Authenticity and Generative AI in Cultural Heritage: Conceptual and Experimental Perspectives

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Abstract

Generative artificial intelligence (GenAI) is increasingly used in cultural heritage to reconstruct, interpret, and engage. While offering new opportunities, it challenges traditional notions of authenticity. This paper provides (1) a concise conceptual analysis of how GenAI reshapes authenticity, and (2) a proposed experimental design to empirically test user attitudes and behavior. By doing this we hope to examine how authenticity in AI-mediated heritage can best be understood as a "trusted" construct shaped by authorship, transparency, and cultural context.

Keywords

GenAI, Cultural Heritage, Authenticity, CEUR-WS

1. Introduction

Cultural heritage institutions are adopting GenAI to generate narratives, reconstruct artifacts, and create immersive experiences. These developments raise questions about authenticity, traditionally grounded in provenance, material integrity, and expert authority [1, 2].

Concerns about technological mediation are not new. The rise of photography and mechanical reproduction led to fears that copies would diminish the value of originals and reduce museum attendance. However, theoretical and historical analyzes suggest a more complex outcome: reproduction transforms, rather than eliminates authenticity by shifting attention from uniqueness to interpretation and meaning [3, 4]. In practice, reproduction has often expanded access and increased the desire for engagement with the original authentic artifacts.

Generative AI may represent a similar transition. Rather than eroding authenticity, it may reshape how authenticity is perceived and trusted [2].

2. Authenticity in the Age of GenAI

Authenticity can be viewed from the prism of the following issues: Authorship, Reconstruction and Simulation, and Representation and Bias. A possible solution could be "Trusted Authenticity".

Authorship: GenAI diffuses authorship across datasets, algorithms, and curators, weakening the link between identifiable human agency and authenticity. Even accurate outputs may be perceived as less authentic when their origin is unclear, indicating that authenticity depends on perceived authority and content. [5]

Reconstruction and Simulation: GenAI enables reconstruction[6] of incomplete and partial heritage but blurs the boundary between evidence-based reconstruction and speculative simulation[7]. This supports a shift toward digital authenticity, where plausibility and experience complement historical fidelity. Without transparency, such outputs risk obscuring uncertainty and even hallucinations.[8]

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Representation and Bias: GenAI systems inherit biases from training data, potentially reinforcing dominant narratives [2]. Authenticity therefore includes cultural legitimacy, requiring participation of source communities.

2.1. Trusted Authenticity

We may try to frame authenticity as trusted (also referred to as negotiated [9], emerging from interactions between institutions, technologies, and users. Key conditions include transparency of AI use, provenance documentation, and human–AI collaboration [9]. Thus, material made by GenAi but reviewed by institutions (perhaps by curators), could improve trust. In a similar way, user source communities review and approval of GenAI material could improve cultural legitimacy and reduce bias.

3. Research Questions

- RQ1: Does AI labeling reduce perceived authenticity;
- RQ2: Is engagement (user behavior) less affected than authenticity (attitudes) using GenAI;
- RQ3: How can AI-assisted, curator-reviewed framing mitigate effects;

4. Experimental Design

Objective: Examine how GenAI affects perceived authenticity, trust, and engagement, both attitudes and behavior. Specifically examine if AI-Human (labeled) material can increase trust and thus engagement.

4.1. Design

A 3×2 factorial design:

- Actual source: human vs. AI vs AI-Human (AI reviewed by expert)
- Labeled source: human vs. AI

This yields six conditions:

1. Human / labeled human
2. Human / labeled AI
3. AI / labeled human
4. AI / labeled AI
5. AI-Human / labeled human
6. AI-Human / labeled AI

This isolates content effects from labeling effects.

4.2. Procedure and Measures

Participants will view heritage content (e.g., artifact descriptions, reconstructions), then:

- make behavioral choices (view artifacts, select descriptions, share with others);
- rate authenticity, trust, and engagement;
- optionally complete a recall task.

4.2.1. Stimuli and Procedure

Participants will be shown digital cultural heritage materials, such as:museum object descriptions,reconstructed images of artifacts, short exhibit narratives Each participant views content in only one or two experimental condition.The experiment proceeds in four stages:

1. **Exposure**: participants view the content
2. **Evaluation**: participants rate authenticity, trust, and engagement
3. **Behavioral choice**: participants select which content to explore further, share, or recommend
4. **Recall test**: participants answer questions about what they remember

Optionally, participants provide open-ended explanations of their judgments.

4.2.2. Measures

We plan to measure both attitude and behavior. In addition, user modeling characteristics (such as experience, education, age) can add understanding.

Attitudinal Measures- Participants rate statements such as:"This feels authentic", "I trust this representation", "This should be used in a museum"

Behavioral Measures-Participants' actions are tracked, including: time spent viewing content (Holding Power), choice of which exhibit to explore (Attracting Power), willingness to share or endorse content (Net Promoter Score). These measures provide insight into actual behavior, not just stated opinions (attitudes).

The study can include additional variables such as user familiarity with AI cultural background, type of heritage (neutral vs. sensitive). These factors can help explain the variation in responses.

5. Discussion

Technologies do not eliminate the need for authenticity but redefine its need and definition—from the unique object to systems of meaning and interpretation [9]. GenAI extends this trajectory, introducing new layers of experience while potentially increasing access and engagement.

This paper contributes (1) a conceptual account of authenticity as trust and (2) an experimental framework combining attitudinal and behavioral measures, supporting the design of transparent and trustworthy AI applications in cultural heritage.

An additional research question for the future could be: How and does the effects increase for culturally sensitive content?

Declaration on Generative AI

During the preparation of this work, the author(s) used writeful to improve language and check grammar and spelling. After using these tool(s)/service(s), the author(s) reviewed and edited the content as needed and take(s) full responsibility for the publication's content.

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