10.1080/17504902.2022.2058726

Ambrosewicz-Jacobs, J., & Büttner, E. (2014). What can we learn from the dark chapters in our history? Education about the Holocaust in Poland in a comparative perspective. *FLEKS—Scandinavian Journal of Intercultural Theory and Practice*, *1*(1), 1-20. https://doi.org/10.7577/fleks.844

Attwell, G. (2007). Personal Learning Environments—The Future of eLearning? *Elearning Papers*, *2*, 1-7.

Baer, A., & Sznaider, N. (2020). From 'No Pasarán' to 'Nunca Más': The Holocaust and the Revisiting of Spain's Legacy of Mass Violence. In S. J. Brenneis and G. Herrmann (Eds.), *Spain, World War II, and the Holocaust: History and Representation* (pp. 603–619). Toronto: University of Toronto Press.

Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development*, *49*, 193-224. https://doi.org/10.1159/000094368

Ben-Bassat, N. (2000). Holocaust awareness and education in the United States. *Religious Education*, *95*(4), 402-423. https://doi.org/10.1080/0034408000950404

Beresniova, C. (2015). "Unless they have to": Power, politics and institutional hierarchy in Lithuanian Holocaust education. In Z. Gross & E. D. Stevick (Eds.), *As the witnesses fall silent: 21st century Holocaust education in curriculum, policy and practice* (pp. 391-406). Cham: Springer.

Bos, P. R. (2014). Empathy, sympathy, simulation? Resisting a Holocaust pedagogy of identification. *Review of Education, Pedagogy, and Cultural Studies*, 36(5), 403–421. https://doi.org/10.1080/10714413.2014.958380

Boswell, M., & Rowland, A. (2023). *Virtual Holocaust Memory*. Oxford, UK: Oxford University Press.

Brown, M., & Davies, I. (1998). The Holocaust and education for citizenship: The teaching of history, religion and human rights in England. *Educational Review*, *50*(1), 75-83. https://doi.org/10.1080/0013191980500108

Bruguera, C., Guitert, M., & Romeu, T. (2022). Social media in the learning ecologies of communications students: Identifying profiles from students' perspective. *Education and Information Technologies*, *27*(9), 13113-13129. https://doi.org/10.1007/s10639-022-11169-3

Carpenter, J. P., & Staudt Willet, K. B. (2021). The teachers' lounge and the debate hall: Anonymous self-directed learning in two teaching-related subreddits. *Teaching and Teacher Education*, 104, 103371. https://doi.org/10.1016/j.tate.2021.103371

Carrier, P., Fuchs, E., & Messinger, T. (2015). *The International Status of Education about the Holocaust. A Global Mapping of Textbooks and Curricula*. Paris: UNESCO.

Chalmers, L., & Keown, P. (2006). Communities of practice and professional development. *International Journal of Lifelong Education*, *25*(2), 139-156. https://doi.org/10.1080/02601370500510793

Cohen, E. (2013). *Identity and pedagogy: Shoah education in Israeli state schools*. Boston, MA: Academic Studies Press.

Cohen, E. H. (2016). Teacher autonomy within a flexible national curriculum: Development of Shoah (Holocaust) education in Israeli state schools. *Journal of Curriculum Studies*, *48*(2), 167-191. https://doi.org/10.1080/00220272.2015.1033464

Dabbagh, N., & Castañeda, L. (2020). The PLE as a framework for developing agency in lifelong learning. *Educational Technology Research and Development*, 68(6), 3041-3055. https://doi.org/10.1007/s11423-020-09831-z

Dabbagh, N., & Kitsantas, A. (2012). Personal learning environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *The Internet and Higher Education*, *15(1),* 3-8. https://doi.org/10.1016/j.iheduc.2011.06.002

Davis, B. L., & Rubinstein-Avila, E. (2013). Holocaust education: global forces shaping curricula integration and implementation. *Intercultural Education*, *24*(1-2), 149-166. https://doi.org/10.1080/14675986.2013.779055

Denzin, N., & Lincoln, Y. (2017). *Handbook of Qualitative Research (5th ed.).* Thousand Oak, CA: SAGE Publications.

Ebbrecht-Hartmann, T. (2021). Commemorating from a Distance: The Digital Transformation of Holocaust Memory in Times of COVID-19. *Media, Culture and Society*, *43*(6), 1095-1112. https://doi.org/10.1177/0163443720983276

Ebbrecht-Hartmann, T., & Divon, T. (2022). Serious TikTok: Can You Learn About the Holocaust in 60 seconds? *MediArXiv*. https://doi.org/10.33767/osf.io/nv6t2

Eckmann, M. (2015). Is Teaching and Learning about the Holocaust Relevant for Human Rights Education? In Z. Gross & E. D. Stevick (Eds.), *As the witnesses fall silent: 21st century Holocaust education in curriculum, policy and practice* (pp. 53-65). Cham: Springer.

Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017). *Research in Teaching and Learning about the Holocaust: A Dialogue Beyond Borders*. Berlin: Metropol Verlag.

Estévez, I., Souto-Seijo, A., & Romero, P. (2021). Learning Ecologies and Teacher Professional Development: Opportunities and Challenges in a Changing Educational Context. *Publicaciones*, *51*(3), 91-107. https://doi.org/10.30827/publicaciones.v51i3.19541

Flennegård, O., & Mattsson, C. (2021). Teaching at Holocaust memorial sites: Swedish teachers' understanding of the educational values of visiting Holocaust memorial sites. *Power and Education*, *13*(1), 43-57. https://doi.org/10.1177/1757743821989380

Foster, S. (2013). Teaching about the Holocaust in English schools: challenges and possibilities. *Intercultural Education*, *24*(1-2), 133-148. https://doi.org/10.1080/14675986.2013.772323

Foster, S., Pearce, A., & Pettigrew, A. (2020). *Holocaust Education: Contemporary challenges and controversies*. London, UK: UCL Press.

Ginsberg, T. (2004). Towards a Critical Pedagogy of Holocaust and Film. *Review of Education, Pedagogy, and Cultural Studies*, *26*(1), 47-59. https://doi.org/10.1080/10714410490423631

Goodyear, P. (2021). Navigating difficult waters in a digital era: Technology, uncertainty and the objects of informal lifelong learning. *British Journal of Educational Technology*, *52*(4), 1594-1611. https://doi.org/10.1111/bjet.13107

González-Sanmamed, M., Muñoz-Carril, P.-C., & Santos-Caamaño, F.-J. (2019). Key components of learning ecologies: A Delphi assessment. *British Journal of Educational Technology*, *50*(4), 1639-1655. https://doi.org/10.1111/bjet.12805

González-Sanmamed, M., Sangrà, A., Souto-Seijo, A., & Estévez Blanco, I. (2020). Learning ecologies in the digital era: challenges for higher education. *Publicaciones*, 50 (1), 83–102. https://doi.org/10.30827/publicaciones.v50i1.15671

Greenhow, C., & Lewin, C. (2016). Social media and education: Reconceptualizing the boundaries of formal and informal learning. *Learning, Media and Technology*, *41*(1), 6-30. https://doi.org/10.1080/17439884.2015.1064954

Gryglewski, E. (2010). Teaching about the Holocaust in Multicultural Societies: Appreciating the Learner. *Intercultural Education*, *21*, sup1, S41-S49. https://doi.org/10.1080/14675981003732233

Gross, M. H. (2013). To teach the Holocaust in Poland: understanding teachers' motivations to engage the painful past. *Intercultural Education*, *24*(1-2), 103-120. https://doi.org/10.1080/14675986.2013.773126

Gross, M. H. (2017). Learning from survivors: mapping the past onto the present. *Intercultural Education*, 28(6), 591–606, https://doi.org/10.1080/14675986.2017.1389043

Gross, Z., & Stevick, E. D. (2010). Holocaust Education - International Perspectives: Challenges, Opportunities and Research. *Prospects*, *40*(1), 17-33.

Gross, Z. E., & Stevick, D. D. (2015). *As the Witnesses Fall Silent: 21st Century Holocaust Education in Curriculum, Policy and Practice*. Cham: Springer.

Harbaugh, C. L. (2015). Informed pedagogy of the Holocaust: A survey of teachers trained by leading Holocaust organizations in the United States. In Z. Gross & E. D. Stevick (Eds.), *As the witnesses fall silent: 21st century Holocaust education in curriculum, policy and practice* (pp. 375-390). Cham: Springer.

Haythornthwaite, C., Kumar, P., Gruzd, A., Gilbert, S., Esteve del Valle, M. & Paulin, D. (2018). Learning in the wild: coding for learning and practice on Reddit. *Learning, Media and Technology*, *43*(3), 219-235. https://doi.org/10.1080/17439884.2018.1498356

Henig, L., & Ebbrecht-Hartmann, T. (2022). Witnessing Eva Stories: Media witnessing and self-inscription in social media memory. *New Media & Society*, *24*(1), 202-226. https://doi.org/10.1177/1461444820963805

Hepworth, A. (2019). From Survivor to Fourth-Generation Memory: Literal and Discursive Sites of Memory in Post-dictatorship Germany and Spain. *Journal of Contemporary History*, 54(1), 139–162. https://doi.org/10.1177/0022009417694429

Hill, C. E., Knox, S., Thompson, B. J., Williams, E. N., Hess, S. A., & Ladany, N. (2005). Consensual qualitative research: An update. *Journal of Counseling Psychology*, *52*(2), 196-205. https://psycnet.apa.org/doi/10.1037/0022-0167.52.2.196

Hutchins, E. (1996). *Cognition in the Wild*. Cambridge, MA: The MIT Press.

International Holocaust Remembrance Alliance (2019). *Recommendations for Teaching and Learning about the Holocaust*. https://holocaustremembrance.com/sites/default/files/inlinefiles/IHRA-Recommendations-Teaching-and-Learning-about-Holocaust.pdf

Jackson, N. J. (2013). The Concept of Learning Ecologies. In N. J. Jackson & G. B. Cooper (Eds.), *Lifewide Learning Education and Personal Development* (n.p.). Lifewide Education.

Kansteiner, W. (2017). Transnational Holocaust memory, digital culture and the end of reception studies. In T. S. Andersen & B. Törnquist-Plewa (Eds.), *The Twentieth Century in European Memory: Transcultural Mediation and Reception* (pp. 305-343). Leiden: Brill.

Kerr-Lapsley, S. J. (2023). *Pedagogical communities of practice in social studies: A case study in Canadian Holocaust education*. Doctoral Thesis, McGill University.

Leung, L. (2015). Validity, reliability, and generalizability in qualitative research. *Journal of Family Medicine and Primary Care*, 4(3), 324–327. https://doi.org/10.4103/2249-4863.161306

List, A. (2019). Defining digital literacy development: An examination of pre-service teachers' beliefs. *Computers & Education*, 138, 146-158. https://doi.org/10.1016/j.compedu.2019.03.009

Macià, M., & García, I. (2016). Informal online communities and networks as a source of teacher professional development: A review. *Teaching and Teacher Education*, *55*, 291-307. https://doi.org/10.1016/j.tate.2016.01.021

Malcolm, J., Hodkinson, P., & Colley, E. (2003). The interrelationships between informal and formal learning. *Journal of Workplace Learning*, *15*(7/8), 313-318. https://doi.org/10.1108/13665620310504783

Manca, S. (2021). Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age. *Review of Education, Pedagogy and Cultural Studies*, 43(3), 226-253. https://doi.org/10.1080/10714413.2020.1862582

Manca, S. (2022). Digital Holocaust Memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and remembrance practice. *International Journal of Heritage Studies*, 28(10), 1152-1179. https://doi.org/10.1080/13527258.2022.2131879

Manfra, M. M., & Stoddard, J. D. (2008). Powerful and Authentic Digital Media and Strategies for Teaching about Genocide and the Holocaust. *The Social Studies*, *99*(6), 260-264. https://doi.org/10.3200/TSSS.99.6.260-264

Marcus, A. S., Maor, R., McGregor, I. M., Mills, G., Schweber, S., Stoddard, J. & Hicks, D. (2022). Holocaust education in transition from live to virtual survivor testimony: pedagogical and ethical dilemmas. *Holocaust Studies*, *28*(3), 279-30. https://doi.org/10.1080/17504902.2021.1979176

Michman, D. (2021). Why Is the Shoah Called 'the Shoah' or 'the Holocaust'? On the History of the Terminology for the Nazi Anti-Jewish Campaign. *The Journal of Holocaust Research*, 35(4), 233-256. https://doi.org/10.1080/25785648.2021.1994764

Neiger, M., Meyers, O., & Zandberg, E. (2011a). *On Media Memory. Collective Memory in a New Media Age*. London, UK: Palgrave MacMillan.

Nesfield, V. L. (2015). Keeping Holocaust Education Relevant in a Changing Landscape: Seventy Years On. *Research in Education*, 94(1), 44–54. https://doi.org/10.7227/RIE.0020

Novis-Deutsch, N. S., Lederman, S., Adams, T. & Kochavi, A. J. (2023). *Sites of Tension: Shifts in Holocaust memory in Relation to Antisemitism and Political Contestation in Europe*. Haifa: The Weiss-Livnat International Center for Holocaust Research and Education.

Novis Deutsch, N., Perkis, E., & Granot-Bein, Y. (2018). Six teaching orientations of Holocaust educators as reflections of teaching perspectives and meaning making processes. *Teaching and Teacher Education*, *71*, 86-97. https://doi.org/10.1016/j.tate.2017.12.004

Oren, G., & Shani, A. (2012). The Yad Vashem Holocaust Museum: educational dark tourism in a futuristic form. *Journal of Heritage Tourism*, *7*(3), 255-270. https://doi.org/10.1080/1743873X.2012.701630

Oztig, L. I. (2023). Holocaust museums, Holocaust memorial culture, and individuals: a Constructivist perspective. *Journal of Modern Jewish Studies*, *22*(1), 62-83. https://doi.org/10.1080/14725886.2021.2011607

Pellegrino, A., & Parker, J. (2022). *Teaching and Learning Through the Holocaust. Thinking About the Unthinkable*. London, UK: Palgrave MacMillan.

Perra, E. (2010). *Conflicts of memory: The reception of Holocaust films and TV programmes in Italy, 1945 to the present*. Bern: Peter Lang.

Patton, K., & Parker, M. (2017). Teacher education communities of practice: More than a culture of collaboration. *Teaching and Teacher Education*, *67*, 351-360. https://doi.org/10.1016/j.tate.2017.06.013

Peters, M., & Romero, M. (2019). Lifelong learning ecologies in online higher education: Students' engagement in the continuum between formal and informal learning. *British Journal of Educational Technology*, *50*(4), 1729-1743. https://doi.org/10.1111/bjet.12803

Pettigrew, A., Foster, S., Howson, J., Salmons, P., Lenga, R- A., & Andrews, K. (2009). *Teaching about the Holocaust in English Secondary Schools: An Empirical Study of National Trends, Perspectives and Practice*. London, UK: Holocaust Education Development Programme, Institute of Education, University of London.

Pistone, I., Andersson, L. M., Lidström, A., Nelhans, G., Pernler, T., Sivenbring, J., Sager, M., & Mattson, C. (2023). Teaching and learning about the Holocaust: a systematic scoping review of existing research. *Holocaust Studies*. https://doi.org/10.1080/17504902.2023.2245282

Plessow, O. (2017). Agents of transnationalization in the field of "Holocaust Education": An introduction. In M. Henderson & J. Lange (Eds.), *Entangled Memories: Remembering the Holocaust in a global age* (pp. 315– 352). Heidelberg: Universitätsverlag Winter.

Popescu, D. I., & Schult, T. (2015). *Revisiting Holocaust representation in the post-witness era*. London, UK: Palgrave Macmillan.

Porat, D. (2021). Is the Holocaust a Unique Historical Event? A Debate between Two Pillars of Holocaust Research and its Impact on the Study of Antisemitism. In A. Lange, K. Mayerhofer, D. Porat & L. H. Schiffman (Eds.), *Comprehending Antisemitism through the Ages: A Historical Perspective* (pp. 275-294) Volume 3. Berlin, Boston: De Gruyter.

Reinders, H. (2020). A framework for learning beyond the classroom. In M. Raya & F. Vieira (Eds.), *Autonomy in Language Education: Theory, Research, and Practice*. London, UK: Routledge.

Richardson, A. (2021). Touching distance: young people's reflections on hearing testimony from Holocaust survivors. *Journal of Modern Jewish Studies*, 20(3), 315-338. https://doi.org/10.1080/14725886.2021.1874692

Saba, A. F. (2012). Auschwitz, i "treni della memoria" e la didattica della storia [Auschwitz, the "train of memory" and didactics of history]. *Italia contemporanea*, 2012/268-269, 596-599. https://doi.org/10.3280/IC2012-268014

Sangrá, A., Raffaghelli, J. E., González-Sanmamed, M., & Muñoz-Carril, P. C. (2021). Primary school teachers' professional development through the learning ecologies lens: new ways for keeping up to date in uncertain times. *Publicaciones*, 51(3), 47–70. https://doi.org/10.30827/publicaciones.v51i3.20790

Sangrà, A., Raffaghelli, J., & Guitert, M. (2019a). Learning ecologies through a lens: Ontological, methodological and applicative issues. A systematic review of the literature. *British Journal of Educational Technology*, 50(4), 1619-1638. https://doi.org/10.1111/bjet.12795

Sangrà, A., Raffaghelli, J.E., & Veletsianos, G. (2019b). Lifelong learning Ecologies: Linking formal and informal contexts of learning in the digital era. *British Journal of Educational Technology*, 50(4), 1615-1618. https://doi.org/10.1111/bjet.12828

Santerini, M. (2003). Holocaust Education in Italy. *Intercultural Education*, *14*(2), 225-232. https://doi.org/10.1080/14675980304574

Schweber, S. (2004). *Making sense of the Holocaust: Lessons from classroom practice*. New York, NY: Teachers College Press.

Shiloah, N., Shoham, E., & Kalisman, R. (2003). Arab teachers and Holocaust education: Arab teachers study Holocaust education in Israel. *Teaching and Teacher Education*, *19*(6), 609-625. https://psycnet.apa.org/doi/10.1016/S0742-051X(03)00057-X

Soszyński, P. (2022). Learning ecology of music teachers' TPACK. *Technology, Pedagogy and Education*, *31*(1), 85-102. https://doi.org/10.1080/1475939X.2021.1968943

Stevick, D. (2017). Teaching about the Holocaust. In M. Eckmann, D. Stevick, & J. Ambrosewicz-Jacobs (Eds.), *Research in Teaching and Learning about the Holocaust: A Dialogue Beyond Borders* (pp. 191-222). Berlin: Metropol Verlag.

Stevick, E. D., & Gross, Z. (2015). Holocaust Education in the 21st Century: Curriculum, Policy and Practice. In Z. Gross & E. D. Stevick (Eds.), *As the witnesses fall silent: 21st century Holocaust education in curriculum, policy and practice* (pp. 3-15). Cham: Springer.

Storeide, A. H. (2022). "…It No Longer Is the Same Place". In D. I. Popescu (Ed.), *Visitor Experience at Holocaust Memorials and Museums*. London, UK: Routledge.

Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research (2nd ed.)*. Thousand Oak, CA: SAGE Publications.

Trust, T., Carpenter, J. P., & Krutka, D. G., (2016). Moving beyond silos: professional learning networks in higher education. *The Internet and Higher Education*, 35, 1-11. https://doi.org/10.1016/j.iheduc.2017.06.001

Trust, T., Krutka, D. G., & Carpenter, J. P. (2016). "Together we are better": Professional learning networks for teachers. *Computers & Education*, 102, 15-34. https://doi.org/10.1016/j.compedu.2016.06.007

UNESCO (2017). *Education about the Holocaust and Preventing Genocide: A policy guide*. Paris: UNESCO.

van den Beemt, A., & Diepstraaten, I. (2016). Teacher perspectives on ICT: A learning ecology approach. *Computers & Education*, *92-93*, 161-170. https://doi.org/10.1016/j.compedu.2015.10.017

Walden, V. G. (2021). *Digital Holocaust Memory, Education and Research*. London, UK: Palgrave Macmillan.

Zhou, N., Tigelaar, D. E. H., & Admiraal, W. (2022). Vocational teachers' professional learning: A systematic literature review of the past decade. *Teaching and Teacher Education*, *119*, 103856. https://doi.org/10.1016/j.tate.2022.103856

11. Integrated discussion of research findings

The purpose of this research endeavour was to delve deeper into the relatively unexplored territory of social media's capabilities for Holocaust education and informal learning. In the age of lifelong learning, where continuing education and self-directed learning are integral to personal and professional development, understanding how individuals use and interact with these platforms is of paramount importance. Social media, given its vast reach and dynamic nature, can potentially offer a treasure trove of learning materials, narratives, testimonies and discussions related to the Holocaust. However, the academic and educational communities have only scratched the surface in terms of understanding the mechanisms, challenges and benefits of such engagement.

Given the exponential growth of digital platforms and their immense influence on the dissemination and consumption of knowledge, it was crucial to understand their impact on topics as significant and sensitive as the Holocaust in order to learn about it ecologically. Despite the proliferation of Holocaust-related content on various social media platforms, there has been a conspicuous lack of comprehensive research into the nature, depth and impact of online users' learning from such content.

This study therefore sought not only to fill the existing knowledge gaps, but also to highlight the intricate tapestry of interactions, reflections, and learning processes that individuals undergo as they navigate Holocaust-related content on social media. In doing so, the research hopes to provide valuable insights that can inform educators, content creators, and policymakers about the potential of these platforms to foster a more informed and empathetic understanding of historical events and their lasting effects.

To achieve these aims, the project comprised two interrelated strands of research: 1) The exploration of the social media ecosystems of Holocaust remembrance, specifically within the platforms used by organisations such as museums and memorials, with the aim of unravelling the strategies these institutions use on platforms such as Facebook, Twitter, Instagram and YouTube to engage with their target audiences. Through this analysis, the project sought to capture communication methods, content dissemination and audience interaction on social media. 2) The analysis of the learning experiences of online users actively seeking meaningful Holocaust education on social media. It examined how individuals engage with Holocaust-related information, resources and activities in the social media landscape. This included their interactions with content shared by Holocaust museums and memorials, which involved using available resources, participating in educational activities, or forming connections within the online Holocaust learning community.

By combining the theoretical and methodological approaches of media and cultural studies with those of education and learning technologies, this research project aimed to uncover the complex relationship between social media, Holocaust remembrance and learning. It helped to shed light on the multifaceted dynamics of the role of social media in Holocaust education and how engaging with Holocaust-related content online can enhance individuals' knowledge, understanding and personal development.

The following sections provide a summary of the results of the empirical studies, an integrated discussion of the main findings and an answer to the research questions. It also provides recommendations for practice and addresses the limitations of the study.

11.1 Summary of the results of the empirical studies

This section summarises the main findings of each publication in order to answer the research questions and meet the objectives of the thesis. For this reason, only the findings of the empirical papers are presented (the theoretical study and the literature review are contained in chapters 6 and 4 respectively). In the following sections, the findings will be synthesised, integrated and discussed globally within the context of the literature.

11.1.1 Contribution 2 (chapter 5): *Digital Memory in the Post-Witness Era: How Holocaust Museums Use Social Media as New Memory Ecologies*

The purpose of this chapter was to answer the first research question (RQ1): "How do Holocaust museums and memorials use different social media platforms such as Facebook, Twitter, Instagram and YouTube, and how does their use vary according to their target audience?". This initial study explores how three leading Holocaust museums are using social media to deepen public awareness and understanding of historical events and commemorative activities.

The findings show that the three major Holocaust organisations studied are actively present on different social media platforms, including Twitter, Facebook, Instagram and YouTube. However, they differ in their ability to attract and engage with followers. Across these platforms, Twitter displays the highest overall activity, regardless of publication dates, which do not significantly affect the number of followers or frequency of content.

In terms of content type, analysis of the data suggests that the three museums tend to share new or original content on their social media profiles, with the exception of the Twitter profile of the Auschwitz-Birkenau Memorial and Museum (AMM), which is dominated by retweeted content produced by third parties. This dynamic positions the Polish museum's Twitter profile as a "bridge" connecting the profiles of different Holocaust organisations active on Twitter.

In terms of content media typology, the AMM and Yad Vashem (YV) exhibit a stronger tendency to post Twitter content with images and/or links to external resources. In contrast, the United States Holocaust Memorial Museum (USHMM) seems to prefer textual information. This trend is partly reflected on Facebook, where USHMM tends to use textual content combined with external links, while YV and AMM rely more on images, with YV also including video content. On Instagram, only USHMM includes video (to a limited extent) alongside the more common image or carousel posts.

In terms of patterns of interactivity, Instagram demonstrates the highest overall interactivity, with no significant differences between the three museums in terms of post interaction and overall engagement. However, USHMM and AMM posts attract a higher number of comments. On the other hand, Twitter presents a different scenario, with AMM having the highest engagement, mainly due to a high number of likes per tweet. However, when looking at the average number of tweet replies per follower (Twitter interaction), there is no significant difference between YV and AMM, suggesting that increased content output does not necessarily lead to more user interaction.

On YouTube, there is a significant level of passive participation, indicated by high numbers of views and likes, but a lack of active responses through comments. Notably, the most compelling findings come from Facebook. The comprehensive metrics available on Facebook activity allow for an in-depth analysis of content co-construction on this platform. While the USHMM's Facebook page allows user-generated content, the other profiles do not. Surprisingly, USHMM has a low response rate to visitor posts, and there is a lack of interaction between page users themselves. Nevertheless, cases such as AMM's engagement with Instagram followers suggest the potential for less control over new channels of communication, allowing Holocaust-focused institutions to play a more visible role in transnational social media discourse on the Holocaust.

Overall, it is important to stress that there is no concrete evidence of an erosion of institutional power over the presentation and curation of the Holocaust, or of the role of social media users in the co-construction of digital memories of the Holocaust. Moreover, the findings seem to confirm a general tendency for these organisations to use social media as a one-way broadcast mode of communication. In terms of thematic content, there is still a centrality of "Auschwitz" as a broad topic of Holocaust discourse, overshadowing other topics, especially those related to recent events.

11.1.2 Contribution 4 (chapter 7): *Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media*

The purpose of this publication was to provide an answer to the first and the second research questions: RQ1: "How do Holocaust museums and memorials use different social media platforms such as Facebook, Twitter, Instagram and YouTube, and how does their use vary according to their target audience?"; RQ2: "What kind of information do these organisations produce and publish on their social media profiles, and how do they present it to effectively engage their audiences?".

The survey of a sample of 69 Holocaust museums and memorials around the world allowed us to explore their attitudes towards using social media to engage their audiences and the extent to which they promote Holocaust remembrance on social media.

In terms of attitudes and communication patterns, it is clear that Holocaust museums have embraced social media as an important tool for public communication. Facebook and Instagram emerge as the primary platforms of choice, with YouTube also proving valuable. While the results show a generally positive attitude towards social media, there are differences between museums. Larger and medium-sized institutions have a more positive view of social media than smaller museums. Concerns expressed by smaller institutions relate to conflicting roles and resource limitations, reflecting limited staff and localised audiences who may lack the digital skills necessary to communicate effectively on social media.

In terms of the types of content posted, respondents indicate that educational content, information about educational events, and details of institutional activities are the most commonly posted forms of content, which is consistent with museums' role in disseminating education and raising awareness about the Holocaust. Material countering Holocaust distortion is rarely shared, despite museums' shared commitment to countering trivialisation and hate speech, possibly reflecting concerns about potential politicisation and backlash.

Looking at activity levels, user interaction and popularity, there are consistent trends in the amount of content published on the most interactive platforms (Facebook, Twitter and Instagram). However, Twitter shows more intense activity for larger institutions. This difference is not only due to the dynamic nature of Twitter as a tool for the rapid dissemination of information, but also to the greater political and civic engagement that is often associated with larger institutions. At the same time, there were no significant differences in language use between museums according to the size of the institution, with English being the primary language of communication. Thus, English remains a dominant language in the context of the social media channels studied, leading to the expectation that museums, particularly those with international audiences, would choose to share at least some of their information in English in order to reach a wider audience.

In terms of interaction metrics, Facebook posts tend to receive more responses than Twitter posts. However, the level of interaction on Instagram was found to be higher than on the other platforms, which is consistent with the fact that engagement metrics are also higher on Instagram. In terms of popularity metrics, larger museums emerge as prominent players that tend to attract the most interest. With the exception of the Auschwitz-Birkenau Museum's Twitter profile, which has over one million followers, the majority of followers are on Facebook. On the other hand, the level of activity is related to the number of fans on Facebook and Twitter. This suggests that active management of institutional pages on these platforms could potentially yield higher rewards. This trend is reinforced by the fact that for Instagram and YouTube, the amount of content is not directly correlated with page popularity, but it does increase interactivity, although interactivity on YouTube is generally quite low.

Overall, despite a significant number of fans and followers, the level of engagement and interaction remains remarkably low on all the platforms analysed. The proportion of comments and reactions on Facebook pages compared to user comments is also limited. YouTube in particular has low levels of commenting and interaction, with comments often disabled and users less inclined to engage. This lack of interaction is consistent with previous studies and is also observed in other areas of the cultural heritage sector.

11.1.3 Contribution 5 (chapter 8): *Digital Holocaust memory on social media: How Italian Holocaust museums and memorials use digital ecosystems for educational and commemorative practice*

This publication responds to the first three research questions: RQ1: "How do Holocaust museums and memorials use different social media platforms such as Facebook, Twitter, Instagram and YouTube, and how does their use vary according to their target audience?"; RQ2: "What kind of information do these organisations produce and publish on their social media profiles, and how do they present it to effectively engage their audiences?"; RQ3: "In terms of learning ecology, how do users interact with the information provided by Holocaust museums and memorials on social media platforms? How do they use available resources, participate in activities or build relationships within the online Holocaust learning community?".

Focusing on the social media profiles of four Italian museums and memorials, the article examines how they use social media as an ecosystem to provide historical content and engage their audiences in digital Holocaust remembrance.

Examining patterns of communication and user engagement through various metrics, the results show that, compared to larger institutions, the four Italian museums are significantly less active on social media platforms, with the most activity on Facebook and the least on Twitter. As seen in the previous studies examined above, larger institutions tend to use Twitter more, particularly for political and civic engagement, with the Auschwitz-Birkenau Museum being unique in its strong social engagement against Holocaust denial and antisemitism on Twitter. The four Italian museums, on the other hand, seem to shy away from this type of activity, preferring the "slower" communication typical of Facebook and Instagram and targeting the two specific audiences, adults and middle-aged people (45-70 years) and younger audiences (25-45 years), respectively.

While Facebook posts get more reactions overall, the level of interaction is higher on YouTube and Instagram. This could be because YouTube and Instagram emphasise visual content such as videos, images and stories, which leads to greater engagement than on Facebook and Twitter. However, overall interactivity with users is low on all platforms, including the number of comments and reactions from Facebook pages. In addition, comments were found to be particularly rare on YouTube, where the comment function is often disabled and where users are generally far less likely to comment on videos. Overall, the four Holocaust museums are cautious about interacting with users on social media, probably because of concerns about trivialisation, distortion and conflicting memories. This leads them to prefer one-way communication, emphasising messages that are carefully crafted and widely acceptable.

In terms of content shared, the four Holocaust museums tend to use Facebook for in-depth "historical storytelling", providing detailed accounts of events and individuals. Instagram, on the other hand, is favoured for broadcasting live events and sharing photos, stories and videos, while Twitter, which is rarely used, is mainly for interacting with other institutions and promoting online materials. Finally, YouTube is chosen for sharing commemorative events and the museums' online discussions and lectures.

The content on the different platforms highlights the importance of geographical location in Holocaust remembrance. In Italy in particular, the narrative interweaves stories of Jewish persecution and deportation with political opposition, Nazi-Fascist resistance and eventual liberation. The Italian resistance movement strongly influences this dual narrative, reflecting Italy's unique collective memory of the Second World War and the Holocaust. In terms of detail, most of the content is based on survivors' testimonies, combining collective history with personal stories. These narratives not only highlight individual experiences, but also convey the authenticity of the testimonies, emphasising the role of history as memory. The four Italian museums underline this global trend of humanising statistics by focusing on well-known and lesser-known national stories of victims and witnesses, thus emphasising a distinctly national narrative perspective.

In short, the four institutions cater to national audiences, mixing transnational Holocaust themes with specific national narratives. While their social media profiles are reliable sources of historical information that shape memory ecologies, they exhibit a conservative approach. They also primarily target audiences over the age of 25, which is reflected in their choice of platforms and the predominant one-way style of communication.

12.1.4 Contribution 6 (chapter 9): *An examination of learning ecologies associated with the Holocaust: The role of social media*

This publication answers the third and fourth research questions, which focus on learners' preferences and the importance of providing reliable educational content on social media: RQ3: "In terms of learning ecology, how do users interact with the information provided by Holocaust museums and memorials on social media platforms? How do they use available resources, participate in activities or build relationships within the online Holocaust learning community?"; RQ4: "What are the potential benefits and outcomes for individuals who engage with Holocaust-related content on social media, and how does this engagement contribute to their understanding, empathy and personal growth in relation to the Holocaust?".

The study sought to explore the patterns and preferences of adults as they navigate social media for informal education about the Holocaust. In particular, Facebook emerged as the most frequently used platform for this purpose. Demographic analysis revealed that participants were predominantly female, with a median age of around 50. In addition, a significant proportion had reached an advanced level of education. Interestingly, a large part of this group came from Northern and Central Italy, regions where the museums and memorials discussed are located. This finding suggests a link between the learners' geographical proximity to the actual sites of remembrance and their online learning behaviour, suggesting that physical proximity may shape or influence digital interactions.

From a professional perspective, several participants were found to have roles such as educators, academics or cultural enthusiasts, which naturally align with Holocaust issues.

However, the study also highlighted a significant group whose engagement is driven by personal intrigue, curiosity or a sense of duty, rather than strictly professional obligations or direct involvement in Holocaust remembrance activities.

In terms of content preferences, participants tend to gravitate towards topics that encompass human rights, intricate historical detail, antisemitism, and the overarching theme of cultural lineage - all fundamental pillars of Holocaust education. An intriguing observation is their preference for personalised accounts and individual narratives over a broader, communal framework of remembrance. This may be due to the human tendency to resonate more with personal stories. Moreover, their active participation in Holocaust-centric platforms seems to stem from a deep-seated civic responsibility to remember and understand the legacy of the Holocaust. Their unwavering trust in the institutions that oversee these platforms underscores the paramount importance of authentic, well-researched content and a solid institutional reputation.

Looking at their online behaviour, the study found that a significant proportion of participants proactively search for these profiles or discover them through related platforms. As further evidence of their proactive attitude, many of them do not only follow the profiles studied, but also diversify their following to include other Italian and even international museum handles. The engagement matrix, however, revealed a dichotomy. While almost half of the participants are reactive, visiting the profiles only when prompted by content updates, the other half maintain a more consistent engagement rhythm, checking in daily or weekly. Common interactions revolve around liking and sharing, with less traction observed for deeper engagements such as commenting, creating content or using hashtags. The safety of the digital environment is paramount for these users, with a zero-tolerance policy for hate speech or misinformation being emphasised. A commendable responsiveness on the part of site administrators is praised, but interestingly, peer-to-peer interactions take a back seat. In essence, the study sheds light on a user base that is proactive, inclined towards solitary digital learning, and comparatively less enthusiastic about community-based online interactions.

11.1.5 Contribution 7 (chapter 10): *Participating in professional development programmes or learning in the wild? Understanding the learning ecologies of Holocaust educators*

This article addresses the third and fourth research questions by delving into the learning ecologies of a group of Italian Holocaust educators. The aim is to shed light on their motivations for both initial and lifelong learning, and to explore their learning practices: RQ3: “In terms of learning ecology, how do users interact with the information provided by Holocaust museums and memorials on social media platforms? How do they use available resources, participate in activities or build relationships within the online Holocaust learning community?”; RQ4: “What are the potential benefits and outcomes for individuals who engage with Holocaust-related content on social media, and how does this engagement contribute to their understanding, empathy and personal growth in relation to the Holocaust?”.

The aim of the study was to understand how Holocaust educators acquire the knowledge and skills necessary to teach the subject effectively by exploring the learning ecologies of a group of Italian Holocaust educators, focusing on their motivations for initial and lifelong learning and their learning practices.

The findings highlight the complex learning ecologies of Holocaust educators and describe their diverse attitudes and inclinations towards learning. It shows that educators are often driven into the field by a mixture of personal experience and intellectual curiosity. Some educators are influenced by powerful childhood or adolescent experiences, such as meeting Holocaust survivors or having family ties to the tragedy. These personal encounters cultivate deep empathy and a commitment to preserving the memory of the Holocaust. Conversely, other educators are drawn to the field by an intellectual urge to understand the reasons for the systematic persecution of the Jews, seeing the Holocaust as a unique, perplexing historical event that demands in-depth study.

When we look at their learning process, especially in terms of resources, activities and interactions, it is clear that the cohort of educators followed different learning trajectories. These can be grouped into three distinct learning patterns. Those in their 50s and 60s, who began their teaching careers before the decisive changes in Italian Holocaust education around 2000, rely largely on self-study due to the limited opportunities for specialised training. The younger cohort, on the other hand, had early access to structured training programmes, often integrated into their university courses, which allow them to combine formal teaching with non-formal or casual learning experiences, thus creating a comprehensive learning environment. Educators in their 40s moved more quickly from independent study to formalised education, influenced by a growing range of educational materials and the increasing presence of Holocaust narratives in print and cinema since the 1990s. This reflects an encouraging trend in recent times, with educators increasingly recognising the importance of having both the knowledge and teaching techniques to deliver Holocaust education effectively.

Educators also prioritise credibility, prestige and the opportunity to gain certification in their continuing education choices. They value practical programmes such as summer schools, which combine theory with practice and enable networking with peers. Their commitment to preserving authentic Holocaust education drives them to seek out knowledgeable experts who can counter trivialisation and distortion.

Globally, participants show a mix of formal and informal learning preferences. There is a clear personal variation in their choice of individual or group learning settings. The constant, however, is the desire for accurate, up-to-date and certified information from reputable institutions. Some value peer interaction and group learning, but many Holocaust educators often work in isolation with few opportunities for collaboration. This isolation is a structural problem in public schools and hinders their ability to learn from qualified colleagues.

Finally, in terms of teachers' views on digital resources, especially social media, teachers mainly use specialised Italian websites, with international resources limited to those who are fluent in English. Although the participants do not predominantly see digital technologies and social media as primary learning tools, they recognise them as useful complementary resources. They see the potential of online platforms to access a wealth of information, to engage with experts and peers, and to integrate multimedia content to enhance their teaching resources. However, very few educators use social media for historical content or teaching. Although the COVID-19 pandemic has spurred Holocaust memorials to embrace social media, and digital technologies are seen as valuable resources by those who have used them, educators remain reluctant to integrate digital technologies and social media into their teaching and professional learning.

11.1.6 Supplementary contribution (Appendix): *A framework for analysing content on social media profiles of Holocaust museums. Results of a Delphi Study*

This supplementary contribution provided a response to the second research question: RQ2: "What kind of information do these organisations produce and publish on their social media profiles, and how do they present it to effectively engage their audiences?". The study concerned the development of a qualitative tool to analyse the type of content published by Holocaust museums and memorials on their social media profiles.

The primary aim of this research was to fill the gap in understanding of the type of content that these institutions disseminate on their social media. To address this knowledge gap, a Delphi study was conducted with 22 global experts to confirm a structure for evaluating Holocaust-related social media posts. Over three rounds, the experts reached consensus on a detailed framework that encompassed three key areas: Holocaust historical context, Holocaust-related contemporary issues, and museum-related communication and activities. This article provides an analytical tool that will be indispensable for discerning the nuances of Holocaust knowledge and remembrance in the context of museum social media channels. It provides researchers and analysts with a mechanism to explore and derive insights from content shared by Holocaust museums and memorials on social media.

11.2 Integrated discussion

This section consolidates and synthesises the key findings discussed earlier, with the aim of providing comprehensive answers to the research questions and juxtaposing them with the existing literature. The section concludes with some recommendations for practice and the limitations of the research project.

In the following sub-headings, the findings of the studies are examined in relation to the areas and the research questions identified in section 3.2.

11.2.1 RQ1 and RQ2: The social media ecosystems of Holocaust museums and memorials

In order to respond to first and second research questions (RQ1: "How do Holocaust museums and memorials use different social media platforms, such as Facebook, Twitter, Instagram and YouTube, and how does their use vary according to their target audience?"; RQ2: "What kind of information do these organisations produce and publish on their social media profiles, and how do they present it to effectively engage their audiences?"), this research project was a pioneer in the systematic exploration of the potential of social media platforms for lifelong learning ecologies. By examining the specific ways in which social media can facilitate learning about the Holocaust, this study filled a crucial gap in the existing literature. Indeed, the literature review (Manca, 2021) showed that the use of social media in teaching and learning about the Holocaust is still at an early stage of research. In fact, the results of the systematic review of the literature aimed at mapping the current state of Holocaust remembrance and Holocaust education on social media revealed that the two subfields are mostly based on separate conceptual backgrounds. While Holocaust remembrance is now a well-established field of research, there are still very few studies and a lack of theoretical elaboration on the use of social media for teaching and learning about the Holocaust. Indeed, despite numerous studies on the relevance of social media as digital spaces for discussing the relevance of the past in the present (Assmann, 2017; Birkner & Donk, 2020; De Cesari & Rigney, 2014) and for negotiating participatory practices about the Holocaust and creating a more nuanced understanding of the Holocaust and its implications for contemporary society (Fagen, 2019; Hoskins, 2014; Neiger et al., 2023; Novis-Deutsch et al., 2023), the use of digital technologies is still not part of Holocaust education (Pistone et al., 2023).

It was therefore imperative to focus on exploring the educational potential of social media by looking closely at what some of the most prominent Holocaust organisations, namely museums and memorials (Oztig, 2023; Walden, 2022a; Winslow, 2023), are doing on social media in terms of the appropriateness of the educational content provided and their ability to engage learners. Social media platforms offer dynamic methods of remembrance, such as posting, linking and sharing content, while the capabilities of each platform shape how the Holocaust is remembered and taught (Hoskins, 2014). In this sense, while recent scholars have viewed Web 2.0 as a space where anyone with Internet access can rapidly disseminate their own perspectives and contribute to collective memory (Friesem, 2018), this study has narrowed its focus to content generated by Holocaust museums and memorials. Rather than examining the shift away from "traditional 'top-down' approaches to information dissemination and collective memory" (Pfanzelter, 2017, p. 142), we have explored how these "gatekeepers" of Holocaust memory are using social media to expand their reach and connect with their audiences.

Our findings show that Holocaust museums and memorials around the world have begun or consolidated the use of social media in their communication activities and that, despite the problems identified by small museums, there is a generally positive attitude towards these platforms. As highlighted in other cultural heritage sectors (Lema & Arnaboldi, 2022; Ruggiero et al., 2022), social media have become an indispensable tool in the museum sphere. This global trend demonstrates a broad and comprehensive range of educational and communication content for different audiences, whether young people (Rodríguez Hernández, 2022) or older adults (Kist, 2021).

Through our research, we were also able to identify important features of social media platforms that facilitate user engagement with Holocaust memory and education. In particular, while platforms such as Facebook and Instagram are both major players in the digital social space, they serve different purposes when it comes to historical narratives, especially in the context of museums and cultural heritage organisations (Cui et al., 2023). In our study, we found that both Holocaust museums and online users tend to privilege platforms such as Facebook and Instagram. Facebook is seen as the best platform for historical digital storytelling, with detailed descriptions of people and events (Hood & Reid, 2018), while Instagram seems to be more attractive for live events and for sharing videos, pictures and stories (Ginzarly & Srour, 2022).

On the other hand, Twitter, which is more suitable for disseminating short pieces of information, is generally preferred by larger organisations for collaboration with other institutions and for reasons of civic engagement (Furini et al., 2022). Finally, YouTube provides a platform for museums to host long-form videos and podcasts and is used to disseminate commemorative events and online lectures and debates (Kim et al., 2022). While each platform has its strengths and limitations, it is the combination of these potentials across platforms that offers the most holistic approach to preserving and presenting Holocaust memory. Leveraging the unique advantages of each platform ensures that memory is not only preserved, but also made accessible and relatable to diverse global audiences.

In general, the social media profiles of Holocaust museums and memorials have the potential to provide a wealth of content material for their audiences, especially since, depending on the location, they tend to focus on the history of a place directly related to the historical events that took place there and on their educational mission (Goldberg, 2012; Lewe & Wszołek, 2023; Oztig, 2023). In particular, with differences between the various Holocaust organisations studied, the provision of narratives constructed around the role of survivors and testimonies, historical content, information on educational events and information on institutional activities emerged. However, especially in the case of the Italian museums studied, much of the shared content revolves around survivors and their testimonies. While the content shared is often related to broader or limited historical events, there is a strong focus on individual narratives. This is largely in line with the general approach of memorial museums, which tend to frame collective memory through the lens of victims' experiences (Oztig, 2023) and the emphasis on personal stories - the fates of individuals - is central to the representation of the Holocaust. By highlighting individual memories and experiences, memorial museums emphasise the authenticity of testimonies and position history as a means of remembrance imbued with ethical significance (Assmann, 2017; Foster et al., 2020; Jaeger, 2020).

While the Holocaust is a complex subject to study, however, true understanding involves more than listening to survivors or hearing testimony. A deep engagement with the Holocaust is achieved when learners delve deeply into its history. This engagement includes examining documents, primary and secondary sources, watching films and visiting significant sites. Equally important are the oral and written testimonies that offer insights into the memories and human experiences of the generations affected. By immersing themselves in these complexities, students can better understand the realities, fears, anxieties, losses, hopes and triumphs of those involved (Guetta & Caviglia, 2022). From this perspective, the educational content shared by Holocaust museums and memorials on social media appears to serve primarily as a supplement to other, more immersive learning opportunities. These immersive experiences are more likely to foster a complex understanding of historical events, as well as their origins and consequences.

The importance of such immersive experiences is further emphasised by the study of the learning ecologies of Holocaust educators. Particularly among the younger generation of educators, there is a productive interweaving of self-directed, informal, and formal learning, with an expressed need for reliable and authoritative sources to inform their teaching. Consistent with this, survey results from online users indicate a high level of trust in Holocaust institutions that maintain a social media presence. Users prioritise the accuracy, relevance and institutional reputation of the information shared. This underscores the recognition of Holocaust museums and memorials as key educational and information pillars. The content they disseminate online is therefore highly valued (Lewe & Wszołek, 2023; Oztig, 2023).

The situation is different when analysing the potential of social media profiles of Holocaust museums and memorials to foster dialogue and open conversation with the public. In general, Holocaust museums and memorials are designed to act as communal hubs where people gather to understand and honour history, thereby profoundly influencing the public's collective memory (Walden, 2022a). These institutions provide a window into a nation's shared memory, underscoring the enduring impact of the Holocaust and the invaluable lessons it provides. As noted, Holocaust museums play a pivotal role in commemorating the victims and educating the public about the atrocities and human rights violations of the era. Beyond mere remembrance, they are intended to foster a culture of empathy and understanding, and to stimulate discussion and interaction between different groups (Oztig, 2023).

However, our findings suggest that while engagement and interaction on social media is generally consistent across platforms, as evidenced by robust user activity in the form of likes, shares and comments, deeper engagement - such as in-depth conversations with other users and page/profile managers - is relatively sparse. At the same time, the proportion of responses and reactions from social media pages in relation to user comments is similarly low. This suggests that, despite the impetus provided by the COVID-19 pandemic (Ebbrecht-Hartmann, 2021; Walden, 2022b), there is still a dominant trend towards passive participation (Manca et al., 2023). This suggests that museums' social media communication is still primarily one-way and promotional in nature (Ruggiero et al., 2022). While these findings are consistent with previous studies (Manca, 2019), our specific case studies do not provide explicit evidence of declining institutional control over how Holocaust organisations and memories are represented and curated. Nor do they suggest that social media users are actively participating in the shaping of digital Holocaust memory. This predominantly one-directional communication, described as a "carefully shaped, widely acceptable message via social media" (Kansteiner, 2017, p. 324), poses significant challenges for those attempting to learn about the Holocaust through these platforms.

While digital platforms, particularly social media, have been credited with democratising access to information and offering the potential for more diverse perspectives and voices (Loader & Mercea, 2011; García-Ceballos et al., 2021), our research highlights a persistent imbalance in narrative structure. The "monologue-like" nature of the content published by the institutions studied can lead to a lack of interactive dialogue, which is essential for deeper understanding and engagement (Carnes et al., 2018). Critical thinking and dialogue are central to Holocaust education. Given the complexity, moral implications and weight of historical significance, teaching and learning about the Holocaust requires a nuanced and thoughtful approach (Guetta & Caviglia, 2022).

Critical thinking in learning and teaching about the Holocaust relies on a number of measures such as historical contextualisation (learners need to be able to evaluate the Holocaust in its wider historical context, taking into account the socio-political and economic factors that enabled the ideological systems that led to it); challenging stereotypes (learners need to question the stereotypes and prejudices that contributed to the environment of hatred during the Holocaust, as well as to recognise and combat them in modern contexts); and reflecting on the moral and ethical implications (learners should be encouraged to engage with these implications examining individual and collective responsibilities in the face of injustice). On the other hand, dialogue is an important component of sharing insights, challenging each other's viewpoints, and building a fuller understanding together, and is essential when dealing with sensitive or controversial topics such as the Holocaust. Incorporating both critical thinking and dialogue ensures that learning and teaching about the Holocaust is not just about remembering facts but is a transformative process. It encourages learners to engage with the world with a deeper sense of awareness, empathy and responsibility, helping to ensure that the mantra "Never Again" remains not just a slogan but a lived commitment (Svoboda, 2006).

Another problem that arises from a lack of participatory dialogue is that the one-way dissemination of content can perpetuate pre-existing narratives without including diverse and potentially conflicting viewpoints (Rothberg, 2009). Given that history, and especially an event as diverse and significant as the Holocaust, is enriched by a multiplicity of voices (Bull & Lauge, 2016; Struve, 2023), there is a missed opportunity to tap into collective wisdom and diverse lived experiences. The benefits of learning from multiple perspectives imply a holistic understanding, which means incorporating a variety of perspectives that allow learners to grasp the complexity of the Holocaust, recognising that it is not a monolithic event but a tapestry of individual experiences and narratives. At the same time, by acknowledging and exploring the complexity of the Holocaust through multiple narratives, learners become resistant to overly simplistic or revisionist interpretations that may downplay or distort the significance of the event. This latter aspect, however, is closely related to one of the possible explanations for the privileging of a broadcast stance by Holocaust museums on social media. Holocaust museums face complex challenges in managing contentious content, particularly in relation to denial, distortion, misuse and superficial representations (Manikowska, 2020; Neiger et al., 2023; Parnell & Stuckey, 2023).

Concerns about trivialisation, distortion and conflicting memories may have led these institutions to take a cautious approach to inviting user interaction (Walden, 2022a). However, it is crucial for Holocaust organisations to rethink their digital strategies. Incorporating more interactive features, encouraging open dialogue, and perhaps even crowdsourcing content or interpretations can help transform the digital space from a one-way lecture to a participatory discussion forum. Moreover, the ethos of digital platforms is inherently collaborative. By not taking advantage of this, institutions risk not only reducing the richness of discourse, but also alienating a generation accustomed to interactive digital engagement. As technology evolves and becomes the primary audience, a shift towards more inclusive and interactive digital strategies is not only beneficial, but essential. As stressed recently by some scholars, it has become a priority "to find constructive ways to negotiate between necessary security measures and still encouraging critical thinking and networking within and beyond these events" (Walden, 2022b, p. 268).

11.2.2 RQ3 and RQ4: The learning ecologies of social media users

In order to respond to third and fourth research questions (RQ3: "In terms of learning ecology, how do users interact with the information provided by Holocaust museums and memorials on social media platforms? How do they use available resources, participate in activities or build relationships within the online Holocaust learning community?"; RQ4: "What are the potential benefits and outcomes for individuals who engage with Holocaust-related content on social media, and how does this engagement contribute to their understanding, empathy and personal growth in relation to the Holocaust?"), this research project aimed to establish a link between the digital representations of Holocaust remembrance on social media and the learning behaviour of online users. To do this, we gained insight into the complex relationship between digital media and user interaction by examining how online users leverage social media platforms to share and communicate Holocaust remembrance. In order to bridge the gap between digital representations of Holocaust remembrance and the tangible learning behaviours of online users, this research initiative went beyond superficial interactions. We sought a holistic view of the complex dynamics at play, focusing in particular on the interplay between digital media and user engagement. This involved a close examination of the strategies online users employ on social media platforms, not just as passive consumers, but as active participants - sharing, discussing and communicating their interpretations and feelings about Holocaust remembrance.

Specifically, we explored the learning dispositions and learning processes (González-Sanmamed et al., 2019; Romeu-Fontanillas et al., 2020) of online users who engage with social media profiles of Holocaust organisations for informal learning or who are professionals in Holocaust education. The concept of learning ecologies refers to the different contexts, experiences and resources that facilitate learning in different settings (Barron, 2006; Jackson, 2013). In the case of online users interacting with the social media pages of Holocaust museums, their learning ecologies are influenced by a variety of factors and characteristics specific to digital spaces, historical content and individual user behaviour. For example, the digital space offers users the opportunity to access historical content, interact with other users, and access different media. In addition, users' individual characteristics, such as age, gender and cultural background, shape how they interact with Holocaust museums and the content they consume.

As social media platforms offer a mix of text, images, video and interactive content, engagement with Holocaust museums' sites means that users can access a variety of content formats to suit different learning preferences. This allows users to access the content in a way that best suits their interests and needs and makes the content more accessible to a wider audience. An important consideration is the distinction between informal learners and professionals in Holocaust education. While both groups engage with the content, their objectives, levels of prior knowledge and expectations of engagement can be very different. For example, informal learners may approach the content with curiosity, seeking a general understanding or a personal connection to the historical events. In contrast, professionals may be looking for specific educational resources, best practices, or ways to connect with peers and experts in the field.

The variety of content also helps create a more immersive experience, allowing learners to become more engaged with the material. For example, many Holocaust museums use narrative-based learning and storytelling techniques in their social media, offering personal narratives, survivor testimonies or chronological accounts of events (Oztig, 2023). This narrative approach can make content more relatable and memorable. Recognising that people remember stories more than facts, these techniques can help visitors to have a more meaningful experience and better understanding of the events of the Holocaust. In addition, through the use of personal accounts, visitors can connect with the people who experienced these events and gain a more intimate understanding of the suffering and loss (Ebbrecht-Hartmnann & Divon, 2022; Walden, 2022a). Because Holocaust content is inherently emotional and powerful, engaging with it on social media, particularly through visual media such as photographs and videos, can lead to a deeper emotional connection and understanding.

In this sense, social media platforms can encourage self-directed learning, giving users the autonomy to explore topics at their own pace and based on their own interests (Carpenter & Staudt Willet, 2021; Pimdee et al., 2023). Learners can delve deeper into specific events, follow related links or explore further profiles and pages. This is beneficial because it allows users to increase their knowledge in a particular area without the need for external guidance. It also encourages them to take control of their own learning process, which can lead to a more fulfilling educational experience.

In addition, the inherent interactive structure of social media can encourage social interaction, with comments, shares and reactions fostering a sense of community. In this sense, people are able to discuss, debate, ask questions and share personal stories, increasing the depth and breadth of their understanding. Users can also ask questions and receive answers either from the museum's administrative team or from other users, helping clarify doubts and deepen understanding through instant feedback. This type of engagement is invaluable as it allows for a more interactive, two-way dialogue between the user and the museum, allowing for a more holistic understanding of the topic at hand (Oztig, 2023). It also helps to create a sense of community among users, allowing them to share experiences and learn from each other. This is particularly enhanced by the potential global reach of social media, which can enable users from different parts of the world to engage with Holocaust museums' profiles and with each other, facilitating the exchange of different perspectives and increasing the richness of discussion and understanding. This cultural exchange, facilitated by the vast reach of social media, allows users to confront and challenge their own biases, prejudices and beliefs. For example, a user from Europe may have a different understanding and perspective of the Holocaust than someone from Asia or South America. When these different narratives converge on a global platform, they cultivate a more nuanced understanding of history.

Essentially, the learning ecologies of online users engaging with Holocaust museums' social media sites are shaped by the interactive, multimodal and dynamic nature of digital platforms. These platforms provide an interplay of self-directed exploration, social interaction, emotional engagement and continuous learning opportunities. These learning ecologies therefore demonstrate the importance of digital platforms in online users' learning, particularly in relation to Holocaust museums (Magano et al., 2022b).

However, our findings only partially support these assumptions. On the one hand, the cohort of adult learners reached by the online survey shows a high level of engagement with Holocaust issues (Magano et al., 2022a). Their positive attitudes and learning preferences focus on a wide range of content and issues, including human rights, complex historical detail, antisemitism and the overarching theme of cultural lineage - all of which are fundamental pillars of Holocaust education (Gray, 2014; Foster et al., 2020). Their preference for personal accounts and individual narratives over a broader, shared framework of remembrance also reflects the human tendency to resonate more with personal stories and stems from a deep-seated civic responsibility to remember and understand the legacy of the Holocaust (Starrat et al., 2017). Their unwavering trust in the Holocaust institutions that operate these social media profiles underscores the critical need for authentic, thoroughly researched content and strong institutional reputations. As such, the findings of this study highlight the importance of providing the public with a broad, diverse and credible educational experience on Holocaust-related topics (Oztig, 2023).

By analysing their online activity, the study found that a significant proportion of participants actively seek out these profiles or stumble upon them through related platforms. To further illustrate their proactive nature, many not only follow the profiles studied, but also extend their reach to the social media profiles of other national and international museums. The fact that users actively seek out these profiles and engage with other accounts that come up in related searches suggests that they are consciously involved with cultural heritage institutions. This suggests that users are genuinely interested in the content provided by these heritage institutions and are actively connecting with them online (Morse et al., 2022).

On the other hand, a deeper dive into the results on online engagement and interaction paints a more nuanced picture. While the primary interactions observed are liking and sharing, deeper involvement such as commenting, creating content or using hashtags is less common. While these findings are consistent with many studies that have examined the phenomenon of lurking (Nguyen, 2021), that is passively consuming content but not actively contributing to the discussion or community, many lurkers may be uncomfortable posting or feel no need to participate, while others may simply prefer to observe and learn without intervening. Despite their lack of active participation, lurkers make up a significant proportion of users in many online communities, providing low-cost personal and professional learning experiences (Woodford et al., 2023). In essence, the study highlights a user base that is engaged, inclined towards solitary digital exploration and less enthusiastic about community-centred online dialogue. In line with previous literature (Meier & Krause, 2023; Verduyn et al., 2020), the study suggests that social media users are more interested in content consumption than content creation. It also suggests that users are more likely to interact with the platform on their own terms rather than engaging with the user community. However, these findings should be read in light of the nature of the platforms studied, which, unlike sites such as TikTok, tend to encourage consumption rather than content creation (Vizcaíno-Verdú et al., 2023). It is therefore important to consider the impact of platform design on user behaviour when interpreting these results. Platforms that prioritise content creation may lead to different patterns of user engagement, highlighting the need for further research to better understand the interaction between user behaviour and platform design.

A complementary picture emerged from the interviews with Holocaust educators. The findings highlighted the complex learning ecologies of Holocaust educators, describing their diverse attitudes and inclinations towards initial and continuous learning about the Holocaust (Plessow, 2017). While their initial motivation for engaging in Holocaust education varies, ranging from early personal experiences to a desire to understand the historical reasons behind the systematic persecution of the Jews, they all cultivate a deep empathy and commitment to preserving the memory of the Holocaust and educating younger generations about the legacy of the Holocaust. This commitment to Holocaust education is driven by a deep sense of responsibility to ensure that the horrific events of the Holocaust are never forgotten and that future generations are equipped with the knowledge and understanding necessary to prevent history from repeating itself (Novis Deutsch et al., 2018).

In terms of learning pathways, there is a diversity based on age and exposure to resources and opportunities. While educators in their 50s and 60s initially relied mainly on self-study due to earlier limitations in local specialised Holocaust development programmes, younger educators are those who have benefited more from structured learning programmes, often embedded in university courses, combining formal teaching with informal learning experiences. There is also an intermediate group of educators in their 40s who have moved rapidly from self-study to formal education, aided by the proliferation of Holocaust-related materials since the 1990s. What emerges as most recurrent is the need for both knowledge and effective teaching techniques, highlighting the current state of gradual expansion, professionalisation and institutionalisation of Holocaust education (Eckmann et al., 2017).

Globally, participants show a mix of structured and informal learning preferences. Their choices vary widely between individual and group learning environments. A consistent feature among them is the pursuit of accurate, up-to-date and certified knowledge from trusted institutions. While some emphasise the importance of peer interaction and group learning, a significant number of Holocaust educators often work in solitude, lacking opportunities for collaboration. This problem of isolation, prevalent in public schools, limits their potential to learn from qualified colleagues.

However, when we look at their propensity to use digital resources and social media, the results show that participants do not predominantly see digital technologies and social media as primary learning tools, although they recognise them as useful complementary resources. They see the potential of online platforms to access a wealth of information, to engage with experts and peers, and to integrate multimedia content to enhance their teaching resources. However, very few educators use social media for historical content or teaching. Although the COVID-19 pandemic has spurred Holocaust memorials to embrace social media, and digital technologies are seen as valuable resources by those who have used them (Ebbrecht-Hartmann, 2021; Walden, 2022b), educators remain reluctant to integrate digital technologies and social media into their teaching and professional learning. These findings are consistent with our literature review (Manca, 2021) and a more recent review (Tirosh & Mikel-Arieli, 2023), both of which highlight that digital Holocaust education remains marginalised (Pistone et al., 2023). Despite the increasing use of digital technologies for learning and teaching, more can be done to improve the quality of Holocaust education through the integration of digital technologies and social media. In the recommendations section, we will focus specifically on some of the actions that could be taken to promote the use of digital technologies by Holocaust educators.

11.2.3 Advancing theoretical knowledge in the field of digital Holocaust education

Another aim of this research project was to contribute to the advancement of theoretical knowledge in the fields of Holocaust education and Digital Holocaust Memory. By analysing the complex interplay between social media, Holocaust remembrance and learning, the research sought to advance theoretical frameworks that improve our understanding of the intricate dynamics at play. In order to advocate for cultural heritage education, this study adopts a conceptual approach that integrates the field of Digital Holocaust Memory (Walden, 2021) with the methodology of learning ecologies (Barron, 2006; Jackson, 2013). Central to this structure is the belief that technological advances can enhance learning by cultivating participatory cultures and empowering users.

Throughout this dissertation we have seen how the memory of the Holocaust is continually shaped by the ways in which memories, narratives and representations are preserved, disseminated and engaged with in digital spaces (Garde-Hansen et al., 2009; Kligler-Vilenchik et al., 2014; Steinhauer, 2022). As digital technologies and platforms have become more pervasive in contemporary society, they have had a significant impact on how historical events such as the Holocaust are remembered, taught and discussed. In this sense, Digital Holocaust Memory is the result of an increasingly complex mix of different actors and digital phenomena in Holocaust remembrance. As various technological and cultural factors converge, they are creating new memory ecosystems (Hoskins, 2016) and fostering new avenues for Holocaust remembrance and education (Walden, 2021).

For the purposes of this study, it is important to stress that it is the socio-cultural context that shapes the collective historical memory (Assmann, 2017; Erll & Nünning, 2010; Niven & Williams, 2020) and the pedagogical tools developed to transmit it. While the media system provides digital and non-digital tools to facilitate the transmission of memory (Walden, 2021) as well as the implementation of formal and informal learning situations, there are the ways in which people develop their learning ecologies according to their learning dispositions and learning processes (González-Sanmamed et al., 2019; Romeu-Fontanillas et al., 2020). Each of these components works together to create an environment in which memory and learning can be shared, stored and accessed. Thus, the social context provides a common language for understanding and interpreting the past, while educational devices and media systems provide the tools for transmitting collective memory. In this perspective, learning ecologies offer directions for the appropriation and transmission of collective memory today.

Adopting a learning ecology perspective in Holocaust teaching and learning allowed us to see the learning journey as a network of fluid relationships between physical, social and cultural domains, including digital technologies and diverse learning contexts (Barron, 2006). The learning ecology framework provided a comprehensive perspective on learning, encompassing the social, cultural, technological and environmental facets that together create a unified learning environment. Essentially, this approach assesses both the tangible and digital aspects of the learning paths and how they interact. Therefore, by emphasising an understanding of learners' engagement with digital Holocaust commemorative and educational resources, this research provided a structure for exploring learning encounters, both individual and collective, and their consequent impact on learners (Gioia & Pitre, 1990). It also provided a framework for investigating how learners engage in collective learning experiences and how these experiences influence their understanding of the Holocaust.

What emerged as particularly relevant in this bridging of instances of Digital Holocaust Memory and the perspective of learning ecologies is that these ecologies are adaptable, ranging from the confines of traditional educational settings driven by institutional mandates to the freedom of informal settings driven by individual and group agency. Key to this is the interconnectedness of different learning elements and the empowerment of learners to actively shape their learning trajectories, which is particularly relevant when dealing with the complexities of teaching and learning about the Holocaust. By emphasising the interconnectedness of different learning elements, such as history, literature, the arts, and technology, learners are able to develop a holistic understanding of the Holocaust and its many implications. Furthermore, by giving learners the power to shape their own learning path, they are able to focus on the aspects of the Holocaust that are most relevant to them.

Indeed, the learning ecology perspective emphasises the synergy between the learner, their immediate environment and wider social constructs. Within this ecology, learners carve out unique ways of engaging with and understanding collective memory, heavily influenced by discussions with peers and family who offer a wealth of different perspectives. For example, a learner may encounter certain facts at school, but on returning home may hear a different interpretation of these facts from a parent or sibling. Such interactions can change their perception and understanding of the material, especially if reinforced by conversations with grandparents who share personal experiences of these events. If the meaning a learner attaches to a particular historical event is influenced by the collective memory of their family and friends, which may differ from the narrative presented in textbooks, in some cases learners from oppressed ethnic minority groups may find comfort in the shared memories of their families and peers, providing a safe space to navigate identity and foster resilience (Özyürek, 2022).

When encountering the digital ecosystems of Holocaust-focused cultural institutions or other content creators, the theoretical underpinnings are further complicated by the socio-technical instances of digital platforms (Hettinger et al., 2015). This is because technical elements such as algorithms, interface design and data management are intertwined with social elements such as audience engagement, cultural understanding and ethical considerations (Walden, 2021). More broadly, the use of digital platforms affects how historical information is disseminated, how it is interpreted and how it is used to make meaning. As a result, the complexity of a platform's digital infrastructure can have a significant impact on how Holocaust-related content is consumed and understood. In the case of our research focus, social media for Holocaust memory can be seen as socio-technical-ecological systems in which digital memory practices are intertwined with memory practices in the living world. For example, by adopting a networked socio-ecological approach, we have been able to delve into the micro-level dynamics of both museum and user engagement in co-constructing the intra-actions involved in the development of digital Holocaust memory (Manca et al., 2022).

However, as recently highlighted, technological affordances are not necessarily the result of a platform's architecture or social media logic, but rather affordances-in-practice

(Costa, 2018). While traditional approaches to the concept of affordance have emphasised the power of architecture and minimised user agency (boyd, 2010; van Dijck & Poell, 2013), the concept of affordances-in-practice addresses the multiple ways in which the socio-technical potentialities of social media manifest themselves in different places and social groups around the world. This concept emphasises that affordances are not inherent properties defined outside their immediate context. Rather, they are continually enacted by specific users, with interpretations that may differ according to place and time (Costa, 2018). In this light, the characteristics of social media such as visibility, persistence and searchability are linked to particular social and cultural contexts. While social media technologies influence social interactions and communication, they are not neutral. Users proactively shape and adapt these digital technologies to suit their goals and lifestyles. As a result, affordances are shaped by different material, social and cultural scenarios.

This is closely related not only to the fact that different nations have different interpretations of the Holocaust and therefore different ways of commemorating it (Assmann, 2010; Levy & Sznaider, 2006), but also to the importance of understanding local contexts in order to understand how different nations conceptualise the Holocaust and how the way a particular memory is interpreted can vary from person to person, depending on their cultural and social context (Niven & Williams, 2020). It is therefore necessary to be aware of the diversity of interpretations of collective memory in order to understand it better and to provide learning resources that best match learning dispositions and needs. In the "Recommendations for practice" we will provide guidance for pedagogical practice and professional learning based on these theoretical insights.

11.2.4 Expanding social media research methodologies

Ultimately, this study also played a role in advancing integrated methodologies for social media research (Snelson, 2016) applied to cultural heritage. By fusing social media analytics, topic modelling and qualitative content analysis, and incorporating different data sources and academic perspectives through interviews and surveys, the research provided a rich and multifaceted insight into the formation, manifestation and negotiation of Holocaust remembrance on social media. This interdisciplinary approach allowed for a broader examination of the various dimensions of Holocaust remembrance and education in the digital sphere. This research study highlights the importance of understanding the digital sphere as a platform for memory formation and negotiation, and its potential to shape the future of Holocaust remembrance and education, by proposing mixed methods approaches capable of capturing the complexity of interaction with and within social media.

Indeed, social media platforms generate an enormous amount of data that is multi-faceted. It includes quantitative data, such as the number of likes, shares and followers, and qualitative data, such as user comments, stories and images. This complexity of data requires a holistic understanding and a comprehensive view of a phenomenon, which can be achieved by combining and integrating both quantitative and qualitative methods (Bryman, 2006; Moran-Ellis et al., 2006): quantitative methods can reveal patterns and trends, while qualitative methods delve into the nuances, providing context and depth to these patterns. In addition, the use of multiple methods can validate and cross-check findings. When both quantitative and qualitative data point to a similar conclusion, the validity of the findings is strengthened and can answer different research questions and provide in-depth profiles of users, their demographics, behaviours and motivations (Schindler & Domahidi, 2021). For example, while analytics can provide data on who interacts with content (age, location, etc.), qualitative analysis can provide insights into why certain content resonates with certain demographics. Finally, a mixed methods approach can address platform limitations, as different social media platforms offer different levels of access to data, and some may provide more qualitative than quantitative data, or vice versa.

Our research project draws on a variety of methods from social media research (Quan-Haase & Sloan, 2022) and education (Cohen et al., 2018). Specifically, we used a combination of social media analytics and qualitative content analysis to explore the pedagogical potential of social media for Holocaust education. In particular, this study contributed to the creation of a content framework for analysing Holocaust-related material on the social media profiles of Holocaust organisations. A Delphi study (Taghipoorreyneh, 2023) involving a group of Holocaust studies experts was instrumental in the development and validation of this framework. The framework provides insights into the type of content that Holocaust museums and memorials share on social media platforms, and can also guide educators in determining the most effective strategies for using the wealth of material available on social media to teach about the Holocaust. It is also a valuable tool for analysis and research, and can be a key asset in evaluating and improving Holocaust education initiatives. In addition, it establishes a methodology that paves the way for further comparative research on Holocaust education in different countries, cultural settings and languages. Its flexibility makes it possible to create similar frameworks tailored to other historical narratives, and it is also versatile enough to assess different types of social media content related to other complex histories. By using this framework, museums, memorials and educators can make informed decisions about the content they curate and share. For example, the framework highlights the importance of integrating different types of content, such as survivor testimonies, historical records, multimedia components and interactive modules, especially when dealing with sensitive topics such as the Holocaust.

In terms of studying learners' learning ecologies, this study combines methods from user behaviour research (Sundararaj & Rejeesh, 2021) with tools commonly used in educational research, such as in-depth interviews and surveys. This approach provides a comprehensive view of how learners interact with learning resources, how they manage their time and focus, and how they self-regulate their learning. It can also help uncover learners' motivations, needs and aspirations in learning contexts. It also allows us to understand how learners interact with their environment, how they engage with each other, and how the ecosystem influences their learning outcomes. In addition, this approach helps to identify potential areas for improvement in the learning environment. As the aim of this study was to gain a better understanding of learners' motivations, experiences and strategies, and to identify patterns of use, this methodological approach may enable us to better design and implement learning technologies that are tailored to learners' needs. For example, by studying learners' strategies, we can propose personalised learning pathways and support mechanisms that meet their individual needs. And by embedding relevant and up-to-date content into learning technologies, we can guide the development of advanced educational tools in the future.

Finally, this study has attempted a theoretical convergence to bridge the knowledge gap between the fields of media and cultural studies, particularly in relation to Holocaust memory, and education (Manca, 2021). While these subfields use different conceptual frameworks, and while Holocaust memory is a well-researched area (Boswell & Rowland, 2023; Walden, 2021), limited studies have focused on the use of digital technologies for Holocaust education. Our aim was to explore how digital technologies play a role in Holocaust education, combining insights from media and cultural studies with educational perspectives. Methodologically, this study was based on conceptual research (Eisenhardt, 1989), which allows for a comprehensive examination of the topic from different research angles and factors. In order to innovate and provide new perspectives on established knowledge, we used the theory adaptation model (Jaakkola, 2020), which facilitates the integration of different frames of reference and offers a richer, more holistic view of established concepts. Such an approach not only informs empirical research and fieldwork, but also promotes novel pedagogical methods. Through these different perspectives, we are able to develop an innovative and holistic view of the role of digital technologies in Holocaust education, with practical implications for educators and students around the world.

11.3 Recommendations for practice

In this section we look at specific actions to improve the use of social media by informal learners and Holocaust educators. Our recommendations are aimed at Holocaust museums and memorials and, more generally, organisations involved in Holocaust education through social media; informal learners interested in the Holocaust; Holocaust educators; and policy makers.

11.3.1 Recommendations for Holocaust museums and memorials

While our findings indicate that the social media pages of museums and memorials are seen as important and trustworthy sources of information about the Holocaust, the limitations identified in our study highlight areas for improvement. A comprehensive approach is needed to encourage Holocaust organisations to invest more in educational content on social media and to foster two-way communication with their online audiences.

Beyond the digital storytelling methods we have explored, understanding of the Holocaust can be enhanced by offering a variety of educational resources, including videos, articles and infographics. In this way, institutions can complement their emphasis on survivors and testimonies to provide learners with a more holistic understanding of the subject.

Such a multifaceted approach not only caters for different learning dispositions, but also helps to reach a wider audience and support their learning process. The integration of different types of media ensures that learners can delve deeper into topics that are of particular interest to them or best suited to their learning needs. For example, while a testimony can evoke emotional understanding, an infographic can visually break down complex events or statistics, making them easier to understand. Videos, on the other hand, can combine visuals, narrative and expert insight to create an immersive learning experience. In addition, by including different perspectives, such as those of resistance fighters, bystanders and even the lesser-known stories of minority groups affected by the Holocaust, museums can offer a richer and more holistic view of history.

The inclusion of interactive features (e.g. ad hoc questions or discussion prompts) can further enhance engagement by allowing learners to test their knowledge, reflect on their understanding and participate in dialogue with others. Such interactive elements can not only promote deeper comprehension, but also encourage critical thinking and community building among learners. To ensure the effectiveness of these resources, feedback mechanisms should be put in place. User comments, surveys and analysis can provide invaluable insights into what is resonating with learners and what areas may need refinement. By continually adapting to the needs and preferences of their audiences, Holocaust museums and memorials can ensure that their educational content remains relevant, impactful and engaging for generations to come.

These suggestions, which highlight the importance of creating compelling content, providing resources to support learners, fostering open dialogue and connecting learners with experts, can be implemented, for example, through regular live sessions with historians, survivors or educators who can help answer questions, dispel myths and promote a deeper understanding of the Holocaust, or by launching campaigns where followers can share their own stories, reflections or artwork related to the Holocaust. This not only increases engagement, but also brings in different perspectives and personal connections to the events. Another option is to partner with social media influencers, especially those with a strong interest in history or education, which can help reach a broader and often younger demographic. However, in order to provide holistic, engaging and respectful educational experiences for their diverse audiences, it is also important to monitor and moderate discussions to ensure they remain respectful and factual. This promotes a safe environment for learners to ask questions and engage in participatory historical storytelling.

11.3.2 Recommendations for informal learners

To foster robust learning ecologies that use the social media platforms of Holocaust museums and memorials for informal learning, a multifaceted approach is recommended. Engaging with social media is not just about passive consumption; it is about actively interacting with content, asking questions, engaging in dialogue, and reflecting deeply on what is learned. While museums and memorials serve as primary sources of credible information, it is imperative to supplement this knowledge with diverse resources. Reading books, watching documentaries and attending lectures can provide a comprehensive insight into the Holocaust and enrich the information absorbed from social media.

In addition, building connections with other users who are passionate about Holocaust history enhances the learning experience. Group discussions are more than just forums; they are platforms for gaining new insights, debunking myths, clarifying doubts and sharing personal perspectives. These collaborative interactions not only deepen knowledge, but also sharpen skills such as communication and critical thinking. The shared experience of collective learning also bridges gaps between people, fostering empathy and understanding between people from different backgrounds.

Providing feedback when there is a perceived gap in the content provided by museums is a form of constructive criticism that helps institutions to improve their services. Such feedback may be collected through surveys, interviews and other evaluation techniques, or may be provided directly by museum staff or members of the public. Participation in these evaluation tools provides external support for refining the learning process.

11.3.3 Recommendations for Holocaust educators

Recognising the transformative potential of digital platforms as educational tools, it is important for teachers and educators to explore innovative ways of integrating museums' social media sites and other digital resources into their teaching strategies. For school curricula, this could include encouraging students to explore particular themes or topics through the use of museums' social media posts, videos or digital archives. As many museums offer virtual tours or online exhibitions, teachers can integrate these into their lessons, giving students a rich, immersive experience without leaving the classroom. Teachers could also assign tasks that require students to interact with museums' social media, such as posting questions, participating in live webinars, or taking part in online polls or quizzes that museums may host. Finally, creating classroom discussion boards where students can share interesting posts, articles or videos they have found on social media could be another teaching strategy to foster a culture of digital Holocaust remembrance.

In non-formal learning programmes, the integration of social media sites can offer greater flexibility. For example, sessions could be organised to teach participants how to effectively navigate a museum's digital resources and social media sites. Such sessions can empower learners to find and interpret information independently. In addition, learners can be encouraged to collaborate on projects using the museum's digital content, which could be particularly effective in community centres or clubs where group learning is prevalent. Another suggestion is to create a digital hub where learners can access curated museum social media content, online exhibits and other digital resources to ensure both quality and relevance.

By weaving these digital resources into both formal and non-formal learning frameworks, educators can not only enrich their teaching methods, but also respond to the evolving learning preferences of their audiences.

11.3.4 Recommendations for policy makers

Policymakers can address the limitations identified in this study. By taking proactive measures, they can help to reduce the barriers we have highlighted.

Museum staff often lack the training and expertise to communicate effectively on social media. This challenge is exacerbated by typically understaffed communications departments, which require careful responses to online provocations by individuals or groups. Policymakers should recognise these challenges and prioritise the professional development of museums and memorials. In doing so, they can initiate projects that focus on the transformative power of training and aim for broad institutional change, regardless of size. Programmes should be designed to equip staff with the skills to integrate digital technology and social media into their daily work. This will ensure an inclusive approach that resonates with different geographical, cultural and socio-economic backgrounds. Given the global interest in transnational and national memory, there is an opportunity for policy makers to encourage international collaboration between museums. This can take the form of joint social media campaigns or joint digital events to provide a broader lens of understanding. Furthermore, to engage younger audiences, museums could be encouraged to expand their repertoire of social media platforms. Workshops or seminars discussing the benefits and tactics of using platforms popular with younger audiences, such as TikTok, can be helpful.

Given the current limited use of digital technologies and social media in Holocaust education, it is crucial for policymakers to invest in professional development programmes tailored to Holocaust educators. Such programmes should provide educators with digital literacy skills, acquaint them with best practices in social media, and introduce modern teaching methods that seamlessly integrate these platforms. To further support this initiative, teachers should be provided with resources that guide them in the effective use of social media in the classroom, in content creation, in meaningful engagement with learners, and in encouraging students to share content. It will also be essential to foster environments where educators can collaborate and share experiences. These efforts can be enriched by developing strategies to inspire educators to use digital technologies more effectively.

11.4 Limitations

This study has several strengths, in particular its exploration of the educational potential of social media sites associated with Holocaust museums and memorials worldwide. Although it has a pronounced focus on the Italian context, with a dedicated effort to analyse the learning ecologies of the general public and Holocaust educators in Italy, the study has endeavoured to provide a comprehensive snapshot of the role of social media in Holocaust remembrance on a global scale. However, there are also a number of important limitations that need to be addressed in future studies.

In exploring the learning ecologies of online users, the results of the study have focused predominantly on a self-selected population aged 50, mainly from one country. This focus neglects younger individuals and may limit the generalisability of the findings to different demographics and regions. Although the questionnaire potentially reached all fans/followers of the selected profiles, the low response rate means that it was not fully representative of the wider user community. This can be attributed to several factors: the ephemeral nature of the social media posts promoting the survey, lack of subscription to the associated mailing list that advertised the study, and a surge in online surveys during the COVID-19 pandemic (De Man et al., 2021), which may have influenced participants' responses due to the prevailing societal stress. This surge resulted in skewed samples due to varying interest in the topic (Kennedy et al., 2022), which may have affected willingness to participate. In particular, as the data were self-reported, the sample showed a positive bias towards the topic, raising concerns about social desirability bias affecting self-reported motivation (Krumpal, 2013).

As for the study based on interviews with Holocaust educators, they reflect the small scale of the study, which prevents us from drawing general conclusions about broader patterns within teachers' learning ecologies related to Holocaust education. The study also has several methodological limitations, including the collection of data at a single point in time, which does not take into consideration changes in the phenomenon over time, and the selection of a specific group of participants consisting of experienced and motivated educators, which may lead to biased conclusions (Flyvbjerg, 2006). In addition, the lack of other sources of data should be taken into account when interpreting the results of this particular study. Furthermore, the interpretation of qualitative data is inherently subjective and although efforts were made to remain neutral, personal biases may have influenced the findings.

Overall, despite a considerable amount of academic literature on the study of learning ecologies, the tools and instruments used for data collection (questionnaires and interviews) may not capture the full complexity of the phenomenon under study or may be subject to interpretation. Therefore, other data collection techniques should be developed that can provide a more holistic view of learning ecologies. These techniques could include observational and archival data to provide a more complete picture of the phenomenon. Researchers should consider using qualitative methods such as field notes or focus groups to gain a more comprehensive understanding of learning ecologies. In addition, a combination of quantitative and qualitative approaches should be explored to take into account the different facets of the phenomenon.

Looking at the research activity focused on investigating the educational potential of social media use by Holocaust organisations, one of the main limitations is the decision to focus only on Facebook, Twitter, Instagram and YouTube, ignoring other social media platforms that have gained ground among younger people, such as TikTok. As highlighted in some areas of this thesis, TikTok was at an early stage when this research project began and it would not have been possible to study its use with a significant amount of data available. However, with the rapid growth of users and content over the past two years, it is now possible to analyse this platform in much greater detail. This will allow researchers to identify trends and understand how users engage with the platform for Holocaust-related purposes (Ebbrecht-Hartmann & Divon, 2022).

A second limitation in this respect concerns the use of a proprietary platform, Fanpage Karma, to derive metrics related to the content, interactivity and popularity of social media profiles. This platform provides metrics and analysis tools that are largely based on a marketing approach, which means that the metrics it provides may change over time according to market demands and prevent the studies from being replicated in the future. As a result, researchers may not be able to use the same metrics to compare the results of different studies, or even studies conducted over the same time period, because the metrics used may have changed between studies. This makes it difficult to draw meaningful conclusions from such studies and makes replication impossible (Quan-Haase & Sloan, 2022).

In conclusion, this research provides valuable insights into the role of social media in Holocaust remembrance and the learning ecologies of users who engage with these platforms. While the examination of Holocaust museums and memorials worldwide provides a broad perspective, the study's focus on older demographics and the Italian context raises questions about its generalisability. The challenges of data collection - whether due to low response rates, potential biases or the tools used - underline the complexity of conducting digital social research. Despite these challenges, the study opens up avenues for future research. Incorporating different data collection methods and expanding to newer platforms, such as TikTok, can provide a more holistic view of online Holocaust education. It is clear that as technology evolves, so should our research methods. The digital age offers both immense potential and notable challenges, and it is up to researchers to navigate these complexities in order to make meaningful contributions to the academic landscape. Further reflections on these issues are presented in the Conclusions.

11.5 References

Assmann, A. (2010). The Holocaust: A Global Memory? Extensions and Limits of a New Memory Community. In A. Assmann & S. Conrad (Eds.), *Memory in a Global Age* (pp. 97–117). London, UK: Palgrave MacMillan.

Assmann, A. (2017). Transnational Memory and the Construction of history through Mass Media. In L. Bond, S. Craps & P. Vermeulen (Eds.), *Memory Unbound: Tracing the Dynamics of Memory Studies* (pp. 65–82). New York and Oxford: Berghahn Books.

Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development*, 49, 193–224.

Birkner, T., & Donk, A. (2020). Collective Memory and Social Media: Fostering a New Historical Consciousness in the Digital Age? *Memory Studies*, 13(4), 367–383.

Boswell, M., & Rowland, A. (2023). *Virtual Holocaust Memory*. Oxford, UK: Oxford University Press.

boyd, d. (2010). Social network sites as networked publics: affordances, dynamics, and implications. In Z. Papacharissi (Ed.), *Networked Self: Identity, Community, and Culture on Social Network Sites* (pp. 39–58). New York, NY: Routledge.

Bryman, A. (2006). Integrating quantitative and qualitative research: how is it done? *Qualitative Research*, 6(1), 97–113.

Bull, A. C., & Lauge, H. L. (2016). On Agonistic Memory. *Memory Studies*, 9(4), 390–404.

Carnes, A. M., Street, K., Wiedeman, C. R. (2018). Using Holocaust Testimony in Primary Education: An Initial Inquiry. In C. C. Szejnmann, P. Cowan and J. Griffiths (Eds.), *Holocaust Education in Primary Schools in the Twenty-First Century. The Holocaust and its Contexts.* London, UK: Palgrave Macmillan.

Carpenter, J. P., & Staudt Willet, K. B. (2021). The teachers' lounge and the debate hall: Anonymous self-directed learning in two teaching-related subreddits. *Teaching and Teacher Education*, 104, 103371.

Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education (8th edition).* London, UK: Routledge.

Costa, E. (2018). Affordances-in-practice: An ethnographic critique of social media logic and context collapse. *New Media & Society*, 20(10), 3641–3656.

Cui, T., Kumar, P., Orr, S.A. (2023). Connecting characteristics of social media activities of a heritage organisation to audience engagement. *Digital Applications in Archaeology and Cultural Heritage*, 28, e00253.

De Cesari, C., & Rigney, A. (2014). *Transnational Memory: Circulation, Articulation, Scales.* Berlin and New York: de Gruyter.

De Man, J., Campbell, L., Tabana, H, & Wouters, E. (2021). The pandemic of online research in times of COVID-19. *BMJ Open*, 11, e043866.

Ebbrecht-Hartmann, T. (2021). Commemorating from a Distance: The Digital Transformation of Holocaust Memory in Times of Covid-19. *Media, Culture & Society*, 43(6), 1095–1112.

Ebbrecht-Hartmann, T., & Divon, T. (2022). Serious TikTok: Can You Learn About the Holocaust in 60 seconds? *MediArXiv.* Available at: https://doi.org/10.33767/osf.io/nv6t2

Eckmann, M., Stevick, D., & Ambrosewicz-Jacobs, J. (2017). *Research in Teaching and Learning about the Holocaust: A Dialogue Beyond Borders.* Berlin: Metropol.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532–550

Erll, A., Nünning, A. (2010). *A Companion to Cultural Memory Studies.* Berlin, München, Boston: De Gruyter.

Fagen, E. (2019). *Hashtag Holocaust: Negotiating Memory in the Age of Social Media*. Doctoral Dissertations, 1611, https://scholarworks.umass.edu/dissertations_2/1611

Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12(2), 219–245.

Foster, S., Pearce, A., & Pettigrew, A. (2020). *Holocaust Education: Contemporary challenges and controversies*. London, UK: UCL Press.

Friesem, L. (2018). Holocaust Tweets as an Act of Resistance. *Israel Studies Review*, 33(2), 85–104.

Furini, M., Mandreoli, F., Martoglia, R., & Montangero, M. (2022). A Predictive Method to Improve the Effectiveness of Twitter Communication in a Cultural Heritage Scenario. *Journal of Computing and Cultural Heritage*, 15(2), Article 21.

García-Ceballos, S., Rivero, P., Molina-Puche, S., & Navarro-Neri, I. (2021). Educommunication and Archaeological Heritage in Italy and Spain: An Analysis of Institutions' Use of Twitter, Sustainability, and Citizen Participation. *Sustainability*, 13(4), 1602.

Garde-Hansen, J., Hoskins, A., & Reading, A. (2009). *Save as. . . Digital Memories*. Berlin: Springer.

Ginzarly, M., & Srour, J. F. (2022). Cultural heritage through the lens of COVID-19. *Poetics*, 92, Part A, 101622.

Gioia, D. A., & Pitre, E. (1990). Multiparadigm perspectives on theory building. *Academy of Management Review*, 15(4), 584–602.

Goldberg, A. (2012). The 'Jewish narrative' in the Yad Vashem global Holocaust museum. *Journal of Genocide Research*, 14(2), 187–213.

González-Sanmamed, M., Muñoz-Carril, P.-C., & Santos-Caamaño, F.-J. (2019). Key components of learning ecologies: A Delphi assessment. *British Journal of Educational Technology*, 50(4), 1639–1655.

Gray, M. (2014). *Contemporary Debates in Holocaust Education*. London, UK: Palgrave MacMillan.

Guetta, S., & Caviglia, G. (2022). *Didattica della Shoah. Percorsi di formazione e proposte di progettazione laboratoriale in prospettiva interdisciplinare*. Mantova: Universitas Studiorum.

Hettinger, L. J., Kirlik, A., Goh, Y. M., & Buckle, P. (2015). Modelling and simulation of complex sociotechnical systems: Envisioning and analysing work environments. *Ergonomics*, 58(4), 600–614.

Hood, C., & Reid, P. (2018). Social media as a vehicle for user engagement with local history: A case study in the North East of Scotland. *Journal of Documentation*, 74(4), 741–762.

Hoskins, A. (2014). A New Memory of War. In B. Zelizer & K. Tenenboim-Weinblatt (Eds.), *Journalism and Memory* (pp. 179–191). London, UK: Palgrave MacMillan.

Hoskins, A. (2016). Memory Ecologies. *Memory Studies*, 9(3), 348–357.

Jaakkola, E. (2020). Designing conceptual articles: four approaches. *AMS Review*, 10, 18–26.

Jackson, N. J. (2013). The concept of learning ecologies. In N. J. Jackson & G. B. Cooper (Eds.), *Lifewide learning education and personal development*. Lifewide Education.

Jaeger, S. (2020). *The Second World War in the Twenty-First-Century Museum: From Narrative, Memory, and Experience to Experientiality*. Berlin, München, Boston: De Gruyter.

Kansteiner, W. (2017). Transnational Holocaust memory, digital culture and the end of reception studies. In T. S. Andersen & B. Törnquist-Plewa (Eds.), *The twentieth century in European memory: Transcultural mediation and reception* (pp. 305–343). Leiden: Brill.

Kennedy, E. B., Charifson, M., Jehn, M., Jensen, E. A., & Vikse, J. (2022). Prospective sampling bias in COVID-19 recruitment methods: experimental evidence from a national randomized survey testing recruitment materials. *BMC Medical Research Methodology*, 22, 251.

Kim, M. J., Kang, D. Y. & Martin, S. N. (2022). Exploring informal science education responses to COVID-19 global pandemic: learning from the case of the Gwacheon National Science Museum in Korea. *Cultural Studies of Science Education*, 17, 341–354.

Kist, C. (2021). Repairing online spaces for "safe" outreach with older adults. *Museums & Social Issues*, 15(1–2), 98–112.

Kligler-Vilenchik, N., Tsfati, Y., & Meyers, O. (2014). Setting the Collective Memory Agenda: Examining Mainstream Media Influence on Individuals' Perceptions of the Past. *Memory Studies*, 7(4), 484–499.

Krumpal, I. (2013). Determinants of social desirability bias in sensitive surveys: A literature review. *Quality & Quantity*, 47, 2025–2047.

Lema, M. D., & Arnaboldi, M. (2022). Shaping cultural participation through social media. *Financial Accountability & Management*, 38(2), 299–321.

Levy, D., & Sznaider, N. (2006). *The Holocaust and memory in the global age*. Philadelphia, PA: Temple University Press.

Lewe, T., & Wszołek, M. (2023). Visual Perspectives in Holocaust Memory Culture: Transition of Lived to Imagined Memory. *The International Journal of Design Education*, 17(2), 95–114.

Loader, B. D., & Mercea, D. (2011). Networking Democracy?, *Information, Communication & Society*, 14(6), 757–769.

Magano, J., Fraiz-Brea, J. A., & Leite, Â. (2022a). An Exploratory Study on the Motivations behind Visiting the Holocaust Museum of Porto. *Sustainability*, 14(24), 16780.

Magano, J., Fraiz-Brea, J. A., & Leite, Â. (2022b). Dark Tourists: Profile, Practices, Motivations and Wellbeing. *International Journal of Environmental Research and Public Health*, 19(19), 12100.

Manca, S. (2019). Holocaust memorialisation and social media. Investigating how memorials of former concentration camps use Facebook and Twitter. In W. Popma and F. Stuart (Eds.), *Proceedings of the 6th European Conference on Social Media – ECSM 2019* (pp. 189–198). University of Brighton.

Manca, S. (2021). Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age. *Review of Education, Pedagogy and Cultural Studies*, 43(3), 226–253.

Manca, S., Passarelli, M., & Rehm, M. (2022). Exploring tensions in Holocaust museums' modes of commemoration and interaction on social media. *Technology in Society*, 68, 101889.

Manca, S., Rehm, M., & Haake, S. (2023). Holocaust Remembrance on Facebook during the Lockdown: A Turning Point or a Token Gesture? In O. Fridman & S. Gensburger (Eds.), *The COVID-19 Pandemic and Memory. Remembrance, commemoration, and archiving in crisis.* London, UK: Palgrave McMillan Cham.

Manikowska, E. (2020). Museums and the traps of social media: The case of the Auschwitz-Birkenau memorial and museum. *Santander Art and Culture Law Review*, 2(6), 223–250.

Meier, A., Krause, H. V. (2023). Does Passive Social Media Use Harm Well-Being? An Adversarial Review. *Journal of Media Psychology*, 35(3), 131–189.

Moran-Ellis, J., Alexander, V. D., Cronin, A., Dickinson, M., Fielding, J., Sleney, J., & Thomas, H. (2006). Triangulation and integration: processes, claims and implications. *Qualitative Research*, 6(1), 45–59.

Morse, C., B. Landau, C. Lallemande, L. Wieneke, & V. Koenig (2022). From #museumathome to #athomeatthemuseum: Digital Museums and Dialogical Engagement Beyond the COVID-19 Pandemic. *ACM Journal on Computing and Cultural Heritage*, 15(2), 1–29.

Nguyen, T.-M. (2021). Four-dimensional model: a literature review on reasons behind lurking behavior. *VINE Journal of Information and Knowledge Management Systems*, 51(2), 302–317.

Neiger, M., Meyers, O., & Ben-David, A. (2023). Tweeting the Holocaust: social media discourse between reverence, exploitation, and simulacra. *Journal of Communication*, 73(3), 222–234.

Niven, B., & Williams, A. (2020). The Dominance of the National: On the Susceptibility of Holocaust Memory. *Jewish Historical Studies*, 51(1), 142–164.

Novis-Deutsch, N. S., Lederman, S., Adams, T. & Kochavi, A. J. (2023). *Sites of Tension: Shifts in Holocaust memory in Relation to Antisemitism and Political Contestation in Europe*. Haifa: The Weiss-Livnat International Center for Holocaust Research and Education.

Novis Deutsch, N., Perkis, E., & Granot-Bein, Y. (2018). Six teaching orientations of Holocaust educators as reflections of teaching perspectives and meaning making processes. *Teaching and Teacher Education*, 71, 86–97.

Oztig, L. I. (2023). Holocaust museums, Holocaust memorial culture, and individuals: a Constructivist perspective. *Journal of Modern Jewish Studies*, 22(1), 62–83.

Özyürek, E. (2022). Muslim minorities as Germany's past future: Islam critics, Holocaust memory, and immigrant integration. *Memory Studies*, 15(1), 139–154.

Parnell, M., & Stuckey, M. E. (2023). Holocaust Distortion During the Global Pandemic: An Exercise in Anti-Democratic Demagoguery. *Javnost - The Public*, 30(1), 128–144.

Pfanzelter, E. (2017). Performing the Holocaust on Social Networks: Digitality, Transcultural Memory and New Forms of Narrating. *Kultura Popularna*, 1(50), 136–151.

Pimdee, P., Ridhikerd, A., Moto, S., Siripongdee, S., & Bengthong, S. (2023). How social media and peer learning influence student-teacher self-directed learning in an online world under the 'New Normal'. *Heliyon*, 9(3), e13769.

Pistone, I., Andersson, L. M., Lidström, A., Nelhans, G., Pernler, T., Sivenbring, J., Sager, M., & Mattson, C. (2023). Teaching and learning about the Holocaust: a systematic scoping review of existing research. *Holocaust Studies*. https://doi.org/10.1080/17504902.2023.2245282

Plessow, O. (2017). Agents of transnationalization in the field of "Holocaust Education": An introduction. In M. Henderson & J. Lange (Eds.), *Entangled Memories: Remembering the Holocaust in a global age* (pp. 315– 352). Heidelberg: Universitätsverlag Winter.

Quan-Haase, A., & Sloan, L. (2022). *The SAGE Handbook of Social Media Research Methods.* Thousand Oaks, CA: SAGE Publications.

Rodríguez Hernández, J. (2022). Museums and TikTok: Bringing Art to Young People. VISUAL REVIEW. *International Visual Culture Review / Revista Internacional De Cultura Visual*, 11(3), 1–10.

Romeu-Fontanillas, T., Guitert-Catasús, M., Raffaghelli, J. E., & Sangrà, A. (2020). Mirroring learning ecologies of outstanding teachers to integrate ICTs in the classroom. *Comunicar*, 62, XXVIII, 31–42.

Rothberg, M. (2009). *Multidirectional Memory: Remembering the Holocaust in the Age of Decolonization.* Stanford, CA: Stanford University Press.

Ruggiero, P., Lombardi, R., & Russo, S. (2022). Museum anchors and social media: possible nexus and future development. *Current Issues in Tourism*, 25(18), 3009–3026.

Schindler, M., & Domahidi, E. (2021). The growing field of interdisciplinary research on user comments: A computational scoping review. *New Media & Society*, 23(8), 2474–2492.

Snelson, C. L. (2016). Qualitative and Mixed Methods Social Media Research: A Review of the Literature. *International Journal of Qualitative Methods*, 15(1).

Starrat, G K., Fredotovic, I., Goodletty, S., & Starratt, C. (2017). Holocaust knowledge and Holocaust education experiences predict citizenship values among US adults. *Journal of Moral Education*, 46(2), 177–194.

Steinhauer, J. (2022). *History, Disrupted: How Social Media and the World Wide Web Have Changed the Past*. London, UK: Palgrave MacMillan.

Struve, K. (2023). Should There Be One Universal Narrative for Remembering the Holocaust? *Eastern European Holocaust Studies*, 1(1).

Sundararaj, V., & Rejeesh, M. (2021). A detailed behavioral analysis on consumer and customer changing behavior with respect to social networking sites. *Journal of Retailing and Consumer Services*, 58, Article 102190.

Svoboda, E. (2006). Never forget, never again: Holocaust memorials are reshaping our conception of mass murder, prejudice, and morality by raising awareness and demanding a permanent place in our collective memory. But is that enough to help stave off future genocides? *Science & Spirit*, 17(5), 40+.

Taghipoorreyneh, M. (2023). Mixed methods and the Delphi method. In R. J. Tierney, F. Rizvi & K. Ercikan (Eds.), *International Encyclopedia of Education (Fourth Edition)* (pp. 608–614). Amsterdam: Elsevier.

Tirosh, N., & Mikel-Arieli, R. (2023). What we talk about when we talk about digital Holocaust memory: A systematic analysis of research published in academic journals, 2010–2022. *The Communication Review*, 26(2), 151–170.

van Dijck, J., & Poell, T. (2013). Understanding social media logic. *Media and Communication,* 1(1), 2–14.

Verduyn, P., Gugushvili, N., Massar, K., Täht, K., & Kross, E. (2020). Social comparison on social networking sites. *Current Opinion in Psychology*, 36, 32–37.

Vizcaíno-Verdú, A., De-Casas-Moreno, P., & Tirocchi, S. (2023). Online prosumer convergence: Listening, creating and sharing music on YouTube and TikTok. *Communication & Society*, 36(1), 151–166.

Walden, V. G. (2021). *Digital Holocaust Memory, Education and Research*. London, UK: Palgrave MacMillan.

Walden, V. G. (2022a). *The Memorial Museum in the Digital Age*. REFRAME Books. https://reframe.sussex.ac.uk/the-memorial-museum-in-the-digital-age/

Walden, V. G. (2022b). Understanding Holocaust Memory and Education in the Digital Age: Before and After COVID-19. *Holocaust Studies*, 28(3), 257–278.

Winslow, A. (2023). Understanding Holocaust Memory Through Museums and Memorials. In P. R. Bartrop (Ed.), *Sources for Studying the Holocaust. A Guide.* London, UK: Routledge.

Woodford, H., Southcott, J., & Gindidis, M. (2023). Lurking with intent: Teacher purposeful learning using Facebook. *Teaching and Teacher Education*, 121, 103913.

12. Conclusions and further research: An update

Since this work was conceived, many important changes have occurred that have greatly enriched and complicated the field of digital Holocaust memory and education, including the changes brought about by the COVID-19 pandemic. At the time of this research, academic engagement with the field of Digital Holocaust Memory was beginning to consolidate (Boswell & Rowland, 2023; Walden, 2021), with a number of new projects and studies emerging. At least 80 new results have become available from a search of the Scopus database since the literature review for this thesis was undertaken (Manca, 2021). This shows that the field of digital Holocaust remembrance is expanding rapidly with the development of new technologies and research. As new technologies become available, the potential for research in this area increases exponentially. While this is indicative of the pace at which the field of digital Holocaust remembrance and education is developing, this study provides current insights into the field and helps to provide a solid foundation for future research. In this section, we will review recent developments, some of which have already been briefly presented in the introduction to this work, with the aim of bringing them up to date and providing insights for future research in the context of Holocaust education.

As highlighted throughout this dissertation, the widespread adoption of digital technology and social media during the COVID-19 pandemic (Ebbrecht-Hartmann, 2021; Manca et al., 2023; Walden, 2022) has led to the gradual adoption of TikTok by various Holocaust organisations and content creators. TikTok's assimilation into the framework of commemorative and educational social media has marked a shift in the methods and strategies employed by these organisations (Divon & Ebbrecht-Hartmann, 2023). The platform, celebrated for its short-form videos and significant youth demographic, has provided Holocaust institutions with a unique channel to connect with younger generations, a feat difficult to achieve through traditional media. TikTok's format requires concise, engaging and digestible content. This poses a challenge for creators who aim to condense complex historical narratives into short clips without sacrificing accuracy or depth (Ebbrecht-Hartmann & Divon, 2022).

The swelling popularity of TikTok in the field of Holocaust remembrance and education is evidenced by the huge follower numbers of these profiles, numbers that dwarf those of older platforms such as Facebook, Twitter and Instagram. Several factors influence this rise: platform specificity - some newer social media platforms cater to specific niches or interests, potentially attracting more engaged and passionate audiences through influencers (Albadri, 2023); algorithmic advantages: TikTok uses a robust algorithm that promotes content based on user engagement, facilitating rapid follower acquisition (Wang & Yin, 2023; Zhao, 2020); and less competition: compared to established platforms such as Facebook, Twitter and Instagram, newer platforms such as TikTok often face less competition, allowing users to stand out and gain followers more effortlessly. For now, TikTok's success in Holocaust remembrance and education is largely driven by several content creators, including Holocaust survivors (Manca et al., under review).

The narrow focus on Holocaust gatekeepers, represented in this study by museums and memorials, could not take into account many other Holocaust projects that rely on different actors and content creators. Staying with social media, projects such as *Eva.Stories* (https://www.instagram.com/eva.stories/) and *Ich bin Sophie Scholl* (https://www.instagram.com/ichbinsophiescholl/) on Instagram have attracted the attention of online users, stakeholders and academics.

Indeed, social media profiles dedicated to Holocaust victims represent a contemporary trend in digital remembrance that has received mixed reactions from both scholars and the general public. While some argue that these efforts may diminish the gravity of the Holocaust, others see them as valuable tools for connecting with younger audiences in a post-survivor era (Steir-Livny, 2020; Stephens, 2021). The first project, "Eva.Stories", was the one that attracted the most academic interest. It raised questions of authenticity, ethics and voice in Holocaust commemoration (Klein, 2022), but it also points to a new kind of agency in relation to media witnessing, namely the ability to testify and become a witness to one's own current social media engagement with mediated memory (Henig & Ebbrecht-Hartmann, 2022). Although less popular because it was aimed almost exclusively at a German audience, the "I am Sophie Scholl" project has also been debated with similar intensity, with critics claiming that re-enacting Sophie's life from such a trivial and historically inaccurate perspective - with her taking on the role of an influencer - robs her story of its meaning (Murphy, 2023). Despite these criticisms, these two projects may represent a new generation of post-memorial practices that make use of new forms of digital media and engage with younger generations "in their own language" (Hirsch, 2001), namely the social media platforms they use every day. The retelling and preservation of collective memory is constantly changing due to cultural and political contexts. As a result, online spaces play a role in the creation, maintenance and dissemination of collective memory, as today's online environments are a crucial sphere of discourse (Berenson & Ezra, 2023). From an educational perspective, the use of platforms such as "Eva.Stories" and "I am Sophie Scholl" can serve as powerful tools. However, their use should be preceded by discussions about the original context of these stories and the liberties taken in their digital retelling. It is also crucial to balance these platforms with primary sources, survivor testimonies and traditional academic resources. This approach ensures a holistic understanding of the Holocaust. It's also important to discuss potential biases, the impact of contemporary culture on these retellings, and the intentions behind their creation.

Several other innovative projects have sought to bring Holocaust memory into the digital age through the use of immersive technologies (Benardou & Droumpouki, 2022), such as augmented reality/mixed reality (AR/MR) and virtual reality (VR), to enhance visitors' experiences of physical museums and memorials. Some of these approaches emphasise active, embodied exploration of digitally enhanced Holocaust-related sites, primarily through mobile and mixed-reality applications integrated into physical Holocaust memorials. They focus on user-driven experiences that allow individuals more agency in narrative exploration, as opposed to traditional approaches that dictate information in a top-down manner (Verschure & Wierenga, 2022). Other projects use augmented reality (AR) headsets to implement a fictional interactive narrative in which the viewer is positioned as an external observer within the story's interactive environment, while still striving to give participants a sense of control, immersion and influence over the narrative (Jin et al., 2020). When designed for pedagogical use, in the right learning environment and under the guidance of qualified teachers, advanced digital platforms and immersive technologies can be powerful educational tools, offering students insights that literature and film alone may not provide (Rich & Dack, 2022). The multi-sensory experience provided by immersive technologies can facilitate a deeper emotional connection to the material, leading to greater empathy and understanding. They can also help students develop essential 21st century skills such as critical thinking, digital literacy and adaptability.

The development of interactive 3D digital testimonies and interactive biographies is another related line of research for teaching and learning about the Holocaust (Ballis & Gloe, 2020). One of the most prominent projects is *Dimensions in Testimony*[58], led by the USC Shoah Foundation. The project involves filming Holocaust survivors in 360-degree views on a light stage, where they answer around a thousand questions over the course of a week. These interviews create a database of responses that can be accessed in a "virtual conversation", where a museum visitor interacts with a two or three-dimensional display of the survivor interview. Another notable project is *The Last Goodbye* (Marrison, 2021; Zalewska, 2017). In this virtual reality experience, Holocaust survivor Pinchas Gutter guides viewers through his final visit to the Majdanek concentration camp. This room-sized VR testimony captures the tragic events of the Holocaust, focusing on the place where Gutter's parents and sister met their end during World War II.

While Embodied Conversational Agents, which use recordings of contemporary witnesses to preserve interactive and personal testimonies for future generations of students and educators, contain irreversible design decisions (Kolb, 2022), these hologram-based projects allow visitors to empathise and immerse themselves in the experience by responding to direct questions and displaying emotions and expressions (Boswell & Rowland, 2023). At the same time, the use of Virtual Interactive Holocaust Survivor Testimony (VIHST) in place of live survivor testimony raises pedagogical challenges and ethical dilemmas (Marcus et al., 2022). Some of these concerns relate to users' ability to respond morally to witnessing suffering being influenced by the aesthetic attributes of the digital interface (Frosh, 2018), and the formal qualities of these "virtual witnesses" having cognitive and emotional associations that may inhibit viewers' empathy (Schultz, 2023).

These concerns suggest that virtual witnesses have the potential to be a double-edged sword, providing both an opportunity for increased empathy and a potential barrier to its expression. In order to ensure that digital technologies are used responsibly, it is important to have a deep understanding of the ethical implications of their use and how they can be used to promote positive social change (Raudsepp & Zadora, 2019). However, this area remains controversial as the aesthetic attributes of the digital interface can also enhance viewer empathy, provide access to a much wider audience and be more engaging than traditional media. This is also the case with videogames.

---

[58] https://sfi.usc.edu/dit

Less valued than virtual reality and mixed reality technologies is the potential of non-immersive videogames (Ciáurriz, 2023), which have begun to represent another growing stream of digital Holocaust memory research (Walden, 2021). Although the Second World War is a common theme in many videogames (e.g., Ionescu, 2023), they remain underexplored as creators of historical narratives and repositories of collective memory about the Holocaust due to long-standing resistance. However, videogames are increasingly asserting their place alongside popular cultural productions such as film, literature and television programmes, both as constructors of historical memory and for their educational potential (Chapman, 2016). While many attempts to "play" the Holocaust, such as *Call of Duty: WWII* and *Wolfenstein: The New Order*, have been heavily criticised (Pfister, 2019; Venegas Ramos, 2021), a small number of edutainment-based games have been released in the last decade. For example, *Through the Darkest of Times* (2020), *Attentat 1942* (2017) and *My Memory of Us* (2018) all address the scholarly theme of civilian resistance and escape (Glouftsis, 2022). More recently, in February 2023 a groundbreaking videogame was released that chronicles the experiences of a working-class Polish Jewish family living in France during the Holocaust. *The Light in the Darkness*[59] stands out as the first videogame to offer an accurate portrayal of the Holocaust and has been made available free of charge. The game is still in early access, and an educational mode for classroom use will be available at full launch[60]. In September 2023, another educational computer game was released by The Gathering the Voices Association. *Marion's journey*[61] follows the escape of Marion Camrass during the Second World War from occupied Poland, through Siberia, then Bukhara and finally Glasgow, where she settled, married and raised her family. The game is designed to help young people learn about the history of the Holocaust and the value of resilience, courage and hope. It also aims to foster a sense of empathy and understanding of the refugee experience.

At present, however, there is a noticeable gap between the themes explored in digital Holocaust representations through videogames and those analysed in depth in Holocaust scholarship (Glouftsis, 2022). Exploring the potential of videogames to represent the Holocaust is essential to bridging the gap between scholarship and popular culture (Kansteiner, 2017). While digital games play a crucial role in Holocaust education and should be complemented by traditional forms of scholarship, this discrepancy underscores the importance of dialogue between Holocaust scholars and the videogame industry (Van Den Heede, 2023). This will ensure that essential Holocaust themes are presented both accurately and responsibly, and that the potential for critical historical thinking and understanding that videogames can offer is recognised by the academic community.

---

[59] https://store.epicgames.com/it/p/the-light-in-the-darkness-6ee5e4

[60] https://www.gamespot.com/articles/the-light-in-the-darkness-shows-the-horror-of-the-holocaust-and-you-cant-win/1100-6511903/

[61] https://gatheringthevoices.com/marions-journey/

Finally, the concerns outlined above have also been exacerbated by the rise of artificial intelligence-driven technology and generators of human-like conversational responses, such as ChatGPT. The increasing reliance on digital devices to remember mass atrocities is related to the shift from digital to algorithmic memory and how this shift affects the memory of such events (Makhortykh et al., 2021). These digital devices, powered by algorithms, streamline our daily activities by managing information overload. By curating and filtering memory-related content, algorithmic systems act as "mnemotechnologies", structuring our memories according to algorithmic logic (Makhortykh, 2021).

It has been highlighted that the advent of generative artificial intelligence (AI), which can create textual and visual content, has the potential to profoundly transform the field of memorialisation. AI can identify patterns in its training data, create new narratives to represent and understand mass atrocities, and do so much faster than humans (Makhortykh et al., 2023). While the advancement of artificial intelligence within memory institutions, history and testimony is seen as a new avenue for historical research and education (Kansteiner, 2022), it also presents unique challenges. Imaginative tools such as GPThistory - an offshoot of ChatGPT tailored for historical content creation and collective memory support - present unforeseen difficulties. One notable concern is the limited training data on mass atrocities, which could affect the AI's understanding and response to queries about these events, or its ability to distinguish between human-generated and AI-generated content (Makhortykh et al., 2023).

Understanding how search engines (Makhortykh et al., 2021) and AI algorithms (Makhortykh, 2021; Presner, 2016) work with Holocaust content can help identify and be aware of deepfakes and the generation of distorted information. Beyond authenticity and ownership, it is crucial that users recognise the need for sensitivity and respect in the design and use of these technologies to ensure they do not inadvertently cause distress or re-traumatisation. The use of holograms or chatbots should always be coupled with contextual insight and expert oversight to ensure full understanding of the subject. It is important not to rely on technology alone, but to combine it with appropriate historical context, interpretation and thoughtful engagement to avoid diminishing empathy or unsettling interactions (Schultz, 2023).

While chatbots and holograms should not be used to replace human-to-human interaction or human expertise, but rather to supplement existing resources and add value to the human experience, proper contextualisation and oversight of the technology is paramount to ensure successful, empathetic and constructive conversations. By understanding the implications of using technology to interact with people, we can ensure that the experience is positive and effective, while avoiding potential misunderstandings.

In conclusion, as technology continues to advance, the role of education becomes even more important. Only through informed use and understanding can we ensure that these tools enhance our knowledge without compromising the integrity and emotional gravity of historical events. To do so, we need to create a learning ecology in which we can understand how technology can help us understand and interpret our past. Providing opportunities for students to engage with the past in imaginative and engaging ways is extremely important. This also includes equipping teachers with the appropriate tools and resources to enhance their understanding of the use of technology in history teaching and providing them with a range of digital tools to engage students in historical inquiry. In this regard, providing teachers with professional development focused on using technology in teaching history is becoming increasingly crucial to the effective implementation of digital Holocaust education.

It will also grow more crucial to equip learners and students with digital and data literacy skills to enable them to critically evaluate, analyse and distinguish between credible sources and misinformation. Particularly in the context of learning about the Holocaust, where the authenticity and accuracy of information can deeply influence perceptions and emotions, digital literacy skills are essential for meaningful and informed engagement. Understanding where data comes from and the reliability of those sources, and being able to critically analyse data (Carmi et al., 2020), ask pertinent questions and distinguish between fact, opinion and falsehood are becoming more critical to the development of 21st century citizenship skills (Pangrazio & Sefton-Green, 2021).

To achieve these goals, it is imperative to cultivate educational practices and professional learning programmes that foster ecologies of lifelong learning. Such ecologies should be transdisciplinary, interdisciplinary and multidisciplinary in nature. Transdisciplinary approaches need to go beyond individual disciplines and focus on learning methods that transcend specific subjects and enable learners to apply their knowledge in different real-world contexts. Interdisciplinary methods will allow the integration of knowledge from different disciplines, promoting a more holistic understanding of complex issues. Meanwhile, multidisciplinary learning will encourage the study of a subject from different disciplinary perspectives, without necessarily integrating them. By incorporating these three approaches, educators and stakeholders can ensure that learners are equipped with a comprehensive and versatile set of skills, enabling them to navigate, adapt and contribute in a constantly evolving knowledge landscape.

12.1 References

Albadri, H. A. (2023). The Role and Impact of Social Media Influencers. *Information Sciences Letters*, 12(8).

Ballis, A., Gloe, M. (2020). Interactive 3D Testimonies of Holocaust Survivors in German language. In M. Gloe & A. Ballis (Eds.), *Holocaust Education Revisited.* Wiesbaden: Springer VS.

Berenson, A., & Ezra, I. (2023). Remembrance practices in the 21st century. Collective and individual memory on social media – the case of @eva.stories. *Narrative Inquiry.* https://doi.org/10.1075/ni.22102.ber

Benardou, A., & Droumpouki, A. M. (2022). *Difficult Heritage and Immersive Experience.* London, UK: Routledge.

Boswell, M., & Rowland, A. (2023). *Virtual Holocaust Memory*. Oxford, UK: Oxford University Press.

Carmi, E., Yates, S. J., Lockley, E., & Pawluczuk, A. (2020). Data citizenship: rethinking data literacy in the age of disinformation, misinformation, and malinformation. *Internet Policy Review*, 9(2).

Chapman, A. (2016). *Digital Games as History: How Videogames Represent the Past and Offer Access to Historical Practice*. London, UK: Routledge.

Ciáurriz, I. I. (2023). Playing With the Unspeakable. The Holocaust and Videogames. In M. Mandal & P. Das (Eds.), *Holocaust vs. Popular Culture. Interrogating Incompatibility and Universalization*. London, UK: Routledge.

Divon, T., & Ebbrecht-Hartmann, T. (2023). Performing Death and Trauma? Participatory Mem(e)ory and the Holocaust in TikTok #povchallenges. *AoIR Selected Papers of Internet Research*, https://doi.org/10.5210/spir.v2022i0.12995

Ebbrecht-Hartmann, T. (2021). Commemorating from a Distance: The Digital Transformation of Holocaust Memory in Times of Covid-19. *Media, Culture & Society*, 43(6), 1095–1112.

Ebbrecht-Hartmann, T., & Divon, T. (2022). Serious TikTok: Can You Learn About the Holocaust in 60 seconds? *MediArXiv*. Available at: https://doi.org/10.33767/osf.io/nv6t2

Frosh, P. (2018). The mouse, the screen and the Holocaust witness: Interface aesthetics and moral response. *New Media & Society*, 20(1), 351–368.

Glouftsis, T. (2022). Implicated Gaming: Choice and Complicity in Ludic Holocaust Memory. *History and Theory*, 61(4), 134–151.

Henig, L., & Ebbrecht-Hartmann, T. (2022). Witnessing Eva Stories: Media Witnessing and Self-Inscription in Social Media Memory. *New Media & Society*, 24(1), 202–226.

Hirsch, M. (2001). Surviving Images. Holocaust Photographs and the Work of Postmemory. *The Yale Journal of Criticism*, 14(1), 5–37.

Ionescu, A. (2022). Towards an Affective Ludo-ethics of Re-enactment: Witnessing (in) *Attentat 1942*. *Parallax*, 28(2), 213–229.

Jin, Y., & Ma, M., & Li, J. (2020). Immersive Storytelling in Augmented Reality: Witnessing the Kindertransport. In M. Ma, B. Fletcher, S. Göbel, J. Baalsrud Hauge, & T. Marsh (Eds.), *Proceedings of Serious Games: Joint International Conference, JCSG 2020*, Stoke-On-Trent, UK, November 19–20, 2020. Cham: Springer International Publishing, pp 17–33.

Kansteiner, W. (2017). Transnational Holocaust memory, digital culture and the end of reception studies. In T. S. Andersen & B. Törnquist-Plewa (Eds.), *The twentieth century in European memory: Transcultural mediation and reception* (pp. 305–343). Leiden: Brill.

Kansteiner, W. (2022). Digital doping for historians: Can history, memory, and historical theory be rendered artificially intelligent? *History and Theory*, 61(4), 119–133.

Klein, M. (2022). "My Daughter Éva": A Story of Translation, Paratext and Digital Communication. *History & Memory*, 34(1), 133–158.

Kolb, D. (2022). Design Choices for Embodied Conversational Agents to Preserve Testimonies by Contemporary Witnesses. In *Proceedings of CHI EA '22: Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems*, April 2022, Article No. 54, pp. 1–5.

Makhortykh, M. (2021) Memoriae ex machina: How Algorithms Make Us Remember and Forget. *Georgetown Journal of International Affairs*, 22(2), 180–185.

Makhortykh, M., Urman, A., & Ulloa, R. (2021). Hey, Google, is it what the Holocaust looked like?: Auditing algorithmic curation of visual historical content on Web search engines. *First Monday*, 26(10).

Makhortykh, M., Zucker, E. M., Simon, D. J., Bultmann, D., & Ulloa, R. (2023). Shall androids dream of genocides? How generative AI can change the future of memorialization of mass atrocities. *Discover Artificial Intelligence*, 3, 1–17.

Manca, S. (2021). Bridging cultural studies and learning science: An investigation of social media use for Holocaust memory and education in the digital age. *Review of Education, Pedagogy and Cultural Studies*, 43(3), 226–253.

Manca, S., Marino, F., & Taibi, D. (under review). "Could we possibly see your tattoo? If not that's totally fine!": Playing the Holocaust with survivors on TikTok. *Memory Studies.*

Manca, S., Rehm, M., & Haake, S. (2023). Holocaust Remembrance on Facebook during the Lockdown: A Turning Point or a Token Gesture? In O. Fridman & S. Gensburger (Eds.), *The COVID-19 Pandemic and Memory. Remembrance, commemoration, and archiving in crisis.* London, UK: Palgrave McMillan Cham.

Marcus, A. S., Maor, R., McGregor, I. M., Mills, G., Schweber, S., Stoddard, J., & Hicks, D. (2022). Holocaust education in transition from live to virtual survivor testimony: Pedagogical and ethical dilemmas. *Holocaust Studies*, 28(3), 279–301.

Marrison, K. (2021). Virtually Part of the Family: The Last Goodbye and Digital Holocaust Witnessing. In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 15-30). London, UK: Palgrave MacMillan.

Murphy, C. A. (2023). Instagram Stories and Historical Re-enactment in Social Media Memory: Eva Stories and Ich bin Sophie Scholl. In A. Marková & M. Kuznetcova (Eds.), *Memory of Central and Eastern Europe. Past Traumas, Present Challenges, Future Horizons* (pp. 48–72). Prague: Charles University, Karolinum Press.

Pangrazio, L., & Sefton-Green, J. (2021). Digital Rights, Digital Citizenship and Digital Literacy: What's the Difference? *Journal of New Approaches in Educational Research*, 10(1).

Pfister, E. (2019). 'Man Spielt Nicht Mit Hakenkreuzen!': Imaginations of the Holocaust and Crimes against Humanity During World War II in Digital Games. In A. von Lünen, K. J. Lewis, B Litherland, & P. Cullum (Eds.), *Historia Ludens: The Playing Historian* (pp. 267–284). London, UK: Routledge.

Presner, T. (2016). The Ethics of the Algorithm: Close and Distant Listening to the Shoah Foundation Visual History Archive. In C. Fogu, W. Kansteiner, & T. Presner (Eds.), *Probing the Ethics of Holocaust Culture* (pp. 167–202). Cambridge, MA: Harvard University Press.

Raudsepp, M., & Zadora, A. (2019). The sensitive scars of the Second World War in teaching European history. *Pedagogy, Culture & Society*, 27(1), 87–110.

Rich, J., & Dack, M. (2022). Forum: The Holocaust in Virtual Reality: Ethics and Possibilities. *The Journal of Holocaust Research*, 36(2-3), 201–211.

Schultz, C. K. N. (2023). Creating the 'virtual' witness: the limits of empathy. *Museum Management and Curatorship*, 38(1), 2–17.

Steir-Livny, L. (2020). eva.stories: Disrespect or a Successful Change in Holocaust Memory? *Jewish Film & New Media: An International Journal*, 8(2), 129–152.

Stephens, C. (2021). Playing Pretend on Social Media. In V. G. Walden (Ed.), *Digital Holocaust Memory, Education and Research* (pp. 237–265). London, UK: Palgrave MacMillan.

Van den Heede, P. (2023). "Press Escape to Skip Concentration Camp"? Player Reflections on Engagement with the Holocaust through Digital Gaming. *History & Memory*, 35(1), 108–140.

Venegas Ramos, A. (2021). Recuerdo y representación de la Shoah en el videojuego: Entre la construcción y la reconstrucción de la memoria. *Revista Universitaria De Historia Militar*, 10(20), 252–280.

Verschure, P. F. M. J., & Wierenga, S. (2022). Future memory: a digital humanities approach for the preservation and presentation of the history of the Holocaust and Nazi crimes. *Holocaust Studies*, 28(3), 331–357.

Walden, V. G. (2021). *Digital Holocaust Memory, Education and Research*. London, UK: Palgrave MacMillan.

Walden, V. G. (2022). Understanding Holocaust Memory and Education in the Digital Age: Before and After COVID-19. *Holocaust Studies*, 28(3), 257–278.

Wang, X., & Yin, G. (2023). Motivations on TikTok addiction: The moderating role of algorithm awareness on young people. *Profesional de la información*, 32(4), e320411.

Zalewska, M. (2020). The Last Goodbye (2017): Virtualizing Witness Testimonies of the Holocaust. *Spectator*, 40, 45–52.

Zhao, Y. (2020). Analysis of TikTok's Success Based on Its Algorithm Mechanism. In *Proceedings of 2020 International Conference on Big Data and Social Sciences (ICBDSS)*, Xi'an, China, 2020, pp. 19–23.

13. Appendix. A framework for analysing content on social media profiles of Holocaust museums. Results of a Delphi Study[62]

13.1 Executive summary

In this report, we present the findings of a Delphi Study aimed at validating a framework which has been designed to analyse Holocaust-related content published on the social media profiles of Holocaust museums. The study may also be considered as a pedagogical tool for teachers to provide orientation for conducting their own analysis or research and find best practices to navigate the various materials available on social media for studying and teaching about the Holocaust.

The framework serves the purpose of providing guidance on how to classify information pertaining to three major domains: Historical content of the Holocaust, Contemporary issues related to the Holocaust, and Museum activities and communication. Each domain comprises a set of macro and micro categories, for each of which a definition and examples have been given. Depending on the nature of the posts, some categories may be selected, and others ignored.

Key Findings

- This Delphi study involved a comprehensive panel of 22 international experts who, in a three round process, reached consensus on a framework composed of a set of macro and micro categories organised into three domains that are suitable for capturing the various topics addressed by Holocaust museums in their social media profiles in the field of Digital Holocaust Memory.
- The framework was extensively revised from Round 1 to Round 2, while Round 3 served the purpose of refining some micro categories and their definitions.
- The final framework comprises three domains and is constituted by 18 macro categories and 68 micro categories.
- Periodisation of historical content, agency and stages of the Holocaust remain open issues as there is still much debate among historians about these notions.

13.2 Introduction

In this report, we present the findings of a Delphi Study aimed at validating a framework which was conceived to analyse Holocaust-related content published on the social media profiles of Holocaust museums. We adopt the broad concept of "Holocaust museum" as defined by the Encyclopaedia Britannica to include "any of several educational institutions and research centres dedicated to preserving the experiences of people who were victimized by the Nazis and their collaborators during the Holocaust (1933–45)" (Parrott-Sheffer, 2019, p. n.a.).

---

[62] The full technical report also includes a number of annexes containing the full content of the surveys distributed during the three rounds. For reasons of space, these appendices have been omitted here. The full report is available at: https://holocaust-socialmedia.eu/wp-content/uploads/Report-Survey_Delphi.pdf

Content analysis is a research technique used to make replicable and valid inferences by interpreting and coding textual and visual material (Krippendorff, 2004; Neuendorf, 2002). By systematically evaluating texts - documents and communication artefacts, which might contain text in various formats, as well as pictures, audio or video - qualitative data can be converted into quantitative data (Huxley, 2020; Lewins & Silver, 2007; Schreier, 2019). Content analysis techniques involve systematic reading or observation of texts or artifacts which are assigned labels (sometimes called codes) to indicate the presence of meaningful pieces of content. They are used in social sciences to examine patterns in communication in a replicable and systematic manner; this method has become a cornerstone in social media research (Sloan & Quan-Haase, 2018). Social media content analysis has proved to be a suitable complementary method for quantitative analysis (Mukerjee & González-Bailón, 2020) based on automatic analysis - such as sentiment analysis, social media analytics, and social network analysis - when mixed methods are the preferrable approach (Prandner & Seymer, 2020).

In this study, the framework will primarily serve as a guideline for social media content coders who are not specifically content-savvy. A further aim is to provide a pedagogical tool for teachers to navigate the various materials available on social media for studying and teaching about the Holocaust. As also stressed by the IHRA in the new Recommendations for Teaching and Learning about the Holocaust (IHRA, 2019), social media can be indeed an important part of contemporary education, on condition that the content provided is firmly grounded in fact and/or based on sound research (Berberich, 2018). In this sense, Holocaust museums are among the primary agencies for teaching about the Holocaust and growing research is showing that their social media use is becoming an important instrument of promotion, education, and global scale outreach (Gray, 2014; Manikowska, 2020).

A specific objective of this study was to build consensus among international experts in the field of Digital Holocaust Memory on: (i) the validation of a framework composed of a set of macro and micro categories organised into three domains that are suitable for capturing the various topics involved in the field study; and (ii) on indications for analysing social media content provided by Holocaust museums according to framework categories, with specific definitions and examples for each category.

13.3 Methods and procedure

The Delphi method is defined as "a panel communication technique by which researchers collect expert opinions, enable experts to communicate anonymously with one another and then explore the underlying information collected" (Yeh, Hsu, Wu, Hwung, & Lin, 2014, p. 711). It is a method based on consensus development comprising a number of iterations or survey rounds through which the knowledge generated is reworked by the study team and submitted again for the consideration of the panel until an overall consensus is reached (Adler & Giglio, 1996; Keeney, Hasson, & McKenna, 2011). It has proved to be a reliable measurement instrument in developing new concepts and setting the direction of future-orientated research (Rowe & Wright, 1999). The technique involves seeking the opinion of a group of experts in order to assess the extent of agreement on a given issue and to resolve disagreement. However, while it has been used to establish consensus across a range of subject areas (e.g., health studies, education, social sciences), its use has been scant in the area of Holocaust research (Cape, 2004). As one of the common approaches of Delphi studies is the search for and identification of critical elements in environments that are still not well defined (Shaikh & Khoja, 2014), setting up such a study would help to conceptualise a framework for analysing social media content provided by Holocaust museums.

Like in other studies performed using the Delphi technique, a series of conditions have been considered in order to ensure adequate planning and execution, such as anonymity of Delphi participants, iteration that enables participants to examine or modify their views based on the opinions of the expert group, controlled feedback informing participants of the other participants' ideas, and statistical analysis that allows a quantitative study of data (Rowe & Wright, 1999, cited in Snelson, Rice, & Wyzard, 2012). This Delphi study mostly employs comments and feedback provided through answers to open questions, while the adoption of quantitative data techniques has enabled the most problematic categories to be assessed on the basis of appropriateness and completeness where disagreement among the experts occurred.

In this study, we have attempted to articulate the significant factors in the complex entity (Skulmoski, Hartman, & Krahn, 2007) of Digital Holocaust Memory with a group of experts versed in a range of disciplinary areas (e.g., Contemporary history, Genocide and/or Holocaust studies, Holocaust education, Cultural studies, Media studies) who were asked to evaluate the framework.

The initial questionnaire was thus based on an existing framework containing macro and micro categories derived from the study team's knowledge and review of the literature, as well as from adjustments made through some application tests carried out by a group of four researchers who were not on the panel.

To meet the study objectives, the framework was divided into three sections. The first section – Historical content – includes any information about the period, the places and the events that created, influenced, or formed the backdrop to the historical development of the Holocaust. The second section – Themes - includes a list of topics historically or culturally associated with the Holocaust as matters of prime or secondary importance, any artistic production related to the Holocaust, and any contemporary events connected with the Holocaust or related topics. Finally, the third section - Museum activities and service communication - is composed of a set of categories related to the museum activities (e.g., in-site and online events) and comprises communications concerning the services offered by the museums, such as operating time, etc. Each section is composed of a number of macro and micro categories accompanied by a label, a definition and a few examples taken from social media content.

A non-probability purposive sample of 44 experts was invited with a personalised email containing a brief presentation of the study and an explanation of the commitments that were expected from their participation in the study. They are all active scholars in various fields related to Holocaust study and were selected within a large plethora of countries. Being aware that Holocaust studies build on different scholarly traditions, it was important to engage representatives from many different research cultures in order to reach as wide a consensus as possible.

Twenty-five experts responded to the invitation, of whom 22 agreed to participate and were sent the link to the first-round survey. As the questionnaire was anonymous and it was not possible to trace the identity of the respondents, the invitation to complete subsequent questionnaires was sent to the entire group of 22, except for one participant who had withdrawn and stated that he no longer wished to take part in the study. This resulted in a decrease in the number of participants both in Round 2 and Round 3 (see 13.8 for the list of experts that have agreed to reveal their identities).

This Delphi process comprised three rounds. Although classic Delphi studies recommended from four to seven rounds (Young & Hogben, 1978), today two or three rounds are considered appropriate to control and minimize time, cost and participant fatigue and thus produce higher quality results (Hasson, Keeney, & McKenna, 2000). In this study, although the initial indications given to participants were based on their willingness to participate in two rounds, the numerous critical issues that emerged during Round 2, and consequently the need to make important additional changes, made it necessary to carry out a third round. In each round, participants were asked to independently rank the appropriateness (e.g., clarity and completeness) of category definitions and the examples of application related to the subsets of macro and micro categories, across the three domains, using a 5-point Likert scale (1=Not at all, 2=Slightly, 3=Moderately, 4=Very, 5=Extremely). They were also asked to state whether the subset was considered complete (Not at all, Marginally complete, Quite complete, Totally complete, Not sure/ I do not know) and if there was any missing category or further categories to be added (Yes, No). A free-text response was always available to participants within each of the survey domains, providing the opportunity to elaborate or explain responses.

Data on participant demographics were also collected including gender, age, country of residence, main field of expertise, level of knowledge on social media use in Digital Holocaust Memory.

In Round 1 participants were asked to rate the appropriateness of the definitions used in the subsets of 87 macro and micro categories, across the three domains of Historical content, Themes, Museum activities and service communication, for a total of 47 questions. In Round 2, each participant received a revised survey comprising 53 questions and was asked to rate the appropriateness of the definitions used in the subsets of macro and micro categories, across the three domains of Historical content, Post-Holocaust, Museum activities and service communication. This survey included 60 categories from Round 1 and 22 new categories, and participants were asked to rate again the previous categories and to rate the new categories. In Round 3 each participant received a revised survey which comprised a total of 53 questions through which they were asked to rate the appropriateness of the definitions used in the subsets of macro and micro categories, across the three domains of Historical content of the Holocaust, Contemporary issues related to the Holocaust, Museum activities and communication. This survey included 81 categories from Round 2 and 4 new categories, and participants were asked to rate the previous categories again and to rate the new categories one last time.

The study received the approval of the Ethics Committee of the Universitat Oberta de Catalunya, Spain, and all participants provided their informed consent to take part in the study at the beginning of the process, during the online survey. All data were handled in accordance with the European Union data protection Regulations (GDPR EU Regulation 2016/679).

All surveys were administered using LimeSurvey (https://www.limesurvey.org/), and survey links were distributed via email.

Descriptive statistics were used to describe participants' demographic characteristics and group responses to each statement in all three rounds. Unlike other studies that mostly use a quantitative approach to measure consensus, this study mainly relied on analysis of the open-ended responses provided for each category (macro or micro). An attempt was made to include as many suggestions for modification, integration or elimination as possible. Nonetheless, when the suggestions went in opposite directions, or implied very different decisions, it was decided to accept those that were most frequent or that would best fit the revision of the framework. Descriptive statistics were also used to measure consensus across the three rounds.

13.4 Results

Of the 22 experts that agreed to participate in this Delphi study, 17 participants completed Round 1 (77.3% response rate), 12 completed Round 2 (54.5% response rate) and 7 completed Round 3 (31.8% response rate). Table 1 presents the demographic characteristics of participants in each round. Gender distribution was skewed, with a male preponderance in all three rounds. Participants' mean age ranged from 49 to 52 years across the three rounds, where the most represented countries were Israel, United Kingdom and United States of America. The two main fields of expertise were Genocide and/or Holocaust studies and Holocaust education. Finally, more than half of the respondents reported being well or very well informed about social media use in Digital Holocaust Memory.

Table 1. Demographic characteristics of Delphi participants.

	Round 1 (n=17)	Round 2 (n=12)	Round 3 (n=7)
Gender			
Male	11 (64.7%)	9 (75.0%)	5 (71.4%)
Female	4 (23.5%)	3 (25.0%)	1 (14.3%)
Other	0 (0.0%)	0 (0.0%)	0 (0.0%)
I prefer not to say	2 (11.8%)	0 (0.0%)	1 (14.3%)
Mean age in years (SD)	49.7 (14.0)	49.5 (14.2)	52.4 (14.9)
Country of residence			
Austria	1 (5.9%)	0 (0.0%)	0 (0.0%)
Germany	1 (5.9%)	0 (0.0%)	0 (0.0%)
Israel	3 (17.6%)	2 (16.7%)	2 (28.6%)
Italy	3 (17.6%)	1 (8.3%)	0 (0.0%)
Switzerland	1 (5.9%)	0 (0.0%)	1 (14.3%)
United Kingdom	6 (35.3%)	6 (50.0%)	2 (28.6%)
United States	2 (11.8%)	3 (25.0%)	2 (28.6%)
Main field of expertise			
Contemporary history	6 (35.3%)	3 (25.0%)	2 (28.6%)
Genocide and/or Holocaust studies	8 (47.1%)	7 (58.3%)	4 (57.1%)
Holocaust education	6 (35.3%)	7 (58.3%)	5 (71.4%)
Cultural studies	3 (17.6%)	2 (16.7%)	1 (14.3%)
Media studies	5 (29.4%)	3 (25.0%)	2 (28.6%)
Jewish history	1 (5.9%)	0 (0.0%)	0 (0.0%)
Geography, GIS, Cartography	1 (5.9%)	1 (8.3%)	0 (0.0%)
Public history	1 (5.9%)	0 (0.0%)	0 (0.0%)
Computer science	1 (5.9%)	0 (0.0%)	1 (14.3%)
How well informed about social media use in Digital Holocaust Memory			
Not at all informed	1 (5.9%)	1 (8.3%)	0 (0.0%)
Slightly informed	1 (5.9%)	0 (0.0%)	1 (14.3%)
Moderately informed	5 (29.4%)	4 (33.3%)	0 (0.0%)
Well informed	5 (29.4%)	4 (33.3%)	4 (57.1%)
Very well informed	5 (29.4%)	3 (25.0%)	2 (28.6%)

Table 2 shows a summary of the Delphi statements for each of the three domains. As the names of the categories, both micro and macro, and of the three domains changed from round to round, the table shows all the names used in the three domains and the final labels.

Table 2. Grouped statements by domain.

	Round 1	Round 2	Round 3	Final
Historical content (1), Historical content (2), Historical content of the Holocaust (3), Historical content of the Holocaust (final)	5 macro categories, 37 micro categories	7 macro categories, 48 micro categories	7 macro categories, 48 micro categories	7 macro categories, 48 micro categories

Themes (1), Post-Holocaust (2), Contemporary issues of the Holocaust (3), Contemporary issues related to the Holocaust (final)	5 macro categories, 36 micro categories	5 macro categories, 17 micro categories	5 macro categories, 20 micro categories	5 macro categories, 20 micro categories
Museum activities and service communication (1), Museum activities and service communication (2), Museum activities and communication (3), Museum activities and communication (final)	4 macro categories, 0 micro category	5 macro categories, no micro category	5 macro categories, no micro category	6 macro categories, no micro category
Totals	14 macro categories, 73 micro categories	17 macro categories, 65 micro categories	17 macro categories, 68 micro categories	18 macro categories, 68 micro categories

The most significant changes affected the second domain (*Themes*), which was completely revised from Round 1 to Round 2 and specifically refocused on post-Holocaust topics or the contemporaneity of the Holocaust. Some of the original macro and micro categories were moved to the group of categories under domain 1, while others were eliminated, and new ones were included. Globally, the changes introduced in domain 2 also had important repercussions in the other two domains, although their initial design was not altered. Other areas that were found to be particularly troublesome were those related to the macro categories "Agency" and "Stages of the Holocaust", included within the first domain (*Historical content*). In particular, "Stages of the Holocaust" was extensively revised from Round 2 to Round 3.

Finally, Round 3 led to adding a further macro category, "Social media events", as distinguished from other museum activities, in domain 3.

The final framework is constituted of 18 macro categories and 68 micro categories.

Table 3 presents the mean scores and standard deviations for each statement in response to the request to rate the appropriateness (e.g., clarity and completeness) of the categories' definitions and the application examples. The Table uses the definitive framework structure and the labels of the various domains, macro and micro categories, and shows in italics previous denominations as well as the categories which were removed across the various rounds.

Table 3. Mean scores and standard deviations for each statement in response to the request to rate the appropriateness (e.g., clarity and completeness) of the categories' definitions and application examples.

Dimensions, macro and micro categories	Round 1 (n=17)	Round 2 (n=12)	Round 3 (n=7)
	Mean (SD)	Mean (SD)	Mean (SD)
A. Historical content of the Holocaust	4.6 (0.6)	4.8 (0.5)	4.9 (0.4)
A.1. Places	4.6 (0.6)	4.6 (0.5)	5.0 (0.0)
A.1.1. Local	4.6 (1.0)	4.6 (0.7)	4.8 (0.4)
A.1.2. Regional	4.3 (1.0)	4.5 (0.7)	4.7 (0.8)
A.1.3. National	4.3 (1.1)	4.6 (0.7)	4.7 (0.8)
A.1.4. Transnational (*International*)	4.2 (1.3)	4.5 (0.7)	4.8 (0.4)
A.2. Timeline	4.7 (0.5)	4.5 (0.5)	5.0 (0.0)
A.2.1. Pre-1933	4.9 (0.4)	4.8 (0.4)	4.8 (0.4)
A.2.2. 1933-1939	4.8 (0.6)	4.8 (0.4)	4.8 (0.4)
A.2.3. 1939-1945	*4.6 (0.5)*	-	-
A.2.3. 1939-1941	-	4.5 (0.7)	4.8 (0.4)
A.2.4. 1941-1945	-	4.5 (0.7)	4.7 (0.8)
A.2.5. 1945-1950 (*Post-1945*)	4.8 (0.4)	4.6 (0.7)	4.7 (0.5)
A.3. Agency	4.3 (0.8)	4.5 (0.5)	5.0 (0.0)
A.3.1. Murdered (*Victim, Perish*)	4.4 (0.9)	4.0 (1.0)	4.8 (0.4)
A.3.2. Survive (*Survivor*)	4.4 (0.9)	4.4 (0.5)	4.8 (0.4)
A.3.3. Perpetration (*Perpetrator*)	4.4 (1.0)	4.4 (0.5)	4.8 (0.4)
A.3.4. Collaboration (*Collaborator*)	4.2 (1.1)	4.6 (0.5)	4.8 (0.4)
A.3.5. Bystanding (*Bystander*)	4.1 (1.0)	4.2 (0.7)	4.8 (0.4)
A.3.6. Combat and resistance (*Resister*)	4.3 (1.0)	4.6 (0.5)	5.0 (0.0)
A.3.7. Rescue (*Rescuer or Righteous among the Nations*)	4.4 (0.9)	4.4 (0.7)	5.0 (0.0)
A.3.8. Liberation (*Liberator*)	4.3 (1.1)	4.6 (0.7)	4.7 (0.8)
A.4. Groups	4.6 (0.6)	4.4 (1.0)	5.0 (0.0)
A.4.1. Jews	4.9 (0.3)	4.8 (0.4)	5.0 (0.0)
A.4.2. Roma and Sinti	4.8 (0.4)	4.5 (0.8)	4.7 (0.8)
A.4.3. Political opponents	4.4 (1.0)	4.6 (0.7)	4.7 (0.8)
A.4.4. People with disabilities (*The disabled*)	4.6 (0.8)	4.6 (0.7)	4.7 (0.8)
A.4.5. Slavic peoples	4.4 (0.8)	4.5 (0.8)	4.7 (0.8)
A.4.6. Forced labourers	4.2 (1.3)	4.4 (0.8)	4.5 (0.8)
A.4.7. Homosexuals	4.5 (0.9)	4.4 (1.1)	4.3 (1.1)
A.4.8. Jehovah's Witnesses	4.4 (0.9)	4.4 (1.1)	4.7 (0.8)
A.4.9. Soviet prisoners of war	4.4 (1.0)	4.6 (0.7)	4.7 (0.5)
A.4.10. Other	3.9 (1.6)	4.9 (0.4)	4.6 (0.9)
A.5. Stages of the Holocaust	4.2 (0.8)	4.4 (0.7)	4.8 (0.4)
A.5.1. Pre-Holocaust	4.7 (0.5)	4.6 (0.7)	4.8 (0.4)
A.5.2. Definition	*4.3 (0.8)*	*4.4 (1.1)*	-
A.5.2. Classification, dehumanisation and symbolisation	-	-	4.8 (0.4)
A.5.3. Isolation or segregation	*4.7 (0.5)*	*4.7 (0.7)*	-
A.5.3. Discrimination, isolation and segregation	-	-	4.7 (0.5)
A.5.4. Emigration	*4.6 (0.6)*	*4.3 (1.1)*	-
A.5.4. Organisation	-	-	5.0 (0.0)
A.5.5. Ghettoization	*4.5 (0.6)*	*4.7(0.7)*	-
A.5.5. Persecution and deportation (*Deportation*)	4.6 (0.6)	4.8 (0.6)	4.7 (0.5)
A.5.6. Mass murder or "Extermination"	4.7 (0.6)	5.0 (0.0)	5.0 (0.0)
A.5.7. Liberation and aftermath	4.7 (0.6)	4.7 (0.7)	4.8 (0.4)

A.5.9. Post-Holocaust	*4.5 (0.9)*	-	-
A.6. Context and society	-	4.5 (0.7)	4.8 (0.4)
A.6.1. Jews, Jewish identity, history, religion, and culture	4.5 (0.6)	4.8 (0.4)	5.0 (0.0)
A.6.2. Nazi ideology and attitudes towards Jews and other categories	4.7 (0.6)	4.8 (0.4)	5.0 (0.0)
A.6.3. The camp system (*The camps*)	4.4 (0.7)	4.4 (0.8)	4.8 (0.4)
A.6.4. Prejudice, discrimination, racism, antisemitism and antigypsyism (*Antisemitism*)	4.6 (0.8)	4.7 (0.5)	4.8 (0.4)
A.6.5. War and German occupation in Western and Eastern Europe	4.6 (0.5)	4.4 (0.8)	5.0 (0.0)
A.6.12. Women in the Holocaust	*4.6 (0.6)*	-	-
A.6.13. Children in the Holocaust	*4.5 (0.6)*	-	-
A.6.6. Elderly, children and women		4.0 (0.9)	4.5 (0.8)
A.6.7. Fates of individuals (*Biography*)	4.6 (0.6)	4.7 (0.5)	4.5 (0.8)
A.6.8. International response	-	4.8 (0.4)	4.8 (0.4)
A.7. Artefacts and authentic representation	-	4.3 (1.1)	4.7 (0.5)
A.7.1. Artefacts	-	4.6 (0.8)	4.6 (0.9)
A.7.2. Photographic and filmic evidence	-	4.8 (0.4)	4.8 (0.4)
A.7.3. Literary and documentary production (*Literary production*)	-	4.9 (0.3)	5.0 (0.0)
A.7.4. Music and theatre	-	4.7 (0.7)	4.8 (0.4)
A.7.5. Sculptural and visual art (*Architecture, sculptural and visual art*)	-	4.7 (0.7)	4.8 (0.4)
A.7.6. Architecture	-	-	4.8 (0.4)
B. Themes	*4.2 (0.8)*	*4.4 (0.9)*	*4.9 (0.4)*
B.1. General topics	*3.7 (1.4)*	-	-
B.1.5. The ghettos	*4.6 (0.6)*	-	-
B.1.7. Combat and resistance	*4.5 (0.6)*	-	-
B.1.8. The Final solution	*4.9 (0.4)*	-	-
B.1.9. Auschwitz	*4.1 (1.0)*	-	-
B.1.10. The ending of the Holocaust (liberation and aftermath)	*4.7 (0.6)*	-	-
B.2. Agency of perpetrator	*3.9 (1.2)*	-	-
B.2.1. Persecution, deportation, and murder of Jews and other categories by National Socialism in Germany and directly controlled countries	*4.8 (0.4)*	-	-
B.2.2. Persecution, deportation, and murder of Jews and other categories by Italian Fascism and other Nazi accomplices	*4.2 (1.2)*	-	-
B.3. Biography/General event	*3.9 (1.3)*	-	-
B.3.2. General event		-	-
B.5. Contemporary event related to the Holocaust	*4.1 (1.1)*	-	-
B.5.1. Remembrance event	*4.5 (0.8)*	-	-
B.5.2. Commemoration event	*4.4 (0.7)*	-	-
B.5.4. Editorial event	*4.4 (0.7)*	-	-
B.5.5. Artistic or media event	*4.5 (0.6)*	-	-
B.5.6. Topical subject	*4.5 (0.8)*	-	-
B. Contemporary issues related to the Holocaust	4.2 (0.8)	4.4 (0.9)	4.9 (0.4)
B.1. Holocaust scholarship (*Holocaust research*)	-	4.8 (0.4)	4.7 (0.8)
B.1.1. Holocaust research	-	4.8 (0.4)	5.0 (0.0)
B.1.2. Archaeology of the Holocaust	4.3 (0.9)	3.8 (1.4)	4.3 (1.0)

B.2. Heritage of the Holocaust	-	4.7 (0.7)	4.8 (0.4)
B.2.1. Political, legal, cultural and social developments	-	-	4.8 (0.4)
B.2.2. Testimonies and their lessons for the present (*Heritage from the Holocaust: Hope, Faith and Resilience, Testimonies and their lessons for today: Hope, Faith and Resilience*)	4.7 (0.5)	4.7 (0.5)	4.7 (0.8)
B.2.3. The Righteous among the Nations	-	4.6 (0.7)	5.0 (0.0)
B.2.4. Iconic places and people	-	4.4 (0.8)	5.0 (0.0)
B.2.5. Second and third generations		4.5 (0.8)	4.8 (0.4)
B.3. Parallels and challenges	-	4.6 (0.7)	4.8 (0.4)
B.3.1. Countering Holocaust denial and distortion (*Holocaust denial and distortion*)	4.6 (0.6)	4.4 (1.0)	5.0 (0.0)
B.3.2. Antisemitism, racism and hate	-	4.9 (0.3)	5.0 (0.0)
B.3.3. Other genocides	4.3 (0.9)	4.8 (0.4)	4.8 (0.4)
B.4. Remembrance and education	-	4.8 (0.4)	5.0 (0.0)
B.4.1. Remembrance and commemoration	-	4.6 (0.7)	5.0 (0.0)
B.4.2. Public discourse about various aspects of the Holocaust in the press and other media (*Event in the news*)	4.6 (0.8)	4.6 (0.5)	4.8 (0.4)
B.4.3. Holocaust education: Teaching and learning about the Holocaust (*Holocaust education*)	4.9 (0.3)	4.9 (0.3)	5.0 (0.0)
B.5. Contemporary representation of the Holocaust (*Artistic production related to the Holocaust, Representation of the Holocaust*)	4.3 (1.1)	4.7 (0.7)	5.0 (0.0)
B.5.1. Films and documentaries (*Cinema and TV, Films and photographs*)	4.5 (0.6)	4.7 (0.5)	4.8 (0.4)
B.5.2. Photographs (*Art and photography*)	4.5 (0.9)	-	4.8 (0.4)
B.5.3. Literary and documentary production (*Literature and poetry, Literary production*)	4.7 (0.6)	4.7 (0.5)	5.0 (0.0)
B.5.4. Music and theatre	4.5 (0.7)	4.6 (0.7)	4.8 (0.4)
B.5.5. Sculptural and visual art (*Architecture, sculptural and visual art*)	-	4.5 (0.8)	4.8 (0.4)
B.5.6. Artefacts and architecture	-	-	4.7 (0.8)
B.5.7. Digital and visual representation	-	4.8 (0.6)	5.0 (0.0)
C. Museum activities and communication	4.5 (0.7)	4.5 (0.7)	4.7 (0.5)
C.1. Museum event	4.8 (0.6)	4.7 (0.7)	5.0 (0.0)
C.2. Social media events	-	-	-
C.3. Communication and responses to audience (*Communication with audience*)	-	4.9 (0.3)	4.8 (0.4)
C.4. Collaborations and endorsements (*Collaborations*)	4.9 (0.3)	4.7 (0.7)	5.0 (0.0)
C.5. Information about museum operation	4.6 (0.7)	4.6 (0.7)	4.8 (0.4)
C.6. Other	4.7 (0.6)	4.6 (0.7)	5.0 (0.0)

If globally the number of statements on which consensus was achieved improved steadily for each domain from Round 1 to Round 3, there are also a number of cases where the mean scores decreased from Round 1 to Round 2 (i.e., A.2.1., A.2.5., A.3.1., A.4., A.4.2., A.5.1., A.5.4., A.6.5., B.1.2., B.3.1., C.1., C.4). However, in these cases, the mean scores increased again or remained stable from Round 2 to Round 3. There are also a few cases in which the mean scores decreased steadily from Round 1 to Round 3 (i.e., A.4.7.), decreased from Round 2 to Round 3 (i.e., B.1., C.3.), or increased from Round 1 to Round 2 and decreased from Round 2 to Round 3 (i.e., A.6.7).

The final framework is illustrated in Figure 1, while the complete set of definitions is available in 13.7.

Figure 1. The final framework

A. Historical content of the Holocaust
A.1. Places
A.1.1. Local
A.1.2. Regional
A.1.3. National
A.1.4. Transnational
A.2. Timeline
A.2.1. Pre-1933
A.2.2. 1933-1939
A.2.3. 1939-1941
A.2.4. 1941-1945
A.2.5. 1945-1950
A.3. Agency
A.3.1. Murdered
A.3.2. Survive
A.3.3. Perpetration
A.3.4. Collaboration
A.3.5. Bystanding
A.3.6. Combat and resistance
A.3.7. Rescue
A.3.8. Liberation
A.4. Groups
A.4.1. Jews
A.4.2. Roma and Sinti
A.4.3. Political opponents
A.4.4. People with disabilities
A.4.5. Slavic peoples
A.4.6. Forced labourers
A.4.7. Homosexuals
A.4.8. Jehovah's Witnesses
A.4.9. Soviet prisoners of war
A.4.10. Other
A.5. Stages of the Holocaust
A.5.1. Pre-Holocaust
A.5.2. Classification, dehumanisation and symbolisation
A.5.3. Discrimination, isolation and segregation
A.5.4. Organisation
A.5.5. Persecution and deportation
A.5.6. Mass murder or "Extermination"
A.5.7. Liberation and aftermath
A.6. Context and society
A.6.1. Jews, Jewish identity, history, religion, and culture
A.6.2. Nazi ideology and attitudes towards Jews and other categories
A.6.3. The camp system

A.6.4. Prejudice, discrimination, racism, antisemitism and antigypsyism
A.6.5. War and German occupation in Western and Eastern Europe
A.6.6. Elderly, children and women
A.6.7. Fates of individuals
A.6.8. International response
A.7. Artefacts and authentic representation
A.7.1. Artefacts
A.7.2. Photographic and filmic evidence
A.7.3. Literary and documentary production
A.7.4. Music and theatre
A.7.5. Sculptural and visual art
A.7.6. Architecture
B. Contemporary issues related to the Holocaust
B.1. Holocaust scholarship
B.1.1. Holocaust research
B.1.2. Archaeology of the Holocaust
B.2. Heritage of the Holocaust
B.2.1. Political, legal, cultural and social developments
B.2.2. Testimonies and their lessons for the present
B.2.3. The Righteous among the Nations
B.2.4. Iconic places and people
B.2.5. Second and third generations
B.3. Parallels and challenges
B.3.1. Countering Holocaust denial and distortion
B.3.2. Antisemitism, racism and hate
B.3.3. Other genocides
B.4. Remembrance and education
B.4.1. Remembrance and commemoration
B.4.2. Public discourse about various aspects of the Holocaust in the press and other media
B.4.3. Holocaust education: Teaching and learning about the Holocaust
B.5. Contemporary representation of the Holocaust
B.5.1. Films and documentaries
B.5.2. Photographs
B.5.3. Literary and documentary production
B.5.4. Music and theatre
B.5.5. Sculptural and visual art
B.5.6. Artefacts and architecture
B.5.7. Digital and visual representation
C. Museum activities and communication
C.1. Museum event
C.2. Social media events
C.3. Communication and responses to audience
C.4. Collaborations and endorsements
C.5. Information about museum operation
C.6. Other

The final framework is organised into three domains – *Historical content of the Holocaust*, *Contemporary issues related to the Holocaust*, and *Museum activities and communication* – each of which comprises a set of macro and micro categories.

The domain *Historical content of the Holocaust* covers any information about the period, the places, the actions and the events that created, influenced, or formed the backdrop to the historical development of the Holocaust. This domain includes historical content related to the Holocaust, its antecedents and its immediate consequences (e.g., Nuremberg Trials, closure of the last DP camps, etc.). The aim is to encompass every possible type of historical content related to the Holocaust and its material evidence. Information or facts not related to the history of the Holocaust should not be classified under this category. It includes the following macro-categories: Places, Timeline, Agency, Groups, Stages of the Holocaust, Context and society, and Artefacts and authentic representation.

The domain *Contemporary issues related to the Holocaust* includes a set of categories which refer to the period after the liberation phase and its immediate aftermath (e.g., Nuremberg Trials, closure of the last DP camps, etc.), i.e. from the early 1950s onwards, until today. The involved categories are directly related to the Holocaust or its parallels, to academic research and to its artistic representation. They also encompass education and commemoration issues, and a number of subjects relevant to the contemporary challenges and risks of Holocaust memory. Macro-categories are: Holocaust scholarship, Heritage of the Holocaust, Parallels and challenges, Remembrance and education, Contemporary representation of the Holocaust.

The domain *Museum activities and communication* is composed of a set of categories related to museum events (e.g., the announcement of a new exhibition, a virtual tour, a webinar, etc.), comprising communications about services offered by the museums (e.g., operating time), communication with the audience and endorsements from related institutions and individuals. It includes the following macro-categories: Museum event, Social media events, Communication and responses to audience, Collaborations and endorsements, and Information about museum operation.

13.5 Conclusions and open issues

This Delphi study gathered consensus on a range of social media topics related to Digital Holocaust Memory as conveyed by Holocaust museums. The findings of this study have enabled the research team to develop initial guidelines and identify areas for further research. Although the study drew on an international network of Holocaust studies scholars and views were gathered from a wide range of related disciplines, the size and composition of the expert panel may not be representative of all IHRA countries and this may make results not very easy to generalize.

In addition to identifying areas of consensus, the study succeeded in highlighting areas in the field where there is less certainty, potentially requiring further exploration to resolve these issues. Although this study generated consensus on the majority of statements, experts also identified a number of challenges that need to be resolved in order to more effectively use this framework to analyse social media content and to provide assistance to teachers and educators for selecting educational content. For instance, one of the topics that required extensive reflection and revision was the "Agency" classification and its conceptualisation. The well-established categories of Perpetration, Collaboration and Bystanding, as conceptualised in early studies, have recently been questioned and greater nuances between resistance, rescue, opposition and bystanding are needed (Kühne & Rein, 2020). In this sense, the concept of the "implicated subject" (Rothberg, 2019) could help to further elaborate on the distinction between victims and perpetrators, as well as on other categories of agency.

As reported above, another controversial macro-category was "Stages of the Holocaust". The initial classification was mostly based on Hilberg's seminal work (Hilberg, 1985) and his seven-stage model was found to be unsatisfactory due to its linearity and because it is heavily based on a nearly fifteen-year span of German history. However, not all stages occurred everywhere and all the time: some either overlapped or did not occur at all in certain countries. For these reasons, Stanton's ten-stage model of genocide (Stanton, 1996) was preferred in combination with Hilberg's model, resulting in a classification that condenses some of Stanton's stages while mapping Hilberg's model, and maintains some of the Holocaust's specificities. However, further examination is still needed to find out which models are best suited to account for the different situations in different countries.

Periodisation was also found to be still controversial especially for defining key issues like the beginning of the so-called Final Solution and the mass killings in Eastern Europe in 1941, as well as what should be considered as part of Holocaust history and what should be ascribed to contemporaneity. In this study we have considered June 1941 as the watershed between preparation of the "extermination" phase and the actual mass killings; however, a further periodisation would consider 1943 as another key year, when mass murder became "Vernichtung durch Arbeit" ("Annihilation through work") and life spans increased by several months or even till the end of the war for those chosen to work. We have also considered 1950 as the cut-off date for inclusion of historical events, in order to include the last migratory movements of survivors and the closure of the last DP camps as part of the history of the Holocaust. However, any such boundary may seem arbitrary depending on the implications of the aftermath one wishes to consider. In any case, differences and similarities can be found in the history of the various countries involved in the Holocaust, thus making it impossible to arrive at a universally acceptable periodization.

In addition to these open issues, while a strength of the study was its ability to access a network of scholars and experts in the field of Digital Holocaust Memory, the authors of this study may have inadvertently introduced some response bias. Further investigation is needed to customize this framework by taking into account diverse local histories, also in the light of recent studies that have shown that the Holocaust affected a larger number of countries than previously thought, particularly when considering the impact of the Holocaust on European colonialism in Africa (Boum & Stein, 2018; Kissi, 2021). Research into the geography of the Holocaust (Knowles, Cole, & Giordano, 2014) would provide data for further refinements.

Another limitation of this study is that there is no definitive assurance of the usability of this framework since its usefulness and effectiveness will have to be verified through application to the real content found on the social media profiles of Holocaust museums. The next phase of the study will centre on analysing samples of messages posted on major social media platforms (Facebook, Twitter and Instagram), thus helping expand the area of virtual Holocaust memory and its academic study (Walden, 2022).

13.6 References

Adler, M. & Ziglio, E. (1996). *Gazing into the oracle: The Delphi method and its application to social policy and public health*. London, UK: Kingsley.

Berberich, C. (2018). Introduction: the Holocaust in contemporary culture". *Holocaust Studies*, 25(1-2), 1-11.

Boum, A., & Stein, A. A. (2018). *The Holocaust and North Africa*. Palo Alto, CA: Stanford University Press.

Cape, B. (2004). Gathering opinion and initiating debate: the success of the Delphi Method in purely qualitative research. *Library and Information Research*, 28 (89), 35-44.

Hasson, F.., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, 32(4), 1008-1015.

Huxley, K. (2020). Content Analysis, Quantitative. In P. Atkinson, S. Delamont, A. Cernat, J.W. Sakshaug, & R.A. Williams (Eds.), *SAGE Research Methods Foundations*. https://www.doi.org/10.4135/9781526421036880564

Keeney, S., Hasson, F., & McKenna, H. (2011). *The Delphi Technique in Nursing and Health Research*. London, UK. Wiley.

Kissi, E. (2021). Integrating sub-Saharan Africa into a historical and cultural study of the Holocaust. *Holocaust Studies*, DOI: 10.1080/17504902.2021.1970955

Knowles, A. K., Cole, T., & Giordano, A. (2014). *Geographies of the Holocaust*. Bloomington, IN: Indiana University Press.

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology*. London, UK: Sage Publications.

Kühne, T., & Rein, M. J. (2020). *Agency and the Holocaust. Essays in Honor of Debórah Dwork*. Basingstoke, UK: Palgrave Macmillan.

Gray, M. (2014). *Contemporary Debates in Holocaust Education*. Basingstoke, UK: Palgrave Macmillan.

Hilberg, R. (1985). *The Destruction of the European Jewry (revised and definitive edition).* New York, NY: Holes and Meir.

International Holocaust Remembrance Alliance (2019). *Recommendations for Teaching and Learning about the Holocaust.* https://holocaustremembrance.com/sites/default/files/inline-files/IHRA-Recommendations-Teaching-and-Learning-about-Holocaust.pdf

Lewins, A.**, &** Silver, C. (2007). *Using software in qualitative research: A step-by-step guide. London, UK:* Sage Publications.

Manikowska, E. (2020). Museums and the Traps of Social Media: The Case of the Auschwitz-Birkenau Memorial and Museum. *Santander Art and Culture Law Review*, 2/2020 (6), 223-250.

Mukerjee, S., & González-Bailón, S. (2020). Social Media Data: Quantitative Analysis. In P. Atkinson, S. Delamont, A. Cernat, J.W. Sakshaug, & R.A. Williams (Eds.), *SAGE Research Methods Foundations*. https://www.doi.org/10.4135/9781526421036873634

Neuendorf, K. A. (2002). *The content analysis guidebook*. London, UK: Sage Publications.

Parrott-Sheffer, C. (2019). Holocaust museum. *Encyclopaedia Britannica*, http s://www.britannica.com/topic/Holocaust-museum.

Prandner, D., & Seymer, A. (2020). Social Media Analysis. In P. Atkinson, S. Delamont, A. Cernat, J.W. Sakshaug, & R.A. Williams (Eds.), *SAGE Research Methods Foundations.* https://www.doi.org/10.4135/9781526421036921823

Rothberg, M. (2019). *The Implicated Subject: Beyond Victims and Perpetrators*. Palo Alto, CA: Stanford University Press.

Rowe, G., & Wright, G. (1999). The Delphi technique as a forecasting tool: issues and analysis. *International Journal of Forecasting*,15, 353–375.

Schreier, M. (2019). Content Analysis, Qualitative. In P. Atkinson, S. Delamont, A. Cernat, J.W. Sakshaug, & R.A. Williams (Eds.), *SAGE Research Methods Foundations.* https://www.doi.org/10.4135/9781526421036753373

Shaikh, Z. A., & Khoja, S. A. (2014). Personal learning environments and university teacher roles explored using Delphi. *Australasian Journal of Educational Technology*, 30(2), 202-226.

Skulmoski, G. J., Hartman, F. T., & Krahn, J. (2007). The Delphi Method for Graduate Research. *Journal of Information Technology Education*, 6, 1-21.

Sloan, L., & Quan-Haase, A. (2018). *The SAGE Handbook of Social Media Research Methods.* London, UK: SAGE Publications.

Snelson, C., Rice, K. and Wyzard, C. (2012). Research priorities for YouTube and video-sharing technologies: A Delphi study. *British Journal of Educational Technology*, 43, 119-129.

Stanton, G. H. (1996). *The Ten Stages of Genocide.* Genocide Watch. https://www.genocidewatch.com/tenstages

Yeh, Y.-F., Hsu, Y.-S., Wu, H.-K., Hwang, F.-K. and Lin, T.-C. (2014). Development and validation of TPACK-practical. *British Journal of Educational Technology*, 45, 707-722.

Young, W. H., & Hogben, D. (1978). An Experimental Study of the Delphi Technique. *Education Research and Perspectives*, 5(1), 57-62.

Walden, V. G. (2022). What is 'virtual Holocaust memory'? *Memory Studies*, 15(4), 621–633.

Further references

Bailer, B., & Wetzel, J. (2019). *Mass Murder of People with Disabilities and the Holocaust.* Berlin: Metropol Verlag + IHRA.

Beorn, W., Cole, T., Gigliotti, S., Giordano, A., Holian, A., Jaskot, P.B., Knowles, A.K., Masurovsky, M. and Steiner, E.B. (2009). Geographies of the Holocaust. *Geographical Review*, 99, 563-574.

Cowan, P. & Maitles, H. (2017). *Understanding and Teaching Holocaust Education.* London, UK: SAGE, pp. 21-22.

Gilead, I. (2014). Archaeology of the Holocaust. *Témoigner. Entre histoire et mémoire* [Online], 119, DOI: 10.4000/temoigner.1486.

Goldberg, R. A. (2017). The Bystander During the Holocaust. *Utah Law Review*, 4, Article 2.

Gray, M. (2015). *Teaching the Holocaust. Practical approaches for ages 11-18.* London, UK: Routledge.

Guttstadt, C., Lutz, T., Rother, B., & San Román, Y. (2016). *Bystanders, Rescuers or Perpetrators? The Neutral Countries and the Shoah.* Berlin: Metropol Verlag & IHRA.

Rosenfeld, A. H. (2011). *The End of the Holocaust.* Bloomington, IN: Indiana University Press.

Links

https://echoesandreflections.org/pedagogical-principles/

https://www.yadvashem.org/education/

https://encyclopedia.ushmm.org/

https://www.het.org.uk/exploring-the-holocaust-menu

https://www.theholocaustexplained.org/

https://echoesandreflections.org/audio_glossary/

13.7 Definitions and examples

a. The global framework

The framework is organised into three main domains: 1) Historical content of the Holocaust, 2) Contemporary issues related to the Holocaust, 3) Museum activities and communication. The aim of this initial tripartition is to encompass every possible type of content that a Holocaust museum may publish on its social channels.

The domain "**Historical content of the Holocaust**" covers any information about the period, the places, the actions, and the events that created, influenced, or formed the backdrop to the historical development of the Holocaust. This domain includes historical content related to the Holocaust, its antecedents and its immediate consequences (e.g., Nuremberg Trials, closure of the last DP camps, etc.). The aim is to encompass every possible type of historical content related to the Holocaust and its material evidence. Information or facts not related to the history of the Holocaust should not be classified under this category.

The domain "**Contemporary issues related to the Holocaust**" includes a set of categories which refer to the period after the liberation phase and its immediate aftermath (e.g., Nuremberg Trials, closure of the last DP camps, etc.), i.e. from the early 1950s onwards, until today. The categories included are directly related to the Holocaust or its parallels, to academic research and to its artistic representation. They also encompass issues of education and commemoration, and a number of subjects relevant to the contemporary challenges and risks of Holocaust memory.

The domain "**Museum activities and communication"** is composed of a set of categories related to museum events (e.g., the announcement of a new exhibition, a virtual tour, a webinar, etc.), comprising communications about services offered by the museums (e.g., operating time), communication with the audience and endorsements from related institutions and individuals.

b. The domain "Historical content of the Holocaust"

The domain "Historical content of the Holocaust" is organised into seven macro-categories: 1) Places, 2) Timeline, 3) Agency, 4) Groups, 5) Stages of the Holocaust, 6) Context and society, 7) Artefacts and authentic representation.

Places = The Holocaust was a profoundly geographical event, rooted in specific physical spaces, times, and landscapes, and followed a process made up of spatially distinct phases, such as concentration, deportation, dispersal, and dislocation. Although the Holocaust is usually understood as a European event, the Europe-wide scale was complemented with related events that occurred in North Africa or elsewhere in the world (e.g., Asia, North and South America) where the persecuted were able to flee primarily before the war. In the Holocaust recollection process, events may be viewed at various geographical levels. It is important to note that boundaries between the categories may be fluid and not sharply delineated, and that one scale affects the others. For example, local events may affect policies, which can then be implemented regionally or even nationally, and vice versa.

Besides, many transnational events, such as Operation Barbarossa, did not take place in the abstract international environment but rather on the local, regional, and national levels simultaneously. Although the boundaries between these categories may often be blurred, the choice of the specific subcategory will be based on the explicit content described.

Timeline = The Holocaust is traditionally dated back to the period 1933–1945, from the appointment of Hitler as German chancellor on 30th January 1933 until the end of WWII in Europe (8th May 1945) or the beginning of the Nuremberg Trials on 20th November 1945 (see, for example, https://www.theholocaustexplained.org/events-in-the-history-of-the-holocaust-1933-to-1939/). However, it is also important to distinguish between events that occurred during the pre-war period (1933–1939) and the war (1939–1945) (for a timeline of events: https://echoesandreflections.org/timeline-of-the-holocaust/, https://www.yadvashem.org/education/what-is.html, https://www.ushmm.org/learn/timeline-of-events/), and the immediate consequences of the end of the war and its aftermath, such as the displaced persons camps and immigration of survivors (1945-1950). Furthermore, national timelines can be useful for contextualising specific events that took place in countries other than Germany, such as Italy, Croatia, Hungary, Romania, etc. For example, as far as Italy is concerned, some date the beginning back to March 1919, with the Fasci di Combattimento foundation, or to 1922, with the Fascists' march on Rome (http://www.memorialeshoah.it/timeline-1922-1945/?lang=en).

Agency = The human dimension of the Holocaust is explored by means of "agency", a key category developed in Holocaust studies to analyse how human action/behaviour works in a variety of different settings, such as a specific location or region, an organisation, or a group of individuals, depending on social structure. Contrary to the idea that individuals took on specific roles during the Holocaust, the term "agency" in the Holocaust cannot fit seamlessly or neatly into either one of the proposed categories. People who had acted as collaborators or perpetrators may at some point, depending on the circumstances, act as rescuers or resisters, and persecuted people may have turned into collaborators at some point. Other cases of change in agency are the mass episodes of sexual violence committed by the Soviet liberators, in this respect perpetrators; of victims that become perpetrators, such as Jewish perpetrators of sexual violence within the ghettos; or Soviet POWs who opted to be trained as camp guards by the Germans. Other problematic cases are collaborators who happened to act as rescuers for their own personal reasons/gains. Overall, it is important to stress that agency was in large part a collective accomplishment and dependent on factors often beyond individual control. Besides, recent studies question the distinction between victims and perpetrators, and suggest an alternative concept, the "implicated subject" (Rothberg, 2019), to deal with someone who is not a perpetrator himself/herself but is rather an indirect participant who enables, perpetuates, inherits, and benefits from violence and exploitation. "Implicated subject" is proposed to replace the more familiar concept of bystander, a concept that suggests disengagement and passivity. However, given the scope of this framework, despite the blurred contours between many of the categories that may apply to specific behaviours in a specific event, the proposed categories here provide the main agency indicators to describe the specific behaviours portrayed in a single section of information and are not mutually exclusive. Since the proposed categories focus on people's behaviours and actions, and not on their roles, it is possible to classify content in different ways depending on the emphasis placed on a specific action. If, for example, a person's behaviour is recorded in terms of first perpetrator and then rescuer, it will be possible to select both relevant sub-categories.

Groups = Although we embrace the definition of Holocaust adopted by the IHRA ("The Holocaust was the state-sponsored, systematic persecution and murder of Jews by Nazi Germany and its collaborators between 1933 and 1945") and other well-known organisations (such as Yad Vashem in Jerusalem, the Holocaust Memorial Museum in Washington DC, and the Imperial War Museum in London), according to which the term "Holocaust" should be reserved for the genocide of the Jews alone, we are also aware of broad-based definitions that include other groups that suffered at the hands of the Nazis and their accomplices, such as Roma and Sinti, people with disabilities, Slavic peoples, political opponents, forced labourers, homosexuals, and Jehovah's Witnesses. In addition to civilian victims, some include Soviet prisoners of war. In this category, we decided to include all groups who suffered at the hands of the Nazis and their collaborators, even if strictly speaking they cannot be defined as victims of the deliberate mass murder process of the Holocaust, as were the Jews. When someone or a group falls under more than one expected condition (e.g., Jewish and homosexual, Polish citizen destined for slave labour, etc.), it is possible to select more than one category.

Stages of the Holocaust = This category is derived from Hilberg's (1985) six stages of the Holocaust (Definition, Isolation, Emigration, Ghettoization, Deportation and Mass Murder) and from Stanton's (1996) ten-stage model of genocide (Classification, Symbolization, Discrimination, Dehumanization, Organisation, Polarization, Preparation, Persecution, Extermination, Denial). It is also based on terminology and adaption made by Cowan & Maitles (2017) on Hilberg's six stages of the Holocaust (Alienation, Segregation, Deportation, Extermination (or Annihilation), Liberation). In this framework, we have added a seventh stage (Liberation and aftermath), as suggested by Cowan & Maitles (2017), and a Pre-Holocaust stage. The resulting periodisation adopted in this framework condenses some of Stanton's stages while mapping Hilberg's model and maintains some of the Holocaust's specificities. It is important to stress that while Hilberg's six stages mostly apply to the Nazis' systematic attempt to annihilate the Jewish population of Europe and are based on his study of German documents and how the events of the Holocaust played out in Germany, Stanton's model was developed to explain the dynamics of genocide in general and not specifically the Holocaust's. In Stanton's model, genocide develops as a non-linear process, with stages that may occur simultaneously or at different times in each jurisdiction. Besides, each stage is itself a process in which all stages may take place either chronologically or simultaneously. Additionally, while the stages defined by Hilberg played out over the course of nearly fifteen years in Germany, not all stages occurred everywhere and all the time, and some were either merged or skipped in certain countries (e.g., there were no ghettoes in the West).The process was very fluid and dynamic and did not follow a linear progression in an equal way, with stages that would occur simultaneously, or in reverse order (e.g., deportations were preceded by murder on site in the East). For example, in Hungary in 1944 the Holocaust process took an accelerated route, in contrast with other states, as most Jews spent a short time in ghettos (weeks or a few months) before being deported to Auschwitz or other camps. Also, other groups, such as Sinti and Roma, homosexuals, and people with mental and physical disabilities, underwent many of the steps described by Hilberg, including mass murder. For the above reasons, caution is required when this periodisation is applied to countries other than Germany or groups other than Jews.

Context and society = This list addresses historical subjects that complement/intersect the other categories included in the "Historical content" domain and expand the sociological and human components of the Holocaust. It refers to the diverse cultural, political and social contexts in which the Holocaust took place and the ideas that were behind it. It also includes the condition of the Jews before the Holocaust and the international response to the Holocaust.

Artefacts and authentic representation = Historical information about the Holocaust may also be derived from the huge disposal of remains of everyday material objects and the expressive production that directly affected the life of the individual. The human dimension of the Holocaust is portrayed by a variety of everyday objects such as items for religious services (e.g., tallit, prayer books), toiletries, children's toys, cloths, kitchen utensils and recipe books, etc., while factual and expressive production includes many types of products that reflect the many ways in which Jewish inmates in labour camps, ghettos, and concentration camps portrayed the dark realities of day-to-day life in Nazi imprisonment. They were either artists that experienced persecution and internment or ordinary people creating a spontaneous expression of resistance. Diaries, letters, memoirs, poems, paintings, drawings, theatrical scripts and music executions reflected the ways in which Holocaust victims and survivors recorded or reflected on their experiences. This category also includes photographic and filmic evidence of the Holocaust produced by perpetrators and collaborators.

b1. The sub-category "Places"

The sub-category "Places" is organised into four further sub-categories: 1) Local, 2) Regional, 3) National, 4) Transnational.

Local = An event that took place in a circumscribed place, such as a village (e.g., Jedwabne), a town (e.g., Warsaw, Paris, Berlin), a concentration camp (e.g., Dachau, Auschwitz), a ghetto (e.g., Lodz, Warsaw), etc. This category may also include places and spaces that are more individualised and not defined geographically, e.g., cellars or basements where people hid, the effect of anti-Jewish laws in people's homes, or properties (villas, farms, factories, etc.) of perpetrators/collaborators.

Examples: 1) "In July 1942, Esther Frenkel was arrested, along with her 2-year-old son, Richard. Esther's shirt remained in her Paris flat. It is pictured below, along with a photo of her wearing it. Esther & Richard were deported separately to #Auschwitz and murdered". 2) "The Great Deportation began #OTD 22 July 1942. From 22 July till 21

September 1942, over 265,000 Jews were deported from the Warsaw ghetto to the Treblinka death camp and murdered. Learn about the final moments in the #WarsawGhetto here". Note: Although two different places are mentioned in the two examples (i.e., Paris and Auschwitz; Warsaw ghetto and Treblinka), the events occurred locally in circumscribed places. 3) "One of the most extraordinary stories in Shanghai's history took place in the neighbourhood of Tilanqiao, which served as 'a modern-day Noah's Ark' for Jews during WW2. For thousands of desperate people in the 1930s, this Chinese metropolis was a last resort. Most countries and cities on the planet had restricted entry for Jews trying to flee violent persecution by Nazi Germany". Although this example may include places to which refugees travelled across the world, the local dimension is prevalent in this section of information. 4) "In the Battle of Vilnius (1941), Nazi Germany captures the city during the Operation Barbarossa". In this example, although the Operation Barbarossa had a transnational dimension, happening on the local, regional, and national levels simultaneously, the focus is on a localised place.

Regional = An event that happened in a regional area within a country (e.g., Bavaria in Germany, Zona d'Operazione del Litorale Adriatico in Italy, Warthegau, General Government in Poland, Vichy Government in France) or across countries (e.g., **Transnistria, Bulgarian-occupied territories**).

Examples: 1) "The Operational Zone of the Adriatic Littoral (German: Operationszone Adriatisches Küstenland, OZAK; or colloquially: Operationszone Adria; Italian: Zona d'operazioni del Litorale adriatico; Croatian: Operativna zona Jadransko primorje; Slovene: Operacijska zona Jadransko primorje) was a Nazi German district on the northern Adriatic coast created during World War II in 1943. It was formed out of territories that were previously under Italian Fascist control until takeover by Germany. It included parts of present-day Italian, Slovenian, and Croatian territories. The area was administered as territory attached, but not incorporated to, the Reichsgau of Carinthia. The capital was the city of Trieste". 2) "Transnistria was set up as a result of successful military operations beyond the Dniester in summer 1941 and was lost when it became untenable in early 1944. Between those dates Romanian officials administered the area and were responsible for the native Ukrainian Jews and the Romanian Jews deported there. In this region, Romanians engaged in shootings and placed Jews in deadly situations; most of these Jews were from the newly acquired regions of Bessarabia and Bukovina". 3) "In early March 1941, Bulgaria joined the Axis alliance and, in April 1941, participated in the German-led attack on Yugoslavia and Greece. In return, Bulgaria received German authorization to occupy most of Greek Thrace, Yugoslav Macedonia, and Pirot County in eastern Serbia. Though Bulgaria participated in the Balkan Campaign, the provisions of its adherence to the Axis alliance allowed it to opt out of participation in the war against the Soviet Union in June 1941".

National = An event that affected an entire country (e.g., the deportation of the Hungarian Jews, the rescue of the Danish Jews, the occupation of Belgium).

Examples: 1) "On 20 June 1939, the Finke family was notified that their eldest son, Heinz, was to be included on a list of youngsters to be sent on a Kindertransport leaving Germany a week later". 2) "When Raoul Gustaf Wallenberg reached the Swedish legation in Budapest on July 9, 1944, the intense Nazi campaign to deport the Jews of Hungary almost entirely to Auschwitz had already been under way for several months. Transports from Hungary were halted with few exceptions by Miklós Horthy two days earlier in large part because he was warned by Roosevelt, Churchill, the King of Sweden and even the Pope after the very vocal Swiss grass roots protests against the mass murder in Auschwitz".

Transnational = An event that affected a broader area (e.g., Operation Barbarossa, which implied the invasion of Soviet Union and other formerly-Soviet occupied territories by Nazi Germany) or took place in more than one country.

Examples: 1) "22 June 1941 marks the start of 'Operation Barbarossa', a turning point in Nazi anti-Jewish policy, resulting in the mass murder of some 1.5 million Jews under Nazi occupation in forests and ravines such as Ponar and Babi Yar". 2) "Despite Shanghai being more than 7,000km from their homes, more than 20,000 stateless Jews fled from to Germany, Poland and Austria to China's largest city to escape the Holocaust between 1933 and 1941".

b2. The sub-category "Timeline"

The sub-category "Timeline" is organised into five further sub-categories: 1) Pre-1933, 2) 1933-1939, 3) 1939-1941, 4) 1941-1945, 5) 1945-1950.

Pre-1933 = Any event that occurred before the appointment of Hitler on 30th January 1933 in Germany. This includes historical antecedents to the period of the Third Reich, and ideas and movements like eugenics, race hygiene, social Darwinism, as well as history of antisemitism and anti-Judaism before 1933. It also includes any other historical antecedents that led to the Holocaust in other countries.

Examples: 1) "The Holocaust didn't happen overnight. Were there warning signs of what was to come when the Nazis came to power in 1933?". 2) "Jews have lived in Germany since the Middle Ages. And, as in much of Europe, they faced widespread persecution there for many centuries. It was not until the 19th century that Jews in Germany were given the same rights as Christian Germans. By 1933, when the Nazis came to power, Germany's Jews were well integrated and even assimilated into German society. Despite their integration, Germany's Jews still maintained a discernible identity and culture". 3) "In October 1922, King Victor Emmanuel III appointed the leader of the Italian Fascist Party, Benito Mussolini, as prime minister of Italy. Over the next seven years, the Fascists established and consolidated a one-party dictatorship".

1933-1939 = Any event that took place in the pre-war period (until September 1939), during which the Nazi regime established the first concentration camps, imprisoned its political opponents, homosexuals, Jehovah's Witnesses, and others classified as "dangerous", and extensive propaganda was used to spread the Nazi Party's racist goals and ideals. During the first six years of Hitler's dictatorship, German Jews were affected by over 400 decrees and regulations that restricted all aspects of their public and private lives and forced thousands of them to emigrate. Racial laws were established in other countries such as Italy (1938) and anti-Jewish legislation (i.e., the "bench Ghetto") was issued in Poland from 1935 onwards.

Examples: 1) "On November 9–10, 1938, Nazi leaders unleashed a series of pogroms against the Jewish population in Germany and recently incorporated territories. This event came to be called *Kristallnacht* (The Night of Broken Glass) because of the shattered glass that littered the streets after the vandalism and destruction of Jewish-owned businesses, synagogues, and homes". 2) "Following the Anschluss, President Franklin D. Roosevelt called for an international conference that would discuss the plight of refugees seeking to flee Nazi Germany and establish an international organisation to work for an overall solution to the refugee problem. In early July 1938, delegates from 32 countries and a number of non-governmental aid organisations met at the French resort of Evian on Lake Geneva. Roosevelt chose Myron C. Taylor, a businessman and close friend, to represent the United States at the conference".

1939-1941 = Events that occurred after the outbreak of the Second World War on September 1939 until the Soviet invasion in June 1941. This event marked the extension of the antisemitic persecution of Jews to Eastern Europe (e.g., invasion of Poland and occupation of Czechoslovakia), and to the West, first with the occupation of the Netherlands, Denmark, Norway, Belgium, Luxembourg, France, Hungary, and Romania in 1940, and then with the occupation of Yugoslavia, Greece, and parts of the Soviet Union in 1941. In terms of stages of the Holocaust, it includes the extension of Nazi rule East and West and the period of ghettoization in the East.

Examples: 1) "The Battle of Belgium or Belgian Campaign, often referred to within Belgium as the 18 Days' Campaign (French: Campagne des 18 jours, Dutch: Achttiendaagse Veldtocht), formed part of the greater Battle of France, an offensive campaign by Germany during the Second World War. It took place over 18 days in May 1940 and ended with the German occupation of Belgium following the surrender of the Belgian Army". 2) "In the fall of 1940, German authorities established a ghetto in Warsaw, Poland's largest city with the largest Jewish population. Almost 30 percent of Warsaw's population was packed into 2.4 percent of the city's area".

1941-1945 = Any event that occurred after the invasion of the Soviet Union in June 1941 and refers to the period of mass murder until the end of the war and liberation of the camps. Operation Barbarossa in June 1941 marked the beginning of the "Final Solution", with the mass killings (the so-called "Holocaust by bullets") carried out by the Einsatzgruppen in the occupied territories. The "Final Solution", which was the code-name for the Nazis' plan to solve the "Jewish question" by murdering all the Jews in Europe, was the culmination of many years of evolving Nazi policy – commencing with Hitler's earliest writings about the need for a solution to the Jewish question in Europe, followed by the Nazis' attempts to induce mass emigration during the 1930s – through to the plan for collective exile to a specific destination and finally, by 1941, the mass murder of Jews. Systematic mass killings of Jews began in summer 1941 in the Soviet territories, and in early 1942 a policy called the Final Solution, which called for the annihilation of all Jews, had coalesced. The year 1941 also marks the establishment of the death camps (i.e., Chełmno, Bełżec, Treblinka, Sobibór) in 1941 and the gradual conversion of Auschwitz and Majdanek into death camps in 1942. 1943 was a key year in which the mass murder became "Vernichtung durch Arbeit" ("Annihilation through work") and life spans increased to months or even to the end of the war for those chosen to work. Conditions in camps varied a great deal.

Examples: 1) "Vilna was liberated #OTD 13 July 1944. Some 700 Jews from the ghetto had joined the partisans in the forests; they fought until the arrival of the Red Army and participated in the liberation of the city". 2) "The Raid of the Rome Ghetto took place on 16 October 1943. A total of 1,259 people, mainly members of the Jewish community—numbering 363 men, 689 women, and 207 children—were detained by the Gestapo. Of these detainees, 1,023 were identified as Jews and deported to the Auschwitz concentration camp. Of these deportees, only fifteen men and one woman survived".

1945-1950 = Any event that occurred after the end of WWII and its immediate aftermath in the late 1940s and early 1950s. This period ends with the last migratory movements of the survivors, the closure of the last DP camps, and includes the birth of the State of Israel in 1948.

Examples: 1) "After the war, the top surviving German leaders were tried for Nazi Germany's crimes, including the crimes of the Holocaust. Their trial was held before an International Military Tribunal (IMT) in Nuremberg, Germany. Judges from the Allied powers—Great Britain, France, the Soviet Union, and the United States—presided over the hearing of 22 major Nazi criminals. Subsequently, the United States held 12 additional trials in Nuremberg of high-level officials of the German government, military, and SS as well as medical professionals and leading industrialists". 2) "Wanda Rein married Mordechai Folman #OTD 17 August 1944 in the last wedding to take place in the Lodz ghetto. One year after they were separated at Auschwitz, Wanda and Mordechai Folman were reunited; in 1950 they immigrated to Israel".

b3. Evaluation of the sub-category "Agency"

The sub-category "Agency" is organised into eight further sub-categories: 1) Murdered, 2) Survive, 3) Perpetration, 4) Collaboration, 5) Bystanding, 6) Combat and resistance, 7) Rescue, 8) Liberation.

Murdered = This category regards "Individuals who were murdered by the Nazis or their collaborators" (IHRA, 2019). Notable names of victims include Anne Frank and Janusz Korczak.

Example: "#OTD 22 June 1941 marks the start of 'Operation Barbarossa', a turning point in Nazi anti-Jewish policy, resulting in the mass murder of some 1.5 million Jews under Nazi occupation in forests and ravines such as Ponar and Babi Yar". Note: Although in this post there is an explicit mention of the perpetrators (i.e. the Nazis), most of the relevant information is about the mass murder and the number of victims.

Survive = This category comprises individuals who survived concentration camps, ghettos and Einsatzgruppen shooting operations, Jewish refugees from Germany and

Austria in the 1930s, those rescued in operations such as the Kindertransport or by the Righteous Among the Nations, or in some other way managed to hide or cross borders to evade inevitable death. It also includes children kept in hiding or given up for adoption to conceal their identity, and any other survivor of Nazi persecution. Notable names of survivors are Primo Levi and Elie Wiesel.

Example: "Kovno was liberated #OTD 1 August 1944. In 1939, about 40,000 Jews lived in Kovno; fewer than 2,000 survived. This photograph shows some of the survivors".

Perpetration = This category refers to "Individuals who planned, organized, actively promoted and/or implemented acts of persecution and murder" (IHRA, 2019). While this category is usually applied to Nazi Germans' behaviours, many non-Germans were initiators of murder, like the Romanians in 1941 or the Lithuanians, Latvians and Ukrainians who murdered Jews on the eve of the arrival of the Germans on their own initiative or under German direction. Complicity and benefitting from persecution are two further elements implied in perpetration. Although those who benefitted were not necessarily directly involved in persecution, they purposely took action to receive Jewish property or benefit from looting.

Examples: 1) "This photo shows Jews from Kovno being led by Liby Lithuanian Militia to the Seventh Fort prior to their execution #OTD 27 July 1941. Follow this link to read chilling reports about the careful planning leading to the murders". Note: Although victims are pictured in the photo, the emphasis here is on the Liby Lithuanian Militia and how they planned the murder. 2) "The Arajs Kommando (also: Sonderkommando Arajs), led by SS commander and Nazi collaborator Viktors Arājs, was a unit of Latvian Auxiliary Police subordinated to the German Sicherheitsdienst (SD) that actively participated in a variety of Nazi atrocities, including the killing of Jews, Roma, and mental patients. Most notably, the unit took part in the mass execution of Jews from the Riga ghetto, and several thousand Jews deported from Germany, in the Rumbula massacre of November 30 and December 8, 1941".

Collaboration = This category encompasses "Non-German regimes, [groups] and persons who cooperated with the Nazis and actively supported their policies and carried out actions under Nazi orders and on their own initiative" (IHRA, 2019) and German citizens that actively collaborated with persecution and deportation of the Jews. Notable examples of collaborationist regimes were: the Vichy France, a government set up by the Nazis after they conquered France in spring 1940, with its capital in the town of Vichy, in southern France; the Independent State of Croatia, a puppet state semi-independent of Nazi Germany and Fascist Italy, established in parts of occupied Yugoslavia on 10 April 1941, after the invasion by the Axis powers; the Antonescu dictatorship that entered Romania into an alliance with Nazi Germany in 1940 and joined the Axis in Operation Barbarossa in 1941; the Lithuanian Security Police (Lietuvos saugumo policija), subordinate to the Criminal Police of Nazi Germany, created on 1941, which took an active role in the systematic mass murder of Lithuanian Jews (see also "Perpetration"). For a list of countries and groups that collaborated with the Axis powers (Germany and Italy), https://en.wikipedia.org/wiki/Collaboration_with_the_Axis_Powers. However, collaborators may have been single individuals who took advantage of the situation and collaborated to receive benefits such as Jewish property from looting or Jewish prisoners acting as collaborators in concentration camps. Other local groups or individuals actively collaborated in acts of persecution and murder, such as the Polish soldiers in Kielce pogrom in 1946.

Examples: 1) “While the role of Hitler and the Nazis is indisputable, the Holocaust could not have happened without tens of thousands of ordinary people actively collaborating with the actions of perpetrators. Many more supported or tolerated the crimes”. 2) “In the Jedwabne pogrom - a massacre of Polish Jews in the town of Jedwabne, German-occupied Poland, on 10 July 1941 - during which at least 340 men, women and children were murdered, about 40 non-Jewish Poles were implicated in the massacre. German military police were present in the town at the time”.

Bystanding = This category regards “States and individuals who were aware of Nazi crimes and decided not to intervene, despite possessing some freedom of action, thus potentially reinforcing the perpetrators’ determination to commit their crimes” (IHRA, 2019). More in general, “Bystanders” is a catch-all term that has often been applied to people who were passive and indifferent to the escalating persecution that culminated in the Holocaust (USHMM, 2020). Examples of bystanding behaviour include not speaking out when people witnessed the persecution of individuals who were targeted simply because they were Jewish, and, during the mass murder phase, not offering shelter to Jews seeking hiding places (USHMM, 2020). The term “bystander” also refers to persons who, under individual circumstances, either did not take action or remained silent in the face of acts of persecution (a range of behaviours that are common to both German and European populations). However, a growing number of scholars in recent years have argued that the term “bystander” is becoming obsolete and should be jettisoned because of its connotations of passivity and inaction. Some of them also question the distinction between victims and perpetrators and suggests an alternative concept, the “implicated subject” (Rothberg, 2019), to deal with someone who is not a perpetrator himself/herself but is rather an indirect participant who enables, perpetuates, inherits, and benefits from violence and exploitation. Although the “implicated subject” would replace the more familiar concept of the bystander, a concept that suggests disengagement and passivity, further research on social dynamics within affected groups and communities across different regions and countries is needed. Additional future studies will help us attain a full picture of the range of behaviours that marked relations between Jews and non-Jews—thus moving beyond broad generalities about “bystanders”. However, despite these recent attempts to revise terminology, in this framework we have chosen to continue using the term “bystander” because it is still the most widely used in the literature and familiar to the common reader.

Examples: 1) “Within Nazi Germany many individuals became active or semi-active participants in Nazi racial and antisemitic policies. These included civil servants who became involved as part of their normal work: finance officials processing tax forms, including the steep “tax on Jewish wealth” imposed after Kristallnacht or processing property seized by the state, including homes and belongings left behind following the "resettlement" of Jews during the war into occupied territories; clerks who kept files of identification documents that included one's "race" or "religion"; school teachers who followed curricula incorporating racist and antisemitic content". 2) "Many ordinary Germans became involved when they acquired Jewish businesses, homes, or belongings sold at bargain prices or benefited from reduced business competition as Jews were driven from the economy. With such gains, these "bystanders" developed a stake in the ongoing persecution of the dispossessed". 3) "Outside Nazi Germany, countless non-Germans, from leaders, public officials, and police to ordinary citizens became involved by collaborating with the Nazi regime following the German occupation of their countries during World War II. Individuals helped in their roles as clerks and confiscators of property; as railway and other transportation employees; as managers or participants in roundups and deportations; as informants; sometimes as perpetrators of violence against Jews on their own initiative; and sometimes as hands-on killers in killing operations, notably in the mass shootings of Jews and others in occupied Soviet territories in which thousands of eastern Europeans participated". 4) "In communities across Europe where the Germans implemented the "Final Solution to the Jewish Question," they needed the help of people with local languages and knowledge to assist them in finding Jews who evaded roundups. As German and local police found willing helpers lured by the opportunity for material gain or rewards, Jews in hiding in countries from the occupied Netherlands to occupied Poland faced daunting odds of survival".

Combat and resistance = This category encompasses "Individuals who actively opposed Nazi policies and programs through various means" (IHRA, 2019). Resistance refers to "actions of an individual, nation or group in opposition to persecution at the hands of the Nazis and their partners" and includes "activities aimed at impeding or inhibiting the Nazi's criminal policies and programs. Since the Nazis aimed to murder all European Jews, helping and rescuing Jews can be considered a form of resistance from at least early 1942 onwards. Reference to specific local conditions is essential in understanding this term" (IHRA, 2019). This category includes content associated with forms of combat and resistance such as the Jewish armed resistance that took place in the ghettos (e.g., the Warsaw uprising) and in the camps (e.g., the Sonderkommandos revolt in Auschwitz or the Sobibór uprising), or of partisan resistance in diverse countries (e.g., the Bielski Jewish partisans who rescued Jews from mass murder and fought the German occupiers and their collaborators around Nowogródek in Belarus). It also includes forms of non-violent resistance such as cultural, religious and spiritual resistance as acts of opposition that are usually related to cultural traditions and the preservation of human dignity, intended to undermine an oppressor and inspire hope within the ranks of the resistors (e.g., marking Shabbat or fasting on Yom Kippur in the concentration camps). Most of the time, as the only possible way to oppose Nazi tyranny, cultural resistance meant defying Nazi directives by creating schools in the ghettos, maintaining religious customs, writing poems and songs, drawing, painting, or keeping journals and other records of ghetto or camp life. A notable example of cultural and spiritual resistance is provided by Ringelblum's Archives of the Warsaw Ghetto, a collection of documents from the World War II

Warsaw Ghetto, collected and preserved by a group known by the codename Oyneg Shabbos, led by Jewish Historian Dr. Emanuel Ringelblum. Other examples are: German resistance to Nazism, which included opposition by individuals and groups, most of whom engaged in active resistance (including attempts to remove Adolf Hitler from power by assassination or by overthrowing his established regime); anti-Nazi groups, some of which were also antisemitic, formed by Soviet partisan groups; members of a clandestine military force formed to oppose control of an area by a foreign power or by an occupation army by some kind of insurgent activity, such as the Italian resistance movement.

Examples: 1) "On 9 August 1942, 200 Jews escaped Mir; they fled to the forests days before the planned liquidation of the ghetto. They had been warned by Oswald Rufeisen, a Jew with forged papers who was working for the Belarus police". 2) "After the German invasion of the Netherlands, Willem Arondeus became a leader of a gay resistance group in Amsterdam. The group's main activities included helping persecuted people hide and find false identification. Read his story". 3) "The children pictured below survived the #Holocaust thanks to the efforts of Jewish resistance fighters Marianne Cohn & Mila Racine. The photo was taken this week in 1944 in France". 4) "Theresienstadt was the only Nazi camp in which Jewish religious life was practiced more or less undisturbed, beginning with the celebration of the first night of Hanukkah in December 1941. Another spiritual legacy of Theresienstadt was the attention given to the welfare and education of child prisoners. Fifteen thousand children passed through Theresienstadt. They painted pictures, wrote poetry, and otherwise tried to maintain a vestige of normal life. Approximately 90 percent of those children eventually perished in killing centres". 5) "David Gur was born in Okány, Hungary, in 1926. After the German invasion of Hungary, David changed his identity and joined the underground resistance and later the Zionist Youth resistance movement".

Rescue = This category regards "Individuals who helped victims of the Nazis in various ways with the intention of saving their lives, whether or not they were successful in the rescue" (IHRA, 2019), or countries that made an effort to save their Jews (e.g., the Danish resistance movement, with the assistance of many Danish citizens, managed to evacuate 7,220 of Denmark's 7,800 Jews, plus 686 non-Jewish spouses, by sea to nearby neutral Sweden). Rescue actions also concerned the Jews who rescued fellow Jews, also sometimes with the help of non-Jews. The rescue work of the neutral diplomats was a joint effort with local Jews, mostly the Zionist youth underground and the Budapest Relief and Rescue Committee. The Working Group in Slovakia was a semi legal Jewish group that tried to rescue Jews in many different ways. Other notable examples of rescuers are Oscar Schindler, Raoul Wallenberg, and Gino Bartali. In addition to the names of famous rescuers, the history of the Holocaust is littered with many acts of rescue of Jews that still remain undocumented today.

Examples: 1) "On 9 June 1941 Elisabeta Nicopoi learned about the impending harm to the Jews of Iasi. She hurried to the home of her co-worker, Marcus Strul, to warn his family of the approaching danger & offer shelter. In total, she hid some 20 Jews". 2) "Diplomats in Budapest in late 1944 issued protective papers and hung their countries' flags over whole buildings, so as to put Jews under their country's diplomatic immunity. Some German rescuers, like Oskar Schindler, used deceitful pretexts to protect their workers from deportation claiming the Jews were required by the army for the war effort". 3) "On 9 August 1942, 200 Jews escaped Mir; they fled to the forests days before the planned liquidation of the ghetto. They had been warned by Oswald Rufeisen, a Jew with forged papers who was working for the Belarus police".

Liberation = This category encompasses "Individuals who participated in the release and relief from suffering of those held captive or forced into hiding by the Nazis and their collaborators. The term is particularly applied to those soldiers, doctors and religious officials who entered the captured concentration camps in 1944-45" (IHRA, 2019). Examples of liberators are the Red Army that liberated Auschwitz on 27 January 1945, the U.S. forces that liberated the Dachau concentration camp on 29 April 1945, and the British Army that liberated Bergen-Belsen on 15 April 1945.

Examples: 1) "“The invasion has begun...Is this really the beginning of the long-awaited liberation?" Anne Frank wrote in her diary #OTD in 1944. #DDay—the landing of Allied troops in Normandy, France—became one of the most crucial Allied victories in WWII". 2) "When the British forces liberated Bergen-Belsen on 15 April 1945, thousands of bodies lay unburied around the camp and some 60,000 starving and mortally ill people were packed together without food, water or basic sanitation. Many were suffering from typhus, dysentery and starvation".

b4. The sub-category "Groups"

The sub-category "Groups" is organised into ten further sub-categories: 1) Jews, 2) Roma and Sinti, 3) Political opponents, 4) People with disabilities, 5) Slavic peoples, 6) Forced labourers, 7) Homosexuals, 8) Jehovah's Witnesses, 9) Soviet prisoners of war, 10) Other.

Jews = "The Nazis defined Jews as individuals with three or four Jewish grandparents, irrespective of the religious beliefs or affiliation of individuals or their ancestors. It should also be noted that race laws were applied at different times and in different ways in various places occupied and controlled by the Nazis and their collaborators. To further complicate the definitions, there were also people living in Germany who were defined under the Nuremberg Laws as neither German nor Jew, that is, people having only one or two grandparents born into the Jewish religious community. These 'mixed-race' individuals were known as Mischlinge. They enjoyed the same rights as 'racial' Germans, but these rights were continuously curtailed through subsequent legislation" (IHRA, 2019). It is important to stress that Jews were subjected to persecution in many other countries and that antisemitic prejudices existed not only in Germany but all over the world. It should be also noted that in several countries allied with Nazi Germany, like France, Italy and Hungary, a different definition of "Jew" was adopted locally by governments on their own initiative.

Example: "'The women and children were thrown into pits while still alive. More than 500 people were buried in silage pits there'. This Soviet report dated #OTD 20 July 1944 describes the mass murder of the Jews in Lepel".

Roma and Sinti = "The Roma and Sinti settled in the countries of modern-day Europe centuries ago. The term 'Sinti' designates the members of an ethnic minority that settled in Germany and neighbouring countries in the early 15th century. The term 'Roma' refers to the ethnic minority that has lived in eastern and south-eastern Europe since the Middle Ages. Since the early 18th century, Roma migrated to western Europe and settled there. Outside German-speaking countries, the term 'Roma' is also used as a collective term for the ethnic minority as a whole. Like the Jews, the Sinti and Roma were declared 'racially foreign' and were therefore excluded from the 'people's community'. The Nazis persecuted as 'gypsies' those who had at least one great-grandfather identified as a 'gypsy'. This persecution escalated to genocide against the Roma who lived in countries under Nazi rule" (IHRA, 2019). However, Sinti and Roma were also persecuted in other countries at the hands of other social and political groups (e.g., the Ustasha regime in Croatia).

Examples: 1) "In a single night #OTD in 1944, German authorities murdered 5,000 #Roma and Sinti in the so-called "Gypsy Family Camp" in Auschwitz-Birkenau. The liquidation of the camp marked a closing chapter in the Nazis deadly persecution of Roma". 2) "Mass arrests and deportations of the Roma to the Jasenovac Concentration Camp took place from 20th May until the end of July 1942. Upon arrival in the concentration camp, their personal valuables were confiscated, and a list of inmates was kept only in the early days. Additional records and documents of the Ustaše origin about the deportation of the Roma to the concentration camp do not contain names but only the number of persons or train cars used for transport".

Political opponents = Soon after Adolf Hitler's appointment as chancellor in January 1933, political opponents became the first victims of systematic Nazi persecution. The first concentration camps were established at the local level throughout Germany soon after, in February and March, to handle the masses of people arrested as alleged political opponents. The first major concentration camp was opened in Dachau in March 1933, and it was the only concentration camp that remained in operation until 1945, providing a model for the Nazi concentration camp system that replaced the earlier camps. Political opponents were targeted in many other countries, such as France and Italy, and were either arrested, interned in special facilities, or sent to Nazi concentration camps.

Examples: 1) "Why do regimes take sudden steps to attack or eliminate opposition groups? The Röhm Purge—killings of Nazi officials and political enemies—showed the Nazi regime's willingness to act outside the law and norms of a civilized society. The purge ended #OTD in 1934". 2) "By July 1933, all political party opposition to the Nazis was removed by law—a pivotal move in their efforts to transition Germany to a dictatorship. The impact of this? The Holocaust could not have happened without the Nazis' rise to power and the destruction of German democracy".

People with disabilities = The "euthanasia" program targeted, for systematic killing, patients with mental and physical disabilities living in institutional settings in Germany and German-annexed territories. The goal of the Nazi Euthanasia Program was to kill people with mental and physical disabilities: at first, medical professionals and clinic administrators included only infants and toddlers in the operation, but the program was quickly revised by extending it to adult patients with disabilities living in institutional settings (USHMM, 2020).

Example: “Adolf Hitler enacted the Aktion T4 program in October 1939 to kill ‘incurably ill, physically or mentally disabled, emotionally distraught, and elderly people’. The Aktion T4 program was also designed to kill those who were deemed ‘inferior and threatening to the well-being of the Aryan race’”.

Slavic peoples = After defeating the Polish army in September 1939, the Germans ruthlessly suppressed the Poles by murdering thousands of civilians, with the aim of destroying the Polish nation and culture. More generally, Slavic peoples were targeted by Nazi Germany as racially inferior and subjected to massive forced-labour programs and forced relocation by the hundreds and thousands (USHMM, 2020). Overall, the treatment of so-called Slavs (people who spoke Slavic languages) was very uneven. Poles were oppressed and selectively murdered, other Slavic people such as the Croatians and Slovaks were Nazi allies. In the Soviet territories, Slavs were not murdered because they were Slavs but because they were or were suspected of being partisans or of supporting the partisans.

Example: “On 7 September 1939, Reinhard Heydrich stated that all Polish nobles, clergy, and Jews were to be killed. On 12 September, Wilhelm Keitel added Poland’s intelligentsia to the list. On 15 March 1940, SS chief Heinrich Himmler stated: ‘All Polish specialists will be exploited in our military-industrial complex. Later, all Poles will disappear from this world. It is imperative that the great German nation consider the elimination of all Polish people as its chief task’”.

Forced labourers =The Nazis subjected millions of people (both Jews and other victim groups) not only to forced labour but to forced labour under brutal conditions. From the establishment of the first Nazi concentration camps and detention facilities in the winter of 1933, forced labour formed a core part of the concentration camp system. Germany’s military campaigns created a huge manpower shortage in the German economy, which Nazi authorities filled by conscripting foreign workers, and the SS greatly expanded the number of concentration camps to use prisoner labour for the war effort (USHMM, 2020). Forced labourers were people belonging to another category (Jews, homosexuals, Poles, etc.) who were assigned to slave labour.

Examples: 1) “Hitler’s policy of Lebensraum (room for living) strongly emphasized the conquest of new lands in the East, known as Generalplan Ost, and the exploitation of these lands to provide cheap goods and labour for Germany”. 2) “During the Second World War, Nazi Germany and fascist Italy were initially allies. On 8 September 1943 Italy withdrew from the alliance. The German Wehrmacht then captured Italian soldiers and officers. About 650,000 Italians were transported to the German Reich and the occupied territories. With the founding of the Repubblica Sociale Italiana (RSI) in 1944, the prisoners were declared ‘military internees’. Thus, despite the new fascist alliance and without regard to international law, they could be used as forced laborers in armaments”.

Homosexuals = The Nazi campaign against homosexuality targeted over one million German men who, according to the state, carried a "degeneracy" that threatened the "disciplined masculinity" of Germany. Denounced as "antisocial parasites" and as "enemies of the state", over 100,000 men were arrested under a broadly interpreted law against homosexuality. Approximately 50,000 men served prison terms as convicted homosexuals, while an unknown number were locked up in mental hospitals. Hundreds were castrated under court order or coercion (USHMM, 2020). At the time, other countries also had discriminatory legislation against homosexuals, who, in some cases, were subjected to chemical castration or prison sentences (e.g., United Kingdom).

Example: "After the German invasion of the Netherlands, Willem Arondeus became a leader of a gay resistance group in Amsterdam. The group's main activities included helping persecuted people hide and find false identification".

Jehovah's Witnesses = Jehovah's Witnesses were subjected to intense persecution under the Nazi regime as they were accused of being unwilling to accept the authority of the state, of having international connections, and because they were strongly opposed to both war on behalf of a temporal authority and organized government in matters of conscience (USHMM, 2020). Jehovah's Witnesses were also persecuted in other countries (e.g., in Hungary, they were persecuted by the Hungarians and sent to the forced labour camp in Bor, Serbia).

Example: "Jehovah's Witnesses suffered religious persecution in Nazi Germany between 1933 and 1945 after refusing to perform military service, join Nazi organisations or give allegiance to the Hitler regime. An estimated 10,000 Witnesses—half of the number of members in Germany during that period—were imprisoned, including 2000 who were sent to Nazi concentration camps".

Soviet prisoners of war = After invasion of the Soviet Union by German forces on 22 June 1941, , millions of Soviet soldiers were encircled, cut off from supplies and reinforcements, and forced to surrender. The brutal treatment of Soviet POWs by the Germans was due to a number of reasons, mostly because German authorities viewed Soviet POWs not only as Slavic sub-humans but also as part of the "Bolshevik menace", which in Nazi ideology was linked to the concept of a "Jewish conspiracy". Second only to the Jews, Soviet POWs were the largest group of victims of Nazi racial policy (UHSMM, 2020). While the majority were treated murderously, some were given the option of becoming auxiliaries to the Nazis and thus had a way to escape the treatment in POW camps. Many became ardent persecutors in death camps and other killing facilities.

Examples: 1) "During Operation Barbarossa millions of Red Army (and other Soviet Armed Forces) prisoners of war were taken. Many were executed arbitrarily in the field by German forces or handed over to the SS to be shot, under the Commissar Order. Most, however, died during the death marches from the front lines or under inhumane conditions in German prisoner-of-war camps and concentration camps". 2) "In 1941 Himmler instructed Globočnik to start recruiting mainly Ukrainian auxiliaries among the Soviet POWs, due to ongoing close relations with the local Ukrainian Hilfsverwaltung.

Globočnik had selected Karl Streibel from Operation Reinhard as the key person for this new secret project. Streibel, with the assistance of his officers, visited all POW camps for the Soviets behind the lines of the advancing Wehrmacht, and after individual screening recruited Ukrainian as well as Latvian and Lithuanian volunteers as ordered".

Other = Any other targeted group that can be related to previous ones. It comprises the German common criminals, the so-called "asocial" or "work shy", such as alcoholics, homeless, beggars, prostitutes, paedophiles and sexual deviants, unemployed, and violators of laws prohibiting sexual relations between Aryans and Jews, who ended up in camps, where they were tagged with the black triangle and interacted with Jews and other prisoners. This group also includes national groups who suffered under Nazi occupation without being particularly targeted by their racial policies (e.g., Greeks).

Example: "People with previous criminal convictions were among the first to find themselves targeted by the Nazis. From 1937 onwards, many previous criminals were rearrested in large raids. One such raid, ordered by Himmler and carried out on 9 March 1937, saw two thousand people arrested across Germany and sent to camps".

b5. The sub-category "Stages of the Holocaust"

The sub-category "Stages of the Holocaust" is organised into seven further sub-categories: 1) Pre-Holocaust, 2) Classification, dehumanization and symbolization, 3) Discrimination, isolation and segregation, 4) Organisation, 5) Persecution and deportation, 6) Mass murder or "Extermination", 7) Liberation and aftermath.

Pre-Holocaust = This category encompasses any event that occurred before the appointment of Hitler on 30th January 1933. This includes historical antecedents to the period of the Third Reich, and ideas and movements like eugenics, race hygiene, social Darwinism as well as history of antisemitism and anti-Judaism before 1933, in Germany and other countries that were involved in the Holocaust. It also includes any other historical antecedents that led to the Holocaust in other countries.

Example: "Adolf Hitler made the swastika the centerpiece of the Nazi flag. Today it is known as a symbol of hate. Learn how a sign once associated with good fortune became the most recognizable icon of Nazi propaganda". N.B.: Although there is a reference to today's meaning of the swastika, the focus of the post is on its origins and how it became the symbol of Nazism.

Classification, dehumanization and symbolization = This category encompasses the first, second and fourth stages of Stanton's model and regards the process through which: people are divided into "them and us" (Classification); names or other symbols are given to the classifications and people are named "Jews" or "Gypsies", or distinguished by colors or dress, such as the yellow star (Symbolization); Jews are denied their humanity and are equated with animals, vermin, insects, or diseases (Dehumanization). It also comprises Hilberg's Definition stage, according to which in Germany, in early 1930s, Jews are defined as the "other" through legalized discrimination. In 1935 the Nuremberg laws defined who was a Jew and who was not a Jew. Definitions were also adopted by other governments allied with Nazi Germany such as Italy in 1938, France in 1940, Slovakia and Hungary in 1941.

Example: "Jews throughout Nazi-occupied Europe were forced to wear a badge in the form of a Yellow Star as a means of identification. This was not a new idea; since medieval times many other societies had forced their Jewish citizens to wear badges to identify themselves. The badges were often printed on coarse yellow cloth and were a garish yellow colour. The star, which represented the star of David, was outlined in thick, black lines and the word 'Jew' was printed in mock-Hebraic type. In the Warsaw ghetto, Jews wore a white armband with a blue Star of David on their left arm. In some ghettos, even babies in prams had to wear the armbands or stars. Jewish shops were also marked with a Yellow Star. The star was intended to humiliate Jews and to mark them out for segregation and discrimination. The policy also made it easier to identify Jews for deportation to camps".

Discrimination, isolation and segregation = This category combines Stanton's Discrimination category with Hilberg's Isolation and Segregation. It also includes Hilberg's Emigration and Ghettoization as discriminatory measures. Starting from 1933, German Jews are subjected to more than 400 decrees and regulations that restricted all aspects of their public and private lives. They were not allowed to attend German schools or universities, could not go to public parks or movie theatres, and were excluded from the civil service; Jewish businesses were taken over by Germans and Jewish doctors and lawyers had their licenses taken away. This made it less likely for Germans to interact with Jews in their daily life. With the invasion of Poland in 1939, Nazi Germany imposed similar restrictions on Polish Jews. Other countries adopted acts of isolation and segregation without German intervention, for instance Italy and Hungary beginning in 1938 or Slovakia. From the mid-1930s, German Jews were also encouraged to leave Germany. Through discriminatory laws, many Jews, especially artists and academics, left Germany when they were no longer allowed to operate in their professions, while Kristallnacht in 1938 encouraged many others to leave the area. According to the new immigration laws, Jews could obtain exit visas as long as they left behind their valuables and property. With the annexation of Austria in 1938, emigration became "forced emigration" since it became the policy in the Reich areas. Unlike German Jews who experienced a steady, but gradual decline of their legal rights during the first five years of Nazi regime, Austrian Jews did not have much time to prepare for emigration. With the beginning of World War II in 1939, the Nazis applied their racial laws to the countries they invaded and occupied. Thus, Jews in these territories also tried to emigrate outside the enlarged Third Reich. It is worth stressing that many refugees who fled experienced further persecution after the start of the war, notably Jews who fled to the Netherlands, which was later occupied by Nazi Germany. Starting from 1939, Jews were forcibly removed to segregated sections of Eastern European cities called ghettos, where they were isolated from the non-Jewish population and from other Jewish communities. Ghettos were set up as temporary measures to isolate the Jews while the Nazis searched for a way to solve the "Jewish problem". German occupation authorities established the first ghetto in Poland in Piotrków Trybunalski in October 1939. The first deportations of Jews from the Reich, and of Jews from areas recently annexed by Germany began in October 1939 towards the

Lublin area in Poland. The largest ghettos in the occupied or controlled Poland were established in Warsaw and Lodz, and in Eastern Europe in Vilna and Kovno. Although they were initially meant to be temporary and some were in operation for only a few days or weeks, others were active for several years. The vast majority of ghetto inhabitants died from disease, starvation, shooting, or deportation to killing centres. Also in the occupied Soviet areas, ghettos were often set up after the first wave of murder since the Nazis were infighting about using or not using Jewish labour and eventually decided to exploit it in the short-term.

Examples: 1) "Between August and December 1938 Italy adopted a series of legislative provisions that deprived Italian Jews of their civil rights and came to be known as "Racial Laws". The racial policies of the Fascist government had begun in 1937 with the Royal Decree 880, which prohibited the 'acquisition of concubines and the marriage of Italian citizens with subjects of the Italian colonies'. A year later the policy concentrated mainly on foreign and Italian Jews". 2) "Unlike German Jews, who were often able to save part of their property as a basis for existence in a new country and could emigrate with relative ease to Palestine, the United States and Western Countries, Austrian Jews in general were less well established and were robbed of all their property before being allowed to leave the country". 3) "On 15 June 1940, Portuguese Consul-General, Aristides de Sousa Mendes, began issuing visas to Jews who were hoping to flee France. In just 1 week, he issued 1,575 visas (often free of charge) against the explicit instructions of his government". 4) "Baruch Shuv was born in Vilna, Poland (today Lithuania), in 1924. Baruch was relocated to the Vilna ghetto, where he found work at a German garage".

Organisation = This category is derived from Stanton's model and regards the preparatory measures taken for subsequent stages, namely active persecution, deportation and mass murder. States organized secret police to spy on, arrest, torture, and murder people suspected of opposition to political leaders. Motivations for targeting a group were indoctrinated through the mass media and through special training for murderous militias, death squads and special army killing units like the Nazi Einsatzgruppen, which murdered about two million Jews in Eastern Europe.

Examples: 1) "The Einsatzgruppen were formed under the direction of SS-Obergruppenführer Reinhard Heydrich and operated by the Schutzstaffel (SS) before and during World War II. The Einsatzgruppen had their origins in the ad hoc Einsatzkommando formed by Heydrich to secure government buildings and documents following the Anschluss in Austria in March 1938. Originally part of the Sicherheitspolizei (Security Police; SiPo), two units of Einsatzgruppen were stationed in the Sudetenland in October 1938. When military action turned out not to be necessary due to the Munich Agreement, the Einsatzgruppen were assigned the task of confiscating government papers and police documents. They also secured government buildings, questioned senior civil servants, and arrested as many as 10,000 Czech communists and German citizens. From September 1939, the Reichssicherheitshauptamt (Reich Main Security Office; RSHA) had overall command of the Einsatzgruppen". 2) "The Germanic SS (German: Germanische SS) was the collective name given to paramilitary and political organisations established in parts of German-occupied Europe between 1939 and 1945 under the auspices of the Schutzstaffel (SS). The units were modelled on the Allgemeine SS in Nazi Germany and established in Belgium, Denmark, the Netherlands and Norway, whose populations were considered in Nazi ideology to be especially "racially suitable". They typically served as local security police augmenting German units of the Gestapo, Sicherheitsdienst (SD), and other departments of the German Reich Main Security Office". 3) "Political and ideological indoctrination was part of the syllabus for all SS cadets but there was no merger of academic learning and military instruction like that found at West Point in the United States. Instead, personality training was stressed, which meant future SS leaders/officers were shaped above all things by a National Socialist worldview and attitude. Instruction at the Junker Schools was designed to communicate a sense of racial superiority, a connection to other dependable like-minded men, ruthlessness, and a toughness that accorded the value system of the SS. Throughout their stay during the training, cadets were constantly monitored for their 'ideological reliability'. It is postulated that the merger of the police with the SS was at least partly the result of their shared attendance at the SS Junker Schools".

Persecution and deportation = This category combines Stanton's Persecution with Hilberg's Deportation. At this stage, victims are identified and separated, death lists are drawn up, their property is often expropriated. In addition to segregation into ghettos (see Discrimination, isolation and segregation), victims are deported into concentration camps, or confined to a famine-struck region and starved. They are deliberately deprived of resources such as water or food in order to slowly destroy them. Programs are implemented to prevent procreation through forced sterilization or abortions. Children are forcibly taken from their parents. These are the immediate antecedents of genocidal massacres. First deportations begin with the "territorial solutions" of the Nisko project, an operation organized by Nazi Germany to deport Jews to the Lublin District of the General Government of occupied Poland in 1939 (the plan was later cancelled in early 1940). In occupied or controlled Poland, starting from December 1941 Jews are transported from Polish ghettos to concentration camps and death camps. In the months following the Wannsee Conference, the Nazi regime continued to carry out their plans for the "Final Solution". Jews were "deported" and transported by trains or trucks to six camps, all located in occupied Poland: Chełmno, Treblinka, Sobibór, Bełżec, Auschwitz-Birkenau, and Majdanek-Lublin. At the same time as ghettos were being emptied, masses of Jews and also Roma (Gypsies) were deported from the many distant countries occupied or controlled by Germany, including France, Belgium, the Netherlands, Norway, Hungary, Romania, Italy, North Africa, and Greece. Key events include, for example, the systematic deportations from the Netherlands in July 1942 and the beginning of the systematic deportations of Jews from Hungary in May 1944 (USHMM, 2020). It is worth stressing that deportation may have occurred at the hands of different entities, not necessarily the Nazis', as with the eviction of Jews from Alsace-Lorraine in 1940.

Examples: 1) "'I am on the train. I do not know what has become of my Richard. He is still in Pithiviers. Save my child, my innocent baby!!!' Esther Frenkel threw this postcard out of the train wagon on the way from Pithiviers to Auschwitz #OTD 7 August 1942".

2) “The deportation of Jews on trains was the last part of a long, slowly-developing process of humiliation, exclusion, persecution and hatred. What happened in #Auschwitz was the final stage of state-sponsored ideological hatred that was gradually turning into genocide”. 3) “Joseph Muscha Mueller was 12 when strangers took him from his classroom, claiming he had appendicitis. Although he protested, the Roma boy was taken into surgery and sterilized. Afterwards, he was supposed to be deported to Bergen-Belsen, but his foster family managed to hide him”. 4) “Adolf Hitler enacted the Aktion T4 program in October 1939 to kill ‘incurably ill, physically or mentally disabled, emotionally distraught, and elderly people’. The Aktion T4 program was also designed to kill those who were deemed ‘inferior and threatening to the well-being of the Aryan race’”.

Mass murder or “Extermination” = This category regards mass murder and deals with both the mass killings that took place in Poland and other Eastern occupied territories (i.e., the so-called “Holocaust by bullets” carried out by the Einsatzgruppen) and the massive use of gas in the death camps and other minor mass murder facilities. Another term that is usually used is “extermination”, which was used by the Nazis, a word usually associated with killing pests, since they viewed the Jews as less than human and as pests. The Nazis and their accomplices killed children, women, and men mostly through shooting, suffocation in gas chambers, and imprisonment in labour and death camps. Conditions in the camps were such that many prisoners died from disease, such as typhus, malnutrition, and exhaustion from overwork. Two-thirds of the entire European Jewish population was killed by the Nazis. The Holocaust included some 6 million Jews murdered by the Germans and their partners, and in addition to the Holocaust several millions more were murdered by the Germans and their partners or died owing to brutal mistreatment or to the war itself. It is also important to highlight that the advent of systematic mass murder did not coincide with the Nazis’s adoption of the “Final Solution” but occurred when a given community first faced murder. In the case of the Soviet territories this took place in summer 1941, in the case of Poland in December 1941, in the case of Western Europe in Spring 1942, and in the case of Hungary, mostly at the beginning of Spring 1944.

Examples: 1) “This photo shows Jews from Kovno being led by Liby Lithuanian Militia to the Seventh Fort prior to their execution #OTD 27 July 1941”. 2) “Dr. Korczak and Stefania Wilczynska were given the choice not to be deported together with the children of the Warsaw orphanage, but they refused. #OTD 5 August 1942, they were sent with the 192 orphans to the gas chambers of Treblinka”. 3) “‘The women and children were thrown into pits while still alive. More than 500 people were buried in silage pits there’. This Soviet report dated #OTD 20 July 1944 describes the mass murder of the Jews in Lepel”. 4) “Beginning in 1944, Nazi authorities began the liquidation of the Lodz ghetto. Over 72,000 Jews were deported to the Auschwitz-Birkenau killing centre before the end of August”.

Liberation and aftermath = This category deals with content associated with the end of WWII and the liberation of the camps by the Allies. As Allied and Soviet troops moved across Europe against Nazi Germany, they encountered concentration camps, mass graves, other sites of Nazi crimes, as well as thousands of prisoners evacuated during the Death Marches. Though liberation of Nazi camps was not a primary objective of the Allied military campaign, US, British, Canadian, and Soviet troops freed prisoners from their SS guards, provided aid to survivors, and collected evidence. Soviet forces liberated Auschwitz—the largest killing centre and concentration camp complex—on 27 January 1945. The Soviets also overran the sites of the Bełżec, Sobibór, and Treblinka former killing centres, and of Majdanek in July 1944, while regaining ground in the East and preparing for the occupation of Germany. American forces liberated several concentration camps including Buchenwald, Dora-Mittelbau, Flossenbürg, Dachau, and Mauthausen, while British forces liberated concentration camps in northern Germany, including Neuengamme and Bergen-Belsen (USHMM, 2020). The long process of liberation, which began in the Soviet areas in spring 1943 as Nazi Germany and its partners were pushed back and eventually defeated, affected not only camps, but also cities, towns and villages. However, the process of liberation did not mark the end of survivors' sufferings, as many of them found themselves living in displaced persons camps where they often had to wait years before emigrating to new homes. Many feared returning to their former homes due to post-war violence and antisemitism, while finding refuge in other countries was frequently problematic or dangerous (USHMM, 2020). Other tens of thousands of homeless survivors simply moved to Western European countries, where they were placed in refugee camps and displaced persons camps. The Nuremberg Trials, which started on 20th November 1945, the Polish pogrom in Kielce and the Jewish immigration to Israel in 1948-1950 are part of the Holocaust aftermath. In terms of time, this stage extends to the late 1940s and early 1950s.

Examples: 1) "Vilna was liberated #OTD 13 July 1944. Some 700 Jews from the ghetto had joined the partisans in the forests; they fought until the arrival of the Red Army and participated in the liberation of the city". 2) "In 1947, the British forced the ship Exodus 1947, carrying 4,500 Holocaust survivors to Palestine, to return to Germany. In most of these cases, the British imprisoned Jews who had been denied access to Palestine in detention camps set up on the Mediterranean island of Cyprus. The immigrants were sent back to France but were refused permission to disembark. The British eventually decided to send the Jews back to Germany".

b6. The sub-category "Context and society"

The sub-category "Context and society" is organised into eight further sub-categories: 1) Jews, Jewish identity, history, religion, and culture, 2) Nazi ideology and attitudes towards Jews, and other categories, 3) The camp system, 4) Prejudice, discrimination, racism, antisemitism and antigypsyism, 5) War and German occupation in Western and Eastern Europe, 6) Elderly, children and women, 7) Fates of individuals, 8) International response.

Jews, Jewish identity, history, religion, and culture = This category includes content related to the history of Judaism and Jewish culture and life.

Example: "Judaism, monotheistic religion developed among the ancient Hebrews. Judaism is characterized by a belief in one transcendent God who revealed himself to

Abraham, Moses, and the Hebrew prophets and by a religious life in accordance with Scriptures and rabbinic traditions”.

Nazi ideology and attitudes towards Jews and other categories = This category deals with content related to the discrimination policy against the Jews and other categories targeted by the Nazis. Discrimination policy may be concerned with any anti-Jewish measures such as the requirement to wear the yellow badge, the Nuremberg Laws, and the law against homosexuality, etc.

Examples: 1) “The Nazis persecuted a range of different groups on ideological grounds. Their policies towards all victim groups were brutal, but not identical. Here’s what to know about the persecution of gay men by the Nazi regime”. 2) “#OTD 20 June 1939, the Finke family was notified that their oldest son, Heinz, was to be included on a list of youngsters to be sent on a Kindertransport leaving Germany a week later. By mid-1942, he never heard from his family again”.

The camp system = Between 1933 and 1945, Nazi Germany and its allies established over 44,000 camps and other incarceration sites (including ghettos). Camps were also set up by some of the regimes allied with Nazi Germany, for instance in Croatia, Romania and Vichy France. The perpetrators used these sites for a range of purposes, including forced labour, detention of people thought to be enemies of the state, and for mass murder. A specific type of camp was created under Operation Reinhard (German: Aktion Reinhard or Aktion Reinhardt), which was the codename for the secretive German plan to exterminate Polish Jews in the General Government district of German-occupied Poland: camps of this kind were set up at Chełmno, Bełżec, Sobibór, Treblinka (the latter began as a labour camp and was then re-established as a site of murder). This category encompasses content associated with the camp system, which included concentration camps, labour camps, prisoner-of-war camps, transit camps, and killing centres (or death camps or “extermination” camps). It is also important to highlight that some camps were hybrids, in that they served more than one function, e.g., Majdanek and Auschwitz-Birkenau as concentration/death camps, Treblinka having a labour camp in addition to the death camp. Examples of related content may be the conditions of prisoners in Dachau, Bergen-Belsen, Auschwitz-Birkenau, or the liberation of the camps by the Allies.

Examples: 1) “These shoes are a powerful reminder of lives lost during the Holocaust. In July 1944, Soviet forces liberated the Majdanek camp. The SS had hastily fled with most of the prisoners. The shoes, shown in our Museum, were among the haunting evidence of Nazi crimes discovered”. 2) “US military photographers provided some of the first visual evidence of atrocities at Nazi camps. William A. Scott III of Atlanta, Georgia, arrived at Buchenwald in April 1945, where he saw things that were ‘worse than a dream’”.

Prejudice, discrimination, racism, antisemitism and antigypsyism = This category encompasses content related to a wider spectrum of discriminatory expressions and practices, including many implicit or hidden manifestations of racism, and exclusion of specific categories of people, which occurred historically and geographically. It includes discriminatory attitudes and measures taken against specific groups such as the Jews and the Roma and Sinti. Less well known than the term antisemitism, “antigypsyism” is specific racism towards Roma, Sinti, Travellers and others who are stigmatized as “gypsies” in the public imagination. The term is often used in a narrow sense to indicate anti-Roma attitudes or the expression of negative stereotypes in the public eye or in hate speech.

Examples: 1) “The history of the Holocaust shows that targeting an entire group has far-reaching consequences. It can lead to an increase in xenophobia, racism, and extremism throughout society. Learn about where #antisemitism began and how it has evolved over centuries”. 2) “Antisemitism, hatred of Jews, has been called ‘the longest hatred’. While the #Holocaust is history’s most extreme example of #antisemitism, today antisemitism is again on the rise. It poses a dangerous threat worldwide. Learn about its origins”. 3) “Antigypsyism has existed in different forms for at least 500 years and reached its most destructive form in the Holocaust, during which an estimated 500.000 people were killed as ‘Gypsies’ by the Nazi Germans and their collaborators in many European countries”.

War and German occupation in Western and Eastern Europe = This category deals with content related to the Nazi German military campaign in Western and Eastern European countries, and in North Africa. Content in this category includes any reference to military occupation, Nazi German policy in the occupied countries and life conditions of people in these countries. It also includes mass deportation of Jews and other local population at the hands of Nazi Germany and its local collaborators.

Example: “22 June 1941 marks the start of ‘Operation Barbarossa’, a turning point in Nazi anti-Jewish policy, resulting in the mass murder of some 1.5 million Jews under Nazi occupation in forests and ravines such as Ponar and Babi Yar”.

Elderly, children and women = This category encompasses specific content related to the elderly, children and to the condition of women, as separately targeted from men, who in turn were disproportionately affected by hard labour experiences and incarcerated in many camps that originally only housed men. The elderly were particularly affected by deportation and mass killing, and were among the first to die in the overcrowded, starving ghettos as well as to be selected for the gas chambers. Children endured a radical disruption to their young and innocent lives and were usually the first victims of the Nazi’s murderous policy. The Nazis particularly targeted Jewish children, but also ethnically Polish and Romani (or Gypsy) children along with children with mental or physical disabilities (see Aktion T4). The Nazis and their collaborators killed children both for these ideological reasons and in retaliation for real or alleged partisan attacks. According to estimates, 1,500,000 Jewish children were killed during the Holocaust. A much smaller number were saved, others simply survived, often in a ghetto, occasionally in a concentration camp, while some were saved in various programs like the Kindertransport and the One Thousand Children, in both of which children fled their homeland. The reality of World War II and the Holocaust forced women to cope with new, unforeseen circumstances and fundamental dilemmas, compelling them to make difficult and often fateful decisions. They often did their best to protect their families, to obtain food, to find work, and to defend their children—sometimes even paying the unbearable price of separation. Women took on a number of roles at that time: they ran public soup kitchens and children's dorms, they worked as teachers and caretakers, as doctors and nurses, and they even joined partisan groups and underground resistance movements.

Examples: 1) "In July 1944, Ester Lurie was sent to the Stutthof Concentration Camp; there she managed to obtain scraps of paper and a pencil from one of the secretaries. She drew these #portraits of the female prisoners in secret". 2) "'The women and children were thrown into pits while still alive. More than 500 people were buried in silage pits there'. This Soviet report dated #OTD 20 July 1944 describes the mass murder of the Jews in Lepel". 3) "#AnneFrank is the most well-known hidden child of the Holocaust. But there were tens of thousands of children whose families placed them in hiding to protect them".

Fates of individuals = This category focuses on people in order to emphasise their individuality and humanity, and how they were affected by these historical events rather than vice versa. The Auschwitz-Birkenau Memorial and Museum, for example, uses its social media feeds to draw attention to the birth, nationality, occupation (if known) and death of individuals sent to Auschwitz, while the Stolpersteine app creates similar posts on Instagram.

Examples: 1) "Zipora Granat was born in Belfort, France, in 1931. After her mother was deported & later murdered in the Auschwitz-Birkenau concentration and extermination camp, Zipora was hidden in a number of cities by local welfare organisations". 2) "1 July 1936 | Belgian Jewish boy Andre Hartstein was born in Antwerp. He emigrated with his family to France. In December 1943 he was deported from Drancy to #Auschwitz. After the selection he was murdered in a gas chamber. He was 7". 3) "We know no more about Max Klein than the key dates of his life. He was born in Berlin on 20 June 1887. On 18 October 1941, Max Klein was deported with the 'I. Transport' from Grunewald station to the Łódź ghetto, where he was murdered on 26 February 1942 (Stolpersteine Berlin, Goßlerstr. 20)".

International response = This category encompasses the actions or responses of other nations not directly involved in the Holocaust. It also includes the response of Jewish groups outside the areas of Nazi domination, i.e. in North America and Mandatory Palestine. In the aftermath of the Holocaust, the world was shocked to see photographs of unimaginable horror; skeletons of victims stacked in piles by the hundreds and thousands, and living skeletons describing unspeakable brutality and atrocity. Yet, historians have been asking if an event of this magnitude could have occurred without the knowledge of the Allies, and if the Allied governments knew this was taking place why nothing was done to stop mass murder. One of the recurring questions is if the Allies could have acted to prevent the Holocaust or limited the destruction of six million Jews and millions of other innocent victims. In the decades since the Holocaust, some national governments, international bodies and world leaders have been criticized for their failure to take appropriate action to save the millions of European Jews, Roma, and other victims of the Nazi regime. Critics say that intervention, particularly by the Allied governments, might have saved substantial numbers of people and could have been accomplished without diverting significant resources from the war effort. Other researchers have challenged such criticism. Some have argued that the idea that the Allies took no action is a myth—that the Allies accepted as many German Jewish immigrants as the Nazis would allow—and that any theoretical military action by the Allies, such as bombing the Auschwitz concentration camp, would have saved the lives of very few people. Others have said that the limited intelligence available to the Allies made precision bombing impossible since, as late as October 1944, they still did not know the locations of many of the Nazi death camps or the purpose of the various buildings within the camps they had identified. Examples of international response during the Holocaust are provided by the Évian Conference in 1938 and, in general, the attitudes of countries in denying or offering asylum to Jews, the role played by neutral states (Portugal, Spain, Switzerland, Turkey), the Vatican and the allied governments in exile, while examples of responses following the Holocaust are the Nuremberg Trials in 1945, the definition of genocide and the Universal Declaration of Human Rights in 1948.

Examples: 1) "The Évian Conference was convened at the initiative of Franklin D. Roosevelt in July 1938 to discuss the problem of Jewish refugees. For ten days, from July 6 to July 15, delegates from thirty-two countries met at Évian-les-Bains, France. However, most western countries were reluctant to accept Jewish refugees, and the question was not resolved. The Dominican Republic was the only country willing to accept Jewish refugees—up to 100,000". 2) "Desperate for war material, the Nazis offered the British a million Jews in exchange for 10,000 trucks. When asked why he had refused to negotiate the deal, a British diplomat responded, "What would I do with one million Jews? Where would I put them?"". 3) "The United States of America had a quota allowing the entry of 25,957 German immigrants per year in the pre-war period (increased to 27,370 when Germany and Austria's quotas were merged in 1938). However, due to considerable additional requirements, such as citizenship papers, immigrant and transit visas, just 2372 German Jews were actually admitted in 1933. Unused quota slots were not carried forward into the following year. The first year that the quota was completely filled in America was 1939". 4) "Towards the end of World War II, Raphael Lemkin, a lawyer of Polish-Jewish descent, aggressively pursued within the halls of the United Nations and the United States government the recognition of genocide as a crime. Largely due to his efforts and the support of his lobby, the United Nations was propelled into action. In response to Lemkin's arguments, the United Nations adopted the term in 1948 when it passed the 'Prevention and Punishment of the Crime of Genocide'".

b7. The sub-category "Artefacts and authentic representation"

The sub-category "Artefacts and authentic representation" is organised into six sub-categories: 1) Artefacts, 2) Photographic and filmic evidence, 3) Literary and documentary production, 4) Music and theatre, 5) Sculptural and visual art, 6) Architecture.

Artefacts = This category includes expressions of the human dimension of the Holocaust, portrayed by a variety of everyday objects such as items for religious services (e.g., tallit, prayer books), toiletries, children's toys, cloths, kitchen utensils and recipe books, etc.

Examples = 1) “These Torah scrolls, one from a synagogue in Vienna and the other from Marburg, were desecrated during *Kristallnacht* (the “Night of Broken Glass”), the violent anti-Jewish pogrom of November 9 and 10, 1938. The pogrom occurred throughout Germany, which by then included both Austria and the Sudetenland region of Czechoslovakia. The scrolls pictured here were retrieved by German individuals and safeguarded until after the war”. 2) “This Singer sewing machine was used by shoemakers in the Lodz ghetto, Poland. As early as May 1940, the Germans began to establish factories in the ghetto and to utilize Jewish residents as forced labour. By August 1942, there were almost 100 factories within the ghetto. The major factories produced textiles, especially uniforms, for the German army”.

Photographic and filmic evidence = This category includes victims’ own photographs taken before and during the Holocaust, photographs taken by perpetrators and collaborators, or by external parties such as journalists or members of the press. A notable example of photographs taken by the perpetrators is the “Auschwitz Album”, which collects pictures taken upon the arrival of a series of Hungarian Jews’ transports at Auschwitz-Birkenau in 1944. It also includes film production for propaganda purposes, such as the Nazi propaganda film “Theresienstadt. Ein Dokumentarfilm aus dem jüdischen Siedlungsgebiet” (“Theresienstadt: A Documentary Film from the Jewish Settlement Area”), or by the liberators (e.g., recording the sights of Bergen-Belsen after its liberation in April 1945).

Examples: 1) “US military photographers provided some of the first visual evidence of atrocities at Nazi camps. William A. Scott III of Atlanta, Georgia, arrived at Buchenwald in April 1945, where he saw things that were ‘worse than a dream’”. 2) “The #Auschwitz Album is the only surviving evidence of the process leading to mass murder at the Auschwitz-Birkenau concentration and extermination camp. A selection of the photos is pictured below”. 3) “Photo album containing photographs taken by a passenger aboard the *St. Louis*, with a depiction of the ship on the cover. In 1939, this German ocean liner carried Jewish refugees seeking temporary refuge in Cuba. It was forced to return to Europe after Cuba refused to allow the refugees entry into the country”. 4) “‘The Führer Gives a City to the Jews’ (official name ‘Theresienstadt: A Documentary Film from the Jewish Settlement Area’, ‘Theresienstadt. Ein Dokumentarfilm aus dem jüdischen Siedlungsgebiet’) is a black-and-white projected Nazi propaganda film directed by the German Jewish prisoner Kurt Gerron and the Czech filmmaker Karel Pečený under close SS supervision in Theresienstadt concentration camp”.

Literary and documentary production = This category includes documents created by individuals and institutions such as letters, diaries, memoirs, memoranda, reports by government and other bodies, ledgers, etc. It also includes short stories, novels, and poems produced by victims and the persecuted, and authentic narrative forms by the Holocaust perpetrators. Notable examples of this production include Anne Frank’s Diary and the Ringelblum Archives (“Oneg Shabbat”) in the Warsaw Ghetto.

Examples: 1) “Last letter, #OTD 16 June 1942. ‘I am writing this letter before my death, but I don’t know the exact day that I & all my relatives will be killed, just because we are

Jews... I am proud to be a Jew. I am dying for the sake of my people' - Fanya Barbakow". 2) "'The invasion has begun...Is this really the beginning of the long-awaited liberation?' Anne Frank wrote in her diary #OTD in 1944. #DDay—the landing of Allied troops in Normandy, France—became one of the most crucial Allied victories in WWII". 3) "They appear an ordinary family. This is Heinrich Himmler, the architect of Nazi mass murder, with his wife and daughter. The Holocaust wouldn't have been possible without the indifference of most and the collaboration of many ordinary people. Read a Nazi wife's diary".

Music and theatre = This category includes songs and theatrical scripts that were created and performed during the Holocaust in ghettos, camps, and partisan groups, which tell the stories of individuals, groups and communities in the Holocaust period and were a source of unity and comfort, and later, of documentation and remembrance. Notable examples of music and theatre production during the Holocaust are those composed and executed in the Terezín ghetto, or the "Who Will Carry the Word?" play by Charlotte Delbo.

Examples: 1) "Playwright Jura Soyfer and composer Herbert Zipper, active in Viennese antifascist cabaret, were arrested by the Gestapo after the German-Austrian Anschluss of 1938. They met again at Dachau, where both toiled as 'horses', hauling cartloads of heavy stone throughout the camp. Soyfer and Zipper wrote *Dachau Song* in September 1938 as an ironic response to the motto 'Arbeit Macht Frei' (Work Makes Freedom) inscribed on the gate at the entrance to the camp". 2) "Classical music—instrumental works, art songs, opera—was also produced and performed during this period, notably by prisoners at the Theresienstadt (Terezín) ghetto and transit camp in Czechoslovakia, as well as in several other ghettos and camps".

Sculptural and visual art = This category encompasses objects created by victims or perpetrators as artistic responses to the time. It includes artworks (sculptures, paintings, drawings, etc.) such as official documentary war painting, the deeply personal responses of concentration camp and ghetto victims and survivors, or more documentary material by official war artists.

Examples: 1) "One of the most notable examples of a personal response to forced emigration is Felix Nussbaum's 'The Refugee' (1939). Felix Nussbaum was murdered in Auschwitz this week in 1944. Explore this online exhibition of his work: FELIX NUSSBAUM 1904 – 1944. The Fate of a Jewish Artist". 2) "Born in Bruenn, Austria-Hungary (now Brno, Czechoslovakia) in 1900, Norbert Troller served as a soldier in World War I, spending time as a prisoner-of-war in Italy. He was deported to Theresienstadt in 1942, where he worked as an architect for the Jewish self-administration of the camp and produced works of art as well. During this time Troller created several drawings and sketches that documented the appalling conditions for Jews in the camp, which were then smuggled to the outside world as proof". 3) "The Frog is a sculpture created in KL Lublin in 1943 by Albin Maria Boniecki - a graduate of the Academy of Fine Arts in Warsaw. During his imprisonment at Majdanek between January and September 1943, the sculptor wanted to use his skills to improve conditions in the camp, and lift up the spirits of fellow inmates. In a witty way, Boniecki tricked an influential person close to both the SS and the officials. He created The Frog and convinced them that, as an amphibian, it should be displayed by a water basin". 4) "The documentary value of the sketches and paintings of David Olère is tremendous. No actual photographs were taken of what went on within the crematoriums; only the hands and eyes of David Olère reproduce the horrible reality. David Olère did not sketch for pleasure. He sketched in testimony to all those who never came back. In the Destruction of the Jewish People (1946, 29x20 cm, Ghetto Fighters House, Israel), the fire consumes Torahs, phylacteries, and a tallis, as well as various Christian religious articles".

Architecture = This category encompasses Nazi-planned structures, such as camp buildings and killing facilities constructed by perpetrators and collaborators.

Example: "Prisoner areas in the camps followed rigid institutional plans. But the homes and buildings for the German guards and officers were built with high-quality materials and aesthetic finishing. The houses for the SS guards were constructed by prison laborers on curved streets with stone foundations and designs that replicated the garden city planning found in German towns".

c. The domain "Contemporary issues related to the Holocaust"

The domain "Contemporary issues related to the Holocaust" is organised into five macro-categories: 1) Holocaust scholarship, 2) Heritage of the Holocaust, 3) Parallels and challenges, 4) Remembrance and education, 5) Contemporary representation of the Holocaust.

Holocaust scholarship = Holocaust scholarship is a multidisciplinary research area that encompasses the study of the Holocaust. It deals with finding explanations for Holocaust events and providing answers to the question "Why did the Holocaust happen?". It also includes research on the preservation of the relevant historical sites.

Heritage of the Holocaust = This category encompasses the many ways in which various European and non-European countries and societies have confronted, and are still confronting, the history of the Holocaust. Related issues involve culture, morality, law, economics, and domestic and foreign policy as intimately associated with the Holocaust in Europe and in large parts of the Western world. It also includes post-war trials, the testimonies of Holocaust survivors, the Righteous among the Nations as a specific category of rescuers, the role played by second and third generations, and the most prominent figures and places of the Holocaust in popular culture.

Parallels and challenges = This category addresses the main challenges related to Holocaust denial and distortion, today's forms of racism and intolerance, and parallels with other genocides or mass atrocities.

Remembrance and education = This category includes forms of commemoration and remembrance, recommendations concerning teaching material, and public discourse about various aspects of the Holocaust in the press, social media and other media.

Contemporary representation of the Holocaust = This category encompasses memorialisation artworks created after the end of the war with the specific purpose of representing or commemorating the Holocaust, and contemporary artistic expressions such as digital and virtual representations.

c1. The sub-category "Holocaust scholarship"

The sub-category "Holocaust scholarship" is organised into two further sub-categories: 1) Holocaust research; 2) Archaeology of the Holocaust.

Holocaust research = This category encompasses investigation of the Holocaust from a historical and social perspective, and studies of its origins and consequences. Holocaust research focuses on the various aspects of the Holocaust and of antisemitism and on the most recent, innovative work being conducted in various disciplines and in different countries, though it overlaps to some extent with other academic fields, such as Jewish studies, Genocide studies and German studies. It includes different approaches and methodologies on all aspects of academic Holocaust research, such as Nazi policies against the Jews and other racial and genocidal programs, Jewish responses to Nazism, Nazi propaganda, Ghettos and camps, European collaboration, War crime trials, Survivor testimony, Collective memory of the Holocaust, Commemoration and museology, World War II and its aftermath, "New" antisemitism and xenophobia in the world today, Holocaust literature, drama, film, and art, Psychological aspects of trauma, Technology and the Holocaust. Institutions dedicated to Holocaust research investigate the multidisciplinary and interdisciplinary aspects of Holocaust methodology, demography, sociology and psychology. Examples of academic research institutes are the International Institute for Holocaust Research at Yad Vashem in Jerusalem, Israel, the Fritz Bauer Institute in Frankfurt, Germany, the Center for Advanced Holocaust Studies at the United States Holocaust Memorial Museum in Washington, DC, the European Holocaust Research Infrastructure, and many others.

Example: "In a recently published article entitled 'Looking beyond the victims: descendants of the perpetrators in Hitler's Children', the author analyses cinematic and ethical choices in mediating a notably painful subject for Israeli audiences. It claims that the emphasis on reconciliation and the focus on descendants who acknowledge and express remorse for their parents' roles in the Holocaust set a cinematic tenor of confession and guilt. The similar perspectives shared by the five descendants interviewed for the film marginalize the conflictual and complex responses of descendants of perpetrators which have been discussed in research, culture, and other films".

Archaeology of the Holocaust = This category, which is a subfield of Holocaust research, regards rigorously analysed scientific evidence of the material remains that were associated with persecution and mass murder. The practice of Holocaust archaeology relies on desk-based archival research, satellite imagery, aerial photographs, remote sensing, topographic survey and geophysical techniques to identify destroyed camps, lost killing sites and hidden mass graves. Importantly, these techniques avoid excavation that would affect human remains, a practice which is forbidden under Jewish Law. Collected data can be visualised in a multitude of innovative ways, with the primary objectives of digital preservation, simplicity of access and raising awareness in a wide audience. The premises of the hundreds of ghettos are all of potential interest for archaeological investigation, but attention is largely concentrated on Nazi mass murder centres in Poland, where archaeological research is particularly intense. The mass murder centres of Chełmno, Bełżec, Sobibór and Treblinka have been, and are, the focus of archaeological research more than other sites. Remote sensing technology is employed to detect underground objects and assemble the data in order to understand what actually happened on the grounds of Treblinka in Poland. Archaeological efforts are not only devoted to investigation and analysis of these sites but also to public attitudes towards them, in a direct attempt to enhance visitor experiences and education programmes. The field encompasses information conservation, heritage management, and education strategies.

Example: "Following the 1940 evacuation of the British Channel Island of Alderney, a network of Nazi labour and concentration camps was built on the island to house foreign labourers. Recent archaeological investigations, for the first time, have mapped the Sylt labour and concentration camp using non-invasive methods and 3D-reconstruction techniques. The results provide the opportunity, alongside historical research, to examine the relationships between architecture, the landscape setting and the experiences of those housed at Sylt camp".

c2. The sub-category "Heritage of the Holocaust"

The sub-category "Heritage of the Holocaust" is organised into five further sub-categories: 1) Political, legal, cultural and social developments, 2) Testimonies and their lessons for the present, 3) The Righteous Among the Nations, 4) Iconic places and people, 5) Second and third generations.

Political, legal, cultural and social developments = This category encompasses how the memory of the Holocaust has left a particularly strong mark in various countries, especially Israel and Germany. While the task of coming to terms with this traumatic past - a process which in German has been coined *Vergangenheitsbewältigung* - has for decades been carried out with a sense of urgency in these countries, there is a tendency today to consider the Holocaust as part of the development of a collective, transnational European memory culture and of Western society. This category also includes the post-war trials held after those organised by the International Military Tribunal in Nuremberg (e.g., the Eichmann trial in 1960), new evidence obtained through new documents, the establishment of national and international archives, and current investigation and prosecution of Nazi war criminals. Finally, it also comprises philosophical, religious and moral implications.

Examples: 1) "Outside of Poland, most post-war trials did not deal at all with crimes against Jews, and there was little international awareness or understanding of the Holocaust in the immediate post-war period. This changed in 1961 with the trial of Adolf Eichmann, chief administrator of the deportation of European Jews, before an Israeli court. The Eichmann trial also brought attention to the presence of accused Nazi perpetrators in a number of countries outside Europe, because Eichmann had settled in Argentina after the war". 2) "If until recently the centrality of the Holocaust in Western European identity and memory seemed secure, today we are witnessing a memory crisis resulting from conflicting perceptions of the Holocaust in Western and Central Europe. On the one side, there is a strong tendency to acknowledge the universal meaning of the Holocaust, and related UN and EU resolutions and declarations. On the other, the process of globalizing the Holocaust discourse is often considered as another mechanism to further strengthen Western cultural domination". 3) "Operation Last Chance was launched in July 2002 by the Simon Wiesenthal Center, with its mission statement being to track down ex-Nazis still in hiding. Most of them were nearing the end of their lifetimes, hence the operation's name. Efraim Zuroff is director of the Wiesenthal Center in Jerusalem and serves as the Israeli liaison as well as the overseer of this project, the focus of which is on investigation, prosecution, and conviction of the last remaining Nazi war criminals and collaborators. Many have obtained citizenship in Canada and the United States under false pretences; usually by misrepresentation, omission, or falsification of their criminal past, specifically war crimes which rose to the level of crimes against humanity".

Testimonies and their lessons for the present = This category includes content related to survivors' testimonies and any other posthumous references that demonstrate the full strength and power of the human spirit and how people could rely on their resilience to resist and survive. It also addresses the subject of the Holocaust from a perspective that would help the new generations to strengthen their spirit and their moral values as well as their courage, hope and faith.

Examples: 1) "#OTD 91 years ago, #AnneFrank was born. For millions, she was their window into the Holocaust. Though Anne wrote most of her diary while in hiding from the Nazis, she inspired us with her ability to believe in the enduring power of hope". 2) "For Holocaust survivor Renée Firestone, laughter and light are the best revenge against those who sought to destroy her. 'Could Hitler imagine that I will survive and have three great-grandchildren?'". 3) "The words of Holocaust survivor Elie Wiesel continue to resonate today. What can we learn from him about being witnesses to hate?".

The Righteous Among the Nations = "The Righteous Among the Nations, honoured by Yad Vashem, are non-Jews who took great risks to save Jews during the Holocaust. Rescue took many forms and the Righteous came from different nations, religions and walks of life. What they had in common was that they protected their Jewish neighbours at a time when hostility and indifference prevailed" (Yad Vashem, 2021). The title is conferred by Yad Vashem, the Israeli Holocaust Museum and Memorial based on analysis of testimony and documents to affirm that rescue was conducted for altruistic purposes rather than personal gain. The main forms of help extended by the Righteous Among the Nations include hiding Jews in the rescuers' home or on their property, providing false papers and false identities, and smuggling and assisting Jews to escape. The Righteous Among the Nations Database may be consulted online (https://righteous.yadvashem.org/?/search.html?language=en).

Examples: 1) "Righteous Among the Nations Joop Westerweel was executed in the Vught concentration camp #OTD 11 August 1944. Realizing that hiding was not sufficient to save the Jews, the group that he led began devising ways to help them escape from Dutch territory". 2) "In Rome, Maria Antoniazzi, in her capacity as Mother Superior of the Suore di Nostra Signora di Namur Convent, saved four members of the Jacobi family from Berlin. Until the liberation of Rome in June 1944, the Jacobis were protected by Mother Maria Antoniazzi. In 1948, the Jacobis settled in Israel. In 1990, Mother Maria Antoniazzi, now living in England, was visited by Hildegard and her son Claudio (Ilan). When asked about her actions during the war, she said: "Well, I did no more than anyone would have done. At that time you did not think of the danger – you just went on doing what little you could. People needed help and that was all that mattered. Besides, we didn't have a family or dependants to worry about. You see, as religious people, we could afford to take more risks". On July 7, 2004, Yad Vashem recognized Maria Antoniazzi (Mother Antonia) as Righteous Among the Nations".

Iconic places and people = This category deals with the most well-known people and places that have become iconic in popular culture and imagination. Undoubtedly, today the history of the Holocaust is made available to people largely as a product of popular culture, e.g., novels, films, television programs, museum exhibits, speeches and rituals, performances of political figures and other public personalities. These have contributed to a number of iconic figures and places becoming part of the collective imagination. At the same time, since the fall of the Berlin Wall in 1991, public interest in the Holocaust has spiked across Europe along with the rise of "dark tourism" to European Holocaust sites. According to recent lists, the most visited Holocaust sites are Auschwitz-Birkenau, Anne Frank's House, the Holocaust Memorial Berlin, Schindler's Factory, Yad Vashem and Warsaw Ghetto, and, as a consequence of exporting Holocaust knowledge out of Europe, the United States Holocaust Memorial Museum in Washington DC. Among the more recognisable cultural symbols of the Holocaust that have come to dominate popular cultural settings are Anne Frank (probably the one who has been most distorted), Oskar Schindler, Elie Wiesel, Primo Levi, and Adolf Eichmann.

Examples: 1) "'The invasion has begun...Is this really the beginning of the long-awaited liberation?' Anne Frank wrote in her diary #OTD in 1944. #DDay—the landing of Allied troops in Normandy, France—became one of the most crucial Allied victories in WWII". 2) "Oskar Schindler was a German industrialist and a member of the Nazi Party who is credited with saving the lives of 1,200 Jews during the Holocaust by employing them in his enamelware and ammunitions factories in occupied Poland and the Protectorate of Bohemia and Moravia. He is the subject of the 1982 novel Schindler's Ark and its 1993 film adaptation, Schindler's List, which reflected his life as an opportunist initially motivated by profit, who came to show extraordinary initiative, tenacity, courage, and dedication to save the lives of his Jewish employees". 3) "Elie Wiesel, Holocaust survivor & Nobel Peace Prize recipient, passed away #OTD 2 July 2016. He became a symbol of Holocaust memory and documentation, and a clear voice in the struggle for human rights". 4) "Adolf Eichmann was executed by hanging in the night between 31 May and

#OTD 1 June 1962. Learn more about the Eichmann trial in Jerusalem on our newly redesigned online exhibition 'The Eichmann Trial: With me here are six million accusers'".

Second and third generations = This category includes content associated with second generations and third generations, i.e., respectively the children and grandchildren of survivors.

Example: "Rita Goldberg's mother was a Holocaust survivor whose epic escapes from the Nazis were worthy of a film script. But like many children of camp survivors, Rita has also been profoundly affected by her experience".

c3. The sub-category "Parallels and challenges"

The sub-category "Parallels and challenges" is organised into three further sub-categories: 1) Countering Holocaust denial and distortion, 2) Antisemitism, racism and hate, 3) Other genocides.

Countering Holocaust denial and distortion = This category includes identifying content related to Holocaust denial or Holocaust distortion, and actions to counter these phenomena. According to IHRA, "Holocaust denial is discourse and propaganda that deny the historical reality and the extent of the extermination of the Jews by the Nazis and their accomplices during World War II, known as the Holocaust or the Shoah. Holocaust denial refers specifically to any attempt to claim that the Holocaust/Shoah did not take place. Holocaust denial may include publicly denying or calling into doubt the use of principal mechanisms of destruction (such as gas chambers, mass shooting, starvation and torture) or the intentionality of the genocide of the Jewish people" (IHRA, 2019). As for Holocaust distortion, the IHRA's non-legally binding Working Definition of Holocaust Denial and Distortion refers to a number of examples of attempts to cast doubt on the factuality of the Holocaust. These include (but are not limited to) gross minimization of the number of Holocaust victims; attempts to blame Jews for causing their own genocide; statements that cast the Holocaust as a positive historical event; and attempts to blur the responsibility for the establishment of concentration and death camps devised and operated by Nazi Germany by putting blame on other nations or ethnic groups (IHRA, 2019). This category includes addressing myths, misconceptions and misappropriation that have been shown to have currency and circulation especially amongst young people, as well as problematic use of Holocaust iconography. It also comprises exposing right-wing extremism and neofascism.

Examples: 1) "We encourage people to learn from the Holocaust. Comparing and categorizing are natural human impulses, but this oversimplified approach to a complex history is dangerous. Nazi crimes are unique. We should examine the evidence, then alert ourselves to warning signs". 2) "A mask is not a yellow star. Such a comparison is disrespectful to Jews humiliated by it during the Holocaust. Wearing a mask is a sign of our moral responsibility for the safety of us all. It protects health & lives. Visitors of @AuschwitzMuseum are requested to cover faces". 3) "The use of National Socialist icons at the Freiburg 'Hygiene Demonstrations' is only the most recent manifestation of a sickening phenomenon where Nazi Germany's efforts to exterminate Europe's Jews are compared to today's measures to contain the coronavirus. From Freiburg to Vienna to the United States, the measures taken by democratic governments to protect their populations and save lives are being equated with the murderous policies of the National Socialist regime, thereby diminishing the latter. This obscene trend reflects a grave lack of understanding of the dimensions of the Holocaust and must be taken very seriously".

Antisemitism, racism and hate = This category includes content related to today's forms of racism, contemporary antisemitism, (online) hate and bullying, etc. and fostering community solidarity with the victims.

Examples: 1) "'Antisemitism is not hatred of Semitism or Semites ... antisemitism is Jew hatred' —Holocaust historian Deborah Lipstadt. The Nazi regime used similar centuries-old #antisemitic myths to stoke fear about Jews. These stereotypes are still being used today". 2) "The Museum is outraged at the horrific killing of #GeorgeFloyd. Painful moments like these remind us of our shared humanity. The words of Holocaust survivor Elie Wiesel help us reflect on the lessons of the Holocaust, the vital need to confront hate, and promote human dignity". 3) "ISIS attempted to destroy the #Yezidi of northern Iraq #OTD 6 years ago. It executed men and boys and kidnapped women and girls as young as 9 to be sold, sexually enslaved and beaten. We stand in solidarity with the victims and survivors, who fight for justice and accountability".

Other genocides = This category includes content related to the deliberate and systematic destruction, in whole or in part, of an ethnic, racial, religious or national group. The United Nations defines genocide as any of the following acts committed with an intent to destroy, in whole or in part, a national, ethnic, racial, or religious group, including killing members of the group: causing serious bodily or mental harm to members of the group; deliberately inflicting on the group living conditions that are designed to bring about a physical destruction in whole or in part; imposing measures intended to prevent births within the group; forcibly transferring children from the group to another group. Apart from the Holocaust, notable examples of genocides in contemporary history include the Armenian, Cambodian, and Yugoslavian genocides, and the genocide against the Tutsi.

Example: "The #ArmenianGenocide took place between spring 1915 and autumn 1916. At least 664,000 people and possibly as many as 1.2 million died during the genocide".

c4. The sub-category "Remembrance and education"

The sub-category "Remembrance and education" is organised into three further sub-categories: 1) Remembrance and commemoration, 2) Public discourse about various aspects of the Holocaust in the press, social media and other media, 3) Holocaust education: Teaching and learning about the Holocaust.

Remembrance and commemoration = This category includes any initiative aimed at commemorating and remembering the victims of the Holocaust and other Nazi victims. Examples include the inauguration of a new memorial, the installation of a new Stolperstein (literally "stumbling stone", a project initiated by the German artist Gunter Demnig in 1992 which consists of sett-size, ten-centimetre concrete cubes bearing a brass plate inscribed with the name and life dates of victims of Nazi mass murder or persecution), celebrations of the International Holocaust Remembrance Day, national memorial days (e.g., Yom HaShoah, the Warsaw Ghetto Uprising), and important dates in the lives of victims or survivors such as Anne Frank's birthday.

Examples: 1) "It took the world years to come to the rescue. 6 million lives were taken before the Allies reached the concentration camps. So you ask me, a Jew, what will prevent this from happening again? A strong Jewish state, who can defend her own people. A strong Israel. #YomHaShoah". 2) "Gunter #Demnig has laid today in Ludwigshafen further @_Stumbling blocks_. Thanks to http://ludwigshafen-setzt-stolpersteine.de There are already so many. And every stone is necessary."3) "Today would have been Anne Frank's 91st birthday, were she not murdered in the #Holocaust. After the war, Yad Vashem recognized the brave non-Jews who risked their lives hiding the Frank family. They are pictured below". 4) "People often ask why Jews threatened by violence in Nazi Germany didn't immigrate sooner. Explore the complex steps that were required for those who tried to immigrate to the United States. #WorldRefugeeDay".

Public discourse about various aspects of the Holocaust in the press, social media and other media = This category includes press or media content which is connected with the contemporary significance of the Holocaust, such as trials of contemporary historians (e.g., Barbara Engelking and Jan Grabowksi in Poland), or ongoing pursuit of Nazi war criminals (e.g., efforts made during the past three decades to bring Holocaust perpetrators to justice all over the world).

Examples: 1) "On 19 June 2017, some 180 Holocaust historians and other historians of modern European history signed an open letter in Grabowski's defence, addressed to Calin Rovinescu, Chancellor of the University of Ottawa. Describing the campaign against Grabowski as 'an attack on academic freedom and integrity', the letter said that '[h]is scholarship holds to the highest standards of academic research and publication', and that the Polish League Against Defamation puts forth a 'distorted and whitewashed version of the history of Poland during the Holocaust era'". 2) "Poland's parliament passed a law on Wednesday that would prevent former Polish property owners, including Holocaust survivors and their descendants, from regaining property expropriated by the country's communist regime. Israel condemned the legislation, with Foreign Minister Yair Lapid saying it 'damages both the memory of the Holocaust and the rights of its victims'".

Holocaust education: Teaching and learning about the Holocaust = This category encompasses the growing field of educational research that seeks to explore how the Holocaust is being taught in school, and also how teachers are being trained to teach this important topic. It can also include research into how young people engage with Holocaust memorials, Holocaust site visits and other commemoration activities. The field refers to efforts, in formal and non-formal settings, to teach about the Holocaust, and addresses pedagogical approaches, teaching methods and informal learning, under the larger umbrella of education about the Holocaust. This category also includes curricula and textbooks studies, various materials, and technology use (e.g., multimedia, the

Internet, social media, etc.). It also comprises content related to new teaching material, a memory trip, a themed competition, and content focused on teaching and learning.

Examples: 1) "We encourage people to learn from the Holocaust. Comparing and categorizing are natural human impulses, but this oversimplified approach to a complex history is dangerous. Nazi crimes are unique. We should examine the evidence, then alert ourselves to warning signs". 2) "Being able to explain what #antisemitism is and where it comes from can be difficult. Start with the basics: Who are "Jews"? How did antisemitism start? Why is it still with us, even after the Holocaust?". 3) "As members of the EU-funded HERA research project IC_ACCESS: *Inclusive strategies for European conflicted pasts*, the Falstad center, and the SPECS research group, at the Institute of Science and Technology IBEC) agreed to jointly develop the *Future Memory App* of SS Strafgefangenenlager Falstad 1945, targeted towards students, visitors and educational programs as well as museum visitors to the memorial".

c5. The sub-category "Contemporary representation of the Holocaust"

The sub-category "Contemporary representation of the Holocaust" is organised into seven further sub-categories: 1) Films and documentaries, 2) Photographs, 3) Literary and documentary production, 4) Music and theatre, 5) Sculptural and visual art, 6) Artefacts and **architecture, 7)** Digital and virtual representation.

Films and documentaries = This category spans multiple genres such as docudramas, narrative films including war films, action films, love stories, psychological dramas, and even comedies. Contemporary Holocaust cinema includes movies such as "Schindler's list", "The pianist", "La vita è bella", and "The Boy in the Striped Pyjamas", or the re-enacted documentary "Who Will Write Our History. This category also includes news related to the release of a new movie or documentary.

Examples: 1) "Holocaust (1978) is an American four-part television miniseries which explores the Holocaust from the perspectives of the fictional Weiss family of German Jews and that of a rising member of the SS, who gradually becomes a war criminal. Holocaust highlights numerous events which occurred up to and during World War II, such as Kristallnacht, the creation of Jewish ghettos, and later, the use of gas chambers". 2) "The Devil Next Door is a documentary series about John Demjanjuk, accused of war crimes and crimes against humanity carried out while serving as a guard at Nazi extermination camps during World War II, who spent years living in Cleveland. The show premiered on Netflix in 2019".

Photographs = This category encompasses photographs or photographic exhibitions created after the Holocaust, such as the commemorative projects "Faces of Life after the Holocaust. 75 Portraits of Survivors" photographed by Martin Schoeller in 2020.

Example: "#75Survivors Faces of Life After the Holocaust. Zipora Granat was born in Belfort, France, in 1931. After her mother was deported & later murdered in the Auschwitz-Birkenau concentration & extermination camp, Zipora was hidden in a number of cities by local welfare organisations".

Literary and documentary production = This category includes literary works such post-war memoirs, short stories, novels, poems, etc., either written or published after the war or more recently. Examples of the first type are Anne Frank's Diary, Primo Levi's "If This Is a Man" (Se questo è un uomo) or Elie Wiesel's "Night". More recent works are "Sarah's Key" by Serge Joncour, the comics book "Maus" by Art Spiegelman, and "The Boy in the Striped Pyjamas" by John Boyne. This category includes any news about the release of a new book or literary work.

Examples: 1) "*Night* is Elie Wiesel's masterpiece, a candid, horrific, and deeply poignant autobiographical account of his survival as a teenager in the Nazi death camps. This new translation by Marion Wiesel, Elie's wife and frequent translator, presents this seminal memoir in the language and spirit truest to the author's original intent. And in a substantive new preface, Elie reflects on the enduring importance of Night and his lifelong, passionate dedication to ensuring that the world never forgets man's capacity for inhumanity to man". 2) "Alberto Caviglia at his narrative debut also resorts to satire in his book "Olocaustico". The author presented the novel at the 'Nuvola' by Fuksas at the Eur in Rome at the small and medium publishing fair 'Più libri più liberi più libri' on Sunday 8 December at 1pm at the Sala Vega".

Music and theatre = This category includes songs, lyrics, music and theatre productions that have been written and performed after the end of the Holocaust until today.

Examples: 1) "The woman born on the Mauthausen ramp who rose from the audience to speak is Eva Clarke, 67. She lives in Cambridge with her mother, Anka Bergman, who is 96. Mrs Bergman knew the man who founded and conducted the principal orchestra in the camp: Karel Ancerl. Ancerl also survived Auschwitz and went on to become one of the greatest conductors and interpreters of music – some say the greatest – of his generation with the Czech Philharmonic Orchestra". 2) "Schindler's List: Original Motion Picture Soundtrack is the film score of the 1993 film of the same name, composed and conducted by John Williams. The original score and songs were composed by Williams, and features violinist Itzhak Perlman".

Sculptural and visual art = This category includes memorial artworks such as paintings, drawings, sculptures, stained glass windows, and artistic representations to the Holocaust produced after the war by survivors and third parties. Spread across sites in and beyond Europe, memorial artworks serve as visible reminders of the past and are a global phenomenon.

Examples: 1) "The International Monument at Dachau was inaugurated on September 8, 1968. It was designed by Nandor Glid, who himself was persecuted as a Jew by the Nazis in his home country of Yugoslavia and had joined the resistance to the German occupation forces at the end of 1944. The sculptor won a competition organized by the CID, the association representing the survivors, in 1959". 2) "Like Treblinka, the Warsaw Ghetto was completely destroyed, so monuments here mark the locations of former sites. The first World War II-related memorial was built in 1946 to mark the third anniversary of the Warsaw Ghetto Uprising. Designed by L.M. Suzin, it is a red sandstone disk which was tilted toward the entrance gate to the ghetto. It marks the site of the first armed confrontation. The inscription reads: 'To the memory of those who died in unparalleled and heroic struggle for the dignity and freedom of the Jewish nation, for free Poland, and for the liberation of mankind - the Jews of Poland'". 3) "Jeffrey Schrier assembles massive sculptural works configured as shimmering winged forms that are installed in museums, institutions and public spaces. The works utilize 11 million can tabs collected from all fifty states and eight countries by the middle school in Mahomet Illinois, amassed to recognize the number of lives destroyed in the Holocaust. Millions of tabs Schrier additionally acquired numerically reference lives cut short by continuing acts of inhumanity. Through Schrier's programs, over sixty-thousand participants have constructed can tab elements, feather-like structures that Schrier uses as the 'clay-like' sculptural material for his immense assemblage works, expressions of hope developing out of tragedy".

Artefacts and architecture = This category refers to contemporary architecture that shows how museums and memorials construct and implement spatial storytelling through artifacts and exhibition techniques. Each architectural space implements specific engagements with historical time by use of spatial layout and circulation, spatial form and symbolization, and spatial qualities of lighting and material.

Examples: 1) "The landscape of Yad Vashem plays a unique role in the formation of Jewish history and culture and makes the YVHHM a primary example of Jewish space with a specific engagement with historical time, with which Holocaust museums in other parts of the world cannot compete, such as the Ann Frank House in Amsterdam, the United States Holocaust Memorial Museum in Washington DC, or the Jewish Museum in Berlin". 2) "The Memorial to the Murdered Jews of Europe (German: Denkmal für die ermordeten Juden Europas), also known as the Holocaust Memorial (German: Holocaust-Mahnmal), is a memorial in Berlin to the Jewish victims of the Holocaust, designed by architect Peter Eisenman and engineer Buro Happold. It consists of a 19,000-square-metre (200,000 sq ft) site covered with 2,711 concrete slabs or "stelae", arranged in a grid pattern on a sloping field. Building began on 1 April 2003, and was finished on 15 December 2004. It was inaugurated on 10 May 2005, sixty years after the end of World War II in Europe, and opened to the public two days later. It is located one block south of the Brandenburg Gate, in the Mitte neighborhood".

Digital and virtual representation = This category encompasses digital and virtual works of art / artistic projects, multimedia content, etc., dealing with the Holocaust and forms of Digital Holocaust Memory. Efforts to save and preserve historical archives combined with attempts to safeguard the testimonies of the last survivors have resulted in numerous undertakings based on the use of advanced digital technologies. One of the first initiatives to have gained prominence originated from the USC Shoah Foundation's Institute for Visual History and Education (formerly Survivors of the Shoah Visual History Foundation), a non-profit organisation dedicated to recording interviews with survivors and witnesses of the Holocaust and other genocides. Further examples are the project New Dimensions in Testimony, a collection of interactive biographies from USC Shoah Foundation that enable people to have conversations with pre-recorded video images of Holocaust survivors and other genocide witnesses; virtual reality experiences such as the VR film The Last Goodbye (the Shoah Foundation); the VR visit of the Anne Frank House; and a growing number of VR projects embedded at memorial sites of former concentration camps.

Examples: 1) "USC Shoah Foundation's Dimensions in Testimony enables people to ask questions that prompt real-time responses from pre-recorded video interviews with Holocaust survivors and other witnesses to genocide. The pioneering project integrates advanced filming techniques, specialized display technologies and next generation natural language processing to create an interactive biography. Now and far into the future, museum-goers, students and others can have conversational interactions with these eyewitnesses to history to learn from those who were there". 2) "Eva.stories is an Instagram account that recounts the real-life story of a Jewish girl murdered in a concentration camp, by imagining she had documented her days on a smartphone, has sparked a debate about how to sensitively portray the Holocaust. With 1.1 million followers, Eva.stories is a high-budget visual depiction of the diary of Eva Heyman – a 13-year-old Hungarian who chronicled the 1944 German invasion of Hungary – but features hashtags, internet lingo, and emojis used by a 21st century-teenager". 3) "The *Anne Frank video diary* series shows what Anne Frank's life in the Secret Annex was like. In terms of content, it is a representation of a number of the diary letters that Anne Frank wrote between March and August 1944. It's just another format: Anne doesn't write, she films. *Anne Frank video diary* will be broadcast on the YouTube channel of the Anne Frank House: youtube.com/annefrank. The first two episodes will air on 30 March 2020. Every week, new episodes will be made available at set days and times: Monday and Thursday at 16:00 hours (CET). The series consists of fifteen episodes, the last episode (epilogue) will air on 4 May 2020".

d. The domain "Museum activities and communication"

The domain "Museum activities and communication" is organised into six macro-categories: 1) Museum events, 2) Social media events, 3) Communication and responses to the audience, 4) Collaborations and endorsements, 5) Information about museum operation, 6) Other.

Museum events = This category includes any event that the museum or memorial may organize in presence or online (e.g., thematic conference), a commemorative event hosted online via social media (i.e., streaming), a fundraising campaign, etc. It also includes new publications edited by the museum as well as travelling, onsite and online exhibitions.

Examples: 1) "Adolf Eichmann was executed by hanging in the night between 31 May and #OTD 1 June 1962. Learn more about the Eichmann trial in Jerusalem on our newly redesigned online exhibition "The Eichmann Trial: With me here are six million accusers"". 2) "#AnneFrank is the most well-known hidden child of the Holocaust. But there were tens of thousands of children whose families placed in hiding to protect them. Join us on what would be her 91st birthday, 6/12 at 9:30 a.m. ET, to learn their stories". 3) "Today would have been the 91st birthday of #AnneFrank. We're live on Facebook at

9:30 a.m. ET, discussing the experiences of hidden children of the Holocaust. Meet our guest, Al Münzer, who spent three years in the shadows, separated from his family".

Social media events = This category specifically focuses on social media as a memory and education tool in itself and encompasses events through which organisations exploit its potential in offering live engagement with digital users and network communication. Examples include the Wiener Library's live Q&A sessions on Twitter to host a conversation about contemporary debates with their audience; a memorialising Twitter Bot created by Bergen-Belsen for the 75th anniversary of the liberation; the social media campaign #RememberingFromHome launched by Yad Vashem to mark Holocaust Remembrance Day 2020; live tours (e.g., curators who show object, tours of the sites) on Instagram with live conversations with users.

Example: "On Holocaust Remembrance Day this year, April 21st, Yad Vashem invites the public to participate in an international campaign to recite the names of Holocaust victims, record the name reading and share the video on social media using the hashtags #RememberingFromHome and #ShoahNames. You can read names from the list of adults and children listed below. You can also access names of Holocaust victims from specific countries. You can also search our Central Database of Shoah Victims' Names for names you want to recite and remember".

Communication and responses to audience = This category encompasses answering social media users' questions, correcting misconceptions or factual inaccuracies, and, in some cases, responding to criticism and to current controversies. It also includes calls for donations and invitations to participate in fundraising campaigns.

Examples: 1) "We can see a lot of 'Auschwitz' mentions recently. Remember that a preserved historic site does not equal a statue erected to honour a person. The two have entirely different roles, contexts, messages & meanings. Drawing a simple comparison here is incorrect". 2) "The period of the pandemic has proved exceptionally difficult for the Auschwitz Memorial, as it has been closed to visitors since 12 March and hence deprived of its primary source of financing. Therefore, we wish to ask everyone for whom the preservation of memory is important for financial support to allow us to continue with numerous educational, research, exhibition and publishing projects". 3) "The 'victims' trend on TikTok can be hurtful & offensive. Some videos are dangerously close or already beyond the border of trivialization of history. But we should discuss this not to shame & attack young people whose motivation seem very diverse. It's an educational challenge".

Collaborations and endorsements = This category refers to connections with other museums, institutions and individuals committed to Holocaust history and remembrance, such as research institutes, scholars, other museums and memorial sites, either supported or driven by governments or developed by organisations or groups.

Examples: 1) "The Museum is part of EHRI, the trans-national Holocaust research, commemoration and education whose main challenge is cope with the wide dispersal of sources and expertise across many institutions. EHRI overcomes such fragmentation by connecting sources, institutions and people". 2) "We are proud to announce the new partnership with Yad Vashem". 3) "We encourage to visit the Museum of Jewish Heritage – A Living Memorial to the Holocaust. They are releasing a series of digital spots from celebrities and elected officials that encourage people to visit the most comprehensive Holocaust exhibition about Auschwitz ever exhibited in North America. Auschwitz. Not long ago. Not far away. The ground-breaking exhibition is now open through January 3, 2020 in New York City".

Information about museum operation = This category includes information about museum/memorial operation like opening hours, closure, visitor rules, etc.

Examples: 1) "Visitors of @AuschwitzMuseum are requested to cover faces". 2) "Due to the decision of the government to close all museums and cultural institutions in Poland because of coronavirus pandemic, we inform that the Auschwitz Memorial is not available to visitors".

Other = Any other content that does not fall into the previous ones.

13.8 List of experts that participated in the study

Frank W Baker, Media Education Consultant, Media Literacy Clearinghouse, USA

Dr. Hannes Burkhardt, Lecturer at the Friedrich-Alexander-University, Erlangen-Nuremberg, Germany

Dr. Imogen E. J. Dalziel, the Holocaust and Genocide Research Partnership, UK

Dr. David Deutsch, International School for Holocaust Studies, Yad Vashem, Israel

Prof. Stuart Foster, Executive Director, UCL Centre for Holocaust Education, UCL Institute of Education, University College London, UK

Dr. Simone Gigliotti, Senior Lecturer, Holocaust Studies, Department of History, Holocaust Research Institute, University of London, UK

Dr. Alberto Giordano, Professor of Geography, Honorary Professor of International Studies, Department of Geography, Texas State University, USA

Dr. Michael Gray, Headmaster, Hereford Cathedral School, UK

Dr. Eleni Karayianni, Senior Research Fellow, Centre for Holocaust Education, UCL Institute of Education, University College London, UK

Prof. Ilya Levin, The Jaime and Joan Constantiner School of Education, Tel Aviv University, Israel

Prof. Gadi Luzzatto Voghera, Director Fondazione CDEC, Milano, Italy

Dr. Mykola Makhortykh, Institute of Communication and Media Studies, University of Bern, Switzerland

Prof. Harold Marcuse, Department of History, University of California, Santa Barbara, USA

Prof. Dr. Anna Menyhért, Professor of Trauma Studies, The University of Jewish Studies, Budapest, Hungary

Dr. Andy Pearce, Associate Professor in Holocaust & History Education, University College London, UK

Prof. Dr. Eva Pfanzelter, Professor & Deputy Head, Department for Contemporary History, Deputy Head Research Center Digital Humanities, University of Innsbruck, Austria

Dr. Robert Rozett, Senior Historian, Yad Vashem International Institute for Holocaust Research, Israel

Dr. Victoria Grace Walden, Director of Learning Enhancement and Senior Lecturer in Media, University of Sussex, UK

13.9 Acknowledgments

This report has been developed within the project "Countering Holocaust distortion on social media. Promoting the positive use of Internet social technologies for teaching and learning about the Holocaust", funded under the 2020 IHRA Grant Projects Program - IHRA Grant # 2020-792; IHRA Grant Strategy 2019-2023, line 2 "Countering distortion". We deeply thank our survey respondents.