



# Framing the Past: The Critical Role of Context and Reflection in the Educational Use of Interactive Digital Testimonies

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## ABSTRACT

Interactive Digital Testimonies (IDTs) are increasingly utilized in educational settings to engage students with narratives of historical and contemporary events. However, their effectiveness likely depends on the contextual framing provided before the interaction and the structured reflection phase that follows. This article explores the critical role of contextualization and reflection in ensuring the pedagogical value of IDTs by showcasing selected studies. Using examples from Holocaust education and beyond, it argues that context helps students understand the broader historical and social frameworks surrounding testimonies, while reflection fosters critical thinking, empathy, and meaningful connections to the material. The discussion highlights that without these components, IDTs risk being perceived as isolated narratives rather than tools for a deeper understanding of history and memory. The article concludes by offering practical recommendations for educators to design and implement IDT-based lessons that balance immersive engagement with critical analysis, thereby enhancing their potential to contribute to broader educational goals.

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## INTRODUCTION

Interactive Digital Testimonies (IDTs) have become an established tool in museums and other educational institutions throughout the last decade. At their core, IDTs are embodied conversational agents utilizing pre-recorded interview data to match users' questions with suitable content from contemporary witnesses like Holocaust survivors (Heindl, Kolb & Gloe, 2024; Kolb, 2022). In other words, IDTs combine interview recordings with speech recognition and algorithms so users, such as students, can ask individual questions and receive appropriate answers. The goal is to simulate real-life talks as closely as possible. Yet, little is known about the circumstances that influence whether interactions with IDTs lead to successful learning outcomes or not.

In this paper, we highlight the importance of contextualization and reflection by introducing, summarizing, and discussing several research papers conducted on the implementation and perception of IDTs. This includes qualitative studies conducted in museum settings as well as comparative studies on the effects of different visual displays of IDTs.

## THE RESEARCH

Research on IDTs has gained increasing attention in recent years, exploring their potential for education, memory culture, and user engagement (e.g., Ballis et al., 2025). The following section presents three key studies that contribute to this growing field.

Gloe's paper, *Digital Interactive 2D/3D Testimonies in Holocaust Museums in the United States and Europe*, examines how IDTs are presented in Holocaust museums and how different formats influence visitor perception. Conducted at the Illinois Holocaust Museum and Education Center (Skokie, Illinois), the Holocaust Museum Houston (Texas), and the Swedish History Museum (Stockholm), the research involved participant observations, semi-structured interviews with museum staff and

visitors, and detailed field notes documenting user interactions (Gloe, 2021). Semi-structured interview approaches utilize a prepared outline with questions while leaving room for individual questions that emerge during the interviews.

In *Effects of Visual Modality on Conversations with Interactive Digital Testimonies: Preparing for the Post-Witness Era*, Kolb et al. investigated how different levels of visual modality (audio-only, audio-visual 2D, audio-visual stereoscopic 3D) affect user perception. The paper covers two separate mixed-methods studies, a  $2 \times 2$  between-subjects study comparing audio-only with audio-visual 2D in in-person and online settings ( $n = 82$ ) and a within-subjects study comparing audio-visual 2D with audio-visual stereoscopic 3D ( $n = 51$ ). Participants provided quantitative data through pre-validated questionnaires as well as qualitative data through free-text fields and semi-structured interviews. The respective data of the two studies were analyzed individually, using both quantitative and qualitative methods (Kolb et al., 2025).

The paper *Different Installments of the Interactive Testimony of Eva Mozes Kor* from Gloe, Heindl, and Kolb employs a qualitative research approach focusing on the implementation of the IDT of Holocaust survivor Eva Mozes Kor in three U.S. museums: the CANDLES Holocaust Museum, the Indiana Historical Society, and the Dallas Holocaust and Human Rights Museum. The methodological approach includes active participant observation, field notes as well as semi-structured interviews with museum staff. Data analysis was conducted using an inductive coding process, identifying patterns and thematic connections between different testimonial formats and museum settings. The study also incorporates comparative analysis, examining variations in the integration and presentation of IDTs across the three institutions. By analyzing both user interaction and institutional approaches, the study explores how contextual framing, facilitator involvement, and narrative structure shape audience engagement and educational effectiveness (Gloe, Heindl & Kolb, 2025).

## FINDINGS

Gloe's paper highlights that the integration of IDTs in Holocaust museums significantly impacts visitor engagement and historical perception. The findings reveal that while IDTs create a powerful sense of presence, they also raise concerns about authenticity and the nature of digital memory. Visitors who interacted with these testimonies responded in diverse ways—some found the experience deeply immersive and emotionally engaging, while others were skeptical about the technological mediation of survivor narratives. The study also underscores that the success of these IDTs depends on their contextual integration within museum exhibitions. Museums that effectively link IDTs with historical artifacts, documentary materials, and educational programs enhance the credibility and impact of the experience. Ultimately, the paper suggests that while IDTs cannot replace direct encounters with survivors, they offer a meaningful and innovative approach to Holocaust education, ensuring that survivor voices remain accessible to future generations (Gloe, 2021).

Kolb et al. found that IDTs using audio-visual 2D output improve user experience, immersion, and perceived authenticity over audio-only versions. Audio-visual stereoscopic 3D IDTs are perceived as even more authentic and immersive than audio-visual 2D IDTs, however, this is diminished by a less comfortable interaction due to the use of 3D glasses. While the first study showed no clear differences in how people felt or how engaged they were when using audio-only versus audio-visual 2D IDTs, the interviews revealed that seeing the contemporary witness helped people focus and feel more connected. In the second study, people did not rate the 3D IDT any better than the 2D IDT overall, since the 3D glasses made interactions with the 3D IDTs less physically comfortable, with prolonged usage being particularly more strenuous for the eyes. Still, some people reported that the 3D IDT felt more real and made them feel more at ease when interacting, even if the quantitative data returned no significant difference. Consequently, in addition to the use case, target audience, and technical limitations, implementations would need to explore methods of minimizing discomfort to fully utilize these potential benefits of 3D IDTs, since the

physical discomfort appears to counteract advantageous effects (Kolb et al., 2025).

The study by Gloe, Heindl, and Kolb reveals that the implementation of IDTs in Holocaust museums varies significantly based on institutional priorities, exhibition design, and technological resources. The comparative analysis of three U.S. museums featuring the testimony of Holocaust survivor Eva Mozes Kor demonstrates that while IDTs enhance engagement and provide immersive learning experiences, their effectiveness depends heavily on contextual integration, facilitation, and user interaction design. Museums that closely link IDTs with historical exhibits and provide structured guidance tend to foster deeper engagement and understanding. However, differences in display formats, facilitation styles, and audience expectations impact the way visitors interact with and interpret survivor testimonies. The study underscores that while IDTs offer innovative ways to preserve Holocaust narratives, their success relies on thoughtful implementation, ensuring that the balance between interactivity and narrative coherence is maintained (Gloe, Heindl & Kolb, 2025).

## PRACTICAL IMPLICATIONS FOR TEACHERS

Based on the findings of the papers, we emphasize the importance of prior preparation and contextualization when planning to implement IDTs in educational settings. As suggested by Heindl (2021), this includes establishing factual (information about the circumstances of the events referred to in the IDT), personal (information on the role of the person featured in the IDT within the given time and space of the events referred to in the IDT), and technical (information on the purpose, production, and functioning of IDTs themselves) context.

Notably, such contextual information may be provided in some cases by institutions such as museums and educational centers when using an IDT as part of a field trip. However, some of our findings indicate notable differences in the quantity and quality of such information (Gloe, 2021; Gloe, Heindl & Kolb, 2025), thus demonstrating the need for teachers to critically evaluate and, if necessary, supplement existing

contextual information. In any case, IDTs should not be interpreted as a self-sufficient learning experience and only be used as part of an overall learning agenda.

The studies also suggest that historical learning with IDTs is particularly effective when they are not used in isolation but in combination with traditional media of Holocaust education (Gloe & Heindl, 2023). Integrating original documents, diary entries, or historical photographs enhances reflection and helps students contextualize the digital elements. Additionally, other media can support answering students' questions that the IDT could not address due to a lack of recorded responses or that arise after engaging with the IDT.

When implementing IDTs, it is essential to consider the diversity of presentation formats to accommodate different user needs and learning contexts (Kolb et al. 2025). Offering flexibility in input and output, such as the choice between 2D and 3D representations, can help adapt to students' preferences and technological requirements. Additionally, learners should have the option to interact with IDTs individually, at home or in different time slots, or group settings, depending on pedagogical goals. Addressing potential barriers, such as language and pronunciation issues, further ensures accessibility for diverse users. Since user needs may vary and even conflict, IDTs should incorporate customizable and adjustable output features, such as the ability to choose between 2D and 3D formats or by providing closed captions.

A structured approach to using IDTs enhances learning processes, as mere interaction with the system does not automatically lead to deeper engagement. Teachers should actively moderate the use of IDTs, for example, by providing guiding questions that help structure students' exploration. However, this does not mean that only the teacher poses questions while students passively observe the interaction or that students should simply read out preselected questions. Instead, students should be encouraged and supported in formulating their own critical and reflective questions when engaging with the IDT. This makes it essential to focus not only on

the answers provided by the IDT but also on the process of questioning itself. In this regard, the context in which IDTs are produced, as discussed earlier, plays a crucial role in shaping meaningful inquiry and engagement.

In addition to offering relevant contextual information and incorporating the use of IDTs into a thoughtfully structured learning concept, we emphasize the importance of reflecting on interactions with IDTs afterward. This reflection should address both the object-level aspects of IDTs, such as the information provided by the witness featured in the IDT and the experiences made by the students, and the meta-level, including questions about the ethical implications and the impact of IDTs on memory culture. Equally essential is the reflection on the specific characteristics of non-linear narrative structures, which distinguish IDTs from traditional video testimonies (Gloe & Heindl, 2023; Heindl, 2021). To support teachers in this process, we recommend offering a set of adaptable reflection questions. These might include: What aspects of the testimony resonated most with you, and why?, How does interacting with an IDT differ from watching a linear video?, What ethical responsibilities arise when engaging with digital representations of survivors?, and In what ways can IDTs shape or challenge our understanding of historical memory? Notably, this also offers a chance to use IDTs as an example to promote different skills, such as media literacy, by addressing the chances and risks of AI-based tools and deconstructing their inherent operating principles and limitations.

## CONCLUSION

IDTs are a new and promising format. However, questions regarding their effects within the realm of Holocaust Education remain unknown. As part of this paper, we summarized publications addressing the currently known factors impacting the successful implementation of IDTs in learning settings. Notably, the effectiveness of IDTs in education depends on structured contextualization and reflection. IDTs should not be used in isolation but integrated into a guided learning process with preparatory information, active facilitation, and post-interaction reflection. Providing

historical, personal, and technical context enhances students' ability to critically engage with the content, while reflection on non-linear storytelling fosters deeper learning and media literacy. Adaptable formats, including 2D/3D options and accessibility considerations, further improve usability. A thoughtful implementation that balances immersion with critical inquiry ensures IDTs contribute meaningfully to historical education and memory culture. Future research should continue to explore best practices for IDT implementation and assess their long-term impact on students' historical consciousness and engagement.

## **Q & A WITH MARKUS GLOE, FABIAN HEINDL, AND DANIEL KOLB**

*Teacher's Question #1:* What makes IDTs distinct from other primary sources teachers use in the classroom? (You write, "IDTs are a new and promising format." How so?)

*Authors' Response:* IDTs differ significantly from traditional formats, such as texts or films, used in Holocaust Education and related fields primarily due to their non-linear structure. Unlike most conventional sources, where the order of the content is determined by an author or director, IDTs allow users, such as teachers or students, to shape their own learning experience. Students can ask their own questions and receive responses that are directly relevant to their inquiries, fostering a more personalized, immersive, and responsive form of engagement.

*Teacher's Question #2:* How would your recommendations apply to IDTs outside of Holocaust Education?

*Authors' Response:* While IDTs have been largely developed within the context of Holocaust Education, their (potential) use cases extend far beyond this field. In fact, IDTs have already been created to address a range of other historical and contemporary issues, including [the Civil Rights Movement in the United States](#), the agony of the [survivors of the atomic bombings of Hiroshima and Nagasaki](#), the atrocities committed under [communist regimes in Bulgaria](#), and the ongoing

discrimination faced by [Romani communities in Germany](#). Accordingly, our recommendations are not limited to Holocaust-related IDTs. We see them as broadly applicable to any IDT, regardless of the specific topic.

*Teacher's Question #3:* How would you assess the impact on student learning with IDTs?

*Authors' Response:* While interest in the educational potential of IDTs is growing, the current body of empirical evidence is limited. Recent studies, however, point to promising outcomes. For instance, in their study *Beyond the Screen: Comparing Holocaust Museum Visitor Outcomes from Interactive Dimensions in Testimony Exhibits with 2D Film Exhibits*, Browning et al. (2025) found that IDTs elicited stronger emotional responses, higher learning gains, greater visitor satisfaction, and a stronger intention to act as “upstanders” compared to traditional film-based exhibits. Similarly, Marcus (2025), in “*She's in the Room with Us...*”: *Approaches to Digital Holocaust Survivor Testimony in an American Secondary School*, reported high levels of student satisfaction and engagement, along with a strong interest in further interaction with the format. Despite these encouraging findings, more research is needed to systematically examine learning outcomes and long-term effects across different domains, age groups, and educational settings.

*Teacher's Question #4:* What are museums and other educational institutions creating or providing teachers to prepare students to use IDTs?

*Authors' Response:* Currently, there is no standardized framework guiding museums or educational institutions on how to effectively prepare students for interacting with IDTs; even for different museums offering the same IDT. As a result, approaches to implementation, including content, format, and pedagogical strategy, vary. Drawing on our previous research (e.g., Gloe, 2021: Digital Interactive 2D/3D Testimonies in Holocaust Museums in the United States and Europe; Gloe et al., 2025: Different Installments of the Interactive Testimony of Eva Mozes Kor) and our practical

experiences, we have found that most institutions do offer some form of introduction or written guidance. This may include signage or brief explanations about the IDT itself, the featured individual, and the project's background. However, these materials are typically designed for a general audience and often do not address the specific pedagogical needs of teachers and students. For this reason, we emphasize that - at least under current conditions - teachers play the most important role in preparing their students for any interaction with IDTs.

*Teacher's Question #5: What are some of the biggest drawbacks to IDTs that teachers need to consider?*

*Authors' Response:* While IDTs are a promising and innovative educational format, they also come with notable limitations, many of which stem from the inherent characteristics of the medium. First, the content of IDTs is necessarily finite. The number of possible responses is limited to what was recorded during the original interviews, meaning that certain topics, particularly contemporary issues that have emerged since the time of recording, may not be covered. Second, IDTs rely on relatively recent technologies, including speech-to-text systems and AI-driven algorithms. These technologies are sensitive to how users phrase their questions and can be prone to errors, which may hinder students' ability to access relevant or accurate responses. The success of the interaction often depends on how clearly, succinctly, and precisely a question is asked. From an educational standpoint, there is also the potential for students to be more captivated by the novelty of the technology than by the content itself. This could divert attention away from deeper engagement with the testimony. That said, the educational impact of IDTs and how students perceive and interact with them remains an evolving area of research.

## REFERENCES

Ballis, A., Duda, F. & Gloe, M. (2025). *Technology meets testimony. Digital pathways to Holocaust survivors' biographies*. Springer Fachmedien, Wiesbaden.  
<https://doi.org/10.1007/978-3-658-45924-6>

Gloe, M. (2021). Digital interactive 2D/3D testimonies in Holocaust museums in the

United States and Europe. In A. Ballis, M. Gloe, F. Duda, F. Heindl, E. Hüttl, D. Kolb, & L. Schwendemann (Eds.), *Interaktive 3D-Zeugnisse von Holocaust-Überlebenden. Chancen und Grenzen einer innovativen Technologie* (pp. 130–146). Georg-Eckert-Institut, Braunschweig.

Gloe, M., & Heindl, F. (2023). Zeitzeug\* innen des Holocaust–Digital?. *Demokratie auf Distanz–Digitaler Wandel und Krisenerfahrung als Anlass und Auftrag politischer Bildung* (pp. 155–165), Wochenschau, Frankfurt/M..

Gloe, M., Heindl, F. & Kolb, D. (2025). Different Installments of the Interactive Testimony of Eva Mozes Kor. In A. Ballis, F. Duda, & M. Gloe (Eds.), *Technology meets testimony: Digital pathways to Holocaust survivors' biographies* (pp. 253–285). Springer Fachmedien, Wiesbaden. [https://doi.org/10.1007/978-3-658-45924-6\\_13](https://doi.org/10.1007/978-3-658-45924-6_13)

Heindl, F. (2021). The role of narrative structures and contextual information in digital interactive 3D testimonies. In A. Ballis, M. Gloe, F. Duda, F. Heindl, E. Hüttl, D. Kolb, & L. Schwendemann (Eds.), *Interaktive 3D-Zeugnisse von Holocaust-Überlebenden. Chancen und Grenzen einer innovativen Technologie* (pp. 111–129). Georg-Eckert-Institut, Braunschweig.

Heindl, F., Kolb, D., & Gloe, M. (2024). Promoting transparent and consistent frameworks for interactive digital testimonies: A case study on preserving Zilli Schmidt's story. *Proceedings of the AAAI Symposium Series*, 4(1), 392–397. <https://doi.org/10.1609/aaaiiss.v4i1.31822>

Kolb, D. (2022). Design choices for embodied conversational agents to preserve testimonies by contemporary witnesses. *CHI Conference on Human Factors in Computing Systems Extended Abstracts*. ACM. <https://doi.org/10.1145/3491101.3503822>

Kolb, D., Maiolo, S., Maier, P., Genz, F., Müller, S., & Kranzlmüller, D. (2025). Effects of visual modality on conversations with interactive digital testimonies: Preparing for the post-witness era. *CHI '25: Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. ACM. <https://doi.org/10.1145/3706598.371311>