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Organic Crafts: Optimization of environmentally friendly materials in craft products

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Abstract
This article investigates the issues surrounding organic crafts from a material perspective, focusing on how optimizing environmentally friendly materials can enhance public awareness and impact craft product manufacturing. It identifies various materials suitable for crafting and highlights the importance of training artisans in sustainable practices. The research adopts a qualitative, multidisciplinary approach, utilizing textual and contextual analyses. Key findings emphasize the utilization of organic materials, increased environmental awareness, product diversity and aesthetics, the necessity for skill development, and the benefits of collaboration with academic institutions to promote sustainable crafting practices.

Keywords : Organic crafts; optimization; environmentally friendly materials; craft products

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1.0 Introduction

The global community is increasingly confronted with significant environmental challenges, particularly those attributable to the unsustainable utilization of synthetic materials. These challenges have been exacerbated by rapid urbanization, industrialization, and a pervasive culture of disposability that encourages using single-use products. According to the United Nations Environment Programme (UNEP, 2021), approximately 300 million tons of plastic waste are generated annually, with a substantial proportion of this plastic being non-biodegradable. This accumulation of plastic waste contributes markedly to environmental degradation, as synthetic materials such as plastics require hundreds of years to decompose, thereby inflicting long-term damage to ecosystems and biodiversity.

In addition to their ecological impact, synthetic materials pose considerable health risks to human and animal populations. Microplastics, for instance, have infiltrated the food chain, raising critical concerns regarding their potential effects on human health. Furthermore, the World Bank (2018) estimates that approximately 2 billion tons of waste are produced globally each year, with at least 33% of this waste inadequately managed in an environmentally safe manner. The mismanagement of waste frequently results in the pollution of waterways, degradation of soil quality, and heightened greenhouse gas emissions, thereby intensifying existing environmental crises.

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Among the most pressing concerns is the detrimental effect of non-organic materials on soil, water, and air quality. Chemical residues from synthetic materials are known to leach into soil and groundwater, resulting in contamination that adversely affects agricultural productivity and drinking water supplies (UNEP, 2019). Such contamination poses a significant threat to food security, particularly in vulnerable regions with high agricultural dependence. Moreover, the production and disposal of synthetic materials are substantial contributors to greenhouse gas emissions, exacerbating global warming and climate change (IPCC, 2021). The increase in greenhouse gases contributes to rising global temperatures and disrupts climatic patterns, leading to extreme weather events that can devastate communities and ecosystems.

In light of these challenges, adopting organic, environmentally friendly materials in craft products emerges as a viable solution to mitigate the adverse effects of synthetic materials. Organic materials, including bamboo, coconut shells, and natural fibers, are not only renewable but also biodegradable, rendering them significantly less harmful to the environment (Väänänen & Pöllänen, 2020). The sourcing of these materials is often local, which can bolster regional economies while simultaneously reducing the carbon footprint associated with transportation. Additionally, incorporating organic materials in crafting aligns with the growing consumer demand for eco-friendly products and sustainable practices.

However, the practical application of these materials within the crafting sector remains underdeveloped, particularly in regions such as Yogyakarta, Indonesia, where artisans frequently lack the requisite skills and knowledge to maximize the utilization of organic materials. Despite the region's rich cultural heritage and traditional craftsmanship, economic limitations and restricted access to information and training often impede the transition to sustainable practices.

The primary objective of this study is to investigate the multifaceted issues surrounding public awareness regarding the significance of utilizing organic materials, the implications of implementing environmentally friendly materials in craft product manufacturing, and the identification of suitable organic materials for crafting applications. By integrating creative, critical, and innovative methodologies, this study aspires to promote adopting sustainable practices within the craft industry, ensuring preserving essential natural resources for future generations and fostering a heightened awareness of the environmental consequences of material choices.

2.0 Literature Review

This literature review will describe things related to research topics carried out by previous researchers who study or discuss the same or are close to the same thing as this study. The name of organic crafts is labeled for craft products made using environmentally friendly materials. It is not a material that is processed in a factory. Some of the sources of information that are still related to the topic of the study include the following.

Thinking Through Craft Book, Adamson, Glen. (2007). In this book, Adamson explains that craft emphasizes technical skills and imagination, providing functional results that produce a contemplative object and have a use. Therefore, the craft is a field of expertise that requires a different way of thinking, namely, thinking through action. Craft is an intellectual, creative, and physical activity with novelty value in using materials and aesthetics. It not only reflects the characteristics of a person but also shows critical investigation and investigation. A journal concludes that craft is characterized by specialized knowledge, localization, ethics and authenticity, and continuation of tradition; it is seen to be 'consistent with the principles of sustainability' (Zhan *et al*., 2017). Meanwhile, Risatti discusses crafts from various perspectives in the book A Theory of Craft (2007). It starts from the fundamentals that set crafts apart from fine arts, including the ontology of crafts, specific objects of crafts, and others. Interestingly, Risatti stressed that the aesthetics of handmade goods cannot be used to define the aesthetics of art in general. The reason is that crafts have a unique vocabulary and qualities that set them apart from other great artworks.

The title of the research, "Eco Design: Exploration and Application of Thorny Pandan Materials to Support the Creative Economy of Arts and Tourism Crafts in Pangandaran" (Hendriyana *et al*., 2020) explained that in the Pangandaran area, there are many pandan plants (*Pandanus tectorius*), but the condition is significantly harmed, and the local administration shows no concern for good governance. This research aims to produce regionally superior craft art products to support tourism by raising the potential of natural resources and artisan resources in the local community. This article is one of the results of applied research, a type of practice-led research focusing on the creative industry of craft art products that support tourism through eco-design and eco-tourism approaches. The study shows that the creative sector of pandanus-based crafts and design (*Pandanus tectorius*) has excellent potential and must be developed in Indonesia. First, handicraft products made from pandan are environmentally friendly and can reduce the use of plastic raw materials that are difficult to destroy. Second, Indonesia has natural resources (SDA) in pandan forests.

Other journals from Ratna et al. (2013) published in the Journal of Building Engineering Education-K.1509034-2013 explain various ecological or environmentally friendly materials applied to manufacture buildings, with a case study of Bank Indonesia. According to the survey, one way that people can slow down the rate of global warming is by using ecological materials in conjunction with the notion of green architecture. Furthermore, it has been demonstrated that it has no damaging long-term or short-term effects on the environment. Meanwhile, related to developing environmentally friendly textiles with Sisal Fiber Materials, Hayati (2019). In this article, she questioned the issue of environmental damage, primarily synthetic materials that can harm the environment. In 2000, there was a movement for eco-textiles, sustainable design, and others, all of which were to protect environmental resources in the future. Environmentally friendly textiles can be developed in terms of materials. Natural fiber is an alternative raw material for environmentally friendly textile products; one type of plant is sisal. The use of sisal fiber textiles has not yet experienced further development, being limited to ship ropes and plain weaving.

In another research, in the field of research and creation using environmentally friendly materials, the author also carried out research activities in 2016. The research was entitled "Innovation and Diversification of Eco-Art-Based coconut shell waste products in Panjangan

Bantul Yogyakarta." In this research and at the same time creation, the author and research member Dr Suastiwi (2016) used environmentally friendly materials, namely coconut shell waste, to manufacture craft products. Coconut shell waste is found in many corners of the country. The source of this material is very abundant, but it has yet to be utilized to the fullest. Through research and creation, various types of practical, functional craft products can be made, as well as works of art for decoration. Manufacturing different products through diversifying existing products creates various products with economic value. From this research, the craft community can make the most of this material in creating craft products based on environmentally friendly materials. One of the uses of organic matter is from rocks in nature.

In 2021, the author conducted research with the title "Application of Pumice Igneous Rocks on Living Room Sitting Lamps, which was published in the journal ARS Vol. 25, No. 1 (2022). It is explained that one form of natural material that has organic properties is rock. Rocks are formed by natural processes on earth, not through the manufacturing processes produced by factories. As collecting and using rocks from nature does not harm the surrounding area, using rocks in nature is one approach to preserving the environment and creating environmentally friendly creative goods. Using natural organic sources such as rocks is very beneficial for developing the people's economy, especially workers or artisans. This environmentally friendly material is easy to obtain, and if responded to creatively, it can produce craft products with functional and selling value. In this study, pumice rock was chosen as the primary material. The pumice rock is used and applied to sitting lamp products.

3.0 Methodology

The research method employed in this study is multidisciplinary, aligning with Soedarsono's assertion that an interdisciplinary approach is particularly suitable for examining craft-related (fine arts) fields. The fine arts research domain can leverage various methodologies, including communication, anthropology, sociology, archaeology, history, metallurgy, psychology, and iconography (Soedarsono, 2001). This study utilizes explicitly craft theory to explore the epistemological and ontological understanding of crafts (Risatti, 2027), while aesthetic theory is applied to assess the aesthetics of the materials and products derived from these materials (Munro, 1967).

The research is conducted from relevant scientific perspectives, allowing for textual and contextual analyses. Textual analysis aims to evaluate the aesthetic value of the organic materials studied, analyze the aesthetic qualities of the produced objects, and interpret their significance as cultural artifacts (Spradley, 1980). In contrast, contextual analysis investigates the socio-cultural aspects surrounding the issues at hand, classifying this research as qualitative with a multidisciplinary approach.

Data collection involves a field study over three months, focusing on craft centers that utilize environmentally friendly materials, such as coconut, bamboo, and wood. These locations were specifically chosen to represent the broader craft community, showcasing traditional practices that integrate sustainable materials. The researcher engaged with 20 participants, including artisans and industry experts, to gain diverse insights into the crafting process.

Techniques employed in data collection included direct field observations and in-depth interviews (deep interviews) with selected participants. Simultaneously, visual data collection was conducted using photographic documentation to capture the crafting processes and products. After the data collection, the analysis phase commenced, which involved visual (textual) analysis focusing on the shape and physical structure of the material objects and their products. Contextual analysis further examined the interplay between materials and the socio-cultural dynamics of the surrounding community.

4.0 Findings

The essential findings from field research in Yogyakarta and its surroundings include various aspects related to organic materials, environmental awareness, product variety, product quality, mentoring, and collaboration with academics.

Fig. 1. Remaining bamboo and coconut shell fragments are frequently discarded despite their potential uses.
(Source: Dafri et. al., 2024)

First, many craftsmen still need to make full use of organic materials. Although the potential of organic matter is quite significant, this material is often wasted. This shows that skills and knowledge in managing organic materials are not optimal among craftsmen. Second, awareness about using environmentally friendly materials still needs to be improved among craftsmen. Despite the trend toward using organic materials, Many still use synthetic materials according to market demand. This low awareness results in a need for more attention to the environmental impact of the materials used. Third, Yogyakarta's organic craft products are diverse in aesthetics, shape, and function. These products include household needs, exteriors, accessories, and kitchen utensils. Nonetheless, there is an opportunity to continue to develop product variations to make them more attractive and functional. Fourth, there is a need for continuous assistance and workshops or training to improve craftsmen's skills in the use of organic materials and design development. This assistance must be carried out periodically to ensure that craftsmen continue to develop and can produce quality and environmentally friendly products. Finally, the involvement of the College of Arts is essential to help create new designs and improve product quality, technological innovation, and marketing strategies. Collaboration between artisans and academics will be very beneficial in creating attractive and functional craft products that can compete in the global market. Universities can contribute to joint research and the development of relevant curricula.

The methodology employed included interviews with artisans, visual documentation, and field observations, and the analysis process combined both textual and contextual approaches. Below is a summary of the findings:

Table 1. A summary of the findings

Key Findings	Observation	Analysis/Impact
Utilization of Organic Materials	Many artisans must fully utilize organic materials, leading to significant waste despite the potential.	Despite abundant natural resources, craftsmen need more knowledge and skills to optimize their use.
Environmental Awareness	Awareness about the importance of using environmentally friendly materials needs to be improved among craftsmen.	Craftsmen still rely on synthetic materials due to market demand, negatively affecting the eco-friendly potential of their products.
Product Diversity and Aesthetics	Organic craft products in Yogyakarta are diverse but require further development to be more functional and aesthetically pleasing.	Although product variety exists, the products must be fully competitive due to design and material limitations.
Training and Skill Development	Continuous assistance and workshops are needed to enhance organic material management and product design skills.	Educational support is needed to enhance craft designs, improve material processing, and raise environmental awareness.
Collaboration with Academics	Partnerships between artisans and academics are vital for product innovation, quality improvement, and market competitiveness.	While partnerships with academic institutions have produced some new designs, the industry still needs more academic engagement to enhance product quality and sustainability.

(Source: Dafri et. al., 2024)

5.0 Discussion

Due to Yogyakarta's designation as a city of arts and culture has become a center for selling craft products that never die. This has resulted in the emergence of young artists, craftspeople, designers, and craftsmen in this field, making Yogyakarta the number two city after Bali as the center of tourist visits in Indonesia. Various forms of craft products have emerged, with diverse forms, functions, and materials used. On the one hand, this is a positive trend to help improve the community's economy through the craft sector and craft products for those engaged in this field. However, on the other hand, it impacts the large number of materials needed to make various kinds of products. This is a problem that needs to be solved. Moreover, many craft products sold in the field no longer think about "eco-friendly materials" but use any material; the important thing is that the product can be sold in the market.

Fig. 2. Several products were created from waste materials, such as bamboo and coconut shells.
(Source: various sources from Google, 2024)

Given this fact, the author is keen to learn more about applying sustainable materials like bamboo and coconut trees (coconut shells), whose resources are still abundant but have yet to reach their full potential. Therefore, on this occasion, the author tries to invite crafters, craftsmen, artists, and even students to be a common concern in helping to develop environmentally friendly material-based craft products. As is known, bamboo is a very sustainable material and can be used for any purpose. Bamboo is a very environmentally friendly material. It is a renewable and biodegradable material.

Fig. 3. Eco-friendly characteristics of bamboo material.
(Source: https://ecowonder.co.uk/eco-bamboo, 2024)

Furthermore, bamboo does not require pesticides or fertilizers during its growth, thus making it more environmentally friendly compared to other trees (Väänänen & Pöllänen, 2020). The benefits of bamboo are numerous; it has been proven to have been utilized since time immemorial, both in Indonesia and other countries in Southeast Asia, as well as in Asia in general. A bamboo tree can be used for various purposes, depending on which part of the bamboo you want to use. The same is true of the coconut tree (coconut shell). This tree also thrives in all corners of the country. From Sabang to Merauke, this tree grows wild without having to be planted, and this tree is one of the environmentally friendly trees.

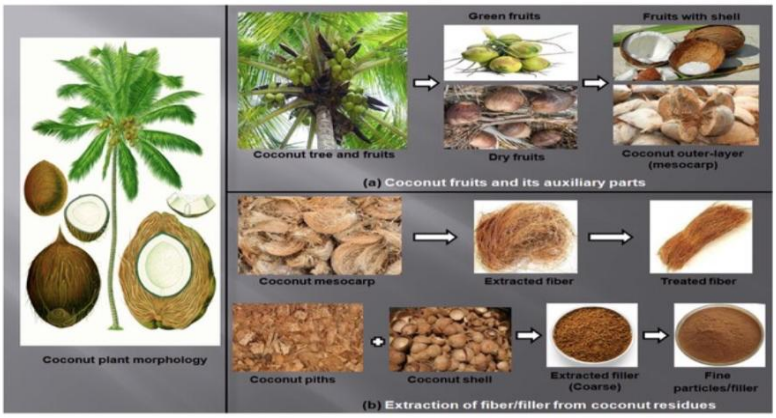

Fig. 4. Coconut trees being used for a variety of purposes.
(Source: Journal of Clean Production 255 (2020) 120169)

This coconut tree has been proven to be utilized for various purposes. From the trunk, fruit, leaves, sticks, coir, and shell can be used for household needs and other functional craft products. For these reasons, selecting these two materials is essential for further study. For information, the study area conducted by the author is spread across several areas of Yogyakarta and its surroundings. The author took data from Cebongan, Brajan Sleman, Muntuk, and Dlingo Bantul Yogyakarta for the bamboo study. At the same time, the research area for coconut shell material was carried out in the Guo Sari area, in the villages of Santan, Sorosutan Umbul Harjo, and Maguwoharjo Yogyakarta.

6.0 Conclusion and Recommendations

From the research activities that the author has carried out in several locations in Yogyakarta and its surroundings, with a focus on optimizing the use of bamboo and coconut shell organic materials, several things can be concluded as follows. The research has produced several important conclusions about using organic materials such as bamboo and coconut shells in handicraft products. Direct observation and in-depth analysis show that many craftsmen or artisans have been unable to make the most of organic materials in

producing handicrafts, even though the potential of organic materials is quite immense. Organic materials could be more optimal, as seen from the amount of organic matter wasted, so it is necessary to increase skills and knowledge in organic material management.

Awareness of environmentally friendly organic materials is still low among artisans in industrial centers. Many artisans still use non-organic or synthetic materials as per consumer requests or orders, resulting in products that are often not 100% organic and reduce the eco-friendly value of the craft. Therefore, education about the importance of organic materials and sustainability needs to be increased.

Additionally, it is essential to acknowledge the limitations of this study, which primarily focuses on Yogyakarta and may not represent other regions or contexts. The sample size and qualitative methods employed could introduce subjective biases that affect the findings.

To increase the effectiveness of using organic materials in crafts, several recommendations are made. Firstly, there should be increased research and innovation in processing techniques and using organic materials to create more sustainable and high-quality products. Secondly, education and awareness programs about the importance of using organic materials and sustainability should be improved through campaigns, seminars, and workshops. Thirdly, cooperation between the government, industry, and artisan communities must be encouraged to create policies that support organic materials and improve market access. Finally, adequate infrastructure for managing and processing organic materials is necessary to enable crafters to operate more efficiently in production.

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Paper Contribution to Related Field of Study

This paper provides essential insights for ISI Yogyakarta University, emphasizing the need for organic materials and eco-friendly practices in crafts. Given the influx of synthetic products, public awareness of sustainable materials is crucial. The regional government should engage the community to promote environmental protection and sustainable practices in Yogyakarta's craft production.

References

Dafri, Y. (2022). Pengaplikasian Batuan Beku Pumice pada Lampu Duduk Ruang Tamu. Jurnal ARS Vol. 25, No. 1.

Dianita, R., Sucipto, T. L. A., & Sutrisno. (2013). Analisa Pemilihan Material Bangunan Dalam Mewujudkan Green Building. Studi Kasus: Gedung Kantor Perwakilan Bank Indonesia Solo. Pengkajian Mahasiswa Program Studi Pendidikan Teknik Bangunan, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Sebelas Maret.

Glenn, A. (2007). Thinking through Craft. New York: Berg Publishers.

Hayati, N. (2019). *Pengembangan Tekstil Ramah Lingkungan dengan Material Serat Sisal*.

Hendriyana, H., Putra, I. N. D. P., and Sunarya, Y. Y. (2020). Eco Design: Eksplorasi dan Aplikasi Material Bahan Pandan Berduri untuk Mendukung Ekonomi Kreatif Kriya Seni dan Pariwisata di Pangandaran, Bandung: Panggung.

Intergovernmental Panel on Climate Change (IPCC). (2021). Climate Change 2021: The Physical Science Basis. Retrieved from www.ipcc.ch

Masri, A. & Pasaribu, Y. M. (2018). ADPII: *Craft dan Desain di Indonesia* : Sudut Pandang Akademik dan Pelaku. Bandung: Aliansi Desainer Produk Indsutri Indonesia.

Munro, T. (1967). The Morphology of Art as a Branch of Aesthetic, in Beardsley, M. and Schueller, H. Aesthetic Inquiry. Essays on Art Criticism and the Philosophy of Art. Belmont, California: Dickenson Publishing Company, Inc.

Nunes, L. A., Silva, M. L.S., Gerber, J. Z., & Kalid, R. D. A. (2020). Waste Green Coconut Shells: Diagnosis of the Disposal and Applications for Use in Other Products. Journal of Cleaner Production 255: 120169

Risatti, H. (2007). A Theory of Craft. Chapel Hill: The University of North Carolina Press.

Spardley, J. P. (1980). Participant Observation. New York: Holt, Renehart and Winstone.

Soedarsono, R.M. (2001). Metode Penelitian Seni Pertunjukan dan Seni Rupa. Bandung: Masyarakat Seni Pertunjukan Indonesia.

The World Bank. (2018). What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Retrieved from www.worldbank.org

United Nations Environment Programme (UNEP). (2019). Global Environmental Outlook 6. Retrieved from www.unep.org

United Nations Environment Programme (UNEP). (2021). Plastic Waste Management Facts and Figures. Retrieved from www.unep.org

Väänänen, N. & Pöllänen, S. (2020). Conceptualizing Sustainable Craft: Concept Analysis of Literature, The Design Journal, DOI: 10.1080/14606925.2020.1718276