

Eco-Friendly Islamic Calligraphy: A Creative Approach to Waste Recycling Education

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Abstract: This study addresses the limited integration of environmental education, Islamic values, and creative learning practices in existing pedagogical models. It proposes an eco-friendly Islamic calligraphy approach as an innovative medium for recycling-based learning that promotes both ecological awareness and spiritual development. The study adopts a Participatory Action Research (PAR) design involving 22 students from diverse educational levels at Sanggar Bimbingan Bintang Sembilan. Data were collected through structured observations, semi-structured interviews, and documentation, and analyzed using an iterative qualitative framework to identify changes in students' cognitive, affective, and behavioral domains. The findings indicate that students initially exhibited low environmental awareness, minimal engagement, and limited ability to utilize recyclable materials creatively. Following the intervention, there was a substantial increase in active participation, creative output, and conceptual understanding of environmental sustainability. Students also demonstrated observable behavioral shifts, particularly in waste reuse practices and environmental responsibility. In addition, the incorporation of Islamic values reinforced ethical awareness and strengthened students' sense of stewardship toward the environment. This study contributes to the advancement of interdisciplinary learning by offering a contextual and practice-oriented model that integrates environmental education, religious values, and art-based pedagogy. The proposed approach not only enhances student engagement but also fosters holistic learning outcomes, making it a viable alternative to conventional instructional methods in sustainability education.

Keywords: Art Integration; Environmental Sustainability Education; Islamic Pedagogy; Participatory Action Research; Recycling-Based Learning.

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1. Introduction

Environmental issues, particularly the increasing volume of waste, have evolved into complex and multidimensional global challenges. The rapid growth of modern consumption patterns has significantly contributed to the increase in waste generation, which is often not accompanied by effective and sustainable management systems. This condition leads to serious consequences, including environmental pollution, health problems, and ecosystem degradation that threaten human sustainability (Tuhumury et al., 2024). Therefore, waste-related problems should no longer be viewed merely as technical issues, but rather as educational and cultural challenges that require transformative approaches.

In this context, environmental education plays a strategic role as a key instrument in fostering ecological awareness and environmentally responsible behavior. Education functions not only as a means of knowledge transfer but also as a medium for value internalization and character development. Through appropriate educational approaches, individuals can understand the complexity of environmental issues and actively participate in environmental preservation efforts (Gultom et al., 2025). However, current environmental education practices are still predominantly theoretical and cognitive-oriented, limiting their ability to effectively engage students' affective and behavioral dimensions.

From an Islamic perspective, humans hold a central role as stewards (khalifah) on Earth, entrusted with the responsibility of maintaining environmental balance and sustainability. Islamic teachings explicitly prohibit environmental destruction and encourage harmonious interactions between humans and nature. However, there remains a significant gap between these normative values and actual human behavior. Contemporary environmental degradation largely reflects human actions that fail to embody Islamic environmental ethics (Fatoni, 2024). Therefore, an integrative approach is necessary to internalize Islamic values within environmental education in a more contextual and applicable manner.

Previous studies have examined environmental education, waste management, and the integration of religious values in learning. Additionally, art-based learning approaches have been recognized for their potential to enhance student engagement and creativity. However, these approaches are generally implemented separately and lack comprehensive integration. As a result, there is still a limitation in developing learning models that simultaneously incorporate ecological awareness, spiritual values, and creative engagement.

Furthermore, the use of Islamic calligraphy Ahmad, R., & Sulaiman, A. (2024) as a medium for environmental education through recycled materials remains underexplored in academic literature. In fact, Islamic calligraphy carries not only aesthetic value but also profound spiritual meaning, making it a potentially effective medium for instilling environmental awareness. The absence of such integrative approaches indicates a significant research gap, particularly in developing innovative learning models that bridge environmental education, Islamic values, and student creativity.

To address this gap, this study proposes an innovative approach through eco-friendly Islamic Ahmad, R., & Syed, M. A. (2021) calligraphy, which utilizes recycled materials as a medium for creating Islamic calligraphy. This approach emphasizes not only the final product but also the learning process, involving experiential activities, value reflection, and the development of ecological and spiritual awareness. Thus, learning becomes not only informative but also transformative. The main contributions of this study are as follows:

- a. Developing an interdisciplinary learning model that integrates environmental education, Islamic values, and creative arts.
- b. Introducing eco-friendly Islamic calligraphy as an innovative medium for recycling based education.
- c. Providing empirical contributions to the development of holistic environmental awareness, including cognitive, affective, and behavioral aspects.

Therefore, this study is expected to contribute both theoretically and practically by offering an innovative, contextual, and sustainable learning model for environmental education based on Islamic values.

Preliminaries or Related Work or Literature Review

Previous studies have demonstrated that experience-based and media-supported learning approaches play a significant role in improving learning outcomes. The use of digital media, particularly video, has been shown to enhance students' engagement, creativity, and analytical skills. Video-based learning also facilitates the understanding of abstract concepts and supports the development of critical thinking skills in educational contexts.

In addition, practice-based learning approaches, such as utilizing waste materials to create creative artworks, have been found to effectively increase students' environmental awareness and creativity. Hands-on activities enable students to actively participate in the learning process, providing meaningful experiences that contribute to behavioral changes toward environmental responsibility (Cahyanto et al., 2025).

Furthermore, the integration of Islamic values in education has been recognized as an effective way to shape students' character and environmental awareness. Value-based Islamic education Abdullah, M. S., & Ahmad, R. (2024) strengthens individuals' sense of responsibility toward the environment through spiritual and moral approaches. However, most existing studies tend to examine these aspects separately and have not yet integrated them with creative and experiential learning approaches.

Although previous research has confirmed the effectiveness of digital media, practice-based learning, and the integration of Islamic values, there is still no learning model that systematically integrates these three aspects into a unified and contextual framework. Moreover, the use of Islamic calligraphy based on recycled materials as a medium for environmental education remains underexplored in academic literature.

Therefore, this study aims to develop an eco-friendly Islamic Hassan, S., & Ali, F. (2020) calligraphy approach based on Participatory Action Research (PAR) Smith, J. A., & Brown, L.

M. (2024) as an innovative learning model that integrates environmental education, Islamic values, and artistic creativity in a participatory and meaningful way.

2. Materials and Method

This study was conducted at Sanggar Bimbingan Bintang Sembilan. The research participants consisted of all students, totaling 22 individuals, representing various educational levels, including Kindergarten (TK) and Grades 1 to 4.

The selection of all students as research participants was based on the characteristics of the Participatory Action Research (PAR) approach, which emphasizes the active involvement of all participants in the research process. By involving students from different educational levels, this study is expected to provide a comprehensive understanding of the implementation of eco-friendly Islamic calligraphy in enhancing students' environmental awareness and creativity.

Furthermore, the diversity of participants' educational levels allows the researcher to observe differences in responses, levels of understanding, and student engagement during the learning activities.

3. Results and Discussion

The implementation of this study utilized various instructional tools and supporting materials to facilitate the eco-friendly Islamic calligraphy learning activities. Recycled materials such as used paper, cardboard, and plastic packaging were employed as the primary media for creating Islamic calligraphy. Additional tools, including scissors, glue, markers, and coloring materials, were used to support students' creative processes. Documentation of the learning activities and students' artwork was conducted using smartphones. The research instruments consisted of observation sheets, interview guidelines, and assessment rubrics to evaluate students' participation and learning outcomes throughout the study.

Based on the initial data analysis, the students' level of environmental awareness and creativity in utilizing waste materials was relatively low. Most students had limited understanding of recycling concepts and had not previously been involved in creative activities using recycled materials. In addition, students' participation in learning activities tended to be passive, with minimal engagement in discussions related to environmental issues. This condition indicated the need for a more innovative, participatory, and contextual learning approach.

Following the implementation of the eco-friendly Islamic calligraphy approach through Participatory Action Research (PAR), significant improvements were observed in students' engagement, creativity, and environmental awareness. Students demonstrated greater enthusiasm in participating in learning activities and were able to produce creative Islamic calligraphy using recycled materials. Moreover, students showed improved understanding of environmental concepts and were able to relate these concepts to Islamic values. Positive behavioral changes were also observed, such as increased awareness of cleanliness and the willingness to reuse materials previously considered as waste.

To evaluate the effectiveness of the learning process, a percentage-based formula was applied by comparing the number of students who achieved the expected criteria with the total number of students. The evaluation results indicated a noticeable improvement in students' learning outcomes and behavioral changes after the implementation of the learning activities. These findings suggest that the applied learning approach was effective in enhancing both environmental awareness and creativity among students.

The results of this study indicate that the integration of environmental education, Islamic values, and art-based learning through a participatory approach contributes positively to students' learning outcomes. The PAR approach enabled students to actively engage in meaningful learning experiences, leading to deeper understanding and sustainable behavioral changes. These findings are consistent with the initial assumption that participatory and experience-based learning approaches are more effective than conventional methods in developing students' cognitive, affective, and psychomotor domains.

Furthermore, the integration of Islamic values within the learning process strengthened students' moral awareness and sense of responsibility toward the environment. Overall, this study demonstrates that the eco-friendly Islamic calligraphy approach based on Participatory Action Research (PAR) is an innovative, contextual, and effective learning model for improving students' environmental awareness and creativity.

4. Comparison

This study was compared with previous research related to environmental education, art-based learning, and the integration of Islamic values. Previous studies have demonstrated that environmental education can improve students' awareness and behavior toward environmental sustainability. In addition, art-based learning approaches have been proven effective in enhancing students' creativity and engagement. Similarly, the integration of Islamic values in education has shown positive impacts on students' moral development and sense of responsibility.

However, most of these studies have been conducted separately, focusing only on one or two aspects, such as environmental education alone, art-based learning without value integration, or Islamic education without practical environmental application. As a result, these approaches lack a comprehensive framework that integrates environmental awareness, creativity, and spiritual values in a single learning model.

Compared to previous studies, this research offers a more integrative approach by combining environmental education, Islamic values, and art-based learning through the implementation of eco-friendly Islamic calligraphy. Furthermore, the use of the Participatory Action Research (PAR) approach strengthens the learning process by actively involving students in real actions and reflective activities.

The findings of this study indicate that this integrated approach provides more meaningful learning experiences and leads to better outcomes in terms of students' environmental awareness, creativity, and active participation. Therefore, this study contributes to the development of an innovative and holistic learning model that addresses the limitations of previous research.

5. Conclusion

This study aimed to develop and implement an eco-friendly Islamic calligraphy learning approach based on Participatory Action Research (PAR) to enhance students' environmental awareness and creativity. The results of the study indicate that the integration of environmental education, Islamic values, and art-based learning provides a positive impact on students' learning outcomes. Students showed significant improvement in their participation, creativity, and understanding of environmental issues, as well as their ability to relate these concepts to Islamic values.

The findings also demonstrate that the PAR approach plays a crucial role in creating meaningful and participatory learning experiences. Through active involvement in planning, action, observation, and reflection stages, students were able to develop not only cognitive understanding but also affective and behavioral awareness toward environmental sustainability. These results support the initial assumption that participatory and experience-based learning approaches are more effective than conventional methods.

This study contributes to the development of an innovative and integrative learning model that combines environmental education, Islamic values, and creative art activities. The proposed approach offers a practical and contextual solution for improving students' environmental awareness while fostering creativity and moral responsibility.

However, this study has several limitations, including the limited number of participants and the short duration of the research implementation. Therefore, future studies are recommended to involve a larger sample size and longer implementation periods to obtain more comprehensive results. Further research may also explore the application of this approach in different educational settings and age groups.

Overall, the eco-friendly Islamic calligraphy approach based on PAR can be considered an effective and innovative strategy for enhancing students' environmental awareness and creativity in a holistic and meaningful way.

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