

Bamboo Jewellery: Integrating Indigenous Knowledge and Sustainability Practices

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Abstract

Bamboo jewellery has potential as a product that blends local wisdom with sustainable concepts. Its sustainable production method and reusable base material make it an eco-friendly solution. This research explores the economic and social benefits of incorporating sustainability principles into traditional crafts, and how bamboo jewellery can apply local wisdom and traditional values to reduce environmental impact. A qualitative approach was used, including literature review, fieldwork, and experimental prototyping. The research highlights the harmony between environmental conservation, cultural heritage preservation, and innovative fashion products in the creation of bamboo jewellery.

Keywords: Bamboo; Jewellery; Local knowledge; Sustainable principles

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1.0 Introduction

The jewellery industry has the potential to contribute to the preservation of local cultures and to the application of sustainable principles. One reason is that the global community is increasingly aware of the negative impacts of mining for precious metals. In addition, human relocation is associated with large-scale mining. Large tracts of land are under the mining company's control since the mines have transportation corridors. Hundreds, if not thousands, of local residents are usually displaced as a result. Locals are frequently exposed to circumstances that affect their livelihoods, even if they are not compelled to relocate. Soils deteriorate, water quality suffers, and local biodiversity declines. In short, people's means of survival and well-being are jeopardised.

In addition, the impact of globalisation and mass production of jewellery has led to the marginalisation of traditional practices. In reality, the values of ancestral heritage embodied in the creation process, motifs, forms, and symbols of traditional jewellery represent the richness of the community's history, heritage, culture, and identity. From a historical perspective, throughout Southeast Asia, particularly in countries like Indonesia, Thailand, Vietnam, and the Philippines, indigenous communities developed sophisticated techniques for bamboo jewellery making, including methods for splitting, carving, and heat-treating bamboo to create intricate designs that have been passed down through generations (Grunstrom, 2025).

The application of local culture in the jewellery industry is not only part of cultural preservation but also opens up economic opportunities, especially for traditional artisans. Of course, the jewellery products in question highlight local narratives, traditional techniques, and sustainable, environmentally friendly materials. Although the use of modern technology is undeniable, the concept of localisation and the use of ecologically friendly materials can be factors that attract consumer attention. The synergy between the principles of sustainability, preservation of local culture, and environmentally friendly materials is an essential foundation in creating a jewellery industry that is not only visually artistic but also ecologically sound and socially valuable. One of them is bamboo jewellery.

Bamboo jewellery is an example of the integration of local wealth and sustainability principles in a fashion product. Bamboo is not only a versatile plant but also has deep cultural significance in the lives of Indonesians. For a long time, bamboo has been used in various aspects of life, from traditional architecture and household tools to arts such as *angklung* and into the area of fashion products. One of the characteristics of bamboo, which is a local wisdom-based material, is that it is an environmentally friendly natural material. Bamboo is often found near rural areas or along riverbanks and is cheaper than wood. Bamboo has the characteristics of being light, strong, durable, easily split, and flexible (Putro et al., 2014). In addition, bamboo is one of several environmentally friendly materials that are used as solutions in dealing with global warming issues that have an impact on the environment. Another advantage of bamboo is ecological; the life of bamboo resides in its root, and although it cuts the stem, it will continue to grow, so it is a renewable resource (Hernandes, 2017). In its growth, bamboo regenerates without replanting and requires no pesticides. The use of bamboo in jewellery extends this tradition into the realm of modern fashion as a link between past and present contexts.

This research will explore bamboo jewellery as a jewellery product that applies sustainable principles and integrates with indigenous knowledge, highlighting its potential for creative innovation and sustainable economic growth. This study is important for educating relevant parties on the value of maintaining local wisdom as cultural heritage, which can also add value to the jewellery products produced, fostering both environmental responsibility and cultural appreciation across different communities and generations.

2.0 Literature Review

2.1 Indigenous Knowledge

Indigenous knowledge is knowledge related to culture, traditions, beliefs, and values derived from local communities' perspectives (Dewandaru, 2023). Indigenous knowledge is a cumulative body of knowledge, practices, and beliefs about the relationships between living beings (including humans) and their environments, developed through adaptive processes and passed down from generation to generation through cultural transmission (Berkas in Dewandaru, 2023). In relation to the environment, Indigenous Knowledge is passed down through oral traditions, which serve to maintain and strengthen relationships among members of indigenous communities and with the surrounding natural environment (Hilmi et al., 2023). Indigenous knowledge makes a significant contribution to maintaining the sustainability of the relationship between humans, culture, and the environment. Therefore, efforts to understand, preserve, and document Indigenous Knowledge are critical so that this knowledge can continue to be passed on and benefit future generations, as well as serve as a source of inspiration in addressing global challenges (Guntara, 2025).

2.2 Sustainable Practices

Historically, a number of social and environmental problems have prompted a shift toward a more sustainable civilisation, specifically the environmental issue and how production and consumption processes affect the equilibrium. The destruction of natural ecosystems, as a result of the rapid spread of industrialisation, began to be acknowledged in the late 1960s [Vezzoli, 2018]. This period also signalled the start of a more thoughtful examination of the manufacturing and sourcing of materials in the jewellery industry, setting the stage for the current sustainability issues facing the sector.

Jewellery consumers are increasingly aware of the importance of applying sustainable principles to every piece of jewellery they buy and wear. Given that jewellery and fashion are the same, the sustainable principles applied to the jewellery industry are not much different from those applied to fashion products. The principle is the development of an environmentally friendly lifestyle or the protection of nature (Kaikobad in Endrayana and Retnasari, 2021). Customers of jewellery are becoming more conscious of the significance of incorporating sustainable practices into each item they purchase and wear. Since jewellery and fashion are synonymous, it may be argued that the sustainable practices in the jewellery sector are similar to those in fashion. The idea is to create a way of living that protects the environment or conserves nature (Kaikobad dalam Endrayana dan Retnasari, 2021). Leonardo and Amadea (2024) highlight bamboo's ecological and educational potential through installations, while *Bamboo Jewellery: Integrating Indigenous Knowledge and Sustainability Practices* emphasises cultural continuity and sustainable craft at a smaller scale. Together, they position bamboo as a versatile material linking sustainability, heritage, and design across scales.

2.3 The Role of Bamboo in the Jewellery Industry

There are not many bamboo jewellery products on the market. Most of the existing bamboo products are furniture, buildings, and household equipment. Bamboo was chosen as a material for jewellery because it is lightweight, durable, long-lasting, flexible, and eco-friendly (Christianto et al., 2024).

On the other hand, bamboo has significant economic potential. According to data from the Central Bureau of Statistics (BPS), the agriculture and other natural resources sector accounts for about 13% of Indonesia's Gross Domestic Product (GDP). In Indonesia, there are more than 150 types of bamboo that can be utilised for various purposes, ranging from construction and handicrafts to food

raw materials (Sukandar, 2020). By utilising bamboo's economic potential, local communities can create new jobs. The development of bamboo-based small and medium-sized enterprises (SMEs) can help reduce unemployment.

In the jewellery industry, bamboo materials are attracting attention due to growing interest and concern among people for environmentally friendly materials rather than those that harm the environment. This is being addressed by designers and jewellers who are increasingly using biodegradable materials to create jewellery while protecting the planet. Additionally, many businesses around the world are extracting the materials needed to manufacture beautiful jewellery using less-harmful, more environmentally friendly methods. The biodegradable materials utilised are very diverse and include wood, coconut, orange peel, bamboo, and more. Natural oils can be used to treat these basic materials, and reclaimed metals like copper and silver can be used as a complement. They can be used to create a range of objects (Hernandez, 2017).

In addition to its cultivation efficiency, bamboo also demonstrates energy efficiency in its processing into jewellery. Bamboo jewellery manufacturing generally requires less energy than metal or plastic processing, which involves high temperatures and more energy-intensive processing techniques (Baskaran & Palanisamy, 2020). Bamboo can be processed using simple cutting, drying, and colouring techniques that do not require excessive energy or harmful chemicals. Thus, the use of bamboo in jewellery making not only reduces energy consumption during production but also reduces carbon emissions that often result from the use of synthetic materials or metals that require more complex industrial processes. Overall, bamboo offers a more energy-efficient and environmentally friendly solution for the jewellery industry.

3.0 Methodology

The methods used are the cultural studies approach and the interdisciplinary method. Operationally, this approach and method work by placing culture as a form of behaviour, attitudes, ideas, and works of the community as something dynamic, daily, and complex. Therefore, culture cannot be understood from a monodisciplinary perspective (Puspitasari, 2016, p. 58). The theories used are Indigenous Knowledge and Sustainable. Indigenous knowledge theory is used to determine local/traditional ways of understanding, using, and passing on knowledge, especially in bamboo jewellery making. Sustainable theory to assess the extent to which bamboo jewellery contributes to environmental conservation, local community empowerment, and local economic potential.

4.0 Findings

The various bamboo jewellery products available in the market represent a personal, characterful piece of jewellery. According to Hernandez, this is because each bamboo blade is distinctive, reflecting the variety of bamboo culms in terms of colour, shape, and texture. This diversity makes each bamboo product unique and a work of art (Read knowledge, 2016). The advantage of bamboo as a jewellery material lies in its biodegradability in the environment, making it a more sustainable alternative to synthetic plastics or metals. Bamboo is biodegradable because its main component, cellulose, is readily broken down by soil microorganisms (Sulaiman et al., 2020). In addition, bamboo has considerable durability, lightness, and flexibility, allowing it to be processed into aesthetically pleasing and functional jewellery.

The treatment and techniques also influence the personal character of bamboo jewellery during manufacturing. Treatments and techniques for processing bamboo are derived mainly from knowledge passed down by predecessors. For example, the weaving technique is well known to the public. The weaving technique applied to bamboo jewellery, of course, undergoes adjustments when used for smaller jewellery products. In addition to plaiting, another well-known technique for making bamboo jewellery is coiling. Coiling is one of the most common bamboo processing techniques used when making bamboo crafts.

The definition of coiling is the circular coiling of bamboo strips from left to right (Larasati in Christianto, 2024). The coiling technique, also known as quilling, is more commonly applied to paper. The following Figures 1 and 2 show jewellery products that use both methods.



Fig. 1: A set of bamboo jewellery with a weaving technique
(Source: <https://apnakraft.com/bamboo-jewelry-trend-2025>)



Fig. 2: (a) Bamboo necklace and earrings with coiling technique; (b) Bamboo pendants and earrings with coiling technique, experimental work of students

(Source: (a) <https://apnakraft.com/bamboo-jewelry-trend-2025>; (b) Christianito, 2024)








In terms of variants, bamboo jewellery usually takes the form of earrings, necklaces, bangles, rings, and pendants (see Figures 1 and 2). It can also be considered “studio jewellery” because it is produced by artisan jewellers rather than large manufacturers. Bamboo jewellery also uses natural colouring, though the process can take longer and the colour is less intense (Damayanti, 2020). The finishing of bamboo jewellery cannot be separated from the local knowledge that has been carried out for generations, namely by soaking it in river or lake water for a period of 3 to 5 days. Interestingly, the longer the soaking time, the better the bamboo's quality. This soaking also suppresses starch beetles that often attack bamboo, thereby accelerating the weathering process (Hill in Damayanti, 2020).

The second finishing method is soaking in a saltwater solution. The ratio is 400 ml of salt to 600 ml of water, then brought to a boil. After the water boils, the bamboo is inserted and allowed to sit for a full day (Damayanti, 2020). The three aspects above, namely the full involvement of artisans, the use of natural colours, and the finishing applied to the process of making bamboo jewellery, are treatments and processes based on local knowledge that are manifested in bamboo jewellery. The principle of sustainability is implemented through the use of renewable bamboo. By combining traditional techniques with modern aesthetics, bamboo jewellery is created that captivates with its simplicity. Figure 3 below shows a table of natural dye experiments on bamboo strips.

Plant Name	Tawas	Baking Soda
Secang		
Mahoni		
Jambal		
Jolawe		
Tengeran		
Tingi		

Fig. 3: Application of natural dyes on bamboo strips
(Source: Damayanti, 2020)

Table 1. Some examples of bamboo jewellery and the type of bamboo used
(Source: Grunstrom, 2025)

No	Type of bamboo jewellery	Material	Technique	Image
1	Earrings	Wulung	Sawing, laser cutting	
2	Earrings	Apus	Bending	
3	Necklace, earrings	Apus	Cutting	
4	Pendant	Apus	Combination	
5	Necklace, Earrings	Wulung	Bending	
6	Ring	Wulung	Bending	
7	Brooch	Apus	Bending	

5.0 Discussion

The examples of bamboo jewellery products produced by artisans and jewellery makers, as presented in Table 1, have great potential to meet the global community's interest in environmentally sound products. People are increasingly aware of the ecological impact of metal mining, which is the main ingredient in metal jewellery. Due to customer demand for ethically sourced goods, most buyers are concerned about the social and environmental impacts of precious metals, diamonds, gems, and colourful stones. Mining and the

jewellery industry as a whole are under increased pressure today. To encourage responsible consumption that prioritises recycling and reuse, it is crucial to promote behaviours that consume less energy and natural resources (Joyas in Hernandez, 2017).

Unlike metal jewellery, which often irritates, bamboo jewellery is proven to be hypoallergenic and skin-friendly. Bamboo jewellery is non-reactive, naturally antibacterial, and thus suitable for sensitive skin (Backtobasic, 2025). On the one hand, bamboo jewellery encourages designers to be more creative in mixing and matching bamboo, which is organic and in harmony with nature, with the latest styles to attract young audiences. It is interesting to see how an inspirational value can be drawn from a jewellery product. Besides being rich in meaning because it carries local content, bamboo is also flexible, aka easy to adjust to trends, and durable. Bamboo jewellery can also be carved to give a tribal feel. It can also be made as minimalist as possible by emphasising its shape. As mentioned above, most bamboo jewellery products apply natural colour finishing to remain consistent with ecological and sustainable principles. Bamboo materials also work well when paired with eco-friendly materials, such as ceramics, beads, shells, and/or other eco-friendly materials. From an economic and business aspect, the potential of bamboo jewellery is quite astounding. Based on Fashion Revolution and Pinterest Trends, interest in eco jewellery and bamboo accessories has spiked by over 180% in the last year. This proves that bamboo jewellery has the opportunity to excel in various aspects. These aspects range from abundant materials to renewable, non-damaging to the skin, easy to maintain, characterful, and psychologically leading the wearer to see themselves as a person who cares about nature and the environment.

The rise of bamboo jewellery also indirectly revives the sustainable jewellery industry's ecosystem. This is reinforced by the Director General of the Indonesian Ministry of Industry's statement that the industry's market demand in 2025 is expected to increase for sustainable, technology-based, innovative jewellery, as well as intimate and personalised designs. All of this shows a significant gap that jewellers can exploit to expand the market globally and increase competitiveness.

The emphasis on the need for more personalized jewellery underscores the importance of value, philosophy, and symbolic meaning, all of which are derived from local knowledge and wisdom. Local knowledge, as the nation's cultural heritage, should not be taken for granted. Instead, as heirs, we must utilise it wisely and see how bamboo jewellery can represent the nation's cultural wealth. In addition, bamboo jewellery can support traditional craftsmen and drive economic growth in line with sustainable principles. The end product is not only an exquisite adornment but also items that represent a more deliberate approach to personal ornamentation.

6.0 Conclusion and Recommendation

The historical development of bamboo jewellery reflects evolving cultural values and growing awareness of environmental responsibility in personal adornment. Rooted in indigenous craftsmanship, bamboo jewellery has transitioned from locally significant practices to a contemporary design expression that aligns with sustainability and ethical production. This continuity enhances the cultural meaning of bamboo jewellery while contributing to the discourse on sustainable fashion. Bamboo jewellery offers environmental benefits beyond material substitution, including renewability, biodegradability, and low-energy processing. Its adaptability enables diverse stylistic applications, from traditional handcrafted forms to minimalist contemporary designs, appealing to varied aesthetic preferences without enforcing a singular "eco-look." At the same time, bamboo jewellery encourages consumers to reconsider material origins, production processes, and environmental impact.

This research focuses on bamboo jewellery, which offers a compelling array of ecological benefits that extend far beyond mere substitution for conventional materials like plastics or metals. Foremost among these advantages are its exceptional renewability and rapid growth rate, making it a highly sustainable resource. Unlike slow-growing hardwoods, bamboo can be harvested without causing significant ecological disruption, often regrowing quickly in the exact location. Furthermore, bamboo is inherently biodegradable, ensuring that, at the end of its life cycle, the jewellery naturally decomposes, significantly reducing landfill waste and minimising the long-term environmental footprint associated with disposal. The production process for bamboo jewellery is also characterised by low energy consumption, particularly compared to the energy-intensive mining, refining, and manufacturing processes required for metal and plastic jewellery.

From a socio-economic perspective, bamboo jewellery offers opportunities to empower traditional artisans and support local creative industries. However, improving artisans' technical skills, design innovation, and market competitiveness remains a key challenge. Institutional support through training, workshops, and strategic marketing initiatives is therefore essential to strengthen the sustainability and global visibility of bamboo jewellery. Future studies should incorporate quantitative approaches, including consumer surveys and environmental impact assessments, as well as comparative analyses between bamboo and conventional jewellery materials. Research on capacity-building strategies for bamboo artisans and hybrid material innovations is also recommended.

Acknowledgements

The author would like to thank the Faculty of Visual Arts and Design, Indonesia Institute of the Arts (ISI) Yogyakarta, the Australian Indonesian Art Forum, Project 11 Melbourne, and 16 Albermarle Project Space Sydney for providing the opportunity and assisting the author in publishing this article.

Paper Contribution to the Related Field of Study

The paper encourages students in craft and visual arts to connect their work with global environmental issues and to preserve local culture. It offers a practical guide for the jewellery industry on creating economically viable bamboo jewellery, which can also raise public awareness of environmentally conscious consumption.

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