

## Web-based illustrated history of Sibangkaja: A digital humanities approach

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*Received 23 November 2025*

*Revised 20 December 2025*

*Accepted 31 December 2025*

### ABSTRACT

The fragility of local historical memory in Sibangkaja Village has become increasingly evident as oral traditions fade and social transformations accelerate under the pressures of urbanization and digital cultural penetration. This underscores the urgent need to reconstruct, document, and digitize ancestral narratives as part of community-based cultural heritage preservation efforts. This study aims to identify the structure and dynamics of Sibangkaja's historical memory and explore the application of digital humanities in revitalizing local knowledge through web-based visual storytelling media. The research employed oral history interviews, participatory observation, an archival study of cultural records, and the transmediation of historical narratives into interactive visual formats. The findings reveal that Sibangkaja's collective memory is deeply embedded in local cosmology, religious rituals, and kinship structures, while carrying moral values that connect humans to their ancestors and their lived environment. Digitizing memory through a web-based pictorial storytelling medium demonstrated expanded access to knowledge, enhanced engagement among younger generations, and the creation of intergenerational cultural collaboration spaces for the elderly. This study proposes a community-based digital-archiving model that integrates local epistemology, digital technology, and visual-narrative approaches. Its primary contribution lies in advancing digital humanities in the context of Indonesian customary villages while strengthening the discourse on knowledge decolonization and cultural pedagogy in the digital transformation era.

**Keywords:** digital humanities; local identity; digital education; village.

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RESEARCH & PUBLISHING



## 1. INTRODUCTION

The fading of local historical memory within Indonesia's traditional village communities has become an evident phenomenon amid rapid modernization and shifting social orientations. Increasing societal complexity in the global era has contributed to the decline of ancestral narrative traditions that were once orally transmitted from one generation to the next. Younger generations are frequently confronted with discontinuities in their knowledge of local historical memories. Recent studies, such as those conducted by Schiller (2020) and Agung (2021), note that internal migration dynamics and the transformation of customary spaces into modern economic zones have weakened the transmission of oral cultural values in peri-urban communities, including traditional villages now situated near metropolitan centers. Consequently, the urgency of preserving local memory has intensified, necessitating approaches that can adapt to ongoing social changes and contemporary technological developments.

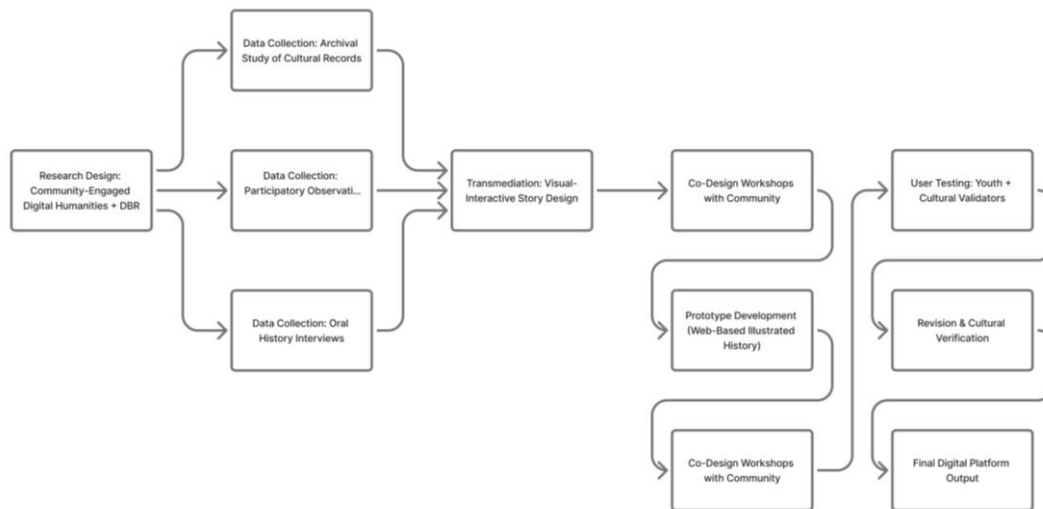
Sibangkaja Village, as a customary community with a strong socio-religious history, is experiencing increasing vulnerability in its local historical memory amid social change and accelerating digitalization. Oral narrative traditions regarding the village's origins, ancestral figures, traditional social structures, and customary rituals are becoming less frequent and remain undocumented in any systematic manner. Consequently, the moral values, local identity, and guiding orientations that undergird social harmony risk fading. Studies on Balinese customary villages show that historical-spiritual knowledge and social structures are preserved through intergenerational narratives, religious rites, and recurring collective practices in the village. When these narrative spaces cease to function, local cultures become susceptible to semantic dislocation and loss of identity continuity (Petousi et al., 2022; Liu et al., 2023). A similar phenomenon is emerging in Sibangkaja, where the limited availability of intergenerational media suited to digital-native characteristics hastens the rupture of memory between the older and younger generations. Accordingly, adaptive, technology-based documentation has become essential to ensure that the historical memory and local identity of the Sibangkaja community remain alive and relevant for future generations. Departing from the urgency of preserving local historical memory amid social change and cultural digitalization, this study seeks to identify the structures and dynamics of Sibangkaja Village's historical memory and explore the application of digital humanities in revitalizing local knowledge. The digitization of collective memory is adopted as a strategy to maintain the continuity of traditional knowledge while broadening intergenerational access through web-based visual storytelling. Through a digital humanities approach, the documentation process is integrated with the principles of community participation and visual-interactive transmediation, thereby producing a digital archiving model that is more inclusive, representative, and contextually grounded for both local communities and digital-native generations (Burdick et al., 2012; Kalay et al., 2008). Accordingly, this study is directed toward designing a digital, illustrated narrative platform that not only documents but also activates and strengthens the sustainability of the Sibangkaja collective memory.

The visual representation of history—tailored to the digital preferences of younger generations—has become a strategic means of sustaining the collective memory within local communities. Contemporary shifts in information consumption have redirected learning toward multimodal formats that privilege interactivity, visual engagement and narrative-driven experiences (Bruner, 1991; Eisner, 2002; Henderson, 2020). For local communities experiencing cultural transformation driven by digitalization and urbanization, such approaches serve as bridges between oral traditions and contemporary technologies. Rather than replacing conventional modes of cultural transmission, the digitalization of cultural narratives establishes new spaces that broaden access, enhance participation, and reinforce the continuity of ancestral knowledge within these digital ecosystems.

## 2. METHODOLOGY

This research uses a qualitative approach in the framework of community-engaged digital humanities with a design-based research (DBR) model to develop a pictorial historical narrative of Sibangkaja Village in web format. This approach is designed to connect the process of documenting local

cultural memory with narrative transmediation into a visual–interactive medium that suits the preferences of the digital generation.



**Figure 1.** Flowchart Methodology

Figure 1 illustrates the research workflow, beginning with the collection of cultural data and proceeding through the development of a digital prototype and iterative processes based on community participation. The research participants consisted of customary leaders and religious figures who hold symbolic authority; elders and tradition bearers who serve as primary sources of historical memory; younger generations as prospective users and content validators; and digital media designers responsible for the visual and technical development of the platform. Data were gathered through oral history interviews, participatory observation of customary practices, and examination of local archives and artifacts. The design process was conducted through co-design workshops and evaluated through user testing to assess the narrative authenticity and visual legibility. Data validity was strengthened through source and method triangulation, member checking, and content cultural verification. Ethical principles were upheld through informed consent, sensitivity to sacred narratives and symbols, and restrictions on the publication of culturally exclusive material.

### 3. LITERATURE REVIEW

Collective memory occupies a pivotal position in shaping local identity and values, as historical remembrance is preserved not only in formal archives but also transmitted through communal narratives, rituals, and social practices. Oral and ritual-based mechanisms of transmission—by nature embodied—are highly susceptible to sociocultural transformations. As demonstrated in the classic works of Halbwachs (1992), Assmann (2011), and Connerton (1989), the disruptions brought about by modernity to the continuity of ritual practices and customary oral traditions often lead to the fragmentation of cultural memory and the loss of contextual meanings. Consequently, systematic and community-based documentation is essential for safeguarding narrative sovereignty and ensuring the continuity of the historical knowledge of local communities.

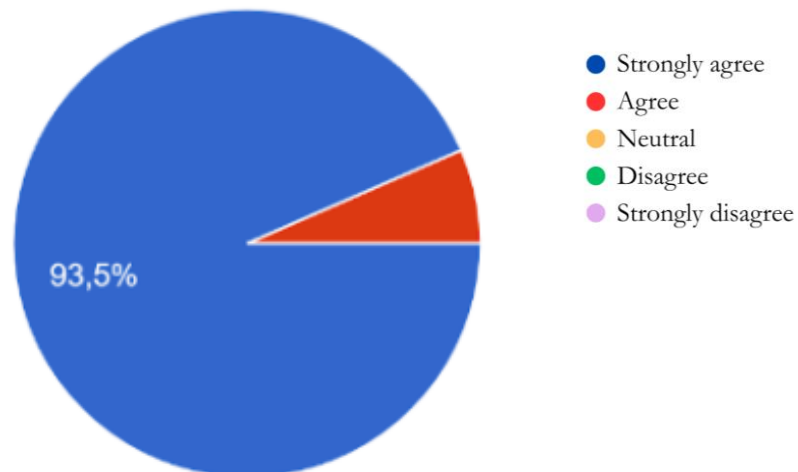
Digital humanities (DH) is an interdisciplinary approach to preserve cultural knowledge through the integration of the humanities, digital technologies, and public participation. DH expands the ways in which communities construct, store, and access collective memories through collaborative and adaptive digital platforms. Burdick et al. (2012) and Schreibman et al. (2016) demonstrate that the digitization of cultural archives enhances data sustainability while simultaneously strengthening community participation; similarly, Kalay et al. (2008) emphasize the role of DH in shifting the power relations of documentation toward a culturally equitable participatory model. Despite its potential, the application of DH within the context of Indonesia’s customary villages remains limited, leaving substantial room for applied exploration within the frameworks of narrative strengthening and decolonization of knowledge.

Visual storytelling offers an effective medium for cultural representation because it is symbolic, emotional, and readily accessible to digitally native generations. Visual narrative forms can bridge the gap between the decline of oral traditions and the increasingly visual and interactive learning preferences of younger communities. Bruner (1991) and Eisner (2002) highlight the capacity of visual narratives to construct meaning; more recent studies, including Baron and Gomez (2021), Henderson (2020), and Dewantara and Rice (2019), demonstrate that visual-based cultural media enhance historical literacy, emotional engagement, and the understanding of local values. Nevertheless, its application in the preservation of Balinese customary village culture through web-based visual-interactive platforms remains limited, underscoring the need for development based on local contexts.

The DBR approach is highly relevant for developing culturally grounded learning media because it is iterative, collaborative, and oriented toward innovations that communities can adopt. The iterative nature of DBR, which integrates design, implementation, evaluation, and revision, enables the creation of media that is both culturally accurate and educationally functional. Brown (1992), Collins (1999), and Wang and Hannafin (2005) emphasized DBR's capacity to generate contextualized educational solutions; within cultural preservation studies, this approach allows for community validation of the authenticity of narratives, rituals, and customary values. However, the application of DBR in the cultural archiving of Balinese customary villages through illustrated web-based storytelling remains scarce, positioning this study to address a significant methodological gap in the community-based digital cultural preservation.

#### 4. RESULT

The DBR process yielded statistical evidence demonstrating that the community-engaged digital humanities model is effective in developing a web-based illustrated historical narrative of the Sibangkaja Village. This effectiveness is attributable to the direct involvement of community members throughout each phase of the DBR cycle—needs analysis, initial design, pilot testing, and iterative refinement—which ensured cultural validity, contextual relevance, and a user-centered design integrity.



**Figure 2.** Effectiveness of Web-Based Illustrated Stories

Figure 2 presents data from 92 young respondents in Sibangkaja regarding their level of understanding of the village's history through the website. The survey results indicate that 93.5% of participants perceived the web-based visual narrative format as "easier to understand." The collaborative processes embedded within the DBR approach enabled an accurate representation of customary values while also being regarded as an effective digital platform for village cultural archiving. Accordingly, the application of DBR within a digital humanities framework demonstrates its capacity to produce culturally accurate, user-oriented, and community-relevant media designs for customary villages.



**Figure 3.** The Sibangkaja Village history story panel is website-based

Figure 3 displays several segments of the web-based illustrated panels depicting the history of Sibangkaja Village, which shifts local cultural memory from oral forms to visual–interactive representations. The visual–interactive format presents the storyline in a more structured and adaptable manner for digital-native generations than oral transmission, which is increasingly infrequent. Through a combination of illustrations, story maps, and markers of key events, the historical narrative becomes easier to follow, provides a clearer spatiotemporal context, and helps readers grasp the continuity of traditions more intuitively. Thus, the web-based visual–interactive approach functions as an intergenerational bridge that expands access and reinforces the continuity of Sibangkaja's cultural memory.

The involvement of various groups with distinct roles in the Sibangkaja Village is crucial for preserving cultural memory. Each group contributed to specific aspects of content validity, narrative detail, and cultural appropriateness of visual representations. This aligns with the insights provided by Ni Nyoman Rai Sudani, who emphasized the contributions of customary and religious leaders in defining sacred boundaries and ensuring the ritual accuracy of cultural values. I Gusti Ngurah Agung Sasmitra Wiguna, the village leader, also offered detailed accounts of the village's origins, kinship relations, and cultural symbolism inherited from the elders. By consistently engaging village and customary leaders, the visual readability and narrative clarity of the website can be refined with precision. Overall, the collaborative process of designing the web-based digital archive of Sibangkaja's history yields not only aesthetic value but also profound historical significance for the village.

## 5. DISCUSSION

The effectiveness of digitizing historical narratives through a web platform is determined not only by adaptive and participatory design but, more importantly, by its functional implications in producing a sustainable system. The platform developed through the DBR model demonstrates greater sustainability potential because it is constructed through iterative improvement cycles involving stakeholders from the earliest stage. Structurally, this effectiveness emerges because the DBR provides a framework that is responsive to initial findings, while the community-engaged approach ensures that the content remains grounded in the epistemic needs of the community. The interconnection among needs analysis, prototype development, testing, and revision creates a causal chain that underscores how participatory integration and iterative mechanisms serve as the foundation for producing an accurate, representative, and adaptive digital platform.

The transformation of local cultural memory into a visual–interactive format generates significant functional implications, particularly in terms of expanding access, enhancing user engagement, and strengthening the intergenerational transmission of values. The digital–interactive format documents oral and visual traditions and facilitates user interaction that enhances retention and reinterpretation of cultural content. Structurally, the need for this transformation arises from the disconnect between traditional media and dependent on oral narratives and physical artifacts—and the information consumption patterns of digital-native generations, which are predominantly visual and interactive. This mismatch creates a causal relationship that positions digitalization as a strategic solution to ensure the continuity of cultural memory while integrating it into contemporary digital ecosystems.

The involvement of customary leaders, tradition bearers, youth groups, and digital media designers generates functional implications in the form of a platform that is not only culturally legitimate but also relevant and sustainable in the long run. This synergy ensures that digital content possesses symbolic legitimacy, historical depth, and a format that aligns with the preferences of contemporary users. Structurally, this multi-stakeholder collaboration forms a causal chain demonstrating that authenticity, relevance, and technical translatability are interdependent: cultural authorities provide validity, community memory supplies substantive content, youth preferences shape modes of presentation, and technical expertise enables the operationalization of the platform itself. This structural interdependence indicates that the absence of even a single actor can compromise the integrity of the entire digital–cultural ecosystem, making cross-role collaboration a prerequisite for success.

## **6. CONCLUSION**

This study demonstrates that the digitalization of Sibangkaja Village’s illustrated historical narratives through a community-engaged digital humanities approach and a design-based research model can reinforce the continuity of collective memory amid social change and the dominance of the digital culture. The visual–interactive representation proved to be an effective medium for bridging intergenerational gaps while revitalizing the village’s historical, moral, and cosmological values in a format that resonates with digitally native audiences. However, this study has several limitations that must be acknowledged. The dataset’s focus on a single village constrains the generalizability of the findings, and the dynamics of community participation influence the depth and consistency of documented narratives. Furthermore, the digital platform developed in this study has not yet undergone a long-term evaluation, making its sustained impact on historical literacy and cultural preservation uncertain. The presence of customary sensitivities surrounding sacred narratives also restricts the extent of the content that can be publicly disseminated.

Nevertheless, this study has significant theoretical and practical implications. Theoretically, it expands digital humanities scholarship within the context of Southeast Asian Indigenous communities by asserting that cultural digitization is not merely a technical process but an epistemological practice involving the negotiation of meaning between tradition holders and media developers. Practically, the resulting web-based illustrated storytelling model can be replicated for community-driven cultural preservation initiatives in other regions of the world. Future research should include longitudinal evaluations, the development of enhanced interactive features (such as audio archives, historical mapping,

or AR), and comparative studies across multiple customary villages to achieve a broader understanding of the digitalization of cultural memory in Indonesia.

### **Ethical Approval**

Ethical approval was not required for this study because it did not involve human participants, collection of personal data, or use of animal subjects. The research procedures fully adhered to established ethical guidelines applicable to studies in the social sciences.

### **Informed Consent Statement**

All interviewees participated voluntarily and provided informed consent prior to data collection. They were informed about the purpose of the study, the use of their statements, and their right to withdraw at any time without consequence. No personal or sensitive data were collected beyond the information they willingly shared for academic purposes.

### **Authors' Contributions**

INWA was responsible for the conceptualization of the study and the development of the research methodology. KAA conducted the formal analysis and prepared the original draft of the manuscript. IPDWA designed and developed the website used in this study. All authors reviewed and approved the final version of the manuscript.

### **Disclosure statement**

The authors declare that there are no conflicts of interest, financial or otherwise, that could have influenced the research, authorship, or publication of this article. No external funding or commercial support was received during the conduct of this study.

### **Data Availability Statement**

The datasets generated and analyzed during the current study are not publicly available due to restrictions related to cultural sensitivity and community ownership of the materials. However, data may be made available from the corresponding author upon reasonable request and with permission from the local community stakeholders.

### **Funding**

This research received no external funding. All activities—including data collection, data analysis, and website development—were fully supported through self-funded contributions by the research team.

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community projects, he has played a significant role in supporting efforts to sustain, interpret, and promote Balinese cultural values in ways that are both contextually grounded and technologically adaptive.

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She is a lecturer and researcher specializing in education, local knowledge, and philosophy. Her academic background in Hindu Religious Education (undergraduate and master's level) and Philosophy (doctoral level) informs her research focus on value transformation, cultural change, and character education within local communities. Her interdisciplinary expertise allows her to integrate philosophical analysis with community-based cultural studies, particularly in the context of Balinese traditional arts and heritage.

### **I Putu Dhiva Wira Ardana**

With expertise in informatics, he studies the relationship between technology and culture. He participates in projects that combine digital innovation with cultural preservation. His efforts aim to support and sustain cultural heritage.

## **REFERENCES**

- Agung, I. G. A. G. (2021). *Paradigma baru desa adat Bali dalam dinamika globalisasi*. Udayana University Press.
- Assmann, J. (2011). *Cultural memory and early civilization: Writing, remembrance, and political imagination*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511996306>
- Baron, R., & Gomez, K. (2021). Visual storytelling and cultural memory in digital learning environments. *Journal of Visual Literacy*, 40(2), 123–140.
- Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The Journal of the Learning Sciences*, 2(2), 141–178. [https://doi.org/10.1207/s15327809jls0202\\_2](https://doi.org/10.1207/s15327809jls0202_2)
- Bruner, J. (1991). The narrative construction of reality. *Critical Inquiry*, 18(1), 1–21. <https://doi.org/10.1086/448619>
- Burdick, A., Drucker, J., Lunenfeld, P., Presner, T., & Schnapp, J. (2012). *Digital humanities*. MIT Press.
- Collins, A. (1999). The changing infrastructure of education research. In E. Lagemann & L. Shulman (Eds.), *Issues in education research* (pp. 289–298). Jossey-Bass.
- Connerton, P. (1989). *How societies remember*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511628061.001>
- Dewantara, K. H., & Rice, K. (2019). Visual pedagogy and cultural identity in Southeast Asian education. *International Journal of Cultural Studies*, 22(4), 483–499.
- Eisner, E. (2002). *The arts and the creation of mind*. Yale University Press. <https://yalebooks.yale.edu/book/9780300105117/the-arts-and-the-creation-of-mind>
- Halbwachs, M. (1992). *On collective memory*. University of Chicago Press. <https://press.uchicago.edu/ucp/books/book/chicago/O/bo3619875>
- Henderson, M. (2020). Digital visual archives and cultural learning in the 21st century. *Journal of Digital Culture*, 12(3), 55–72.
- Kalay, Y., Kvan, T., & Affleck, J. (2008). *New heritage: New media and cultural heritage*. Routledge.
- Liu, Y., et al. (2023). Immersive narrative based on online and blended learning: Frameworks and cases for history learning. In *Proceedings of the ACM*. <https://doi.org/10.1145/3606094.3606133>.
- Petousi, D., et al. (2022). A collaborative interactive digital storytelling approach for cultural heritage education. *Frontiers in Education*.
- Schiller, H. J. (2020). *Culture, migration, and identity in the global age*. Routledge.
- Schreibman, S., Siemens, R., & Unsworth, J. (2016). *A new companion to digital humanities*. Wiley-Blackwell. <https://doi.org/10.1002/9781118680605>.

Wang, F., & Hannafin, M. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development*, 53(4), 5–23.  
<https://doi.org/10.1007/BF02504682>