



OPEN ACCESS

Enhancing Early Childhood Cultural Education through the Ponorogo Reyog Theater Suitcase: A Development and Evaluation Study

Siti Fatimah¹, Hermanto²

^{1,2} Universitas Negeri Yogyakarta, Indonesia

Keywords:

Early Childhood Education, Cultural Introduction Media, Reyog Theater Suitcase, Ponorogo Reyog.

Correspondence to

Siti Fatimah, Universitas Negeri Yogyakarta, Indonesia

e-mail:

fatimah220598@gmail.com

Received 12 02 2024

Revised 17 03 2024

Accepted 23 03 2024

Published Online First

30 03 2024



© Author(s) (or their employer(s)) 2024. Re-use is permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by JGA.

Abstract

This research explores the Reyog Theater Suitcase (Koper Teater Reyog) as an innovative educational tool for introducing the cultural heritage of Ponorogo to early childhood education. Utilizing a Research and Development (R&D) approach and the ADDIE model, which includes the Analyze, Design, Development, Implement, and Evaluation stages, the study employed a Posttest-only experimental design with nonequivalent groups. An initial needs analysis revealed a scarcity of practical storytelling media that incorporate local narratives, such as Reyog Ponorogo, despite its prevalence in local education. Consequently, the Reyog Theater Suitcase was developed, featuring a transparent display panel, barcode-activated musical features, and manageable cultural figurines. Data collection involved expert validation through questionnaires, teacher surveys, and authentic assessments using qualitative and quantitative analyses. The findings indicated that classes using the Reyog Theater Suitcase achieved significantly better outcomes in cultural education than traditional picture books. After two rounds of feedback and revisions from experts, the quality and educational appropriateness of the product were enhanced. Hypothesis testing in both small and large-scale settings resulted in p-values of 0.000 and 0.002, respectively, leading to the rejection of the null hypothesis and acceptance of the alternative hypothesis; this confirmed that the experimental group exposed to the Reyog culture through the suitcase differed significantly from the control group using conventional media. Integrating physical and digital storytelling elements advances the discourse on delivering educational content in the digital era. However, focusing on a specific cultural narrative might limit its application to similar educational settings. Further research is recommended to evaluate its broader applicability in diverse educational environments. This study underscores the importance of innovative storytelling media that integrate local cultures, offering potential pathways to enrich global early childhood education.

To cite: Fatimah, S & Hermanto, (2024). Enhancing Early Childhood Cultural Education through the Ponorogo Reyog Theater Suitcase: A Development and Evaluation Study, *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, 9(1), 37-50. <https://doi.org/10.14421/jga.2024.91-04>

Introduction

Integrating cultural heritage into early childhood education is increasingly recognized as essential for fostering cultural identity and diversity awareness from a young age. Traditional performances like Reyog Ponorogo offer rich narratives of Indonesian cultural history and embody values pivotal in shaping young minds in multicultural awareness and identity formation (Fisabilillah et al., 2022; Supriadi et al., 2015). However, there remains a challenge in presenting these traditional narratives in a manner that is both comprehensible and engaging to young children, necessitating innovative educational interventions. Adapting Reyog Ponorogo into forms suitable for early childhood education represents a significant interdisciplinary challenge involving aspects of cultural studies, pedagogy, and media development. Addressing this issue is crucial for preserving cultural heritage and promoting inclusive education that respects and integrates traditional wisdom and practices (Achmadi, 2014; Utami et al., 2021).

The use of traditional narratives and performances in educational settings has been extensively explored, demonstrating the potential for significant impacts on student engagement and learning outcomes (Arsyad, 2017; Kustandi, C., & Sutjipto, 2011). Educational

media that incorporate cultural elements engage students by providing contextualized learning experiences that enhance their understanding of and appreciation for their heritage. Studies have shown that culturally relevant educational media can simplify complex cultural concepts and make abstract cultural values more tangible and relatable to young learners (Batubara, 2020; Supriadi & Wardo, 2015). Furthermore, the direct involvement of cultural narratives in teaching has been advocated to foster a deeper connection between children and their local cultures, potentially leading to lifelong impacts on cultural retention (Amani & Mgaawa, n.d.; Arndt & Bartholomaeus, 2022; Wiysahnyuy & Valentine, 2023). These insights underscore the necessity for developing tailored educational content that respects and preserves cultural narratives while being accessible to early learners.

The cognitive theory by Bruner supports using honest and manipulative educational tools to provide enactive, iconic, and symbolic learning experiences (Kustandi, C., & Sutjipto, 2011). This theory aligns well with educational media design for cultural education, where tangible interactions with cultural stories can be crucial for young learners. Research has further highlighted that interactive media, such as digital games and augmented reality, provide dynamic learning environments that significantly enhance children's cognitive and cultural understanding (Mortara et al., 2014; Tomi & Rambli, 2013). These educational tools allow for the dynamic representation of cultural stories, making them more engaging and easier to understand for children, thereby facilitating better retention and appreciation of cultural details (Neofytou et al., 2021). The integration of such media in early childhood education, therefore, provides a robust platform for immersive and impactful cultural education.

In early childhood education, introducing cultural media has been associated with numerous developmental benefits, including enhanced social-emotional skills, better cognitive development, and increased cultural empathy (Connors, 2016; Lucas, 2017). For instance, cultural education through media such as storytelling and traditional games has fostered a sense of identity and community among young learners (Halim, 2019; Supriyanto, 2024). Additionally, exposure to diverse cultural practices through media can aid in developing multicultural competence from an early age, a crucial skill in today's globalized world (Sulton et al., 2020; Uliasari & Dian Kristiana, 2024). These findings advocate for the systematic incorporation of culturally rich media in educational curricula to nurture well-rounded individuals who appreciate their cultural heritage and the diversity of others (Yesi et al., 2023; Yurisma & Bahrudin, 2020).

Despite the positive impacts of cultural educational media, existing research often overlooks young children's specific needs and comprehension abilities regarding traditional cultural performances like Reyog Ponorogo (Ikawira, 2014; Sidhartani, 2018). Many studies focus on older children or fail to address the developmental suitability of the content, leading to a gap in effective educational practices for early learners. Additionally, there is a lack of research focusing on developing and empirically testing cultural educational tools tailored explicitly for early childhood (Prilosadoso et al., 2021; Ulu-Aslan & Baş, 2023). This highlights the need for targeted developmental research that can bridge the gap between cultural heritage preservation and early childhood education methodologies.

Based on survey results gathered through Google Forms and interviews with several preschool teachers in Ponorogo, many have not yet narrated the story of Reyog Ponorogo. This is primarily because schools lack the media resources to convey the Reyog Ponorogo story. Teachers have also expressed concerns that the Reyog story is too sensitive to be shared with young children, leading to its omission in storytelling sessions. Consequently, this study aims to develop a Reyog theater suitcase as a storytelling medium to facilitate the introduction of the culture of Ponorogo, especially relating to the Ponorogo Reyog dance.

The Ponorogo Reyog theater suitcase is a portable wooden suitcase, making it easy for teachers to transport and use in different settings. The characters featured in this storytelling medium include key figures from the Reyog Ponorogo performance, such as Warok, Jathil, Dadak Merak, Singo Barong, Kelana Sewandana, Dewi Songgolangit, Bujang Ganong, and the

King of Kediri, along with additional characters created specifically for this medium. This development also extends to the adaptation of the Reyog Ponorogo story and the creation of two additional stories centered around elements of the Reyog Ponorogo performance. These stories have been tailored to suit young children's characteristics and developmental needs, ensuring they are accessible and engaging. Furthermore, the suitcase incorporates a barcode linked to accompanying music, enhancing the storytelling experience.

This study aims to develop and evaluate the effectiveness of the Koper Teater Reyog as a specialized educational medium for introducing the cultural heritage of Ponorogo to preschool-aged children. By transforming the traditional Reyog Ponorogo performance into an interactive storytelling format, this research seeks to make cultural education more accessible and engaging for young learners. The project will contribute to educational technology, early childhood education, and cultural studies by providing empirical data on the educational benefits of culturally tailored media for young children. Additionally, it will offer practical insights into how traditional performances can be effectively adapted for early educational settings, supporting cultural preservation efforts through education. Ultimately, this study aims to enhance young learners' cultural competence and identity formation, fostering a deeper appreciation and understanding of their cultural heritage.

Methods

This study adopted a Research and Development (R&D) approach designed to create and test the feasibility and effectiveness of educational products through needs analysis. The development model utilized was the ADDIE model, comprising stages of Analyze, Design, Development, Implement, and Evaluation (Branch, 2010). Experimental trials were conducted to evaluate the effectiveness of the Ponorogo Reyog theater suitcase as a cultural introduction medium for early childhood in Ponorogo. The design for these trials was a Posttest-only design with nonequivalent groups, conducted in two phases: a small-scale trial at BA 'Aisyiyah Mangkujayan Ponorogo involving eight students in both the experimental and control groups and a large-scale trial at TK Mutiara Hati Ponorogo with 16 students in each group.

Data were collected using multiple instruments, including expert validation questionnaires on material and media, teacher response surveys, authentic tests, interviews, observations, and document analysis. The questionnaires were developed to meet the research needs and included indicators such as material suitability, accuracy, and presentation techniques. Data analysis was bifurcated into qualitative and quantitative methods. Qualitative data were derived from teacher response surveys, observations, and interviews. Quantitative data were sourced from expert validation questionnaires and the results of the authentic tests. The analysis included calculating validity percentages using the formula (Arikunto, 2013):

$$P = \frac{\sum X}{\sum Xi} \times 100 \%$$

Description:

P = Percentage to be found

$\sum x$ = Sum of respondents' scores

$\sum Xi$ = Total maximum or ideal score

This calculation informed the categorization into validity levels, which guided the subsequent revisions of the educational materials based on predefined criteria (Arikunto, 2013).

Several measures were taken to ensure the study's reliability and validity. Reliability was addressed through the standardization of data collection procedures and the training of researchers in consistent data recording methods. Validity was ensured by employing expert validations and triangulating data sources, thus providing multiple evidence points for the findings. Statistical analyses were performed using SPSS to assess homogeneity and differences between experimental and control groups via independent sample tests. These analyses were

crucial for interpreting the impact of the Ponorogo Reyog theater suitcase compared to traditional storytelling methods.

Result

Results This developmental research yielded a product called the Reyog Theater Suitcase, which serves as a medium for introducing the culture of Ponorogo Regency to young children using the ADDIE model (Analyze, Design, Development, Implement, and Evaluation).

3.1. Analysis

The analysis stage was conducted to assess the needs in the field by distributing a Google Form containing questions to several early childhood education (ECE) teachers in Ponorogo Regency. The questions focused on the teachers' storytelling habits with children, the themes often discussed, the media commonly used, and whether they had ever narrated Reyog Ponorogo stories to children in the classroom. Based on the responses from the Google Form filled out by the teachers, it was found that many engage in storytelling in class, typically using books or hand puppets that align with the learning theme. However, many teachers had not yet narrated local or cultural stories of Ponorogo Regency, particularly about Reyog Ponorogo. Interviews with several teachers in Ponorogo also revealed that they had not yet told Reyog Ponorogo stories to children due to the limited availability of age-appropriate Reyog Ponorogo storybooks and the absence of other practical storytelling media. Furthermore, some teachers considered Reyog stories sensitive for children. Despite this, it is regrettable if local culture is not introduced to young children. Regional culture or stories can be conveyed to young children by adjusting to their developmental stages. Based on this analysis, the researcher planned to develop a media that could introduce the culture of Ponorogo Regency to young children in Ponorogo. The gap between expectations and reality was identified as an issue in this development, prompting the researcher to create a product in the form of a Reyog theater suitcase as a medium for cultural introduction.

3.2. Design

Following the identification of needs, the design of the product commenced. The design stage was divided into two parts: material and media planning. The planned media in this development is the Reyog theater suitcase. This suitcase is a wooden carry-on with one transparent acrylic-covered side and a storytelling screen. The other side is equipped with a barcode that, when scanned, activates background music. The suitcase also serves as a storage space for story characters, making it easy for teachers to move between classes. It measures 36 cm x 22 cm and can be opened at a 90-degree angle, allowing children to watch the theater from the front of the suitcase. The story characters are made from thick paper featuring figures from the Reyog Ponorogo performance. This stage also involved designing a user guide for the Reyog theater suitcase and providing instructions for teachers on how to use it. The guide also includes three story options: one story about Reyog Ponorogo, tailored to young children, and two creative stories that incorporate values of goodness with characters from the Reyog Ponorogo performance. The barcode contains Reyog Ponorogo musical instruments that teachers can scan to accompany the performance. This barcode is not only attached to the suitcase but is also printed in the user manual. Below is an illustration of the design of the Reyog theater suitcase:



Figure 1. Design of the Reyog theater suitcase. (a) Design of the suitcase and barcode inside. (b) How to operate the Reyog theater suitcase.

3.3. Development

This development stage entails realizing the Reyog theater suitcase media as a cultural introduction to Ponorogo Regency. The development underwent two revision processes concerning content and media, based on feedback and suggestions from content and media experts, aiming to enhance the media's quality and suitability for testing with young children. The details of the Reyog theater suitcase media development for introducing the culture of Ponorogo Regency are as follows:

Initially, the Reyog theater suitcase was created according to the design, measuring 36 cm x 22 cm. The suitcase can be opened to 90 degrees, and inside it, there is a barcode for accompanying music for the Reyog Ponorogo story. The story characters are made from thick paper, with an adhesive on the back, which can be attached to the end of the story stick made of wood. The revised results of the Reyog theater suitcase media development, based on feedback and suggestions from media expert validators, are presented in Figure 2.

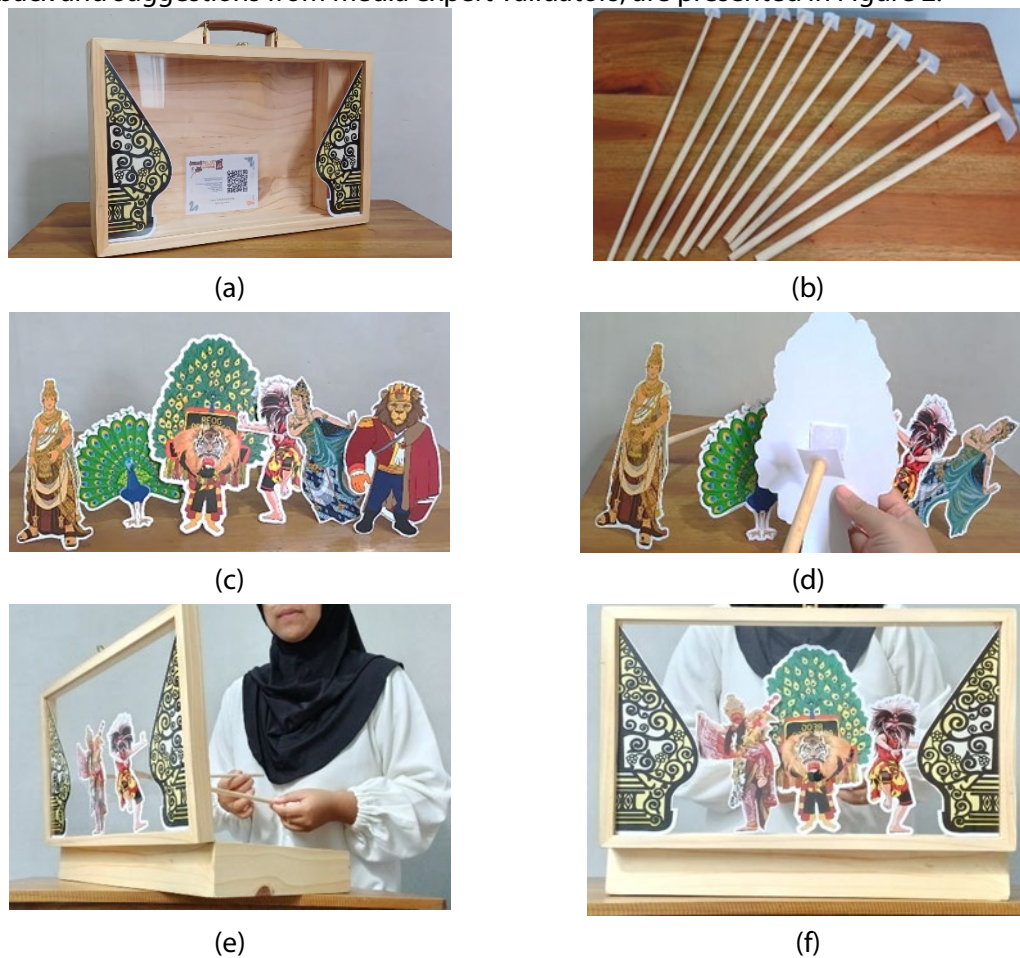


Figure 2 displays the theater suitcase and barcode inside it (a); the story stick with adhesive at its end (b); story characters representing the figures of the Reyog Ponorogo performance (c); the story stick and characters that can be attached (d); side view of how to play the Reyog suitcase (e); front view during play (f).

Secondly, a user guide for the Reyog theater suitcase media was developed according to the design. In addition to usage instructions, this guide includes three Reyog Ponorogo story materials whose plot and character scenes have been developed and adapted to suit the developmental stages of young children. The development results of the Reyog theater suitcase guidebook are:



Figure 3 shows the cover of the user guide for the Reyog theater suitcase media (a), table of contents of the guide (b), a description of the Reyog theater suitcase media (c), instructions for using the Reyog suitcase (d); Reyog Ponorogo story script (e); barcode for accompanying music to the story (f).

The Reyog theater suitcase user guide has undergone several revisions based on feedback and criticism from content expert validators, including adjustments to the storyline and the use of words or sentences to suit young children as the research subjects better. Additionally, more information about the media was added, explaining the title and description of the media, contents, and components of the Reyog theater suitcase, the target audience being early childhood education teachers, the purpose of the media creation, and a guide on how to use the Reyog theater suitcase media.

After development and revision based on feedback and suggestions from content and media experts, the Reyog Theater suitcase media was reassessed to evaluate its suitability. The content expert for evaluating the Reyog theater suitcase media is Dr. Martha Christianti, S.Pd., M.Pd., a faculty member of the Early Childhood Education Program at UNY, specializing in early childhood language development. Meanwhile, the media expert is Dr. Nelva Rolina, S.Pd., M.Si., specializing in educational technology and early childhood learning.

Table 5. Results of Validation by Content and Media Experts

Validator	Score	Percentage	Category
Content Expert	61	81.3%	Highly Suitable
Media Expert	119	95.2%	Highly Suitable

Based on the validation results of the Reyog theater suitcase media by the content expert, a score of 61 was obtained with a percentage of 81.3%, placing it in the "Highly Suitable" category. Similarly, the media expert's media validation of the Reyog theater suitcase achieved a score of 119 with a percentage of 95.2%, also categorizing it as "Highly Suitable."

3.4. Implementation

After the development of media and materials were validated, the next step was to implement the "Reyog Theater Suitcase" media for early childhood. Before the trial, teachers as users underwent training and were briefed on how to use the "Reyog Theater Suitcase" to introduce the culture of Ponorogo Regency. The trial aimed to assess and analyze the effectiveness and practicality of the media and determine if any improvements were needed for subsequent trials.

A small-scale trial was conducted at BA 'Aisyiyah Mangkujayan Ponorogo with eight students in the control group and another eight in the experimental group. During the post-test, teachers in the control group used a picture book titled "Reyog Ponorogo." In contrast, teachers in the experimental group used the developed "Reyog Theater Suitcase." In the storytelling process, students in the control group followed along smoothly; however, they soon lost focus on the teacher's narration. During the question-and-answer session, only a few children could respond accurately.

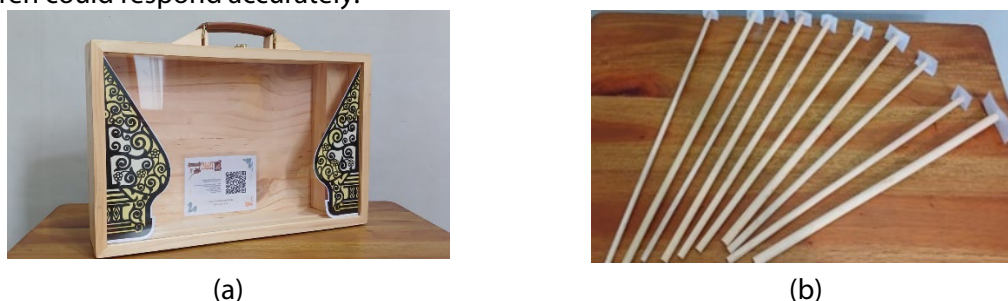


Figure 4. Implementation of the post-test in the small-scale trial control group. (a) The process of the teacher narrating "Reyog Ponorogo" using a picture book. (b) The process of teacher conducting a question-and-answer session about the story of Reyog that had been presented.

In the experimental group, the teacher used the "Reyog Theater Suitcase" media. Students were enthusiastic about listening to the teacher's story until the end and were involved in the story, accompanied by Reyog music. They were also eager to try the "Reyog Theater Suitcase" in turns. After the storytelling, the teacher conducted a question-and-answer session with the students using an authentic test instrument that had been prepared. Several children could correctly and precisely answer questions about the story they had listened to.



Figure 5. Implementation of the post-test in the small-scale trial experimental group using the "Reyog Theater Suitcase" media. (a) The teacher conducts an introduction about "Reyog Ponorogo." (b) The teacher delivers the story using the "Reyog Theater Suitcase." (c) The teacher conducted a question-and-answer session about the story of Reyog that had been presented. (d) Students enthusiastically try the "Reyog Theater Suitcase" in turns.

The results of the authentic test assessing students' understanding of the Reyog story presented by the teacher during the post-test of the control and experimental groups in the small-scale trial were analyzed using the independent samples test as follows:

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Pengenalan Budaya	Equal variances assumed	.230	.639	9.123	14	.000	23.75000	2.60323	18.16664	29.33336
	Equal variances not assumed			9.123	13.998	.000	23.75000	2.60323	18.16656	29.33344

Figure 6. Independent samples test output from the small-scale trial post-test. (a) Homogeneity test and hypothesis test.

Results using the Levene test yielded a p-value = 0.639, indicating that the experimental and control groups were homogeneous. The hypothesis test results showed a p-value = 0.000, leading to the rejection of H₀. Therefore, introducing "Reyog Ponorogo" culture using the "Reyog Theater Suitcase" significantly differed from using the picture book media.

Figure 7. The output of Group Statistics from the small-scale trial post-test. (a) Results of

Media Cerita		N	Mean	Std. Deviation	Std. Error Mean
Pengenalan Budaya	Eksperimen	8	72.0000	5.23723	1.85164
	Kontrol	8	48.2500	5.17549	1.82981

the mean differences between the control and experimental groups.

The average introduction to "Reyog Ponorogo" culture showed that children who participated in storytelling activities using the "Reyog Theater Suitcase" performed better than those who used the picture book media.

A large-scale trial was conducted at TK Mutiara Hati Ponorogo with 16 students in the control group and another 16 in the experimental group. The technical execution of the large-scale trial was the same as in the small-scale trial. Teachers in the control group used the picture book media "Reyog Ponorogo." In contrast, teachers in the experimental group used the "Reyog Theater Suitcase" with a storyline provided in the media usage guidebook. Teachers engaged in storytelling followed by a question-and-answer session to gauge students' understanding of the Reyog story. Subsequently, the teachers conducted an authentic assessment to determine the differences in students' understanding between the control and experimental groups.



(a)



(b)

Figure 8. Implementation of the post-test in the large-scale trial control group. (a) The process of the teacher narrating using the "Reyog Ponorogo" picture book media. (b) The teacher conducts a question-and-answer session with the students about the story that had been presented.

Implementing the posttest for the control class in the large-scale trial using Reyog Ponorogo storybook media generated enthusiasm among students to listen to the Reyog stories, as the teacher had not previously told these stories to the students. Midway through the story, some children begin to lose focus. After the story ended, the teacher conducted an authentic test by engaging in a question-and-answer session. Only a few children could accurately answer questions based on the story content; the rest could not respond correctly.

In the experimental class, the teacher used the revised Reyog theater suitcase media based on suggestions from teacher responses in a smaller-scale test. The media retained the same design but differed in size and durability. Students were eager to listen to the story using the suitcase theater, accompanied by Reyog music. Subsequently, the teacher assessed students' understanding of the narrative through questions and provided feedback. Many students accurately and precisely answered the teacher's questions. Students were also keen to try the media in turns and dance along with the Reyog Ponorogo music.



Figure 9. Implement the posttest for the experimental class in the large-scale trial using Reyog theater suitcase media. (a) The teacher introduces the concept of Reyog Ponorogo. (b) The storytelling process using Reyog theater suitcase media. (c) The teacher engages with students in a question-and-answer session about the presented story. (d) Students take turns using the Reyog theater suitcase media.

The results of the authentic test assessing students' understanding of the Reyog story presented by the teacher in the posttest for both the control and experimental classes in the large-scale trial were analyzed using the independent samples test as follows:

Homogeneity test and hypothesis testing. Levene's test yielded a p-value of 0.112, indicating that the experimental and control groups were homogeneous. The hypothesis testing results showed a p-value of 0.002, leading to rejecting H0. Consequently, the introduction of Reyog Ponorogo culture using the Reyog theater suitcase media significantly differed from the introduction using pictorial storybooks.

Differences in the mean scores between the control and experimental classes in the large-scale trial. Children who participated in storytelling activities using the Reyog theater suitcase performed better than those who used pictorial storybooks in terms of cultural understanding of Ponorogo.

3.5. Evaluation

The evaluation of the media development was based on observations during the implementation of the Reyog theater suitcase, comments, and suggestions from teachers. From

the small-scale trial, teachers remarked that the learning media of the Reyog theater suitcase was highly appealing and unique, as it had not been used before. The students' curiosity was exceptionally high, compelling them to move closer to the media while listening to the story, even though it was already visible from their seats. Teachers suggested that the size of the suitcase and the story characters should be increased to allow more freedom in using the media for storytelling. After testing the media and assessing children's responses, teachers completed a survey evaluating the Reyog theater suitcase. The media's suitability based on the small-scale trial was 95%, which met the criteria for validity. However, some aspects were revised according to teachers' suggestions. The media was then reevaluated in a small-scale trial, achieving a final suitability score of 98%, indicating it met the validity criteria.

The subsequent phase involved a large-scale trial where teachers provided feedback on the media through a response survey. The teacher's assessment of the media in the large-scale trial was 96%, which met the validity product criteria. Teachers commented that the media was well-designed and engaging. The children immensely enjoyed listening to and interacting with the story. The media proved to be an effective tool for conveying the Reyog Ponorogo story to children. Teachers hoped that the media could be produced in large quantities to be used by kindergarten teachers in the Ponorogo District as a storytelling tool for Reyog Ponorogo.

Discussion

The research sought to address a critical gap in educational media by developing the Koper Teater Reyog to introduce the cultural narratives of Reyog Ponorogo to early childhood audiences. Previous studies have underscored the importance of culturally relevant educational tools in fostering cultural identity and cognitive development among young children (Connors, 2016; Lucas, 2017). In line with these findings, our study explored the effectiveness of a novel storytelling medium that combines tactile interaction with digital augmentation, a method supported by recent advances in educational technology (Rohaya et al., 2012; Tomi & Rambli, 2013). This hybrid approach bridges traditional storytelling with modern educational techniques, ensuring cultural transmission engagingly and educationally. The relevance of integrating local culture into early childhood education through innovative media is increasingly recognized as vital in the preservation of cultural heritage and the development of cultural competence (Dimoulas et al., 2014; Ihmeideh & Alkhalwaldeh, 2017).

The study's results confirm the high effectiveness of the Koper Teater Reyog in enhancing the understanding and appreciation of Reyog Ponorogo culture among young children. Significant differences in cultural comprehension between the experimental group using Koper Teater Reyog and the control group using conventional picture books were observed (p -value = 0.000). This finding highlights not only the utility of Koper Teater Reyog in delivering cultural content and its superiority over traditional media in capturing and maintaining young learners' attention and interest. Additionally, the feedback from educators during the trials emphasized the practicality and appeal of the Koper Teater Reyog, further validating its educational value. These results were unexpected to some extent, given the novelty and complexity of the medium involved, suggesting a promising direction for future educational tools (Kerthyayana Manuaba, 2017; Nugraheni et al., 2020).

Comparison with prior research indicates that while digital and interactive media have been successfully used in early childhood education, the specific integration of a tangible, interactive story medium like Koper Teater Reyog offers a unique contribution (Mortara et al., 2014; Ulu-Aslan & Baş, 2023). Studies on digital storytelling tools such as augmented reality books and educational animations have shown similar benefits in engagement and learning outcomes (Prilosadoso et al., 2021; Tomi & Rambli, 2013). However, the hands-on aspect of the Koper Teater Reyog, which allows children to interact with the storytelling elements physically, appears to enhance the learning experience further by catering to the tactile learning preferences of young children, a factor not commonly addressed in purely digital formats. This finding aligns with research advocating for multimodal learning approaches, which suggest that

learning is optimized when multiple senses are engaged (Davies et al., 2013; Neofytou et al., 2021). Hence, our results support the broader educational literature while providing empirical evidence for the efficacy of integrating tactile interactions in learning about cultural heritage.

Moreover, the direct interaction facilitated by Koper Teater Reyog contrasts with the passive reception commonly associated with conventional digital media like videos or standard e-books. This active engagement is critical in early childhood education, promoting deeper cognitive processing and memory retention (Johnston, 2021; McNeill et al., 2021). The Koper Teater Reyog's design, which encourages children to manipulate physical elements while a story unfolds, effectively embodies the principles of experiential learning, which posit that learners benefit most from doing rather than observing (Hayden & McIntosh, 2018; Vilà-Giménez & Prieto, 2020). This experiential approach supports the absorption of cultural narratives and fosters essential cognitive skills such as problem-solving and critical thinking. Our findings corroborate Ulu-Aslan and Baş (2023), who found that interactive media could significantly enhance school-aged children's critical thinking and media literacy skills.

The significant enhancement in cultural knowledge and appreciation observed in children exposed to the Koper Teater Reyog underscores the educational potential of this medium. It is essential, however, to interpret these findings with caution, given the medium's novelty and the study's specific cultural context. While the results are promising, they may not be directly generalizable to other cultural settings or educational contexts without further adaptation and testing. Moreover, the reliance on technology and physical components in Koper Teater Reyog could present challenges in terms of scalability and sustainability, which are critical for widespread adoption in diverse educational settings (Kerthyayana Manuaba, 2017; Nugraheni et al., 2020). Nevertheless, these findings contribute to a growing body of evidence supporting integrating culturally responsive and technologically enriched educational tools in early childhood education.

In elucidating the mechanisms behind the effectiveness of Koper Teater Reyog, it is clear that the combination of storytelling with physical interaction plays a pivotal role. This method leverages the natural propensity of young children for hands-on exploration and narrative engagement, thus facilitating deeper emotional and cognitive connections to the material presented (Halim, 2019; Supriyanto, 2024). The educational significance of these findings cannot be overstated, as they highlight the need for educational materials that inform, inspire, and engage young learners. Given the positive outcomes associated with this approach, there is a compelling case for further research into similar interactive educational tools that could foster cultural identity and cognitive development from a young age. Future studies might explore the application of such tools in other cultural narratives and settings, potentially broadening the impact of this innovative educational approach (Supriyanto, 2024; Tzima et al., 2020).

The implications of this research are far-reaching, suggesting that Koper Teater Reyog could serve as a model for similar initiatives aimed at integrating cultural education into early childhood learning environments globally. By demonstrating the effectiveness of combining physical and digital storytelling elements, this study contributes to the evolving discourse on the best practices for educational content delivery in an increasingly digital world. These findings advocate for a more nuanced approach to educational media development, where the goal is to educate, engage, and inspire through culturally rich, interactive experiences. Such initiatives are crucial for fostering global cultural awareness and appreciation early, aligning with educational policies to build more inclusive, informed, and tolerant future generations (Maryanti et al., 2021; Uliasari & Dian Kristiana, 2024). Ultimately, the success of Koper Teater Reyog highlights the potential of innovative educational tools to transform learning landscapes and enrich the educational experiences of young children around the world.

Conclusion

This study aimed to develop and assess Koper Teater Reyog's effectiveness in introducing Ponorogo culture to young children, identifying a critical need for innovative storytelling media

incorporating local cultural narratives. The design of the Koper Teater Reyog, with its transparent panel screen and barcode for musical accompaniment, alongside easily manipulable cultural figurines, represents a significant step forward in cultural education media. The product underwent two revisions based on expert feedback on content and media, enhancing its quality and suitability, with final evaluations affirming its high effectiveness as an educational tool. Trials demonstrated a significant difference in cultural introduction between experimental classes using the Koper Teater and control classes using conventional picture books. The implications of these findings are profound. The Koper Teater Reyog could be a template for similar initiatives globally, integrating cultural education into early childhood learning environments. By successfully merging physical and digital storytelling elements, this study contributes to the evolving discourse on educational content delivery in an increasingly digital age. However, the research's focus on a specific cultural context suggests limitations in direct applicability to other settings, necessitating further studies to explore its effectiveness across diverse educational environments. Future research should aim to broaden the cultural narratives used in early childhood education, thereby enriching curriculum development and teaching methodologies on a global scale.

References

- Achmadi, A. (2014). Aksiologi Reog Ponorogo Relevansinya dengan Pembangunan Karakter Bangsa. *Teologia*, 25(1), 3–27.
- Amani, J., & Mgaiwa, S. J. (n.d.). Bringing students' culture into the classroom: perspectives of pre-primary teachers and parents on culturally-responsive instruction in Tanzania. *Education 3-13*, 1–14. <https://doi.org/10.1080/03004279.2023.2175617>
- Arikunto, S. (2013). *Prosedur penelitian suatu pendekatan praktik*. Rineka cipta.
- Arndt, S., & Bartholomaeus, C. (2022). What about teachers' cultures? Elevating early childhood teachers' culture stories through a Kristevan lens. *Contemporary Issues in Early Childhood*, 14639491221141726. <https://doi.org/10.1177/14639491221141726>
- Arsyad, A. (2017). *Media Pembelajaran* (A. Rahman (ed.); Cetakan ke). Rajawali Pers.
- Batubara, H. H. (2020). Media Pembelajaran Efektif. In *Fatawa Publishing* (Issue October). Fatawa Publishing.
- Branch, R. (2010). *Instructional Design: The ADDIE Approach*. Springer US.
- Connors, M. C. (2016). Creating cultures of learning: A theoretical model of effective early care and education policy. *Early Childhood Research Quarterly*, pp. 36, 32–45. <https://doi.org/https://doi.org/10.1016/j.ecresq.2015.12.005>
- Davies, D., Jindal-Snape, D., Collier, C., Digby, R., Hay, P., & Howe, A. (2013). Creative learning environments in education—A systematic literature review. *Thinking Skills and Creativity*, pp. 8, 80–91.
- Dimoulas, C. A., Kalliris, G. M., Chatzara, E. G., Tsiapas, N. K., & Papanikolaou, G. V. (2014). Audiovisual production, restoration-archiving, and content management methods to preserve local tradition and folkloric heritage. *Journal of Cultural Heritage*, 15(3), 234–241. <https://doi.org/https://doi.org/10.1016/j.culher.2013.05.003>
- Fisabilillah, A., Yunitasari, A., Rengganis, M. P., & Dayanti, R. E. (2022). *Mengenal sejarah dan filosofi seni pertunjukan kebudayaan reog Ponorogo "The Culture Of Java" Taruna Adhinanta di Universitas PGRI Madiun*. 5, 24–31.
- Halim, A. (2019). Cultural Values of Reog Ponorogo and Its Contribution to Islamization in East Java, Indonesia. *Jurnal Penelitian*, 16(1), 37–52.
- Hayden, M., & McIntosh, S. (2018). International education: the transformative potential of experiential learning. *Oxford Review of Education*, 44(4), 403–413. <https://doi.org/10.1080/03054985.2017.1402757>
- Ihmeideh, F., & Alkhalwaldeh, M. (2017). Teachers' and parents' perceptions of the role of technology and digital media in developing child culture in the early years. *Children and Youth Services Review*, 77, 139–146. <https://doi.org/https://doi.org/10.1016/j.childyouth.2017.04.013>

- Ikawira, E. (2014). *Penciptaan buku ilustrasi legenda Reog Ponorogo sebagai upaya mengenalkan budaya lokal kepada anak-anak* (Vol. 1). Sekolah Tinggi Manajemen Informatika dan Teknik Komputer Surabaya.
- Johnston, K. (2021). Engagement and Immersion in Digital Play: Supporting Young Children's Digital Wellbeing. *International Journal of Environmental Research and Public Health*, 18(19), 10179. <https://doi.org/10.3390/ijerph181910179>
- Kerthyayana Manuaba, I. B. (2017). Text-Based Games as Potential Media for Improving Reading Behaviour in Indonesia. *Procedia Computer Science*, 116, 214–221. <https://doi.org/https://doi.org/10.1016/j.procs.2017.10.041>
- Kustandi, C., & Sutjipto, B. (2011). *Media Pembelajaran: Manual dan Digital*. Penerbit Ghalia Indonesia.
- Lucas, F. M. M. (2017). The Game as an Early Childhood Learning Resource for Intercultural Education. *Procedia - Social and Behavioral Sciences*, 237, 908–913. <https://doi.org/https://doi.org/10.1016/j.sbspro.2017.02.127>
- Maryanti, R., Hufad, A., Sunardi, S., Nandiyanto, A. B. D., & Kurniawan, T. (2021). Analysis of curriculum for science education for students with special needs in vocational high schools. *Journal of Technical Education and Training*, 13(3 Special Issue), 54–66. <https://doi.org/10.30880/jtet.2021.13.03.006>
- McNeill, J., Howard, S. J., Vella, S. A., & Cliff, D. P. (2021). Cross-Sectional Associations of Application Use and Media Program Viewing with Cognitive and Psychosocial Development in Preschoolers. *International Journal of Environmental Research and Public Health*, 18(4), 1608. <https://doi.org/10.3390/ijerph18041608>
- Mortara, M., Catalano, C. E., Bellotti, F., Fiucci, G., Houry-Panchetti, M., & Petridis, P. (2014). Learning cultural heritage by serious games. *Journal of Cultural Heritage*, 15(3), 318–325. <https://doi.org/https://doi.org/10.1016/j.culher.2013.04.004>
- Neofytou, C., Hadzilacos, T., & Massler, U. (2021). *Work-in-Progress: GameLet: Readers' Theater in Media-Based Gamification for Reading Skills BT - Internet of Things, Infrastructures and Mobile Applications* (M. E. Auer & T. Tsiatsos (eds.); pp. 539–546). Springer International Publishing.
- Nugraheni, L., Suyitno, Ekowardani, N., & Waluyo, H. J. (2020). Pictures Series As Learning Media Of Folklore At Elementary School. *Proceedings of the 4th International Conference on Learning Innovation and Quality Education*, 1–4. <https://doi.org/10.1145/3452144.3453760>
- Prilosadoso, B. H., Atmaja, N. R. A. C. D., & Murwanti, S. (2021). Revitalization of Folklore and Actualization Efforts Through Visualization Animation Media in Early Childhood Character Building. *International Journal of Social Sciences and Humanities*, 5(1), 1–8. <https://doi.org/10.29332/ijssh.v5n1.590>
- Rohaya, D., Rambli, A., Matcha, W., Sulaiman, S., & Nayan, M. Y. (2012). Design and Development of an Interactive Augmented Reality Edutainment Storybook for Preschool. *IERI Procedia*, 2, 802–807. <https://doi.org/https://doi.org/10.1016/j.ieri.2012.06.174>
- Sidhartani, S. (2018). Merancang karakter dalam cerita rakyat terciptanya kesenian reog Ponorogo. *Visual Heritage: Jurnal Kreasi Seni Dan Budaya*, 01(01), 82–91.
- Sulton, Wulansari, B. Y., & Utami, P. S. (2020). Wayang Golek Reog Ponorogo: The Acculturation of Indonesian Culture As Patriotism Character Education Learning Medium to Early Age Children. *KnE Social Sciences*, 4(4 SE-Articles). <https://doi.org/10.18502/kss.v4i4.6494>
- Supriadi, & Wardo. (2015). Regenerasi seniman reog Ponorogo untuk mendukung revitalisasi seni pertunjukan tradisional dan menunjang pembangunan industri kreatif. *Cakra Wisata*, 16(1), 13–25.
- Supriadi, D., Mardiyana, M., & Subanti, S. (2015). Analisis Proses Berpikir Siswa Dalam Memecahkan Masalah Matematika Berdasarkan Langkah Polya Ditinjau Dari Kecerdasan Emosional Siswa Kelas Viii Smp Al Azhar Syifa Budi Tahun Pelajaran 2013/2014. *Jurnal Elektronik Pembelajaran Matematika*, 3(2), 204–214.

- Supriyanto, D. (2024). *Female Reog Of Plunturan: Empowering Women Preserving Culture BT - Proceedings of the 2nd International Conference on Multidisciplinary Sciences for Humanity in Society 5.0 Era (ICOMSH 2022)*. 52–58. https://doi.org/10.2991/978-2-38476-204-0_5
- Tomi, A. Bin, & Rambli, D. R. A. (2013). An Interactive Mobile Augmented Reality Magical Playbook: Learning Number with the Thirsty Crow. *Procedia Computer Science*, 25, 123–130. <https://doi.org/https://doi.org/10.1016/j.procs.2013.11.015>
- Tzima, S., Styliaras, G., Bassounas, A., & Tzima, M. (2020). Harnessing the Potential of Storytelling and Mobile Technology in Intangible Cultural Heritage: A Case Study in Early Childhood Education in Sustainability. In *Sustainability* (Vol. 12, Issue 22). <https://doi.org/10.3390/su12229416>
- Uliasari, N., & Dian Kristiana. (2024). INTRODUCTION OF REOG PONOROGO CULTURE TO STIMULATE PATRIOTISM FOR 3-4 YEARS OLD CHILDREN. *JOURNAL OF HUMANITIES AND SOCIAL STUDIES*, 2(01 SE-Articles), 122–129. <https://humasjournal.my.id/index.php/HJ/article/view/243>
- Ulu-Aslan, E., & Baş, B. (2023). Popular culture texts in education: The effect of tales transformed into children's media on critical thinking and media literacy skills. *Thinking Skills and Creativity*, 47, 101202. <https://doi.org/https://doi.org/10.1016/j.tsc.2022.101202>
- Utami, P. S., Sulton, & Wulansari, B. Y. (2021). The social innovation of the prototype of local culture of wayang golek reyog Ponorogo. *Proceedings of the 1st International Conference Of Education, Social And Humanities (INCESH 2021)*, 581(Incesh), 294–299.
- Vilà-Giménez, I., & Prieto, P. (2020). Encouraging kids to beat: Children's beat gesture production boosts their narrative performance. *Developmental Science*, 23(6). <https://doi.org/10.1111/desc.12967>
- Wiyahnyuy, L. F., & Valentine, N. B. (2023). Folktales as indigenous pedagogic tools for educating school children: A mixed methods study among the Nso of Cameroon. *Frontiers in Psychology*, 14(February), 1–8. <https://doi.org/10.3389/fpsyg.2023.1049691>
- Yesi Yuana Oktavia, Muhammad Mahfud, & Rahmad Rudianto. (2023). Internalisasi Kesenian Reog Ponorogo Dalam Menumbuhkan Karakter Disiplin Siswa Di SDN 2 Sumoroto Kauman Melalui Kegiatan Ekstrakurikuler: Internalisasi kesenian reog karakter disiplin. *El-Miaz: Jurnal Pemikiran Dan Pendidikan Dasar*, 2(2 SE-Articles), 62–68. <https://jurnal.mialazhar.sch.id/index.php/el-miaz/article/view/79>
- Yurisma, D. Y., & Bahrudin, M. (2020). Meaning of the Ponorogo Reog Symbol in the Java Tradition: A Critical Study. *Bricolage: Jurnal Magister Ilmu Komunikasi*, 6(1), 101–116.