

THE USE OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN DESIGNING WAYANG BEBER MOTIFS

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Abstract: Wayang beber is the art of puppetry in the form of sheets. Wayang beber has a high value because of its uniqueness and contains moral teachings. Designing wayang beber motifs is an interesting and potential innovation to preserve and develop traditional Indonesian art. The use of Artificial Intelligence (AI) technology in the fashion industry is used to increase productivity. The methods used in this research are qualitative methods and fashion design research methods. This research examines two objectives, namely 1) creating innovative and interesting motif design variations; 2) reducing time and effort in motif design. The stages used in the creation of motifs are brainstorming, making motifs, and applying motifs to fabrics and analysis. The utilization of AI in designing motif designs opens the opportunity to maintain traditional art while encouraging creativity and innovation. It facilitates the creation of unique and culturally appropriate artworks, and enables collaboration between traditional elements and modern technology. This research shows that AI helps increase the effectiveness of the brainstorming process without compromising the values of creativity and originality.

Keywords: Motif Design, Wayang Beber, Artificial Intelligence; Brainstorming

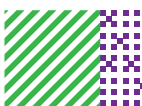


Introduction

Wayang Beber is one of the oldest Javanese traditional arts in Indonesia, using cloth scrolls as a medium to convey stories. *Wayang Beber* is different from *wayang kulit* and *wayang golek*, as it uses the medium of cloth or leather scrolls. *Wayang Beber* consists of three main styles: Pacitan, Wonosari, and contemporary. *Wayang Beber* of Pacitan and Wonosari tell *Panji* stories, a special tale originating from Java. On the other hand, contemporary *Wayang Beber* is more about the social life of today's society, with more diverse and modern characters compared to traditional *Panji* stories. Unfortunately, the existence of *Wayang Beber* is declining, and there are fewer and fewer artists who are proficient in this art.

Technological development, especially artificial intelligence (AI), presents new opportunities to digitize and develop this traditional art. AI, which is a system designed to understand, process, and use external data effectively, allows the design process of *Wayang Beber* motifs to be faster and more efficient, while maintaining its traditional authenticity and beauty (Goralski et al, 2020). Through algorithm such as machine learning, new motifs can be created based on old motif patterns, providing variety without losing cultural roots. While AI is highly beneficial for industries to improve performance; the role of humans remains crucial. This concept is known as human-centred AI, which prioritizes human aspirations, participation, and rights in AI design. Advanced technologies such as AI are proving to be useful in areas such as education, industry, tourism, and healthcare (Guillermo et al, 2020). But the success of AI remains highly dependent on collaboration with humans, keeping human participation at the centre of this technology's development.

Creative industries are fields that rely on individual creativity, skills and talents to create wealth and employment. The use of Artificial Intelligence (AI) technology is now an effective strategy to revive traditional arts and give new dimensions to art practices, such as introducing *wayang beber* to a wider and more diverse audience. One popular application of AI is in industry, where AI supports work



through robots and smart devices. (Abdi Chistia et al, 2024). AI also plays a supporting role in the early stages of idea exploration or brainstorming, but the responsibility of design development and implementation remains with the creator. With AI support, *wayang beber* motifs inspired by traditional Javanese wedding stories can be designed, contributing to the development of modern *wayang beber*.

The results of AI work and prompt instructions will be related to the level of aesthetic understanding and visual creativity of its users. Visual creativity is the ability to produce new, original, and interesting works of art or design, which can be expressed through various media such as painting, sculpture, graphic design, photography, and film. Several theories try to explain visual creativity, one of which is Guilford's (1950) theory, which discusses the structure of a person's intelligence that affects creativity. Guilford explains intelligence as a person's ability to respond to current situations, based on past experiences, and anticipates future events (Guillermo et al, 2020).

Innovation is defined as a new solution to a problem to make it more sustainable, effective, and efficient (Granstrand et al, 2020), or as a pre-existing solution but with added value. Innovation is also often associated with the involvement of various parties in dealing with social change, including in the 5.0 era (Singh et al, 2020). Therefore, innovation is essential in a society that continues to evolve towards progress. The definition of innovation continues to evolve, following the spirit of the times (*zeitgeist*), especially in the current 5.0 society (Fukuda, 2020).

The result of this research is a *wayang beber* motif design that can be used for formal occasions. This exploration facilitates the creation of unique and culturally appropriate artworks, and enables collaboration between traditional elements and modern technology. The stages used in the creation of motifs are brainstorming, making motifs, applying motifs to fabrics and analysis. This research shows that AI helps increase the effectiveness of the brainstorming process without compromising the values of creativity and originality (Putra et al, 2022). Artificial intelligence technology can assist artists in presenting new ideas while maintaining traditional values. AI technology not only facilitates the creative process, but also has the potential to document and preserve motifs that are increasingly rare, so that *Wayang Beber* remains relevant and can be enjoyed by future generations.

Research Method

2. Qualitative With Case Study





The method used in this research is a qualitative method with a case study (Hancock, D. and Algozzine, 2014). This case study was chosen so that the creation of motif designs focused more on *wayang beber*, the story raised about the traditional process of *panggih temanten*. The process of making motifs, previously conducted a literature study to obtain information about the outline of *wayang beber* and the *panggih temanten* traditional ceremony. *Wayang beber* is usually in the form of sheets, which are then explored into motifs for clothing. The contemporary *wayang beber* style was chosen to match the imagination of the creator. The type of contemporary *wayang beber* is then examined further about the visual appearance or physical appearance that will be made into a *wayang beber* motif that tells the story of *panggih temanten*.

2. Fashion Design Research

Fashion is part of the world of design, which is close to the elements of problems in design and the demands of needs and problem solving in consumer society, such as economic, political, socio-cultural, technological, artistic, environmental factors, and others. Research in fashion design is divided into two types, namely primary research and secondary research. Primary research covers the new and specific process of creating batik motif designs, from brainstorming, sketching, colour selection, fabric type determination, to finished garments. This primary research is supported by secondary research, which gathers information from pre-existing sources (Ezinma Mbonu, 2014). The motifs created are expected to become unique and sustainable icons. Both methods were used to strengthen the experience and perspective of traditional actors in the *temu manten* ceremony. The resulting design must be innovative, authentic and meaningful.

Discussion and Results

Contemporary puppetry is a developmental form of classical puppetry, which emerged from artists' ideas to maintain public interest in puppetry. In addition to a wider variety of characters, the storyline has also changed. While classical **wayang** usually features the Mahabharata and Ramayana stories, contemporary *wayang* deals more with the themes of modern life. In every performance, contemporary *wayang* has an important function in responding to and criticizing the current conditions of society, such as in the fields of politics, government, economy, development, and socio-culture (Tabrani, 2018:173).

Contemporary art itself was born from the development of traditional art influenced by modernization. The term "contemporary" refers to an attempt to connect the past with meaning in the present, as well as reflecting those values for the future (Sujarno, 2003). This type of *wayang* forms a popular character





Figure 1. Examples of Contemporary Wayang Beber

that reflects criticism of the state of society in the areas of politics, government, economics, development and socio-culture. Thus, contemporary *wayang* is an attempt to preserve *Wayang Beber* and has the potential to be more popular because it is closer to the lives of modern people. *Wayang Beber* Contemporary was initiated by Dani Iswardana in 2005.

The oldest *Wayang Beber* has pictures that tell Panji stories. The oldest Pacitan version of *Wayang Beber* is titled “Joko Kembang Kuning,” while the Wonosari version is titled “Remeng Mangunjoyo.” In the manufacturing process, *Wayang Beber* uses the *sungging* colouring technique (Muhammad et al, 2018). In contemporary *Wayang Beber*, the stories presented are closer to everyday life. Contemporary *Wayang Beber* emerged as an artist’s response to maintain the public’s interest in wayang performances, with the main difference being the stories presented. While Classical *Wayang Beber* tells stories from the *Ramayana* and *Mahabharata*, Contemporary *Wayang Beber* is more flexible in its story topics and in accordance with the social circumstances of the community.



Figure 2. Wayang Beber Pacitan



Figure 3. Wayang Beber Wonosari Version



Figure 4. Panggih Manten "Wiji Dadi" Procession"

The *temu manten* tradition is one of the traditions practiced by people in Central Java and Yogyakarta. This tradition is held when someone wants to marry off his or her child. Javanese traditional marriage includes various rituals, including the *panggih* or *temu manten* ceremony, which is a meeting between the bride and groom at the bride's residence. The *Temu Manten* tradition has deep spiritual meaning and value. In Javanese culture, the marriage ceremony is considered important because its main purpose is the formation of a new, independent family. In addition, marriage is also interpreted as a means of strengthening kinship and a symbol of the unity of husband and wife. From the point of view of human culture, marriage plays a role in regulating human biological needs. Various ways are done by the Javanese community to reflect the values of life in the marriage ceremony, including through the symbol of *sindur* cloth in the wedding party.

According to Geertz (1992:11), the *panggih* tradition and ceremony symbolizes the first meeting between the bride and groom who are each in a state of purity and legitimacy as husband and wife. The word "*panggih*" is taken from a ritual that is part of the cultural values that have become guidelines for the community in dealing with various life problems. These traditions and rituals can function



as a public guide if the symbols, both physical and in the form of actions, are interpreted deeply in a social context. In this case, cultural interpretation is one of the theories and methods used to reveal and show the meaning behind the symbols that are the object (Faiz, 2003:20).

According to (Tilaar, 2004:191) humans are called active beings in the transmission of culture because of creativity, innovation, enculturation, and acculturation. The ability of human creativity and activity is part of the educational process, so it can be concluded that education and culture are interrelated with each other. The lack of public appreciation of traditional rituals makes this research interesting to rise in order to preserve culture through fashion collaboration with AI.

The stages in making motifs with AI are as follows:

1. Brainstorming Process

This process is carried out to determine the research boundaries. This step includes determining the theme to be created and then analysing it. The chosen *wayang beber* motif is about the *panggih temanten* custom that involves several ritual ceremonies. The meanings of the Javanese traditional wedding rituals include: 1) Throwing betel nut: teaches respect and responsibility in the household, 2) Washing the feet: symbolizes honesty, 3) *Injak telur*: symbol of hope and loyalty, 4) *Sikepan sindur*: reflects a strong and inseparable love rope, 5) *Pangkuan*: sharing love fairly, 6) *Kacar-kucur*: symbol of prosperity in the household, 7) *Dulang-dulangan*: depicts help and harmony, and 8) *Sungkeman*: a form of respect for parents or elders.

2. *Wayang Beber* Motif Making Process

At this stage, the motif to be created has been determined, namely the *wayang beber* motif with the theme of the *panggih temanten* story. The next step is to create the motif using the Playground.com software available online. Playground.com is a tool that combines AI with art, providing new insights into possible visual creations. The process begins by entering keywords or descriptions of the desired motif into a text prompt. After that, the desired illustration style is selected. The AI technology will then generate an image of the *wayang beber* motif online in just seconds. If required, selecting other options can change the illustration style. The prompts entered can be simple descriptions or more complex sentences that include details about the visual style, composition, or subject of the image. The results generated by the AI are analysed and modified to generate *wayang beber* motifs with the theme of *panggih temanten*, using previously collected and studied *wayang beber* images.

Here are some tips on how to get the best AI images:

- a. "Specific in Description", the more detailed the description, the better the AI can capture the desired vision, according to the atmosphere, colour, theme, and main elements.
- b. "Composition", specifying a preference, either for an elegant minimalist look or rich and detailed visuals, will help the AI in creating the desired composition.
- c. "Readjustment", if the initial result is not suitable, makes adjustments and requests a readjustment. Experimenting with variations of descriptions can fine-tune the image to your liking.

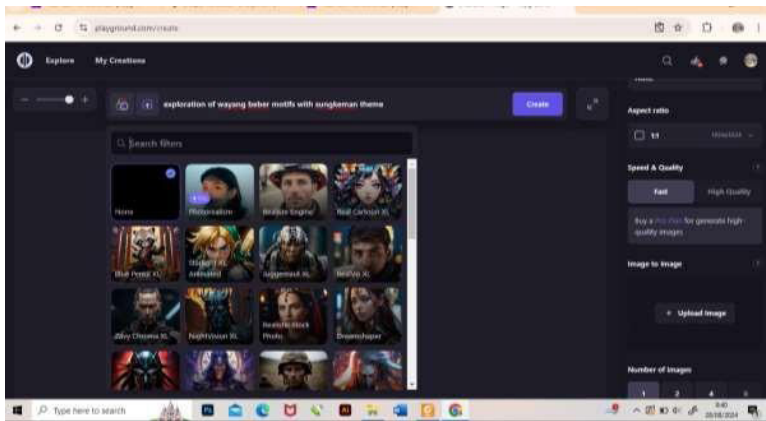


Figure 5. Attribute Setting Process

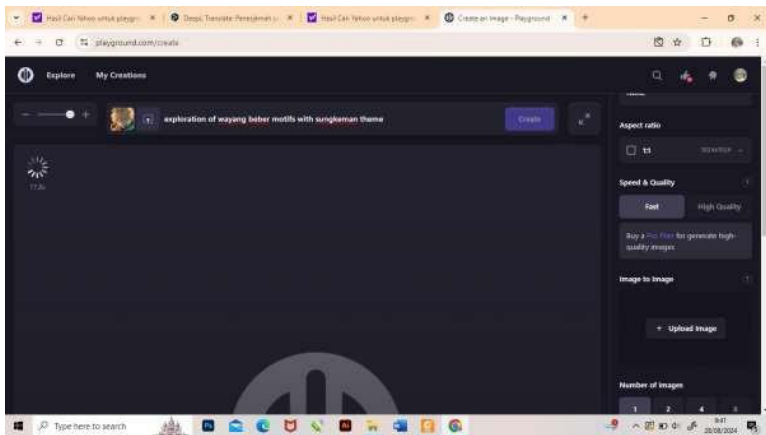


Figure 6. Playground.com Motif Making Process

3. Application of Motifs to Fabric

The next step is to make an overall panel according to the size of the fabric. This panel is made to adjust the fabric edge decoration. The motif that has

been made is then made a layout by arranging the motif design that has been made according to the wishes of the pattern made. After the process of making fabric motifs, the process of simulating the application of fabric to clothing is carried out. The combination of colours creates a visual harmony that can be balanced, awake, and elegant.

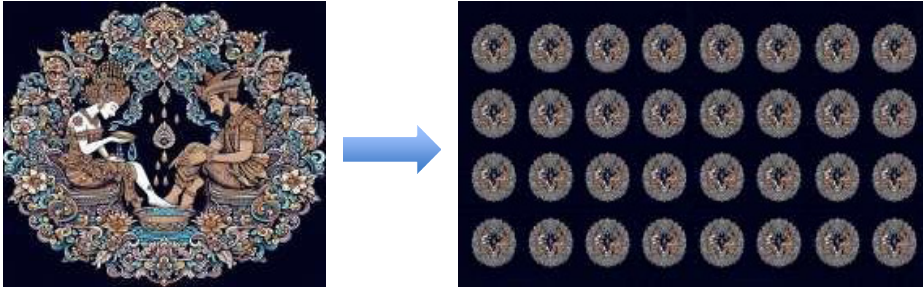


Figure 7. Egg Stepping Ceremony, Wiji Dadi, Wijikan or Ranupada

Style: Pastel Dream

Text Prompt: The exploration of the *wayang beber* motif design tells the story of the procession of washing the feet of the groom and bride in Javanese wedding customs **Description:** This procession depicts an illustration after which a chicken egg is broken at the groom's feet and the bride washes the groom's feet with clean water. This washing reflects the wife's devotion to her husband for a happy and harmonious household characters don't look alike

Style: Retro Dreamscape

Text Prompt: The exploration of the *wayang beber* motif design tells the story of the procession escorting the groom to meet the bride in Javanese wedding customs

Description: In this procession the bride and groom stand side by side and join hands while linking little fingers, the woman on the left and the man on the right. The bride and groom then walk together to the aisle.

Style: Pastel Dreams

Text Prompt: Exploration of *wayang beber* motif design tells the story of a bride who is feeding the groom in Javanese bridal customs

Description: The groom makes three fists of yellow rice and places them on a plate held by the bride. And witnessed by the groom, the bride eats one by one the fist of rice. Then the groom gives the bride a glass of water. This procession illustrates the harmony of husband and wife will bring happiness in the family.

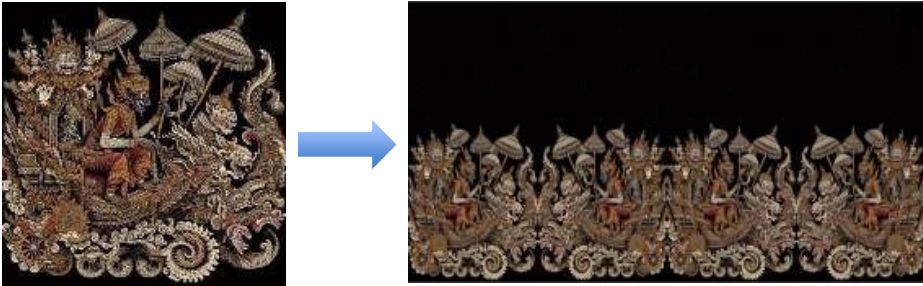


Figure 10. Procession Feeding the Groom

Style: Pure Visualization

Text Prompt: Exploration of *wayang beber* motif design tells the story of a bride who is feeding the groom in Javanese bridal customs

Description: At this stage the mother of the bride wraps the arms of the bride and groom in *sindur* cloth. After that the bride and groom walk slowly to the bridal seat, followed by the parents.

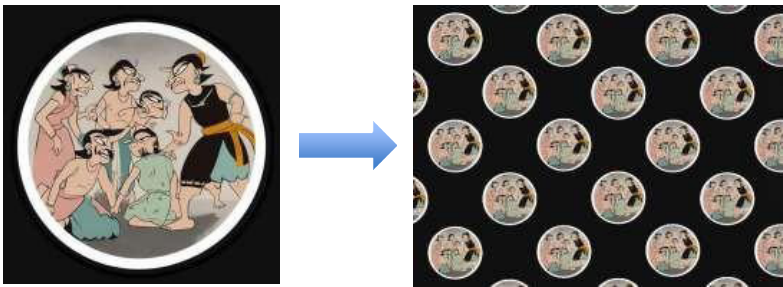


Figure 11. Procession Of Javanese Bride and Groom Walking Down the Aisle

Style: Retro Charm.

Text Prompt: *Wayang beber* motif design tells the story of the procession of Javanese bride and groom walking down the aisle

Description: The ceremony is performed from opposite directions, about two meters apart. The groom throws the *gantol* at the bride's forehead, chest and knees. The bride then throws the *gantol* at the groom's chest and knees. This ritual aims to throw affection on each other.



Figure 12. Kanthen Asto Hand in Hand Ceremony



Style: Pure Visualization

Text Prompt: Exploration of *wayang beber* motif design tells the story of the bride's father is holding the bride on his lap with the groom accompanying him

Description: The next stage in the Javanese wedding procession is the *kanthen asta*. In this stage, the bride and groom stand side by side and hold hands with intertwined little fingers of the bride on the left side and the groom on the right side. Together, they then walk towards the aisle.

Mockup



Figure 13. Results Mockup

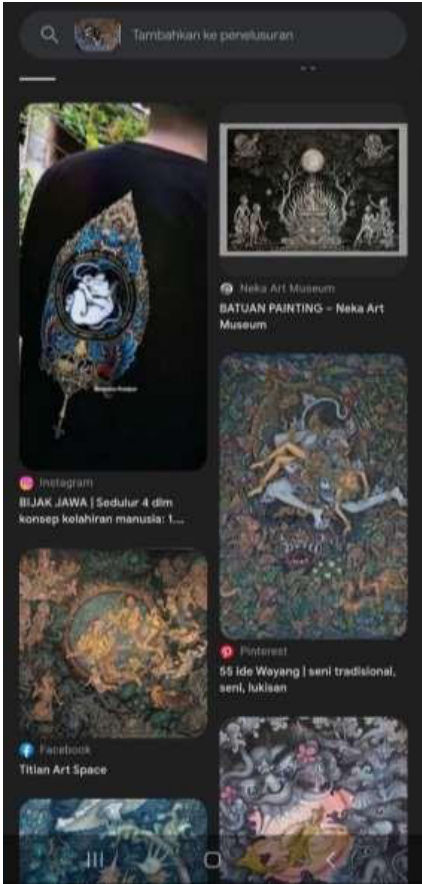

This fashion design is a women's *kebaya* suit, with a front skirt split. The menswear design is an asymmetrical suit combined with plain fabric. The colour chosen is a combination of milk chocolate and navy blue. The motif on the outfit tells the story of the *wiji dadi* procession, *mbasuh sukerta* (washing the feet). This traditional procession reflects the wife's devotion to her husband for a happy and harmonious household. Making this design using software CorelDraw.

4. Analysis

Based on this, there is no design that is the same as the initial and final motif design results. This shows that the motifs produced by *artificial intelligence* are original. The final process in this research is the analysis process with validation. The validation process is carried out to evaluate the motifs created to ensure the originality of the resulting motifs. The validation process was carried out using Google Lens. The Google facility allows researchers to validate the results of artificial images. The validation process is carried out on

small size and large size motif images to ensure precise results.

Table 1. Motive Analysis

Analysis	
Small Size	Large Size
	

Conclusion

Efforts to preserve and develop culture in society can be done through the exploration of motif creation applied in fashion. Exploration is an alternative means to develop motifs to be more diverse. One example is the *wayang beber* motif with the theme *temu manten*, which aims to introduce and preserve the traditional Javanese wedding ritual. It also serves to increase public awareness that every ritual contains moral values in every stage. This research focuses on the creation of *wayang beber* ornamental motifs by utilizing artificial intelligence



(AI) technology through several stages, namely brainstorming, motif creation, application to fabric, and analysis. The brainstorming process is used to determine the research topic. Motif creation was done with playground.com software using text prompts. The motifs created were analysed and described the moral values in each procession performed. Furthermore, the motifs that have been made are developed and applied to *kebaya* suits and suits using CorelDraw software. The application of ornamental motifs to the fabric is done in accordance with the existing design aspects, so that the resulting products can be produced in large quantities using the batik cap or printing technique. Both methods allow for efficient workmanship and are capable of producing many *wayang beber*-patterned fabrics in a short period of time. The existence of AI is a means of collaboration to produce unique motif designs.



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