

Transforming Islamic Educational Values in the Architecture of the Tegalsari Ponorogo Mosque into a Culture-Based Digital Pedagogy Model for Sustainable Islamic Education

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ARTICLE INFO	ABSTRACT
Keywords: Sustainable Islamic Education; Tegalsari Mosque; Digital Pedagogy; Transformative Learning; Cultural Heritage Education;	Digital transformation in Islamic Education presents opportunities and challenges for preserving Islamic identity and cultural values amid rapid technological advances. One effort undertaken is to integrate local Islamic cultural heritage into a digital learning model relevant to the needs of the 21st century. This study aims to identify the Islamic educational values embedded in the architecture of the Tegalsari Mosque in Ponorogo and to transform them into a culture-based digital pedagogical model to support sustainable Islamic education. The study uses the Systematic Literature Review (SLR) method, with the stages of identification, selection, evaluation, and synthesis of literature from national and international journals, scientific books, proceedings, and relevant official documents during 2021–2026. Data analysis was carried out through content analysis and thematic synthesis. The research results show that the architecture of the Tegalsari Mosque embodies Islamic educational values, such as monotheism, adab, ukhuwah, simplicity, leadership, and ecological awareness, as reflected in its various architectural elements. These values can be transformed into learning resources through a process of critical reflection and meaning-making as explained in the Transformative Learning theory. The literature synthesis resulted in a conceptual model, the Culture-Based Digital Islamic Pedagogy Model (CDIPM), that integrates Islamic cultural heritage, digital pedagogy, and the principles of sustainable education.
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INTRODUCTION

The educational paradigm has changed drastically in the 21st century due to advances in digital technology, including in Islamic education. Digital transformation has now become a new environment for developing knowledge, character, and a learning culture, not just a means of conveying information. To provide relevant and sustainable learning, UNESCO's Education for Sustainable Development (ESD) agenda emphasizes the importance of integrating local cultural values, historical assets, and digital technology. Simultaneously, the emergence of digital learning platforms, interactive media, and artificial intelligence poses new challenges, as education becomes increasingly technology-oriented and pays less attention to values, cultural identity, and spirituality. Therefore, to maintain the learning process grounded in Islamic values and local wisdom, an Islamic education model is needed that combines digital innovation with local Islamic cultural heritage.¹

In Indonesia, digital transformation is occurring rapidly and presents significant opportunities for the development of digital pedagogy. The latest data shows that internet users in Indonesia will reach 229.4 million by 2025, with an internet penetration rate of 80.66% of the total national population.²

Data on the Development of Indonesia's Digital Access.³

Indicators	2025
Number of Internet Users	229,428,417
Internet Penetration Rate	80.66%
Indonesian Population	284,438,900
Population Without Internet Access	55,010,483

This demonstrates that a large portion of Indonesia's population is connected to the digital ecosystem, indicating that technology-based education has high implementation potential. However, this increased digital access has not been fully matched by educational content grounded in local values and customs. As a result, digital learning tends to adopt global learning resources without providing appropriate space for the use of the archipelago's Islamic heritage as a contextual learning resource. This situation highlights the need to develop digital pedagogical models that are not only innovative and modern but also reflect Islamic educational values and foster local cultural heritage.

Cultural heritage in an Islamic perspective is not only seen as a physical relic of the past, but also as a means of passing on Islamic identity, values, and knowledge to future generations. The Tegalsari Mosque in Ponorogo is one example of Islamic cultural heritage with high educational value. The mosque, which was founded in the 18th century by Kiai Ageng Muhammad Besari, is an important component of the Tegalsari Islamic Boarding School complex, which is considered one of the oldest Islamic educational institutions in Java. In the architecture of the Tegalsari Mosque, there are various symbols of Islamic

¹ Wayne Holmes, Maya Bialik, and Charles Fadel, *Artificial Intelligence in Education: Promise and Implications for Teaching and Learning* (Center for Curriculum Redesign, 2022).

² APJII, "Profil Internet Indonesia 2025" (Asosiasi Penyelenggara Jasa Internet Indonesia, 2025), <https://apjii.or.id>.

³ APJII.

education, including values such as monotheism, simplicity, togetherness, respect for nature, and integration between the spiritual and the social. These symbols are seen in the building design, spatial layout, construction, and architectural philosophy, all of which are produced in the Javanese Islamic tradition. Therefore, the architecture of the Tegalsari Mosque has great potential as a source of contextual learning that can connect history, culture, and Islamic education into a single meaning.⁴

In addition to its historical and educational value, the Tegalsari Mosque in Ponorogo is also part of an Islamic cultural heritage that continues to thrive today through various religious activities, social rituals, and community education initiatives. Various studies have shown that the Tegalsari area is not only a religious tourism destination but also a center for preserving local Islamic cultural identity, passed down from generation to generation. The community engages in informal social education through customs such as pilgrimages, religious studies, religious activities, and respect for religious leaders. However, most of these values remain embedded in traditional cultural practices and have not been widely translated into digital learning materials easily accessible to the younger generation. This is despite the fact that today's digital generation is more accustomed to interactive multimedia, visual media, and technology-based learning platforms than to conventional teaching techniques.⁵

Several researchers have studied the Tegalsari Mosque with varying focuses. Kusnanto and Hartono (2017) examined the symbolic meaning of the Tegalsari Mosque's architecture and its potential as a source for learning about local history. Levinanda and Ittihadiyah (2025) examined the architectural restoration of the Tegalsari Mosque and efforts to preserve its ancient Javanese architectural identity. Meanwhile, Rohmatulloh (2018) examined the preservation of the cultural heritage of the Tegalsari Islamic Boarding School as part of local Muslim heritage. These studies certainly make important contributions to understanding the historical, cultural, and architectural value of the Tegalsari Mosque. However, these studies still focus on aspects of history, cultural preservation, architectural symbolism, and religious tourism, thus failing to develop a conceptual framework that connects the architectural values of the Tegalsari Mosque with digital pedagogy and sustainable Islamic education.⁶

Another limitation of previous research is the limited discussion on transforming cultural values into digital learning designs that meet the needs of the 21st-century generation. Most studies still adopt a conservative stance, viewing cultural history merely as something to be preserved rather than as a source of innovative pedagogical teaching. However, various international literature on Digital Pedagogy, Transformative Learning, and Cultural Heritage Education explains that cultural heritage can be integrated into digital learning ecosystems to improve cultural literacy, critical thinking skills, and sustainability awareness. Therefore, there is a research gap in the lack of a culture-based digital pedagogical model that specifically

⁴ H Kusnanto and Y Hartono, "Makna Simbolik Dan Potensinya Sebagai Sumber Pembelajaran Sejarah Lokal," *Gulawentah: Jurnal Studi Sosial* 2, no. 1 (2017): 41–52, <https://doi.org/10.25273/gulawentah.v2i1.1359>.

⁵ A Saefullah and I Cahyadi, "Tradisi Ziarah Di Makam Kiai Ageng Muhammad Besari Tegalsari, Ponorogo, Jawa Timur," *Jurnal Lektur Keagamaan* 21, no. 1 (2023): 215–58, <https://doi.org/10.31291/jlka.v21i1.1078>.

⁶ Kusnanto and Hartono, "Makna Simbolik Dan Potensinya Sebagai Sumber Pembelajaran Sejarah Lokal."

elevates Islamic educational values in the architecture of the Tegalsari Mosque as a source of sustainable learning.⁷

Based on the gaps described above, this study offers a new contribution by reconstructing the Islamic educational values contained in the architecture of the Tegalsari Mosque into a culture-based digital pedagogical model to support sustainable Islamic education. This model serves as a learning innovation relevant to advancing digital technology and preserving local Islamic cultural heritage. This study combines Islamic education theory, digital pedagogy, cultural heritage education, and sustainable education through a library research approach to create a conceptual framework that can be applied to the creation of digital learning materials, interactive modules, virtual heritage learning, and project-based learning that focuses on improving students' character and cultural identity.

This research has a very high urgency, namely regarding the transformation of Islamic educational values in the architecture of the Tegalsari Mosque in Ponorogo into a culture-based digital pedagogical model. Therefore, technological innovation should remain sensitive to Islamic cultural and spiritual values amid the rapid digitalization of education. This research is important because it addresses the need to create a learning model that is not only technologically adaptive but also helps preserve the Islamic cultural heritage of the archipelago, strengthens the identity of the younger generation, and achieves the goals of sustainable education. For the future of Islamic education in Indonesia, further research on integrating local Islamic cultural values with digital pedagogy is urgently needed, both academically and strategically.

RESEARCH METHOD

This study uses a Systematic Literature Review (SLR) approach to identify, evaluate, and synthesize relevant literature on transforming Islamic educational values in the architecture of the Tegalsari Mosque in Ponorogo into a culture-based digital pedagogy model for sustainable Islamic education. Because it can offer a systematic, transparent, and repeatable study through the stages of planning, literature search, article selection, source quality assessment, data extraction, and synthesis of research findings, the researcher chose the SLR technique as his research approach. Scientific sources were obtained from various literature sources, including Google Scholar, Scopus, Crossref, DOAJ, and publications on the UNESCO website published between 2021 and 2026. Keywords used include "Islamic Education", "Mosque Architecture", "Digital Pedagogy", "Transformative Learning", "Cultural Heritage Education", "Education for Sustainable Development", and "Tegalsari Mosque".⁸

Articles that met the inclusion criteria were analyzed using content analysis and thematic synthesis.⁹ The main objectives of the analysis process were to identify Islamic educational values in the architecture of the Tegalsari Mosque, examine how these values relate to the theories of Transformative Learning, Cultural Heritage Education, Digital Pedagogy, and Education for Sustainable Development (ESD), and develop a conceptual

⁷ Jack Mezirow, *Transformative Learning Theory* (Routledge, 2018).

⁸ Ratna Etika, et al, "Deep Learning Sebagai Sarana Pengutan Kurikulum Pendidikan Agama Islam," *Indonesian Reseach Journal Education* 6, no. 2 (2026): 4.

⁹ Ibid, 4.

model of culture-based digital pedagogy. Using this approach, this study produced a comprehensive theoretical synthesis and created the Culture-Based Digital Islamic Pedagogy Model (CDIPM), a learning framework that integrates digital technology with regional Islamic cultural heritage to enable sustainable Islamic education.

RESULT AND DISCUSSION

Islamic Educational Values in the Architecture of the Tegalsari Ponorogo Mosque

The architecture of the Tegalsari Mosque in Ponorogo serves as both a place of worship and a representation of the Islamic educational value system, conveyed through architectural symbols. Building features, including the mihrab (mihrab), porch, main pillars, tiered roof, gate, and bancik stone, have philosophical significance that serves as a guide for the Muslim community and can be relevant to Islamic education.¹⁰

Table 1. Synthesis of Islamic Educational Values in the Architecture of the Tegalsari Mosque

Architectural Elements	Symbolic Meaning	Islamic Educational Values
The Triple Roof	Human Relationship with Allah	Tauhid
Mihrab	Orientation of worship	Spirituality and divine awareness
Mosque Veranda	A space for social interaction	brotherhood and collaboration
Soko Guru	Main support of the building	Leadership and responsibility
Batu Bancik	Place for deliberation of scholars	Manners and respect for knowledge
Mosque courtyard	Human and environmental interaction	Social and ecological concerns
Islamic Boarding School Complex	Knowledge transmission center	Sustainable Islamic literacy

The table shows that each architectural feature of the Tegalsari Mosque in Ponorogo not only serves as a physical element but also carries a symbolic meaning that embodies the values of Islamic education. These values can be transformed into learning resources that meet the demands of education in the 21st-century digital era. Therefore, the architecture of the mosque is not only understood as cultural heritage but can also serve as a pedagogical medium that integrates intellectual, spiritual, and social aspects into the learning process. These values are essentially the main goals of Islamic education, including monotheism, adab (ethics), brotherhood (ukhuwah), simplicity, leadership, and concern for the environment. With this, the Tegalsari Mosque can be understood as a cultural educational medium that transmits Islamic values through the experience of space and cultural symbols that live in society.¹¹

¹⁰ Kusnanto and Hartono, "Makna Simbolik Dan Potensinya Sebagai Sumber Pembelajaran Sejarah Lokal."

¹¹ Kusnanto and Hartono.

Philosophically, the value of monotheism is evident in the worship space, which directs all activities toward devotion to Allah SWT. This concept aligns with the foundation of Islamic education, which places monotheism as the foundation for shaping human character and behavior. The value of adab (civility) is reflected in the mosque's layout, which teaches respect for the place of worship, teachers, scholars, and fellow human beings. Furthermore, the mosque's veranda, a space for social interaction, underscores the importance of brotherhood and mutual learning within the Islamic boarding school tradition. These values not only have historical significance but are also relevant to addressing the challenges of 21st-century education, which demands a balance between digital competency and character development.¹²

Transforming Values through a Transformative Learning Perspective

According to Mezirow's theory, transformative learning is a learning process that not only produces new knowledge but also changes in perspective (perspective transformation) regarding reality. Mezirow stated that transformative learning occurs when students critically reflect on their experiences, resulting in new meanings for the world and themselves.¹³ A recent study explains that Transformative Learning is highly relevant to sustainability education (Education for Sustainable Development/ESD) because it can encourage paradigm shifts and lead to real actions by students.¹⁴

In this research concept, studying the architecture of the Tegalsari Mosque is not merely about understanding the building's past, but becomes a process of reflection on the values of tauhid, adab, ukhuwah (brotherhood), and social obligations. Students move from simply knowing about cultural heritage to becoming aware of the preservation, development, and application of these values in modern life through the symbolic meaning of architecture through digital media. Thus, the architecture of the Tegalsari Mosque acts as a transformative educational medium that connects the past, present, and future of Islamic education.

Integration of Tegalsari Mosque Architecture from the Perspective of Cultural Heritage Education

From a Cultural Heritage Education perspective, the Tegalsari Mosque is an authentic educational tool that utilizes local cultural experiences to help students understand Islamic principles. Through heritage-based learning, students can develop critical, interpretive, and reflective thinking skills regarding the relevance of historical artifacts. Furthermore, the use of cultural sites as teaching resources strengthens Islamic and national identity while fostering an understanding of Indonesia's cultural diversity. Therefore, the architecture of the Tegalsari Mosque holds great potential as a laboratory for Islamic education, comprehensively combining historical, religious, social, and cultural aspects.

Orphanidou's research explains that integrating cultural heritage into education can build students' cultural identity, improve the quality of the learning process, and foster critical thinking skills. These findings strengthen the argument that using the Tegalsari Mosque as a

¹² Kusnanto and Hartono.

¹³ Mezirow, *Transformative Learning Theory*.

¹⁴ Michael O Grady, "Transformative Education for Sustainable Development : A Faculty Perspective," *Environment, Development and Sustainability*, 2025, 20745–61, <https://doi.org/10.1007/s10668-023-03609-y>.

teaching tool not only helps preserve culture but also enhances Islamic education to better suit the demands of today's digital generation.¹⁵

Transforming the Architectural Values of the Tegalsari Mosque into Culture-Based Digital Pedagogy

The transformation of Islamic educational values in the architecture of the Tegalsari Mosque can be achieved through a culture-based digital pedagogy. Digital pedagogy goes beyond simply transferring learning materials to digital media and also integrates technology with local cultural context to create meaningful learning experiences. In this context, the architectural symbols of the Tegalsari Mosque can be developed into various digital learning media, such as virtual tours, digital storytelling, interactive videos, culture-based e-modules, augmented reality, and virtual heritage learning.

With advances in digital technology, there are now more options for recording and sharing Islamic cultural history with younger generations. Digital technology can increase student accessibility, interaction, and engagement in learning about cultural sites, according to a recent study on the digitization of cultural heritage. With advances in metaverse technology, students can now virtually visit historical sites without physically being there. This offers a strategic opportunity for Islamic education to create digital learning resources grounded in Islamic values and local culture.¹⁶

Based on the results of the literature synthesis, the culture-based digital pedagogical model developed from the Tegalsari Mosque consists of four main stages: identifying Islamic educational values in architecture, interpreting cultural meanings through critical reflection, digitizing these values into learning media, and implementing cultural project-based learning. This model enables students not only to understand local Islamic history and culture but also to generate new knowledge through creative, collaborative digital activities.

Contribution to Sustainable Islamic Education

The concept of sustainable education emphasizes that education must shape individuals with academic competence, social awareness, environmental responsibility, and a strong cultural identity. UNESCO considers culture a crucial dimension of sustainable development because it shapes a society's values, behaviors, and social practices. Therefore, integrating cultural heritage into education is part of the strategy to achieve the Sustainable Development Goals (SDGs), particularly the fourth goal on quality education.¹⁷

In the context of Islamic education, the values embodied in the architecture of the Tegalsari Mosque are strongly aligned with the principles of sustainability. The value of monotheism fosters ecological awareness and responsibility as a caliph on earth. The value of simplicity teaches the wise use of resources. The value of brotherhood strengthens social solidarity, while the value of adab (civility) fosters harmonious relationships between

¹⁵ George Panayiotou Yianna Orphanidou, Leonidas Efthymiou, "Cultural Heritage for Sustainable Education Amidst Digitalisation," *MDPI*, 2024.

¹⁶ Dipima Buragohain et al., "Digitalizing Cultural Heritage through Metaverse Applications : Challenges , Opportunities , and Strategies," *Heritage Science*, 2024, 1–16, <https://doi.org/10.1186/s40494-024-01403-1>.

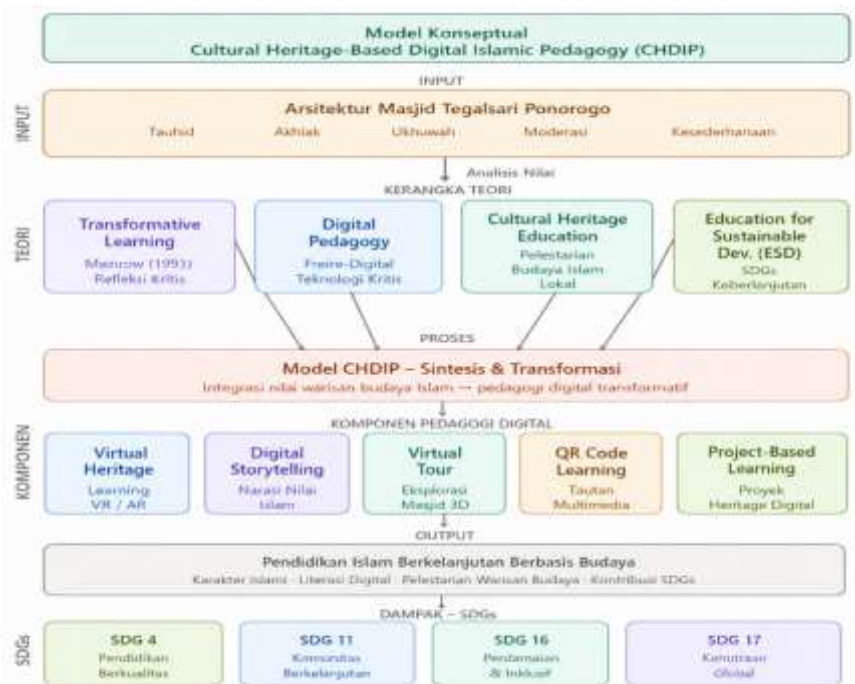
¹⁷ UNESCO, "Teaching and Learning with Living Heritage: A Driver of Educational Relevance, Innovative Heritage Safeguarding and Well-Being" (UNESCO, 2023), <https://www.unesco.org/en/articles/teaching-and-learning-living-heritage-driver-educational-relevance-innovative-heritage-safeguarding>.

humans, the environment, and God. When these values are translated into digital pedagogy, Islamic education is oriented not only toward knowledge transfer but also toward the development of sustainable character necessary to address the global challenges of the 21st century.

The results of this study indicate that a culture-based digital pedagogical model grounded in the architectural values of the Tegalsari Mosque can be an innovative alternative for the development of sustainable Islamic education. This model connects local Islamic cultural heritage with digital technology, transformative learning, and sustainable development goals, resulting in a contextual, adaptive, and future-oriented educational approach. Thus, this research expands the study of Islamic education beyond merely symbolic architectural studies to the development of a conceptual learning model applicable to the modern digital education ecosystem.

Conceptual Model of Value Transformation Towards Culture-Based Digital Pedagogy

Based on a synthesis of theory and literature, this study develops a new conceptual model, the Culture-Based Digital Islamic Pedagogy Model (CDIPM).



The image depicts a conceptual model called CHDIP (Cultural Heritage-Based Digital Islamic Pedagogy). This model explains how to transform the Islamic educational values embedded in the architecture of the Tegalsari Mosque in Ponorogo into a culture-based digital pedagogical model that supports sustainable Islamic education. The model is structured systematically, starting from inputs, theoretical foundations, transformation processes, digital implementation elements, and outputs and their impact on the Sustainable Development Goals (SDGs).

In the input section, the architecture of the Tegalsari Mosque in Ponorogo is positioned as a primary source of learning, embodying various Islamic educational values. The literature review shows that the mosque's architectural elements serve not only physical functions but

also convey educational messages passed down across generations. The values identified include:

1. The Value of Monotheism: In the Tegalsari Mosque, the main value reflected in its architecture is monotheism. This concept is evident in the building's orientation toward the Qibla and in the mihrab, which serves as the center of attention for the congregation during worship. The mihrab not only functions as a guide for prayer, but also symbolizes the direction of human life towards Allah SWT. From an Islamic educational perspective, monotheism is the foundation of a Muslim personality. The architecture of the mosque teaches that all life activities must be oriented towards devotion to Allah. Thus, the mosque's physical space is transformed into a spiritual and educational space that instills God Consciousness.¹⁸
2. Moral Values and Simplicity: The simple character of the Tegalsari Mosque reflects the values of tawadhu' (humility), asceticism, and simplicity that characterize traditional Islamic boarding school education. No excessive ornamentation is found, as is typical of monumental mosques. This simplicity demonstrates that the greatness of Islam lies in the quality of faith and morals, not material luxury. This value aligns with the goal of Islamic education, which emphasizes the formation of noble individuals. Through heritage-based learning experiences, students can understand that success in life is not measured solely by material aspects but by a person's moral and spiritual qualities.
3. The Value of Brotherhood
The presence of a mosque veranda demonstrates its strong social and educational functions. In the Islamic boarding school tradition, the veranda serves as a space for deliberation, religious study, religious discussions, and interaction between students and the kiai (religious leader). This space reflects the concept of Islamic brotherhood and collaborative learning, which characterize Islamic education. From a modern pedagogical perspective, the function of the veranda aligns with the concepts of collaborative learning and social constructivism, namely, learning processes built through social interaction. Thus, mosque architecture implemented the principles of active learning long before these concepts developed in contemporary educational theory.
4. Value of Moderation
The presence of Javanese architectural elements in the Tegalsari Mosque reflects a peaceful and inclusive approach to da'wah (Islamic preaching). The ulama did not erase the culture that had already existed in the community, but rather carried out a process of selecting and Islamizing cultural elements that did not conflict with Islamic law. This way, the community could accept Islam more easily because they did not feel uprooted from their cultural identity.

¹⁸ Yudi Hartono Hadi Kusnanto, "Masjid Tegalsari Jetis Ponorogo (Makna Simbolik Dan Potensinya Sebagai Sumber Pembelajaran Sejarah Lokal)" 2 (2017): 41–48.

CONCLUSION

The architecture of the Tegalsari Mosque in Ponorogo embodies various Islamic educational values such as tauhid (monotheism), adab (etiquette), ukhuwah (brotherhood), simplicity, leadership, moderation, and environmental stewardship that remain relevant to contemporary educational needs. Through approaches integrating Transformative Learning, Cultural Heritage Education, and Digital Pedagogy, these values can be transformed into a culture-based digital pedagogy model (CHDIP) that supports sustainable Islamic education. This model bridges local Islamic cultural heritage with digital technology, rendering learning more contextual, meaningful, and aligned with the characteristics of the digital generation, while simultaneously contributing to cultural preservation and the achievement of the Sustainable Development Goals (SDGs).

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