THE DIGITAL HOLOCAUST MEMORY PROJECT
SUSSEX WEIDENFELD INSTITUTE OF JEWISH STUDIES

RECOMMENDATIONS FOR USING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING FOR HOLOCAUST MEMORY AND EDUCATION

PREPARED BY DR VICTORIA GRACE WALDEN AND DR KATE MARRISON

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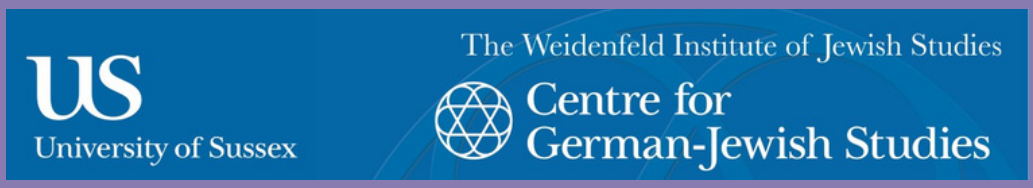

CONTRIBUTORS

Project Leads

Primary Investigator: Victoria Grace Walden, Senior Lecturer, School of Media, Arts and Humanities, University of Sussex, UK
Co-Investigators: Mykola Makhortykh, Alfred Landecker lecturer, University of Bern, Switzerland
Kate Marrison, Postdoctoral Fellow at The Sussex Weidenfeld Institute, University of Sussex, UK

With kind support from the Alfred Landecker Stiftung for the time of project lead Dr Makhortykh.

Participants

Silke Arnold-de Simine, Reader Emerita, Department of Film, Media and Cultural Studies, Birkbeck, University of London, UK
Anja Balis, German Language and Literature Education, University of Munich, Germany
Frédéric Clavert, Centre for Contemporary and Digital History, University of Luxembourg
Tim Cole, Department of History, University of Bristol
Lesly Culp, USC Shoah Foundation, California, US
Ron Grau, School of Engineering and Informatics, University of Sussex, UK
Iris Groschek, Foundation of Hamburg Memorials and Learning Sites Commemorating the Victims of Nazi Crimes, Germany
Benedikt Perak, Faculty of Humanities and Social Sciences, University of Rijeka, Croatia

CONTRIBUTORS

Alexandra Pucciarelli, Library Science and Archive Studies, Queen's College, New York, US
Tomer Sagie, Business IT, Yad Vashem, and Social Network Analysis, Ben Gurion University, Israel
Andrea Szonyi, USC Shoah Foundation, California, US
Steve Torrance, School of Engineering and Informatics, University of Sussex, UK and Expert Ethics Reviewer, Horizon 2020/ Horizon Europe, European Commission
Paul Verschure, Radboud University Donders Centre of Neuroscience, the Netherlands; Synthetic, Perceptive, Emotive and Cognitive systems group (SPECS); Eodyne Systems, Barcelona, Spain and Future Memory Foundation, The Hague, the Netherlands
Sytse Wierenga, Eodyne Systems, Barcelona, Spain and Future Memory Foundation, The Hague, Netherlands

TABLE OF CONTENTS

FOREWORD

The majority of academic research that offers commentary on digital Holocaust projects tends to focus on what is seen by users at the interface. For example, the **simulation** of human-to-human dialogue in interactive biography projects or **avatars** in Second Life. Far less attention has been given to the **invisible** processes that inform what data is retrieved by the user.

Artificial intelligence and machine learning already impact Holocaust education and memory, although their influence is more predominant in public online spaces - such as search engines - than within the work of professional institutions dedicated to teaching about and commemorating this past.

- How might Holocaust organisations harness the possibilities of these technologies for 'good'?
- What challenges do they need to navigate to achieve this?
- What support do they need, and from whom, to manage this substantial task?

Holocaust education and memory developed within and alongside the so-called **broadcast era** of seemingly fixed, **closed texts.** Once a novel is published or a film released, the production process is over. However, digital Holocaust education and memory are complex, iterative processes which never cease to be in development - not just at a project or 'text' level, but as an ever-expanding network of potentially connected assets (cohesive 'texts' are no longer the best way to conceptualise such work). For those familiar with scholarship in memory studies or Holocaust studies, the idea of our relationship with the past being visualised or experienced as so **complex** will not be new. Indeed, in parallel is the complexity of the Holocaust as a historical event lived or encountered by so many different people with such diverse experiences, often considered so overwhelming for humans to comprehend so we seek to simplify it in order to teach it. Artificial intelligence (AI) and machine learning might offer alternatives to such existing practice by enabling a vast range of possible entrance and exit points, as well as journeys through **big data** sets. Yet, there remains reason to be cautious, if those with the historical knowledge and sources in the sector do not comprehend at least the logics of how these technologies can be applied. We need to identify both the possibilities and challenges in order to move forward productively.

This report serves as an important first step in this work. It was created as part of the research project 'Participatory Workshops - Co-Designing Standards for Digital Interventions in Holocaust Memory and Education', which is one thread of the larger Digital Holocaust Memory Project at the University of Sussex.

The participatory workshops have focused on six themes, each of which brought together a different range of expertise to discuss current challenges and consider possible recommendations for the future. The themes were:

- AI and machine learning
- Digitising material evidence
- Recording, recirculating and remixing testimony
- Social media
- Virtual memoryscapes
- Computer games

In this report, you will find the recommendations and a suggestion of who could bear responsibility to take each of these on; a summary of the workshop discussions; and a list of the participants who contributed to this work. There will also be a complementary action plan published alongside this report. The recommendations and discussion presented here summarise participant opinions, which might not reflect the opinions of project leads or any individual participant in full, or all participants in consensus. Whilst we have offered participants the opportunity to review and discuss the development of these guidelines, we have tried to retain differing perspectives rather than suggest there was homogeneity in opinion. The discussion presented is an aggregation of professional opinions informed by a diverse range of experiences and expertise. We present ideas collectively, rather than attributing specific points to participants. All participants are, however, acknowledged as contributors to this report.

This document does not claim to be the last word on using artificial intelligence and machine learning for Holocaust memory and education, rather we recognise that this is very much the beginning of a longer conversation. We hope that the immediate recommendations suggested in these guidelines will help organisations and individuals to prioritise the work needed to most effectively make use of AI and machine learning programs to deal with the difficult material related to the Holocaust.

Dr Victoria Grace Walden

Project Lead

RECOMMENDATIONS

For each of the recommendations we outline here, we also suggest who could take responsibility for this work. They are addressed at a wide range of stakeholders from the tech industry to Holocaust organisations, academic researchers to funding agencies. Where the recommendation is part of the project team's next steps action plan, we have noted 'Project Leads'.

01

01 — Holocaust Sector

Develop interdisciplinary and cross-sector collaborations to create (a) frameworks that allow for projects at different institutions to be connected to others and (b) collaborative approaches to the development of the application of machine learning and AI for the sake of Holocaust memory and education.

02

02 — Project Leads

Create a resource hub for the sharing of existing transnational, national and local frameworks, good practice, and relevant research.

03

03 — Holocaust Sector and Funding Agencies

Provide the same job security and esteem to individuals and teams with technical expertise as given to curators, researchers, and archivists in Holocaust institutions.

04

04 — Governments and Funding Agencies

Prioritise funds for long-term and large-scale digital strategies for Holocaust memory and education over one-off, short-term projects.

05

05 — Researchers

Develop a meta-analysis of the Holocaust in terms of mapping out essential ground truths alongside complexities. Model narrative expositions that are structured like 'chronotope' rather than stories. Such modelling will be fundamental to informing useful training data.

06

06 — Holocaust Organisations and Private Collectors

Digitise and make accessible collections of historical Holocaust data en-masse as a matter of urgency. The more data is digitised, the more we have available to inform training databases.

07

07 — Project Leads

Develop digital literacies programmes for Holocaust institutions, users, and educators. Digital literacies should play a fundamental role in all future Holocaust education where such technologies are used.

08 — Holocaust Organisations

Familarise yourselves with existing ethical and practical guidelines related to machine learning and artificial intelligence, such as:

- EU Commission - Assessment List for Trustworthy AI
- Ethics guidelines for trustworthy AI | Shaping Europe's digital future (europa.eu)
- EUROPEANA - GLAM Sector Recommendations for using AI
- IEEE - Various Industry Ethics Guidelines

09 — Holocaust Organisations and Researchers

Be assertive in playing roles in the 'training' of future machine learning programs - not only in the Holocaust and genocide context, but beyond.

10 — Tech Companies

Engage with the expertise in Holocaust and Genocide studies to support ethical approaches to managing sensitive data sets.

If you are interested in working towards any of these recommendations, we would welcome you to contact Project Lead Dr Victoria Grace Walden (v.walden@sussex.ac.uk) with the Subject Line: AI and Machine Learning Recommendations. We are keen to track the impact of the report after publication, support ongoing work in this area, and may also be able to put you in contact with other organisations interested in similar actions to support collaborative work.

DISCUSSION SUMMARY

The following pages summarise the workshop discussions which informed our recommendations. Each sub-section identifies one of the priorities agreed by participants at the beginning of workshop 1 (see the methodology that follows this section for more details on our approach).

1. Working Definition

Participants agreed that it was worth including a working definition of the terms **artificial intelligence** and **machine learning** for the sake of this report.

While there are ongoing debates about how to precisely define 'artificial intelligence', for the purposes of this discussion, we have adopted the working definition put forward by the 2021 European Commission's Artificial Intelligence Act. Which defines an artificial intelligence system as follows:

> software that is developed with one or more of the techniques that can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with.

Machine learning approaches are identified as one technique under this definition of artificial intelligence. In their 2017 report, The Royal Society (UK) summarise machine learning as a branch of artificial intelligence and more specifically as "technology that allows systems to learn directly from examples, data and experience".

At the time of writing, one of the most prevalent examples of artificial intelligence and machine learning techniques being used in Holocaust memory and education is the Dimensions in Testimony project created by the USC Shoah Foundation.

It is important to note that while we have adopted these working definitions as an entrance point into discussion, participants also problematised the ways in which the terms 'artificial intelligence' and 'machine learning' encompass oversimplifications about what learning is and can lead us to overestimate the capabilities of computational systems at present. Processes currently referred to as 'artificial intelligence' are not really artificial forms of 'intelligence' in terms of being able to critically think and make ethical judgements for themselves as humans do. There is ongoing debate in the academic literature however about whether we should measure computational 'intelligence' against human norms. This comparison has been criticised as both unrealistically utopian (or dystopian), as well as limiting us to conceptualising the possibilities of programming only in terms of things humans can already do (rather than in terms of what computers might be able to do that we cannot).

2. Machine Learning and Artificial Intelligence in the Sector

The implementation of machine learning or artificial intelligence for the sake of Holocaust memory and education should be driven by specific aims related to education, remembrance, commemoration, and experience rather than by the technology itself. In this context, participants identified some key opportunities and affordances of machine learning and artificial intelligence for Holocaust education, remembrance, and commemoration:

- **Democratisation of access to sources**
- **Further digitalisation of sources at scale**
- **New methods for annotation and interpretation of sources**
- **Individualising the presentation of content (relative to the profiled interests of the user)**
- **Zooming in and out of micro/macro histories, geographies, and testimonies**
- **Extending the efforts already being addressed through digital methods to (re)shape visitor/user demands and expectations around moral imperatives**
- **Enhancing the opportunities for Holocaust memory practice and education to become user-led, and experiential through process-orientated enquiry**

Participants agreed those involved in such projects, from the level of system design to the Holocaust museums and professional memory institutions, should think carefully about the purpose and goals of integrating machine learning technologies and artificial intelligence with content and materials related to the Holocaust. Most importantly, they need to identify who the audience is and who are the subjects of the digital experience, being particularly mindful when it may involve testimony and survivor voices. In turn, participants suggested that we must be wary of any trends those working within the tech industry promote as the next best thing or essential, and critically assess those against the remit of any project.

Questions, those working in Holocaust organisations should feel equipped to answer when engaging with AI or machine learning for a project include:

- **How does the program or system work? (At least logically if not technically)**
- **What are the social implications of how it could be used and of the ways in which it is or may be seen as transforming society?**

Whilst participants recognised that Holocaust organisations will often have to outsource development or distribution of digital projects, those within the institution who are implementing such work need to have at least a basic understanding of the technology they wish to use, both in terms of competencies and criticality. Implementers need to understand more than just how any digital project operates from the user perspective at the interface, but how the computational system works, especially with regards to the data in testimonies, photographs, and films etc., and how the data of their teams and users' input is being stored and used.

It is often the lack of knowledge about data security and use that informs digital hesitancy amongst professionals working in institutions dedicated to Holocaust memory and education.

There are also sometimes unrealistic expectations within the sector about what artificial intelligence and machine learning can achieve and the extent to which they need to be managed by humans. This is in part related to differing levels of digital literacies across the field. Unrealistic expectations can impede the realisation of projects and the productive use of technology, whilst also creating a lack of parity in job roles. Staff with technical skills can feel devalued in comparison with pedagogues and historians. The more Holocaust memory and education 'goes digital', the more investment is needed in permanent colleagues with computational expertise. Such colleagues also need to be treated with equal esteem as those who are curators and educators.

Development can also be stalled due to funding constraints. For example, funding for digital work has usually financed one-off projects. Each of which brings in a set of temporary staff. Such projects can produce large data sets, but when the project staff leave, no one else is familiar with the data. Funding needs to support long-term digital infrastructure and human resourcing. Current, short-term approaches to funding are unproductive and risk repeatedly (re)-producing 'dead data', which lie dormant on institutional drives. It would be more productive for each new data set to inform a larger collection. In this context, participants also identified a lack of continuity between projects, with no accepted set of frameworks to draw upon. They agreed that establishing such frameworks would be a useful starting point for projects moving forward and to prevent each one from 'reinventing the wheel'.

While the professional and academic sectors of Holocaust memory, education and commemoration are inherently complex and fragmentary, there is a practical need to establish some form of 'ground truth' for algorithms to do their work. Thus, there is a tension between the nature of history, especially with regards to the complexities of the Holocaust, and the need for 'ground truths' to inform the databases that help to 'train' machine learning programs. In response to criticism of subjectivity in any 'truth', it was also acknowledged that there is as much 'human-constructedness' to the very notion of a 'ground truth' in machine learning as there is in the selection processes involved in curating museums and education programmes. Compromise already happens in curatorial and archival methodologies; similar principles could be adopted to integrate algorithm-driven practices.

Yet, there was still some hesitancy towards this. For such projects to move forward, then, another suggestion was that multiple ground truths must be agreed upon which do not compromise on complexity but speak to the nuances of national narratives and memory politics. Notably, participants called for transparency around this issue and stressed the need to find a way to be able to communicate uncertainty and express such debated issues to audiences. To move forward, participants proposed that qualified experts in the field of Holocaust Studies are best placed to start this work in an effort to digitise and curate source material.

3. Tensions between Human and Computational Logics

Any project must be transparent about the reliability of its system and what can be expected from it. All participants agreed we must not exaggerate the possibilities of machine learning and artificial intelligence; humans should always be in the loop. Using machine learning and artificial intelligence for Holocaust memory and education is not a matter of giving up responsibility for this work to automated machines.

In fact, some participants noted the possibility for machine learning to oversimplify what (human) intelligence means given that human learning (ontogenetic learning) is very different and distinct from the current capabilities of machine learning. Furthermore, we should view machine learning and artificial intelligence as agents that can enhance rather than replace the human-level of investigation. Any project using these technologies should think about the relationship between computational systems and humans as symbiotic. Thinking about the application of machine learning and artificial intelligence for Holocaust memory and education is rooted in as many human as technological issues.

Holocaust memory and education have long been invested in empathy, human rights, and humanising history. Applications of machine learning and artificial intelligence should be used to enhance these aims. Technology can serve humanity if we focus on emotion, experiences, and learning. Going further, however, some participants problematised the rhetoric of 'empathy', foregrounded in much practice and literature about Holocaust education. As an alternative to this, they noted the possibilities for machine learning and artificial intelligence to reshape Holocaust education and commemoration through the lens of experiential and performative discourses.

There are functional uses of machine learning which are relatively easy to introduce (and indeed have been implemented), such as facilitating digitisation and information retrieval (using recommendation algorithms for example). Markers of identity/ interest are easy to track and collate, although there are issues regarding user consent in sharing this information. A counterpoint to the suggestion ending the previous paragraph, more ambitious (and indeed more challenging) ways of using machine learning and artificial intelligence would be to support the empathy-driven design at the root of much Holocaust education. In such contexts, these technologies could be used to help make connections between individual users/visitors and survivors/ victims by developing personalised learning experiences that are relatable.

However, some participants also noted that learning needs to involve stumbling and challenge, and thus compromise should be made between what is relatable and subject matter that is beyond the user's own filter bubble. Projects in either vein will involve substantial work on the part of institutions and developers. Iterative developments should be measured to enhance improvements with systems – quantitatively and qualitatively. The sharing of data cross-sector would further enhance such development. At the heart of this work is a need for humans to work productively with other humans, as well as working with machines.

At what stages can (or should) humans intervene in machine learning projects?

- **In developing training databases** to ensure the material from which a program draws is trusted content.
- **Programming systems** to ensure they can work relatively independently in ways that support the aims of Holocaust education. For example, creating archival retrieval systems that encourage users to explore beyond their existing knowledge basis or pre-determined 'canons'.
- **Checking and testing accuracy** of programs' ability to identify the correct data.
- **As in-person human mediators,** for example complementing the presentation of interactive biographies. Their role is to identify the pedagogical objectives and mediate the experience with technology. Thus, whilst the experience is then driven by learners' enquiry, it is also shepherded by experts who know more about the Holocaust than the learners (we cannot expect learners to ask questions about topics of which they are completely unaware).
- **Informing Intelligent Tutor Systems.** The mediator also does not necessarily have to be an in-person human educator presenting a digital experience, it can also be an Intelligent Tutor System developed with experts. Such an ITS would be informed by best pedagogical practice and research, as established by humans.

It should be noted that some participants problematised the human mediator against the notion of intuitional 'gatekeepers' of memory, which is well established within the field of Holocaust studies. Noah Shenker's work Reframing Holocaust Testimony (2015) is a useful reference point in this regard. Are concerns about allowing users unsupervised experiences with machine learning programs for the sake of Holocaust education justified, or are they based on long-standing anxieties about losing the gatekeeping responsibly over memory? It is important to recognise that individual values can inform general system design as well as the ways technologies are implemented.

One of the core challenges for moving towards productively creating training databases is the lack of access to historical materials. There is a plethora of important archival materials currently being stored by both institutions and private collectors, which has not yet been digitised. Once the material is digitised, algorithms can be used to make it more accessible. However, participants also noted that the archival material is vast, fragmented, and complex and the challenge is much bigger than a digitisation project alone. While this is an important and urgent step, the next (and more complicated) challenge is to make the material intelligible for machine learning/ artificial intelligence systems without losing the essence of the material itself. This issue refers not only to archives, museums and private collectors who hold material which has not yet been digitised but also to tech companies. We need to address the use of data, machine learning, and artificial intelligence for Holocaust memory and education within the sector now, otherwise corporate entities will have the monopoly on the information most publicly available about this past and its legacies.

Unlike contemporary data sets which evolve in real-time, we are fortunate that a large amount of historical data related to the Holocaust (once made available) is relatively static. However, we could also make use of approaches used to work with evolving data sets to track contemporary contextualisations of the Holocaust, including how it is used, and changes in how traumatic events are remembered over time. A final challenge raised in this discussion was how do we teach algorithms to deal with sensitive and complex histories? Is it possible to take analysed data sets from the Holocaust and apply such sensitivity training to other atrocities (historical or contemporary, and to predict about future ones)? Algorithms might be able to be developed to recognise patterns in human behaviour across genocides and thus create simulations which could help us to understand personal and collective motivations that enable such atrocities to happen.

Such issues, however, return us to debates related to the universialisation of the Holocaust and risk dismissing the cultural specificities of different genocides. However, sometimes comparing with (rather than comparing to) can help enhance knowledge about each of the specific events studied. There is a need to commit to scientifically grounded approaches with respect to pedagogy, psychology, and communication.

4. Implications of Machine Learning and AI in Fuelling Extremism Today

The need to seriously consider ways to use artificial intelligence and machine learning for good, e.g.., for Holocaust memory and education, is increasingly urgent. In the current climate, Holocaust memory is (and is likely to increasingly become) a battleground. We need (digital) strategies to protect against denial, distortion and mis/disinformation which have become particularly prevalent in online fora. Once again, this returned the discussion to the pressing need to establish 'ground truths' from the outset.

The use of machine learning within the context of platform capitalism relies on 'playing dirty'. Techniques include, for example, raising the visibility of controversial posts and recommending denial and distortion content once someone has looked at something similar (and similar has at times meant Holocaust education material). Such logics have led to user manipulation including affecting their emotions and value positions (e.g., changing how they will vote in elections etc.), such as with the Cambridge Analytica scandal. Shoshana Zuboff's work The Age of Surveillance Capitalism (2019) was highlighted by participants as particularly useful literature on this topic.

Rather than using machine learning simply as an aggregator (and potential manipulator) of data, some participants suggested the possibility of using it as a detector of data. As a detector, it could be used to identify when online conversations are going into problematic directions and make interventions. Nevertheless, such a detector would need to be developed to have a nuanced treatment of content which would go beyond a simplistic binary along the lines of classic machine learning-based censorship. For example, it is easy to detect and then ban users who mention a Holocaust denier such as Jürgen Graf, but what if the user posts a critical response to his views rather than supporting them? A simplistic machine-learning-based detector will not necessarily be able to draw the line between criticism and appraisal, particularly when criticism is coded, for example in sarcasm. We would also need to think carefully about what interventions could be adopted in such a scenario. On the one hand, referrals to Holocaust education resources, such as links to historically accurate sources are

easily ignored (especially in spaces where the produser [the user as producer] is celebrated over institution). On the other hand, more forceful interventions could be counter-productive, pushing an authoritative narrative which discourages both critical engagement and listening to diverse perspectives. Some participants also highlighted the difficulties in getting machine learning systems to work accurately and transparently. Moreover, they cautioned that if such a system becomes successful in detecting data in this way, it could also be open to misuse as any AI technique that can be used to produce a good result, can usually be modified to produce a bad one.

How can we make Holocaust education and commemoration more visible in today's online ecology?

Participants suggested two contrasting possibilities:

- **Play the game of the 'surveillance capitalism' system.** This would involve engaging with the battle of opinions online which could help draw more visibility to nuanced and educational content. The benefit of this would be that people with no interest in the Holocaust would be introduced to it. However, such content would be situated alongside and amongst other 'opinions' on this past.

- **Design better systems.** Discourse related to Holocaust memory and education would usefully inform the design of machine learning systems from the outset (not just when they come to be used in the Holocaust context). The ethical expertise within the sector, in terms of how it reflects on dealing with and presenting the past could inform a productive model for 'teaching' machine learning systems to better manage content related to human rights atrocities now and in the future.

5. Literacies

Digital literacies need to be developed in the sector on three levels:

1. Users
2. Professionals in Holocaust institutions (implementers)
3. Algorithms

In any given project, we need to be clear who is responsible for what. Users, professionals (internal and increasingly external), and algorithms will all play a role in defining the educational or memory experience. It was also acknowledged that professionals in this context are also users. Machine learning involves human-computer interactions, after all.

On one hand, it could be useful to develop literacy programmes that meet the needs of local users (e.g. a specific museum's team, or those working within a particular national memory context). However, from a technical perspective, many of the deficiencies are similar across the sector. For example, most institutions still have a tendency to think about production planning and management of outputs in analogue frameworks. Thus, on the other hand, developing global programmes to support Holocaust memory and education institutions would also be valuable.

Different fields and institutions need to work together to inform literacy training and to solve problems. Whilst it is important to develop a basic digital literacies program for the Holocaust education and memory sectors, it is also necessary to provide training for teachers and learners involved with any machine learning (and other digital) projects.

We must be clear about the goal of any learner engagement with a project. If they are engaging with a database for instance, how do we embed the experience of the technology itself within the exercise? How can we frame different aims of a learning experience, for example: (1) to learn how to operate a system and (2) to use the database to find something out about testimony. Alongside the historical learning, the digital learning here must involve two levels: onboarding (i.e. learning how to use a program or technology) and developing critically conscious learners (i.e. who are able to make informed choices about their engagement with said program or technology, understanding the risks as well as the opportunities offered). Engaging with digital technologies involves an entirely different skill set from more traditional forms of history education: reading textbooks, handling objects, historical sources or watching films. Traditionally, history education has taught these skills alongside content.

As an example, participants discussed their observations of users engaging with Natural Language Processing technology as part of Dimensions in Testimony and The Forever Project. Within the museum context, visitors have been observed waving goodbye to digital projections of survivors as if they were physically present.

We need to treat audiences/learners with respect and avoid attempts to mask the technology. Instead, we need to be transparent about the limitations and capabilities of the technology, from the outset, how their input will affect the experience, and how any data will be collected and used, and why.

It was agreed that educators should be provided with additional training about the media itself before integrating it into school programmes. It is not just historical study guides that they need. We also need to understand the role curators, educators, archivists, and researchers can play in 'teaching' machine learning programs. Visitor groups also have important roles to play in this process to help identify nuances in different memory cultures and languages. Whilst user data is often used to improve the accuracy of existing machine learning-based Holocaust projects, users are rarely aware that their input is used in this way and are not asked for their consent.

6. Visualisation

Applications featuring machine learning and artificial learning can help produce large data sets, which as raw data can feel overwhelming. Recommendation systems can be used to orientate users within big data. However, there are specific challenges with Holocaust materials regarding their multilingual nature and the very different forms sources can take (created by various actors for multiple reasons across diverse time frames). As well as thinking carefully about making all known data available, and how to organise it, then, participants felt there is also need to consider how to present it to end users in meaningful ways, which they can navigate.

Given constraints on formal education systems around the world, Holocaust history is often condensed for young learners into a simplified homogenous narrative. Not only can artificial intelligence and machine learning be used to avoid the idea of one story, but we should apply it in ways that move us beyond

the very paradigm of a 'story' altogether. To rethink how to make the complexities of the Holocaust visible, we need to replace 'story' with 'chronotope' – a multidimensional space where a plurality of stories merge across different time frames and geographical sites, which the user cuts through. There is an opportunity to use interactive narrative systems to explore and convey complex, contradictory, non-linear narratives.

However, it is important to be aware that simply applying digital tools does not meet this aim. Despite the vast amount of diverse content available online created by both general users and professional Holocaust organisations, search engines still bring 'Auschwitz' to the top. While there are vast archives of survivors' testimonies, it is only a small selection of stories that have been transformed into interactive biographies. To be clear, digital interventions do not automatically disrupt any sense of a historical canon or grand narrative of the past. Nevertheless, careful design of their use could produce meaningful educational experiences.

The discussion raised the potential to use machine learning to construct this in such a way that it helps to connect all former sites of Nazi-persecution (both those currently memorialised and those not). Data can then be used in different scenarios, such as connecting individual stories to the local geographies most relevant to a specific group of learners/ visitors or exploring the multiplicity of experiences at a particular concentration camp). Digital mapping is becoming a popular mode of visualisation for Holocaust research, commemoration, and education. However, such projects stand in isolation from each other, rarely make use of machine learning and/or artificial intelligence, and do not make available all historical data about the Holocaust (although this may be an impossible aim).

METHODOLOGY

This report was formulated through a participatory workshop series, shaped by the following activities:

Participants were invited to introduce themselves and offer a brief position statement before the 1st workshop in the Padlet tool. Participants were encouraged to view each other's statements in advance of session 1.

In the 1st 2-hour workshop, participants were asked to agree on priority topics. Then they were divided into 'expertise' groups to explore these topics. Then into 'mixed' groups to share their ideas.

In each group, at least one of the project leads took on the role of minuter. These minutes were then thematically analysed and organised into a draft of the discussion section of this report. The themes were not imposed on the minutes, rather they emerged from the priorities selected by participants in the discussions.

The draft report was then circulated to participants before workshop 2.

In a 1.5-hour workshop, participants were then asked to provide feedback on the document to ensure it fully captured everyone's contributions.

The final document was circulated for review before dissemination.

As much as possible, recruitment for the workshop focused on seeking a wide variety of different expertise in relation to both Holocaust memory and education, and AI and machine learning, with some participants knowledgeable about both and others more about one than the other.

Contact

Dr Victoria Grace Walden

School of Media, Arts and Humanities
University of Sussex
Falmer Campus
East Sussex
United Kingdom
BN1 9RH

v.walden@sussex.ac.uk
www.digitalholocaustmemory.com

Please do get in touch if you would like to contribute to actioning any of the recommendations in this report.

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