Integrating cultural heritage into product design: a leather handbag inspired by Bajang Ratu Temple

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Abstract. Handbag design serves not only as a fashion accessory but also as a medium for cultural preservation. This paper discusses the design process of a leather handbag inspired by the visual heritage of Bajang Ratu Temple in Mojokerto, a historical site from the Majapahit Kingdom renowned for its architectural and symbolic values. The primary objective of this research is to create a fashion product that integrates traditional aesthetics with contemporary functionality, while also fostering public appreciation of local cultural heritage. The study adopts a creative design methodology, employing data collection through literature review, visual observation, form and ornament analysis, as well as material and production technique exploration. The design outcome demonstrates the integration of distinctive elements of Bajang Ratu Temple, such as the paduraksa gate form and geometric structures, which are transformed into handbag features. The final product takes the form of a prototype that can be further replicated by practitioners in the fashion and leathercraft industries. This research highlights that the integration of product design and local cultural heritage can generate innovative and economically valuable outcomes, while contributing to the preservation of Indonesia's cultural identity.

Keywords: Bajang Ratu, cultural heritage, handbag design, product design

1. Introduction

The fashion industry continues to evolve as one of the most dynamic sectors within the creative economy, emphasizing not only aesthetics and functionality but also its potential to convey cultural values (Brown & Vacca, 2022; Crepax & Liu, 2024). In the Indonesian context, the richness of cultural heritage provides a strong source of inspiration for product design (Gumulya et al., 2023). One of the key challenges in developing local fashion products lies in integrating cultural elements into designs that remain relevant to the needs and preferences of contemporary markets (Raya et al., 2021; Suzianti et al., 2023). For this reason, designers are expected not only to create visually appealing products but also to represent and preserve cultural

identity through their works.

Bajang Ratu Temple in Mojokerto, a significant architectural legacy of the Majapahit Kingdom, holds high historical and artistic value (Anggraini et al., 2023; Basyar et al., 2025). Its distinctive gate structure, ornamental reliefs, and harmonious geometric proportions offer rich visual potential for reinterpretation in product design. Unfortunately, public appreciation of such cultural heritage sites remains relatively low, particularly among younger generations (Bashri & Herliana, 2024; Diaz et al., 2024). A relevant strategy for cultural preservation in today's context is needed to translate the visual values of heritage architecture into functional fashion products that can be integrated into everyday life (Lan & Liu, 2023; Nafi'ah & Ciptandi, 2024).

In response to this challenge, the present study seeks to answer the question: how can a leather handbag design integrate the distinctive visual elements of Bajang Ratu Temple while meeting the functional and aesthetic requirements of contemporary fashion? The primary objective is to create a handbag that balances cultural representation with practical usability, thereby enhancing public appreciation of local heritage. The urgency of this research lies in the development of culture-based product design as a form of innovation within the creative industry, as well as a medium for preserving national identity through applicable design approaches.

This study focuses on the design process of a leather handbag using a culture-based creative methodology. The scope includes the exploration of Bajang Ratu Temple's visual elements, analysis of forms and ornaments, material selection, and prototype development (Hidayahtullah et al., 2025; Wesnina et al., 2024; Putri & Indarti, 2025). The novelty of this research lies in the architectural reinterpretation of Majapahit temple features into a modern leather handbag design, a theme that remains underexplored in contemporary fashion products. The outcome is expected to contribute to the development of local fashion products with cultural and economic value, while

also serving as a reference for creative industry practitioners in designing products rooted in Indonesia's cultural heritage.

2. Methods

2.1. Research Approach

This study employed a Design Thinking approach as the main methodological framework. Design Thinking has been widely recognized as an effective model for product development because it emphasizes cultural and user-centered insights, creativity in ideation, and tangible realization through prototyping (Kwon et al., 2021). The framework consists of three main stages (Figure 1): Inspiration, Ideation, and Implementation (Velu, 2023). This approach was selected as it allows the integration of cultural heritage elements into functional product design while maintaining relevance to contemporary fashion trends.

Figure 1. Research flowchart

2.2. Data Collection

To support the design process, several techniques were applied:

- Literature review: collecting information on the history, architecture, and visual identity of Bajang Ratu Temple, as well as theories of culture-based product design.

- Observation: conducting site visits to Bajang Ratu Temple in Mojokerto to document distinctive structural elements, ornaments, and geometrical compositions.

- Visual analysis: identifying architectural features that could be transformed into product design elements.

- Material and production exploration: investigating suitable leather types, colors, and construction techniques to ensure feasibility and product quality.

2.3. Design Process

Following the Design Thinking framework, the design process was conducted in three main stages:

- Inspiration. Insights were gathered from both cultural and user perspectives. Visual exploration included moodboards constructed from Bajang Ratu's paduraksa gate, ornamental reliefs, and symmetrical proportions. User preferences for contemporary handbags were also considered to ensure design relevance.

- Ideation. Multiple design alternatives were sketched based on the interpretation of Bajang Ratu's visual elements. The alternatives were evaluated against criteria of aesthetic value, functionality, ergonomics, and production feasibility. The most promising concept was then selected for further development.

- Implementation. The chosen concept was translated into a prototype. This stage involved selecting appropriate leather materials and applying construction methods such as hand-stitching, pressing, or embossing. The prototype was crafted manually to emphasize design accuracy and cultural authenticity.

3. Result and Discussion

3.1. Inspiration

The visual translation of Bajang Ratu Temple serves as the primary stage in transforming cultural heritage into a contemporary product design language. The temple, located in Mojokerto, East Java, is one of the remaining architectural legacies of the Majapahit Kingdom, renowned for its monumental gate form and historical significance. The visual references presented in Figure 2 consist of photographs of Bajang Ratu Temple taken from various perspectives, combined with selected visual materials from literature sources. These references were then compiled and synthesized into an Image Board, which serves as a visual foundation for identifying key architectural characteristics and guiding the subsequent stages of the design process.

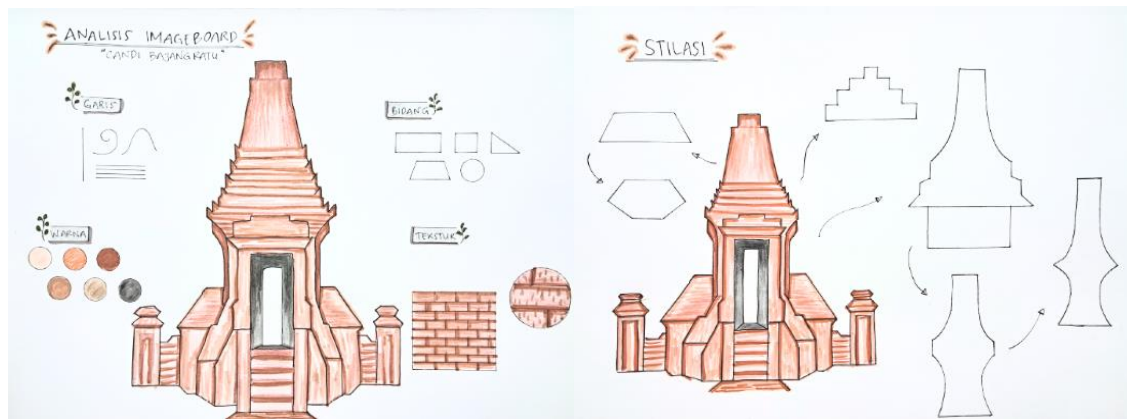Figure 2. Image board of Bajang Ratu Temple

Figure 3. Visual analysis and stylization from the image board

Figure 3 shows the visual analysis and stylization process from the image board. The stylization process was carried out through a series of analytical and interpretative steps to extract the essential visual identity of Bajang Ratu Temple. The initial phase involved identifying dominant architectural features, such as the vertical gate composition, pointed arch openings, and layered roof articulation, which collectively express the monument's visual rhythm and symbolic strength. These elements were then reduced into simpler geometric components through form abstraction, ensuring that the resulting shapes could be effectively integrated into a product scale without losing their cultural recognizability.

Through this translation process, specific visual cues, such as the tapering vertical form of the temple gate and the symmetrical balance of its structure, were reinterpreted into the product's silhouette and detailing. The stylization emphasizes geometric simplification to retain the temple's identity while achieving modern usability and aesthetic harmony. This approach allows the design to maintain a strong cultural reference without replicating traditional forms literally. As a result, the visual translation of Bajang Ratu Temple not only preserves symbolic value but also enables cultural narratives to be embedded meaningfully within a contemporary design framework.

Subsequent exploration focused on line and proportion adjustments, aiming to harmonize the temple's monumental verticality with the ergonomic requirements of a wearable product. The stylized motifs were further refined through iteration sketches and digital visualization, resulting in a balanced composition between cultural symbolism and contemporary aesthetics. The transformation emphasized maintaining the essence of Majapahit's architectural identity, such as stability, order, and symmetry, while presenting it through a minimalist and functional visual form. This systematic stylization ensures that the cultural reference is not merely decorative but becomes an integral part of the design's conceptual framework. In this way, the product not only functions as a utilitarian object but also as a medium of cultural expression, embodying the reinterpretation of Bajang Ratu Temple within a modern design context.

3.2. Ideation

3.3.1 User Persona

The user is a young product designer from Mojokerto, East Java, with a dynamic lifestyle that requires practicality and versatility in daily accessories. The user is a young product designer, aged 22–27, originating from Mojokerto, East Java, and currently living in a fast-paced urban environment that demands practicality, efficiency, and flexibility in everyday accessories. With a daily routine that involves moving frequently between campus, freelance design work, and various social or community activities, the user prefers using a sling bag for convenience but often struggles to carry multiple essential items, revealing a clear need for a more adaptable, organized, and multifunctional solution.

Culturally rooted and creatively driven, the user has a strong appreciation for local heritage, especially the legacy of the Majapahit Kingdom and the architectural symbolism of Bajang Ratu

Temple. The temple is viewed not only as a historical landmark but also as a meaningful representation of local identity, which the user hopes to reinterpret through contemporary design.

The envisioned product is a multifunctional bag suitable for both formal and informal settings, offering adjustable capacity inspired by suitcase-style expansion systems to maximize practicality while maintaining a refined aesthetic. The design aims to harmonize cultural expression, modern functionality, and visual elegance, addressing a market gap between rigid formal accessories and overly traditional ethnic products. Through this integration, the product aspires to promote Majapahit cultural values while meeting the user's lifestyle needs for adaptability, mobility, and style.
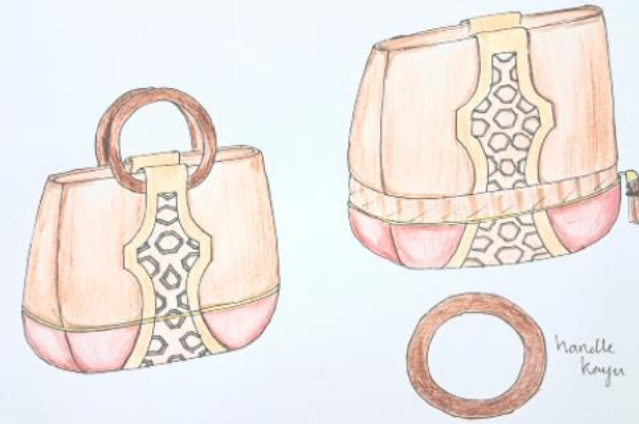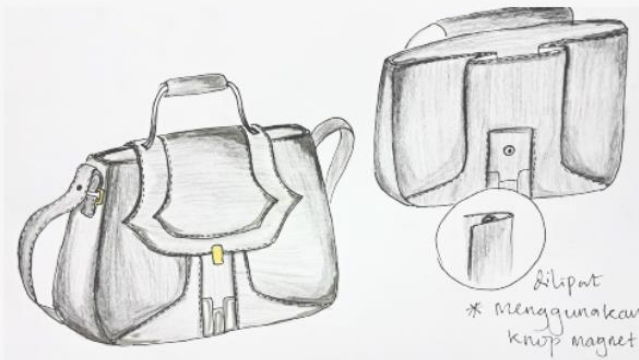
3.3.2 Product Sketches

At the initial stage of the design development process, a brainstorming session was conducted to generate a wide range of design alternatives. This exploratory phase resulted in thirty (30) preliminary sketches, each representing different approaches to form, proportion, and functional innovation inspired by the visual characteristics of Bajang Ratu Temple. From these initial ideas, three (3) representative sketches were selected for further refinement and evaluation. The selection process was guided by four main criteria: design aesthetics (A1), feature innovation (A2), alignment with the Bajang Ratu Temple imagery (A3), and relevance to the user persona identified in the earlier stage (A4).

To ensure objectivity, each sketch was assessed using a Likert scale (1–5), allowing evaluators to rate the degree to which each concept met the established criteria. As shown in Table 1, based on the assessment results, Design Sketch 2 achieved the highest overall score. The scoring results are as follows: Design 1 obtained a total score of 16; Design 2 received 18; while Design 3 achieved 14. Based on these results, Design 2 consistently demonstrated superior performance,

particularly in the aspects of feature innovation and cultural alignment, each achieving the maximum score of 5.

Table 1. The election of the proposed design

Name	Design	A1	A2	A3	A4	Total Skor
D1		4	3	5	4	16
D2		4	5	5	4	18
D3		3	4	3	4	14

This outcome indicates that Design 2 successfully integrates the symbolic visual elements of Bajang Ratu Temple with a higher level of functional creativity, resulting in a concept that is both

culturally grounded and adaptable to user needs. Meanwhile, Design 1 showed strength in aesthetic appeal and cultural representation but lacked innovation in features. Design 3, although maintaining a good level of ergonomic consideration, displayed weaker alignment with the intended cultural and stylistic attributes. Therefore, Design 2 was selected as the final concept for prototype development, as it most effectively reflects the design objectives of aesthetic balance, cultural identity, and functional versatility. and was therefore selected for further development and prototype implementation. This selection represents a synthesis of cultural interpretation, functional practicality, and user-centered design considerations that underpin the next stage of product realization.

3.3. Implementation

The implementation stage began with the pattern-making process, as we can see in Figure 4, which served as the foundation for translating the selected design sketch into a three-dimensional prototype. In this phase, each structural component of the bag was carefully analyzed and developed into precise cutting patterns to ensure dimensional accuracy and proportional consistency. A total of six pattern components were created, representing the major parts required for product assembly, including the main body, flap, side panels, base, strap, and internal compartments.

The prepared patterns were then applied to the chosen materials, cow leather as the primary exterior material and lurik fabric as the inner lining. The selection of cow leather was based on its durability, texture quality, and ability to convey a formal and refined aesthetic, while the use of traditional lurik fabric added a cultural and textural contrast that reinforces the local identity of the design. The combination of these materials not only enhances the product's structural integrity but

also aligns with the project's conceptual emphasis on cultural reinterpretation through material expression.
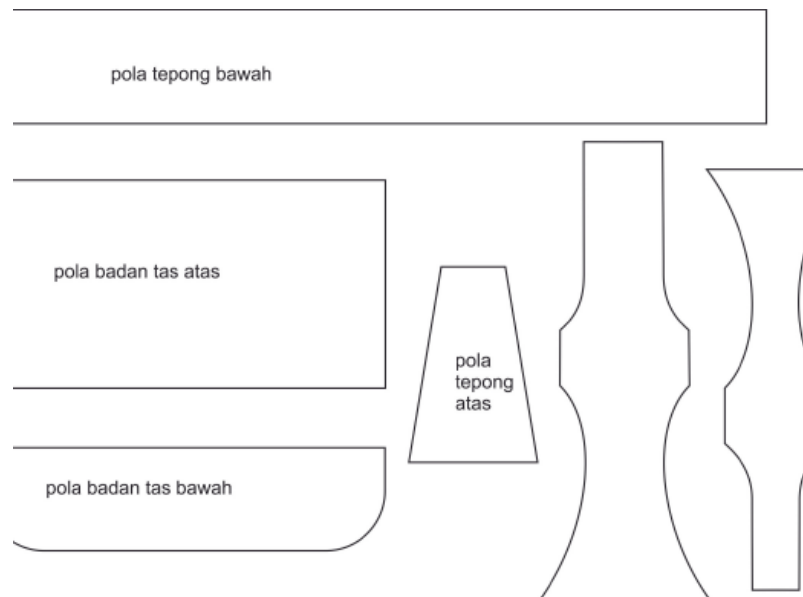

Figure 4. Pattern making of the product

The next stage involved the prototype fabrication using the actual materials selected in the previous process. The final product, referred to as the Bajang Bag, integrates both cultural and technological dimensions through thoughtful detailing and innovative features. One of the distinctive visual elements is the brick-pattern accent positioned on the front panel of the bag. This motif was produced using a laser engraving technique on cow leather, representing the red-brick texture characteristic of Bajang Ratu Temple. The application of this engraving process demonstrates the integration of Industry 4.0 technology in craft-based product development, enabling higher precision, repeatability, and scalability for potential mass production.

In addition to its visual features, the Bajang Bag incorporates a functional innovation in the form of an expandable vertical compartment located in the main body of the bag. This component can be activated by unzipping the concealed zipper at the lower section, allowing the internal capacity to increase vertically when additional space is needed. When this feature is extended, the

opening reveals the lurik fabric lining, reinforcing the product's cultural narrative and highlighting the fusion between modern practicality and local craftsmanship. This combination of aesthetic symbolism, technological enhancement, and cultural expression embodies the design's core vision: a contemporary product that preserves tradition while embracing modern production possibilities.

Figure 5. Product prototype

The completed prototype of the Bajang Bag (Figure 5) successfully demonstrates the intended balance between functionality, aesthetics, and cultural representation. The completed prototype of the Bajang Bag effectively demonstrates the intended balance of functionality, aesthetics, and cultural representation. In line with user-centered design best practices, we conducted semi-structured interviews, and one participant noted, *"the engraving gives me a clear connection to my heritage, but the expanding compartment is what really makes it usable for my everyday load."* Similar qualitative evaluations have been employed in peer-reviewed design studies: for instance, the review of a mobile health app included interviews with five users (aged 24–35), whose

feedback directly informed the iterative design of the prototype. Overall, these interview insights and usability observations validate the feasibility of combining cultural reinterpretation, user-centered innovation, and modern production techniques within a single, cohesive product concept.

4. Conclusions

The Bajang Bag embodies a design concept that bridges cultural heritage and modern functionality, positioning it as a potential souvenir product that promotes the local wisdom of Bajang Ratu Temple in Mojokerto. By translating the temple's visual identity into a contemporary product form, this design contributes to cultural storytelling through practical and aesthetic means. The combination of modern styling, functional versatility, and advanced production techniques, such as laser engraving, demonstrates how traditional narratives can be revitalized within current design practices. Beyond its role as a functional accessory, the Bajang Bag holds the potential to become a cultural ambassador product, introducing the heritage of the Majapahit Kingdom to a broader audience through everyday use. The inclusion of lurik fabric as a lining element reinforces its local identity, while the expandable compartment system adds a layer of innovation that enhances usability. These attributes make the Bajang Bag not only a modern reinterpretation of traditional culture, but also a marketable souvenir item that aligns with the development of creative industries focused on cultural sustainability. In this sense, the product serves as both a symbol of regional pride and an example of design innovation rooted in Indonesian heritage.

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