



Introduction to Wayang through the Design of the Pandawa Lima Characters in the Metabharata Game

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Abstract

The declining interest of young generations in wayang art highlights the need for new media capable of bridging traditional cultural values with contemporary visual trends. This study aims to redesign the Pandawa Lima characters in the Metabharata game using a semi-cartoon–semi-realist visual approach as a medium for introducing wayang culture to young audiences. The research employs a descriptive qualitative method with visual design stages that include reference collection, sketching, coloring, digital rendering, and revisions based on feedback from cultural experts and teenage audiences. Primary data were obtained through semi-structured interviews with two audience groups general teenagers and design students while secondary data were derived from literature and visual references related to wayang. The results show that the redesigned Pandawa Lima characters successfully combine Javanese cultural values with a modern visual style that appeals to younger audiences. Validation by cultural experts ensured accuracy in relation to wayang conventions, while audience feedback reinforced the visual relevance within the digital media context. The implementation of the designs into 2D in-game assets demonstrates that integrating local culture through game media can serve as an effective strategy for preserving and reintroducing wayang values in the digital era.

Keywords: Character design, Wayang, Digital game, Cultural preservation, Pandawa Lima

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1. Introduction

The younger generation's interest and understanding of the art of wayang has significantly declined. Modern society tends to have less understanding of wayang stories and shows a decline in interest in traditional wayang performance [1]. Wayang performances are becoming increasingly rare in the modern era, causing the younger generation to have difficulty recognizing wayang characters and stories [2].

This low interest is reflected in the 2024 Socio-Cultural Statistics data, which shows that the level of participation of the younger generation in arts and cultural activities is still very low, namely 6.61% of children aged 5 - 17 years, 6.80% of the school age group 7 - 18 years, and 7.36% of youth aged 16 - 30 years which is much lower than the elderly group aged > 60 which reached 10.89% [3]. Indicates a gap in cultural participation between generations and a weak appreciation of traditional cultural heritage among the younger generation, including Javanese wayang art and the Pandawa Lima figures.

Wayang is one of Indonesia's cultural heritages that has been recognized by UNESCO as a world intangible cultural heritage. Factors contributing to the low interest of the younger generation in wayang performances include complex storylines, long performance duration, and the use of regional languages that are difficult to understand [4]. On the other hand, technological advances have encouraged the emergence of various digital educational media that are more interactive and engaging, one of which is games [5]. This media has great potential in conveying cultural values through a visual approach and an engaging gaming experience [6].

Adapting local culture to digital media has proven effective in introducing traditional values to the younger generation [7]. One such adaptation is the development of Metabharata, a 2D Android-based game designed to preserve Javanese wayang art through digital interaction. The game was developed utilizing digital technology, structured software development methods, and elements of local arts and culture as a means of revitalizing Indonesian cultural heritage [8]. Through a simple visual approach and

accessible gameplay, *Metabharata* serves as a relevant educational tool for the younger generation. The use of digital technology in this context opens up strategic opportunities for preserving traditions by transforming cultural values into more accessible interactive content [9].

Local value-based design plays a crucial role as a cultural communication medium that bridges traditions with young audiences [10]. In this context, the Pandawa Lima characters have representative potential because each character embodies symbols of moral values such as honesty, responsibility, loyalty, and courage, which are relevant as the basis for developing educational digital characters [11]. The strong visual and philosophical identity of each character makes the Pandawa Lima a potential cultural asset to be adapted in contemporary digital media as a strategy for introducing culture that is more engaging and accessible to the younger generation.

Although several previous studies have developed wayang-themed games, most have focused on gameplay and have not yet developed visual characters representative of local cultural values. Therefore, it is necessary to design the Pandawa Lima characters with a semi-cartoon-semi-realistic visual style that can bridge cultural values with the visual tastes of the younger generation. The semi-realistic visual style is considered popular among teenagers and is effective in bridging traditional characters and contemporary aesthetics [12]. Through this design, the *Metabharata* game is expected to become an effective medium for preserving local culture and increasing the involvement of the younger generation in the art of wayang. Therefore, this study aims to design the Pandawa Lima characters in the *Metabharata* game using a semi-cartoon-semi-realistic visual approach as a medium for introducing wayang culture to the younger generation.

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Methods

A qualitative descriptive approach was used in this study to explore the symbolic meaning of cultural objects and translate them into communicative visual forms. This method allows researchers to deeply understand the values embodied in wayang culture, then adapt them into character designs relevant to the modern context. This approach was chosen because it

aligns with the primary objective of the study, namely designing the Pandawa Lima characters in the *Metabharata* game as a medium for introducing wayang culture to the younger generation.

The research focused on data collection, visual reference analysis, and the application of these results to communicative and aesthetically appealing character designs.

The data in this study were obtained from two sources primary and secondary. Primary data were collected through semi-structured interviews containing five main questions based on the 5W+1H approach. They involved a total of 10 respondents, evenly divided into two audience groups: general adolescents and design students. These interviews aimed to determine their perceptions of the visual appearance of the Pandawa Lima characters, their aesthetic appeal, and the extent to which the designs convey Javanese cultural values visually. Meanwhile, secondary data were obtained from various literature sources, including books, journals, online articles, and visual documentation discussing wayang and character design principles. All of this data served as a conceptual foundation for the character design process.

The design process was carried out in stages, starting with collecting visual references from traditional wayang iconography, Javanese cultural colors and ornaments, and modern game illustration styles. The results of this reference collection served as the basis for creating initial character sketches, which focused on determining the anatomical proportions, body shape, and silhouette of each character to ensure they remained proportional yet had the characteristics of wayang. After that, basic colors and attributes were given to suit the characteristics and philosophy of each Pandawa Lima. The process continued with a digital rendering stage to add lighting, shadows, and texture details, thus presenting a semi-cartoon-semi-realistic impression that is the main characteristic of this research's visual style.

Throughout the design process, visual revisions and refinements were conducted based on input from cultural experts and responses from the youth audience. Feedback from cultural experts was crucial for maintaining the accuracy of wayang traditions, particularly regarding the characters' clothing, attributes, and skin tones. Meanwhile, input from the youth group was used to ensure that the resulting design remained relevant to the younger generation's visual preferences and aesthetically appealing.

Data analysis was conducted qualitatively by interpreting interview results using the 5W+1H approach (Who, What, When, Where, Why, and How). This approach helped researchers understand how audiences interpret character designs, from who the most engaging characters are, what visual impressions

they capture, to how they perceive the cultural values conveyed through the characters' appearances. The results of this analysis were then used as a basis for evaluation to refine character designs to maintain a balance between cultural accuracy and visual appeal appropriate to the context of modern games.

3. Results and Discussions

3.1 Data Identification

The data identification stage began with the collection of various visual references for traditional wayang as the primary reference for designing the Pandawa Lima characters. The Pandawa Lima are the main characters in the Mahabharata story, as adapted into Javanese wayang, and play a crucial role as symbols of goodness, loyalty, and courage. Each member of the Pandawa Lima has distinct physical characteristics, weapons, and traits, making them easily recognizable and rich in philosophical values. Each character in the Pandawa Lima also reflects moral traits such as wisdom, courage, honesty, loyalty, and intelligence, which are relevant for inspiration in designing educational characters.

Each Pandawa Lima character is designed based on literary sources and visual interpretations of their philosophical traits, as follows:

1. Yudhistira (Puntadewa)

Yudhistira is known as a figure full of wisdom and moral virtue. Yudhistira is depicted as gentle, polite, humble, honest, and forgiving [13]. Yudhistira has a firm stance, high morals, and a humble attitude, and is able to demonstrate tolerance and justice towards others [14]. Yudhistira is thinner than the other characters and possesses the power of an amulet. "This amulet is known as Klimo Sodo (Syahatain) 'Laailahailallah Muhammadarrasulullah'" [15].

Yudhistira is known as a figure full of wisdom and moral virtue. Yudhistira is depicted as gentle, polite, humble, honest, and forgiving. echoes this sentiment, emphasizing Yudhistira's unrivaled nature, his unwavering commitment to truth, his noble character, and his willingness to forgive. He is thinner than the other characters and possesses the power of a talisman. "This amulet is known as Kalimo Sodo (Syahatain) Laailahailallah Muhammadarrasulullah".

2. Bima (Werkudoro)

Bima has a larger body and dark skin, and the Pancanaka Nail, one of Bima's powers, lies in his thumb nail, which is depicted as larger than the other nails. The work entitled "Pancanaka III" depicts Bima's hand in the form of a Pancanaka nail used as his primary weapon in combat. His character is firm and courageous in confronting his enemies [16].

Furthermore, an analysis of Balinese puppetry shows that Bima is not only physically strong but also possesses a moral character based on courage and assertiveness, reflected through his movements and bodily expressions in wayang performances [17]. Meanwhile, in the Javanese puppet tradition, Bima (or Werkudara/Bratasena) is positioned as a symbol of strength and spiritual values, used as a medium for instilling courage, justice, and steadfast faith in community character education [18].

3. Arjuna (Janaka)

Arjuna was a figure who was very persistent and firm in his convictions, so that in his hermitage on Mount Indrakila he managed not to be tempted by the seven angels sent by Batara Indra. For his sincerity in penance, Arjuna was awarded the Pasopati Arrow by Batara Guru, who in the story was able to fight Prabu Niwatakawaca who was stuck on the tip of his tongue [19].

4. Nakula and Sadewa

They are skilled in using various weapons. One of Nakula's weapons is the Tirtamanik Sword, which has the meaning of "water of life." Meanwhile, Sadewa uses a keris as his weapon, symbolizing sharpness of mind and courage in facing opponents. Nakula is known as a handsome, hardworking, and passionate figure who respects and serves his older brothers. Nakula is described as honest, loyal, obedient, compassionate, trustworthy, and values mutually beneficial relationships. Meanwhile, his twin, Sadewa, is seen as wise, diligent, has a deep interest in astronomy, is good at keeping secrets, and has a kind heart [13].

3.2 Analysis of Existing Wayang Data

Next, we collected references for modern visual styles relevant to the aesthetic preferences of the younger generation. One reference used was the characters in Mobile Legends and several other popular game titles that feature a semi-cartoonish, semi-realistic style. Analysis of these designs helped determine an appropriate visual approach to bridge the traditional wayang characters with contemporary illustration styles popular with young people.

The data analysis phase was conducted after all references and observations were collected. This process began by comparing the visual elements of traditional wayang puppetry with the visual style of modern games. This comparative analysis aimed to find a balance between the shapes, colors, and proportions of the characters that still represented Javanese cultural identity but were acceptable to the visual tastes of the younger generation.



Figure 1. Gatot Kaca character
Source: Mobile Legends

Based on the visual analysis of the Mobile Legends characters, several relevant visual aspects were adapted to create a balance between a heroic image and the cultural values of wayang. Adaptations were made to four main aspects:

1. Body Posture

The characters were designed to maintain a muscular body and athletic proportions to convey the image of a strong and confident hero, as seen in Mobile Legends.

2. Facial Expressions

A firm facial expression was applied to reinforce the impression of decisiveness, courage, and leadership, synonymous with heroic characters.

3. Costume and Ornaments

Golden ornamental elements such as the sumping, bracelets, shoulder blades, belts, and small crowns were adapted in a simpler form to match the game's visual characteristics and maintain their traditional feel.

4. Visual Style

The coloring style is simplified from the realistic 3D appearance of Mobile Legends to a lighter, semi-cartoon-semi-realist style that is more adaptive to the visual tastes of the younger generation. As a combination of realism and stylization, the semi-cartoon-semi-realist style allows characters to maintain a believable visual structure while expressing movement and emotion more flexibly, making it more effective in conveying visual messages to the audience [20]. This style's ability to present realistic yet communicative representations makes it a relevant visual strategy for contemporary character design, especially in the context of entertainment media targeting the younger generation.

These four characteristics were then consistently applied to all the Pandawa Lima characters to create a unified visual style that harmonized traditional values and contemporary aesthetics.

All adaptations were then validated by Drs. Koesmoko, a cultural expert who ensured the designs adhered to wayang traditions, particularly in terms of skin color, clothing, and ornamental motifs.

The analysis phase concluded with an audience assessment involving two groups of respondents: general adolescents and graphic design students. Interview results indicated that the semi-cartoonish-semi-realistic style was deemed successful in bridging traditional values and modern visual tastes. Several suggestions, such as adding dynamic poses and varying expressions, were used to refine the characters' appearances to make them more communicative and engaging in a digital game context.

3.3 Character Visual Concept

The design of the Pandawa Lima characters in *Metabharata* focused on developing their visuals to align with their narrative identities while appealing to a younger generation accustomed to modern game visual styles. These character designs were designed to be directly implemented in a two-dimensional game using a semi-cartoon, semi-realistic approach. This approach creates a balance between the traditional aesthetic style of wayang and contemporary visuals that are more accessible to younger players.

The resulting design delivers a consistent visual impression, highlighting each character's distinctive features through their body shape, color, clothing, and weapon attributes. Each Pandawa Lima character possesses strong and easily recognizable characteristics, consistent with their inherent nature and philosophy. This clarity of character serves not only as an aesthetic element but also as a representation of the moral values the game aims to convey.

The design process began with character sketches based on observations and visual references from traditional shadow puppetry. Observations were also conducted on several popular games, such as Mobile Legends, to understand how modern heroic characters can be visualized to appeal to today's youth. Furthermore, a moodboard was created as a visual guide, combining wayang iconography, Javanese cultural colors, and fantasy game illustration styles. This approach resulted in a design that represents the Pandawa Lima identity with a modern touch without losing its original cultural values.

3.4 Visualization and Design Revision Process

The design process involved several stages, including concept exploration, visual design development, and character refinement based on aesthetic and narrative evaluations. The visual implementation focused on the Pandawa Lima characters, the main elements of the *Metabharata* game.

The characters were depicted in a semi-cartoonish, semi-realistic style to maintain logical yet expressive body proportions, thus aligning with the visual preferences of the younger generation while also representing cultural values.

The Pandawa Lima characters: Yudhistira, Bima, Arjuna, Nakula, and Sadewa, are visualized based on their individual characteristics, such as their personalities, weapons, and roles in the Mahabharata story. With this design, the Pandawa Lima characters serve not only as representations of heroes in the play but also as a medium for conveying the values of wayang storytelling.

The character visual design process involves several stages using Clip Studio Paint software:

1. Sketches: Based on literature research and visual references for shadow puppets, the basic body shapes and silhouettes of the characters are anatomically proportional while retaining the distinctive characteristics of the puppet characters.
2. Base Color: Applying basic colors to the characters to reflect their identities and attributes, based on original shadow puppet references.
3. Rendering: Adding details such as lighting and shadowing to enhance the visual dimension and create a semi-cartoonish, semi-realistic feel.
4. Visual Revision and Consultation: To maintain authenticity and cultural accuracy, the design process was validated by Drs. Koesmoko, an academic and wayang observer in Buduran, Sidoarjo, who actively promotes wayang to the younger generation, strengthening the visual validity of these character designs. His involvement was crucial in ensuring the characters' alignment with wayang conventions, particularly in terms of clothing, ornamentation, and skin color.

Cultural character design relies heavily on a balance between traditional conventions and visual innovation [7]. In this study, the stages of improvement and refinement of the illustration work were carried out based on input from cultural experts and young users. Feedback from cultural experts, namely Drs. Koesmoko, an academic and observer of wayang art in Buduran, Sidoarjo, played a crucial role in maintaining the accuracy of wayang conventions, especially in aspects of clothing, attributes, and skin color of the characters to remain in accordance with the original wayang shadow puppet references. His involvement as a cultural practitioner and educator who actively introduces wayang to the younger generation also strengthens the visual validity of this character design. The results of significant revisions are seen in the character of Arjuna. The removal of the cloth that originally wrapped part of Arjuna's body and changing

his skin color to white were carried out to adjust to the original reference, namely traditional wayang shadow puppets. In wayang conventions, the character Arjuna is depicted as having a white face. Therefore, to maintain visual consistency, the white color was then applied to Arjuna's entire body, not just his face.

3.5 Final Results of the Pandawa Lima Characters

The final results of the character design were visualized as 2D in-game assets ready for implementation in the game.

1. Yudhistira (Puntadewa)

Yudhistira's hair remains in a high bun, typical of wayang kulit, signifying his noble status and inner peace. In the game version, the bun is simplified into a jet-black hair tie with gold accents on the ear ornaments, giving it an elegant yet modern feel.

The character's face is depicted as soft and well-proportioned, with calm eyes representing wisdom and honesty. His light skin tone and non-aggressive expression emphasize his moral and spiritual side as a leader who relies more on his mind than on physical strength.



Figure 2. Yudhistira's character
Source: Author's design

Yudhistira's attire is adapted from traditional Javanese knight attire, but simplified into a functional form for the game character. The bottoms, made of blue batik-patterned cloth, reflect traditional values, while the loose-fitting shorts convey freedom of movement. The upper body is left bare to showcase his slender physique, characteristic of wayang, while also enhancing his heroic image. Jewelry such as a necklace, armlets, and gold bracelets are retained as symbols of nobility.

His weapon is depicted with a floating book beside him. This element serves as a visual interpretation of Yudhistira's wisdom and intelligence, replacing the Klimo Sodo amulet as a source of spiritual power and knowledge within the game world.

Yudhistira wears simple sandals with a gold belt around his ankles. This design reflects a balance between simplicity and elegance, befitting his humble yet dignified moral character.

2. Bima (Werkudoro)

Bima's hair is depicted as long and partially loose, with a looser style than the other characters. This element is adapted from the wavy bun typical of shadow puppetry, which symbolizes courage and strength. The gold ear ornaments are retained as a symbol of chivalry, but are rendered in a more masculine and simple style to emphasize his assertive and straightforward nature.

The character's face is designed with a strong jawline, sharp eyes, and a serious expression to convey Bima's characteristic assertiveness and courage. His skin tone is darker, in keeping with traditional depictions, emphasizing his identity as a hardworking and resilient figure. This facial shape creates a blend of physical ferocity and emotional sincerity, reflecting courage combined with a kind heart.



Figure 3. Bima's character
Source: Author's design

Bima's attire is adapted from traditional Javanese knight attire, but designed with a functional approach for a fighter character in the game. He wears loose, cream-colored trousers for ease of movement, along with a blue belt and shawl with gold ornaments around his waist, signifying his status as one of the Pandavas. His upper body is left bare, revealing strong chest and arm muscles, emphasizing his dominant physical characteristics. Accessories such as gold armlets and bracelets are still used, emphasizing his heroic and glorious side as a great warrior.

Bima is depicted with prominent golden Kuku Pancanaka (Pancanaka Nails) on both hands, a direct adaptation of his legendary power in wayang. In the context of the game world, Kuku Pancanaka is a signature weapon used in close-quarters combat. This element reinforces Bima's identity as a fighter who relies on physical strength and courage, while

remaining committed to the values of justice and truth. On his feet, he wears simple sandals with a cloth belt around his ankles. This design choice maintains a functional and simple feel, befitting Bima's character, who deems luxury a priority but is always ready to fight for what is right.

3. Arjuna (Janaka)

Arjuna's hair is depicted as long and wavy, flowing freely to create a soft yet dashing impression. This element is adapted from the high bun and carved black ornaments typical of shadow puppetry, signifying the authority and elegance of a young knight.

Arjuna's face is depicted with soft proportions, fair skin, and a calm, focused expression. His eyes reflect determination and intense concentration, depicting his nature as a skilled archer and a spiritually strong ascetic. These characteristics contrast with his brothers, such as Bima, who have tough and resolute faces, highlighting Arjuna's aesthetic and spiritual side.



Figure 4. Arjuna's character
Source: Author's design

Arjuna's attire is adapted from the attire of a wayang warrior, with touches of golden orange symbolizing courage, passion, and warmth of spirit. He wears loose trousers to enhance his mobility in battle, and a golden belt and sash around his waist, reinforcing his status as a nobleman. His upper body is partially exposed to demonstrate the balance between physical beauty and spiritual strength. The gold necklace and bracelets are retained as symbols of honor and nobility.

Arjuna is depicted with a bow and arrow, the primary symbol of his skill as the best archer among the Pandavas. The bow represents the Pasopati Arrow, a sacred weapon bestowed by Batara Guru. In the context of the game, the Pasopati Arrow is Arjuna's signature weapon, symbolizing spiritual strength and strategic precision in battle, not just physical strength but also the result of spiritual training and patience. Simple sandals with black straps are worn on the feet to balance the impression of lightness and high mobility. The design is practical, reflecting Arjuna's

character, who, despite his nobility, maintains a simple lifestyle and focuses on devotion and self-improvement.

4. Nakula

Nakula's hair is depicted as shoulder-length and slightly wavy, symbolizing gentleness and serenity. This style is an adaptation of the typical wayang style, which falls back in waves, with the addition of a gold-colored sumping (earpiece). The sumping serves as one of the main differences between Nakula and Sadewa, emphasizing Nakula's elegance and assertiveness as a young knight.

Nakula's face is depicted with a well-proportioned shape and a gentle yet confident expression. His eyes convey both calm and alertness, reflecting the balance between physical and spiritual discernment. His fair skin and strong jawline convey a handsome and heroic image, consistent with his traditional depiction in shadow puppetry.



Figure 5. Nakula's character
Source: Author's design

Nakula's attire is adapted from a wayang warrior's attire with a semi-realistic approach. He wears a golden-brown batik cloth wrapped around his waist, replacing the traditional jarit (clothes sarong) with a more practical form for in-game movement. Gold accessories on the shoulders and arms enhance the elegant impression, while the ornamental details around the waist serve as a distinctive element that distinguishes him from Sadewa. Warm colors like brown and gold are used to emphasize the character's loyalty and stability.

Nakula wields the Tirtamanik Sword, a powerful weapon symbolizing the "water of life." Within the context of the game, this sword is interpreted as possessing healing powers or spiritual power that balances violence with calm. The sword's sleek, elegant shape emphasizes Nakula's calm yet deadly personality in battle. Nakula wears simple black sandals with gold ankle straps. This design maintains a balance between function and simple, like his humble character, yet still conveying his status as a noble knight.

5. Sadewa

Sadewa's hair is worn shoulder-length, similar to Nakula's, to emphasize their twin relationship. However, the main difference lies in his mustache and sumping (ear ornaments). Sadewa's face is structurally similar to Nakula's, but with a softer and calmer expression. His eyes convey intelligence and deep contemplation, indicating his character is not impulsive and tends to think before acting. With his fair skin and soft facial features, this character emphasizes intellectuality and spiritual serenity.



Figure 6. Sadewa's character
Source: Author's design

Sadewa wears an attire nearly identical to Nakula's a golden brown batik cloth with a practical waistband and gold accessories on the shoulders and arms. However, the waist accessories are different, with a more refined shape and layout, signifying his calm and elegant nature. The golden brown color is retained as a symbol of stability, wisdom, and connection with the earth element.

In this adaptation, Sadewa wields a keris, a traditional weapon symbolizing mental acuity and determination. Within the context of the game world, the keris is interpreted as a weapon with magical powers focused on fast and precise attacks, befitting Sadewa's intelligent and strategic personality. Besides being a fighting tool, the keris also serves as a spiritual symbol, a manifestation of inner strength and self control. Like Nakula, Sadewa wears simple sandals with gold straps. Their light and functional form emphasizes the values of simplicity and readiness to act whenever needed.

After going through the perception testing phase, the design results were also refined based on feedback from cultural expert Dr. Koesmoko. This revision was carried out to ensure that every visual element, from the costumes to the character colors, still refers to the canons of traditional shadow puppetry. This input is an important foundation in maintaining the balance between the semi-cartoon-semi-realistic style and the authenticity of Javanese cultural values emphasized in the *Metabharata* game. Here is the appearance of the

characters after being implemented in the Metabharata game:



Figure 7. Implementation of in-game assets
Source: Metabharata game

Through these stages, the Metabharata game is expected to provide an interesting gaming experience while also being a means of preserving local culture that is more relevant to the younger generation.

3.6 User Perception Test

The User Perception Test determined the target audience for the respondents. The interviews involved two audience groups: five general adolescents and five adolescents with design backgrounds. The general adolescent group included respondents aged 13 - 22 from school and non-design students, while the adolescent group with design backgrounds consisted of Graphic Design students aged 18 - 22.

These groups were selected to obtain two perspectives simultaneously: responses from general audiences regarding the visual appeal and critical assessments from design students regarding the technical and aesthetic aspects of the characters. This division aimed to elicit two perspectives: general perceptions of visual appeal and understanding of cultural values by general audiences, as well as technical analysis from design students regarding the accuracy of style, composition, and application of Javanese cultural elements in the work.

In the formative evaluation phase, semi-structured interviews were conducted using the 5W+1H approach after the audience viewed and reviewed the Pandawa Lima character designs in the Metabharata game. These interviews aimed to elicit direct responses to the visual quality, cultural appropriateness, and appeal of the character designs.

Interviews with two audience groups general adolescents and adolescents with a design background revealed relatively similar results in terms of perceived visual appeal, but differed in the depth of analysis.

The interviews posed five questions:

1. Which Pandawa Lima character most caught your attention after seeing this work, and why?
2. What was your first impression of the visual appearance of the Pandawa Lima characters in the Metabharata game?

3. When was the last time you saw or encountered wayang characters (for example, at school, on social media, or at a cultural event)?
4. Why is it important to adapt or transform Javanese wayang into a digital medium like a game?
5. In your opinion, how do these characters visually convey elements of Javanese culture? Is it easy to understand and engaging for the younger generation?

From these five questions, the two groups of respondents obtained the following results:

Table 1. Interview Result Data

No	General Teenagers	Presentation	Design Student	Presentation
1	Arjuna is most visually appealing	70%	Arjuna is interesting because of the balance of anatomy and color	60%
2	The design looks modern and contemporary	80%	The harmony of color and costume details is considered effective	80%
3	Getting to know culture through digital media	60%	Also through exhibitions and college assignments	70%
4	The game is easily accessible and fun	100%	Digital adaptation as cultural preservation	100%
5	The game is easily accessible and fun	80%	Needs to develop poses and expressions	70%

Based on the table above, it can be concluded that both audience groups had similar perceptions regarding the visual appeal of the Metabharata characters. Design students considered color harmony and anatomy as the primary factors determining visual appeal. However, they differed in their depth of analysis.

While teenagers tend to judge based on easily recognizable visual aspects and the modern feel they convey, design students provide a more critical analysis of technical elements such as anatomical balance, color harmony, and the effectiveness of the semi cartoon semi realist style in combining traditional and contemporary elements.

Furthermore, although both students rarely have direct exposure to wayang culture, digital media such as Instagram, TikTok, and YouTube serve as primary avenues for learning about cultural elements. Design

students have additional exposure from the academic environment, such as coursework and exhibitions.

Both groups agreed that adapting wayang culture into digital gaming media is a relevant step to attract the interest of the younger generation. "Characters in online games that wear traditional clothing, distinctive weapons, or have backstories inspired by Indonesian folklore have the potential to introduce players to local cultures they may not have previously been exposed to." [21]. The Metabharata character is considered successful in conveying Javanese cultural values through visual elements such as clothing, motifs, and distinctive colors, with potential for further development in poses and expressions to strengthen the storytelling.

The results of this design demonstrate that the process of adapting wayang characters into a modern visual format can be done without losing their original philosophical values. The use of a semi-cartoonish semi realistic style successfully strikes a balance between tradition and contemporary visual trends.

4. Conclusions

The design of the Pandawa Lima characters in the Metabharata game successfully strikes a balance between the traditional values of wayang and the modern visual tastes of the younger generation. Through a semi-cartoonish, semi-realistic visual approach, the resulting characters maintain Javanese cultural identity without losing their contemporary aesthetic appeal. Each character is visualized according to their unique characteristics and philosophy, then adjusted with input from cultural expert Dr. Koesmoko to maintain alignment with the traditional wayang kulit tradition.

Validation involving two audience groups demonstrated that the character designs are not only visually appealing but also effective in conveying the moral and symbolic values of the Pandawa Lima characters. Implementing the designs into 2D in game assets, along with varying character poses and movements, adds an interactive dimension that enhances the playing experience.

This research confirms that incorporating local cultural elements into digital game character design can be an educational and strategic tool for cultural preservation. The application of character values through wayang based games is considered relevant and has significant potential for application in learning in the digital age. Future development can be directed at expanding the Korawa and god characters, as well as exploring gameplay prototypes to more deeply test interactive

Author Contributions Statement

Name of Author	C	M	So	Va	F	I	R	D	W
Nur Churul 'Ain Mahmudah									
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Nova Kristina									

Nur Churul 'Ain Mahmudah	✓	✓	✓		✓	✓	✓	✓
Asidigisianti Surya Patria		✓		✓		✓	✓	✓
Nova Kristina	✓			✓	✓		✓	

Conflict of Interest Statement

Authors state no conflict of interest.

Informed Consent

We have obtained informed consent from all individuals included in this study.

Data Availability


The data that support the findings of this study are available from the corresponding author, [M], upon reasonable request.

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