

Engaging Children in Reading Jataka Reliefs of Borobudur Temple in Indonesia through Digital Picture Book

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ABSTRACT

Jataka relief is one of the reliefs in Borobudur Temple, which is one of the biggest cultural heritages in Indonesia. Jataka reliefs tell the stories of the *Bodhisattva*'s past life in search of enlightenment. These stories are unique, because they contain humanity values, such as kindness, helping others, and self-sacrifice which are universal. These values are still relevant and important to be told to younger generations. However, not everyone can read and understand reliefs, especially children from the age of 7-9 years old who live in big cities. Identification and readjustments of how to retell these relief stories are needed, in accordance with the increase usage of digital media by children in the alpha generation. The aim of this research is to find out which Jataka story is suitable for children in the alpha generation and to provide recommendations in designing a digital picture book that can support children's character building. This paper focused on the Discover part of the *Double Diamond Design Thinking* method, which used qualitative methods in gathering data, from literature study, interviews with two experts and a questionnaire for elementary school teachers. These findings showed that Jataka stories are still relevant and suitable for children's character building. One of those stories is the story of *Wanaraja*, which not only has leadership and self-sacrifice values, but also its non-sadistic plot. One of the possible media to be develop in retelling this story is the combination of videos/animation and picture book that provide interactivity. This two-way interaction gives a powerful and positive impacts on children's character building.

Keywords: Borobudur Temple, Jataka Relief, Digital Picture Book, Alpha Generation

1. INTRODUCTION

Borobudur Temple as one of the biggest cultural heritages in Indonesia, had been set by UNESCO as one of the World Heritage in 1991. It was built between the late 8th century and early 9th century during the Syailendra dynasty [1]. The temple consists of 1,460 story panels and 1,212 decorative panels. Borobudur Temple is divided into three sections vertically, which are *Kamadhatu* (foot of the temple), *Rupadhatu* (body of the temple), and *Arupadhatu* (top of the temple) [2]. There are 1,300 relief panels on *Rupadhatu*, which consist of four different reliefs: *Lalitavistara*, *Jataka*, *Avadana*, and *Gandhawyuha*. The name *Jataka* comes from the word *Jati/Jata* in Pali which means life and *ka* which

means small. *Jataka* means small life or past life of the *Bodhisattva* which he had lived, before being reborn into his last life as Sidharta Gautama [3]. *Jataka* relief stories are unique because they contain universal values, such as kindness and self-sacrifice. However, there is a gap between *Jataka* stories that contains universal values with the alpha generation, as the future generation of Indonesia which is inseparable from technological advancements. *Jataka* relief stories are still rarely known by children, teachers, and parents because not everyone can read reliefs. Seven out of eleven teachers said that they don't know about *Jataka* relief stories. This is unfortunate because these reliefs contain values which have been passed down from our ancestors in Indonesia [4]. The needs from online schools

nowadays in the use of digital content as children’s learning tool are increasing. However, some elementary teachers said that good quality digital content for teaching children is still hard to find these days.

Several studies have been conducted previously regarding Jataka relief stories for children and adolescents. One of them is research conducted by Ima Kusumawati Hidayat in 2014, where she designed a relief content based edugame. This edugame is intended to help 9-12 years old children in recognizing reliefs and statues when visiting Borobudur temple [5]. Another study was conducted by I Wayan Daryatma Putra in 2019. He retold a Jataka relief story about the Lion and the Woodpecker for teenagers in the form of 360° animation which is then distributed through social media [6]. A study on designing an interactive media of Jataka stories was also done by Abdul Maskur in 2020. He designed an interactive multimedia application about three Jataka stories, which are the Monkey and the Ox, Ruru the Deer, and the Lion and the woodpecker [2]. These studies show the potential of digital media in retelling the stories and values of Jataka reliefs especially to younger generations. However, these previous studies have not mention specifically about the story of *Wanaraja* and how to retell this story through an interactive media. The aim of this research is to find out which Jataka story is suitable for children in the alpha generation and to provide recommendations in designing a digital picture book that can support children’s character building.

This paper focused on the Discover part in the Double Diamond Design Thinking method from Design Council. This part starts by questioning the challenge and then doing research to identify user needs [7]. Qualitative methods are used in gathering data, from literature study, interview with two experts, consists of an expert in Borobudur temple and a child psychologist. A questionnaire for elementary school teachers were also conducted to see children’s character learning method in school. Teachers are selected because they are one of the main sources for children to learn values outside of their family. Hopefully, this research can also demonstrate how human-centered design can affect social interactions, especially for alpha generation children.

2. JATAKA RELIEF STORIES

Jataka relief stories are filled with humanity and universal values. From an interview conducted with

one of Borobudur Temple experts, Handaka Vijjananda, it is known that most of Jataka relief stories tell the story of the sacrifice of the Bodhicitta. *Bodhi* means bright and *citta* means mind. The life form itself is called *Bodhisattva*. *Sattva* means a creature, that can be in a form of an animal or a human. Jataka tells the story of how a *Bodhisattva* wants to achieve enlightenment (or achieve *bodhicitta*) through sacrifice and helping others [3]. These values are told through Jataka stories and some schools even add them to their syllabus. Jataka stories are believed to educate students about ethics and universal truth, beyond the religious system [8]. Heroic stories in Jataka are not to destroy enemies, but to give, help, and save other lives.

Unfortunately, these stories are still unknown to many teachers. The result from a questionnaire submitted by twenty five elementary school teachers shows that 60% teachers have not heard of Jataka relief fables. However, twenty two teachers (88%) are interested in retelling Jataka stories to their students. Therefore, from about 547 Jataka stories in total, a recommendation from an expert was made, which narrowed down into the consideration of three Jataka stories. Afterwards, the three fables were selected by teachers and the result shows that 40% of the teachers are interested in *Wanaraja* story to be retold to children.

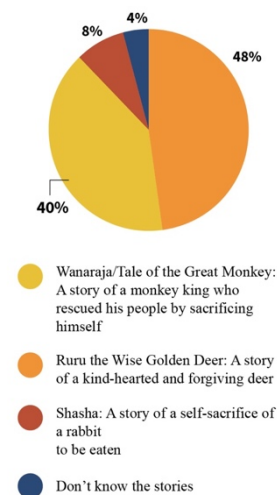


Figure 1 Recommendation of Jataka Story from Teachers

2.1. Wanaraja

The name *Wanaraja* comes from two words, *Wana* means monkey, and *raja* means king. *Wanaraja* means monkey king when those two

words are combined. The story of *Wanaraja* was told in four of the Jataka reliefs panels at the first floor of Borobudur Temple. The figure below shows the position of *Wanaraja* reliefs which is on the south side, outer-top, on panel number 99 to 102. *Wanaraja* tells the story of the sacrifice of the monkey king who saved his people from the attack of the human King.

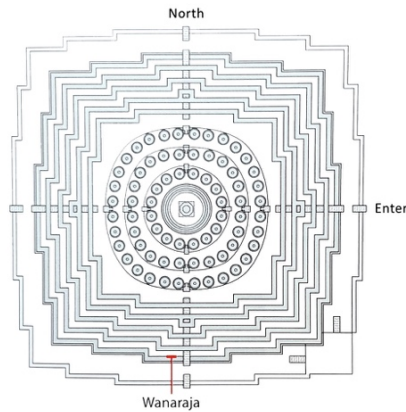


Figure 2 *Wanaraja* Relief Location in Borobudur Temple

Figures below show the four main panels in *Wanaraja* story. Started with Figure 3(a) as the first relief panel, then moved to the right to Figure 3(b) as the second relief panel and 3(c) as the third relief panel.



Figure 3 (a) first relief panel, (b) second relief panel, (c) third relief panel

The final relief shown in the figure below. The climax of the story is found on the fourth relief panel or Figure (4). Next, each panel was read and studied with the visual language theory.



Figure 4 Fourth Relief Panel

According to Primadi Tabrani, there are two systems in visual language, which are Space-Time-Plane (STP) and Naturalistic-Perspective-Moment opname (NPM) [9]. In NPM system, the visual representation become a still picture, with a frozen scene trapped in a frame [9]. Meanwhile, in the STP system a picture become a time-dimensional sequence and can consist of several scenes with object that can move in space and time [9]. STP systems are often found in reliefs and other prehistoric drawings in Indonesia. There are four ways to see or read an image or *wimba* that uses STP as showed in Table 1. The first is shooting size, the second is angle, the third is scale, and the fourth is how to take the image [9]. STP shows multiple angle and sizes to accommodate the reader.

For example, in Table 1 below, the relief of the King and his soldiers are shown from head to toe (very long shot) to show gesture, therefore the reader can see what they are doing. The trees are drawn smaller than the original, so the reader can recognize them. The monkeys are bigger than original and drawn several times to show that it is moving. Therefore, each relief was examined to see each component of the relief. These relief visuals will be used as references for building the concept of the characters and setting in retelling *Wanaraja* story.

Table 1. Images of the Fourth *Wanaraja* Relief

Image	Content	How to see the image	Situation
	The King	(1) Medium long shot (2) Normal angle (3) Same as original (4) Naturalist	A king was sitting and raising one of his hands.
	The King's soldiers	(1) Medium long shot (2) Normal angle (3) Same as original (4) Naturalist	The king's soldiers carrying bows and spheres pointed at the fig tree and the monkeys.
	The King's servants	(1) Medium long shot (2) Normal angle (3) Same as original (4) Naturalist	One of the king's soldiers seemed to spread a cloth, and the other one was sitting with his head down.
	Fig tree	1) Very long shot (2) Normal angle (3) Smaller than original (4) Style, distortion	A fig tree where a monkey is holding on to it.
	Monkey	(1) Very long shot (2) Normal angle, various looks (3) Bigger than original (4) Naturalist	A tree as a place of refuge.
	Tree with monkey	(1) Very long shot (2) Normal angle (3) Smaller than original (4) Naturalist, style, distortion	A monkey is holding a tree.
	Monkeys in a row	(1) Very long shot (2) Normal angle, various looks (3) Bigger than original (4) Naturalist, scene	Monkeys marching across.

There are a few versions of the *Wanaraja* story aside from the relief. In this research, the versions from the relief book (*Jātaka the Buddha's Past Birth*

Stories) and storybook (Jataka Stories pocket books by Ehipassiko Foundation) were compared to see the overall story. The details found in the pocket book,

completed the story of the relief with information that was not shown on the original relief. Then these two versions are also compared with the original

meanwhile the storybook gives more detailed information, such as the kind of the trees, the name of the fruit and conversations between the characters.

Table 2. Versions of *Wanaraja* Stories

Relief	Relief (Visual Language)	Relief Book	Storybook
1 st panel Fig.3(a)	Eight servants of the King were sitting, and there was an elephant.	The King's servants were sitting down and watching the events happening in the next relief.	The story began with <i>Wanaraja</i> and his people finding a fig tree. Then, one of its fruits fell into the river and drifted away. The King found the fruit.
2 nd panel Fig.3(b)	The King was sitting on a raised seat in the palace grounds. There were three servants there; two women were standing and the other one was sitting down. One of the women was holding a fruit.	The King was sitting casually on a high chair and held out his hand to receive a fig fruit from one of the women there.	The strong-smelling fruit was presented before the King, who were amazed by its color and scent. The desire for power drove the king to go look for its source.
3 rd panel Fig.3(c)	The King was standing with three soldiers. There were two servants facing the King. One of them was standing and the other one was sitting down.	The King took off with his three soldiers, to look for the tree where the fig fruit grew. They all carried bow and spears.	The King led his people to walk by the Himalaya River. They bang the drums, opened the way and scared the creatures of the forests. Finally, the King saw a giant fig tree, but there were many monkeys eating the fruits. "Shoot them! Get rid of them!" shouted the King.
4 th panel Fig.4	The King was sitting down and lifting up his hand. His soldiers were carrying bow and spears. There was a monkey holding on to a tree and some monkeys were walking across to the other side.	The King ordered his men to drive away the monkeys. <i>Wanaraja</i> was holding on tight to a tree. He has made a bridge supported by his own body that enabled his people to get across to safety. Then the King held out his hand and gave order to stop the attack.	The King's army surrounded the tree. <i>Wanaraja</i> was worried about his people. He calmed them down, then climbed to the top of the tree. Then he jumped and reached the top of the nearest hill. He found a bamboo grove, tied one of his legs and jumped back to the fig tree. His people were able to cross safely, but he fell. Amazed by <i>Wanaraja's</i> action, the King told his soldiers to stop attacking and catch <i>Wanaraja</i> . The King was inspired by <i>Wanaraja's</i> sacrifice for his

relief panel components that have been analyzed before. As seen in Table 2 below, the relief and relief book mostly describe the characters and activities,

The main value in *Wanaraja* story is about the sacrifice of a leader. At the end of the story in the storybook version it is known that the King was

inspired by *Wanaraja's* action and promised to be a better leader. The value of this story is shown through the scene in the reliefs which is portrayed by the *taksaka* or relief sculptors that tends to have a *thinking is believing* mindset, instead of *seeing is believing* mindset [1]. They think of how this story from an ancient Jataka manuscript can be described narratively on the relief. This idea is in line with how narrative of a story affects children's understanding and memory. These findings become considerations in designing the visual style of *Wanaraja* story.

3. INTERACTIVE MEDIA FOR ALPHA GENERATION LEARNERS

Alpha generation children in Indonesia aged 7 to 9 years old live side by side with technology and used to fast-paced information consumption. The alpha generation consists of children who are born between the year of 2010 to 2024 [10]. An interview with a child psychologist named Lecya Lalitya was conducted. It was found that alpha generation children have developed their imagination and they are also familiar with the concept of action and consequences. They are able to take other's perspective and understand what others are thinking. Alpha generation children prefer fast communication and stimulus as the use of digital media in alpha generation children has become a common daily activity.

The digital impact on this generation also impacted their learning style at school. Figure 4 below reveal that most teachers have used digital media for storytelling. Twenty two teachers voted the use videos or short animation from the internet and twelve teachers voted the use of picture books in telling fable stories.

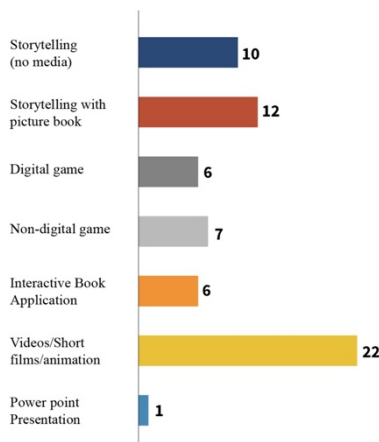


Figure 5 Media Used in Storytelling

Figure 5 below shows which media is most effective in learning values according to teachers. From the graphs, we can see two medias mostly chosen by teachers. Seventeen teachers (68%) voted videos or short films or animation and three teachers the use of picture book in teaching values to children.

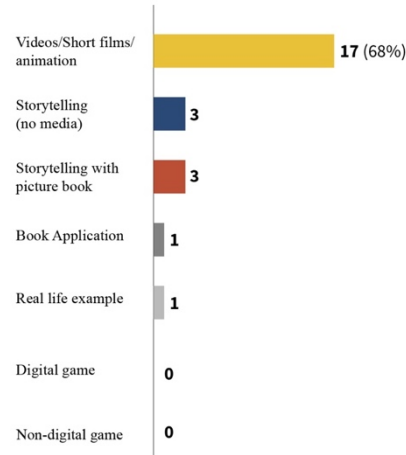


Figure 6 Effective Media for Learning Values

From these results above, the two mainly used media in storytelling and learning values by teachers are videos/animation and picture books. These two medias when combined become an interactive media with powerful learning experience. Interactive media such as digital picture book provide both experiences and has a positive impact [11]. It also makes it easier for children to learn new things in a fun way [5]. They are still highly curious therefore interactive features offer a different experience compared to only watching animation or reading print books. However, these interactive features need to be in line with the story's main narrative, so as to not draw children's attention away from the story [11].

The use of interactive book also increases children's understanding and immersion to the content. The media become a two-way interaction, where children are not only passively seeing the content, but can actively participate and interact. For example, children can get immediate feedbacks while reading or when there is a word they don't understand [12]. Digital picture books gave the chance for children not only to interact with the book, but also with teachers or parents. Therefore, guidelines and best practice examples to select and interact with digital books can be an added option in designing a digital picture book for children [12]. For example, a recommendation of what questions to ask children after reading and how much screen time is safe for children.

4. DATA ANALYSIS

The values of Jataka stories such as kindness, sacrifice, and serve others are beyond religion and universal which can be introduced to children for character building. About 81,8% or nine out of eleven teachers are interested to tell Jataka stories to children. *Wanaraja* story is suitable for children because of the non-sadistic plot and also leadership and self-sacrifice values. This story needed to be retold narratively as how the sculptors tell this story through the reliefs, using the Space-Time-Plane (STP) visual language system. This visual analysis of *Wanaraja* reliefs will be used as the basis imagery in building the concept of the character, setting, and overall tone in retelling *Wanaraja* story.

Teachers have used digital media for teaching values and telling stories. This cannot hide the fact that alpha generation children's life nowadays is inseparable from the use of technology. The data shows that out of six kinds of media listed, there are two mainly used media by teachers in storytelling and teaching values. Nine out of eleven voted videos/animation and two out of eleven voted picture books. However, by combining these two medias into one interactive media, we can give a powerful experience and impact, especially for alpha generation children who prefer fast-moving information and stimulus. This two-way interaction also more possibility in retelling the story, where children are able to participate and interact freely. However, in the use of interactive media, supervision from adults is still needed. Therefore, guidelines for using this digital picture book need to be added to guide teachers or parents in reading digital books with children. This guideline also supported interaction between children and teachers or parents.

4. CONCLUSION

Data and findings stated above concluded that Jataka stories are still relevant and suitable for children's character building. One of those stories is the story of *Wanaraja*, which not only has leadership and self-sacrifice values, but also its non-sadistic plot. One of the possible media to be develop in retelling this story is the combination of videos/animation and picture book that provide interactivity. This two-way interaction gives a powerful and positive impacts on children's character building.

AUTHORS' CONTRIBUTIONS

MK, RM, and DR participated in the design of the study and analysis tools. MK carried out the literature studies, collected the data, performed the analysis and write the manuscript.

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