



Development of the *taneyan lanjheng* puzzle as a medium to motivate madurese cultural learning in elementary school students

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Abstract

Madurese culture must continue to be preserved and introduced to children in schools. The most effective introduction of Madurese culture for children is through games. The purpose of this study is to develop the Taneyan Lanjheng puzzle as a medium to motivate madurese cultural learning in elementary school students. This study used a research and development (R&D) method. The development stages include: research and information gathering, planning, initial product development, and initial field trials and revisions to the main product. Data analysis techniques in this research including: data reduction, data display, and conclusions. The results of the study are the Taneyan Lanjheng puzzle consisting of 11 puzzle pieces containing various Madurese cultures in the form of traditional clothing, traditional food, and Madurese regional arts. The trial results show that the Taneyan Lanjheng puzzle has good quality and is suitable for use as a medium to motivate madurese cultural learning in elementary school students. From the product feasibility test involving material experts and media experts, the average assessment score was 93%, while the average assessment score from students reached 87%. This means that the developed Taneyan Lanjheng puzzle is very suitable for use. Taneyan Lanjheng puzzles are unique compared to other learning media. The Taneyan Lanjheng puzzle integrates various types of Madurese culture as a game-based learning medium so that it is more interesting and innovative.

Introduction

Taneyan Lanjheng is a cultural tradition that must be continuously preserved as a form of local wisdom of the Madurese people. Local wisdom itself is interpreted as the excellence and distinctive characteristics of the Indonesian nation that are not possessed by other nations. Local wisdom holds a very important position in the social fabric of human life and therefore needs to be taught to students in schools (Nadlir, 2014). The goal is for children and the younger generation to recognize, appreciate, and internalize cultural values in their daily lives. Currently, children have little knowledge of their regional culture due to technological advances (Saputra et al., 2025). Regional cultural values are increasingly being eroded by developments over time (Lestari, 2018), including taneyan lanjheng. Local culture is a philosophy of life, knowledge, and various methods applied by local people in living their lives to face various problems and fulfill their life needs (Fajarini, 2014).

Fundamentally, local wisdom is positive values originating from local culture and widely accepted by society due to its superior value (Wafiqni & Nurani, 2018). Various studies have shown that local wisdom education can be used as a means of character building in students (Fajarini, 2014). Local wisdom, encompassing noble values, morals, and customs that have developed within the community, is integrated and implemented in character education throughout elementary school (Maisaroh et al., 2022). It also serves

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as a supporter of national identity, a filter for foreign cultural influences, a guide for life, and a cornerstone of the nation (Dora et al., 2021).

Tanean Lanjheng, as one of Madurese's local wisdoms, possesses profound philosophical meaning and character and cultural values. Tanean Lanjheng closely reflects the lives of the Madurese people. Tanean Lanjheng holds important cultural meaning and values for the Madurese people, including those related to social interaction, family unity, and spatial management (Jannah et al., 2021; Mansur et al., 2020). Therefore, Tanean Lanjheng must be continuously introduced to children in both school and daily life. In this context, one effective way to introduce Tanean Lanjheng to children is through play. For children, play is the most enjoyable activity, so they spend most of their time playing (Fadlillah, 2018).

One form of game that can introduce Tanean Lanjheng in an interesting and fun way is puzzles. Puzzle games are games that are played by arranging picture pieces into one. Puzzle games are also closely related to visual-spatial intelligence (Anjani & Nurjanah, 2014) and children's cognitive abilities (Kurnietin et al., 2025) so they are very appropriate if used as a medium for introducing Tanean Lanjheng. In addition, one educational game that can optimize all children's abilities and intelligence is puzzle games (Rabiyanti et al., 2024).

Puzzles have many functions in learning. Puzzles are not only used as games, but can also be an engaging learning medium and increase student motivation. The research results prove that the use of puzzles can increase motivation and learning outcomes in elementary school students (Biantonga et al., 2023; Iriani & Çoruh, 2023; Oktaviani & Elmojahed, 2023; Syafmen & Indri, 2023). Puzzles can also improve students' thinking skills (Darmayanti, 2023; Rabiyanti et al., 2024) and improve literacy (Ghozali et al., 2022). Developing puzzles as a learning medium is crucial. In addition to helping teachers convey messages, puzzles can also help improve student learning outcomes in various subjects (Abdulah et al., 2020; Alika & Radia, 2021). Puzzles can increase student interest in studying social and cultural issues (Azzahra & Irawan, 2025).

Unfortunately, game-based learning media that connects with the regional economy is limited. Previous research has focused more on learning media to improve student motivation and learning outcomes (Biantonga et al., 2023; Iriani & Çoruh, 2023; Oktaviani & Elmojahed, 2023; Syafmen & Indri, 2023). For this reason, developing game-based learning media that is integrated with regional culture is very important and needs to be done. This study aims to develop the Taneyan Lanjheng puzzle as a game-based learning medium to motivate madurese cultural learning in elementary school students. With this Taneyan Lanjheng puzzle, students are expected to learn and understand Madurese culture in an easy, engaging, and enjoyable way.

Methods

This type of research is Research and Development (R&D). This method was chosen because it aims to develop a product while simultaneously testing its feasibility and suitability (Borg & Gall, 2007). This research develops and produces the Taneyan Lanjheng puzzle as a learning medium for elementary school students about Madurese culture.

Development procedure

In this study, the development of the Taneya Lanjheng puzzle refers to the Borg and Gall model which includes several stages, namely research and data collection, planning, preparation of the initial product, as well as initial field trials along with revisions to the main product (Borg & Gall, 2007). The stages are explained in detail below:

Research and information collecting

In data collection, a needs analysis was conducted by gathering various relevant information. This information was obtained through a review of previous research on the development of Madurese culture, particularly Taneyan Lanjheng culture.. This needs analysis revealed that many children have forgotten Taneyan Lanjheng. Furthermore, the preservation of Madurese culture is in a concerning state. This situation prompted the development of the Taneyan Lanjheng puzzle to introduce Madurese culture at an early age in elementary schools.

Planning

The planning stage was carried out by preparing and carrying out several activities, including conducting studies and identifying puzzle games and regional cultural materials that were suitable for elementary school students by considering the developmental characteristics and needs of students. The Taneyan Lanjheng puzzle was designed in a simple form so that it could be easily used in elementary school learning. In addition, various sources and materials for making the Taneyan Lanjheng puzzle were collected from various scientific literature whose truth can be accounted for, both in the form of scientific articles and reference books, and discussions and exchanges of ideas were conducted with colleagues and parties who had competence related to the product being developed. At this stage, various instruments were also prepared to assess the feasibility of the Taneyan Lanjheng puzzle product in elementary school learning. These instruments include assessment instruments for expert validation and instruments for users.

Teaching materials development.

The puzzle development was carried out after going through a study and analysis of the learning needs of Madurese culture for elementary school students. The puzzle developed contains various Madurese cultures, especially Taneyan Lanjheng, and is designed as a learning medium for elementary school students. The puzzle game was chosen because it is considered appropriate to the developmental characteristics of elementary school-aged children. Before being used in the trial, the puzzle was first validated by elementary school education experts, consisting of material experts and media experts. This validation aimed to obtain advice and assessments from experts regarding the quality and suitability of the Taneyan Lanjheng puzzle product so that it is suitable for use as a learning medium in introducing Madurese culture to elementary school students.

Field trials and product revisions

The field trial phase was conducted to determine the level of product feasibility and to make improvements based on input obtained in the field. The Taneyan Lanjheng puzzle product testing consisted of alpha and beta tests. The alpha test was a testing phase involving material experts and media experts in the field of elementary education. The assessments and suggestions provided by these two experts were used as a reference for improving and perfecting the product. Meanwhile, the beta test was conducted by involving elementary school students as users of the Taneyan Lanjheng puzzle product. The results of the beta test were used to obtain direct responses and assessments from users regarding the quality and feasibility of the product. The beta test was carried out through observations of students while using the Taneyan Lanjheng puzzle during the classroom learning process.

Eligibility test design

The Taneyan Lanjheng puzzle product trial was conducted through a feasibility assessment by elementary education experts and student feedback. This testing was conducted after the assessment instrument was declared valid by the instrument validator and the product was declared ready for trial.

Expert validation

This product validation was conducted by involving material experts and media experts in the field of elementary education. This validation activity aims to ensure that the puzzle is suitable for use as a learning medium. Validation of the material aspect of the Taneyan Lanjheng puzzle was conducted to determine the suitability of Madurese cultural content for learning in elementary schools. Meanwhile, validation of the media aspect aims to assess the suitability of the form and appearance of the teaching material with the age characteristics of elementary school students. With this feasibility validation, the Taneyan Lanjheng puzzle is expected to be able to support students' learning needs in understanding Madurese culture.

Student response

The Taneyan Lanjheng puzzle product, which had been declared feasible by material and media experts, was then demonstrated and practiced in learning. This activity was conducted to determine the feasibility of the Taneyan Lanjheng puzzle developed for use by students. Student feedback is crucial to ensure the puzzle product is of high quality before being mass-produced for elementary school students.

Product trial subjects

The product trial subjects in this study involved second-grade elementary school students. Twenty students were selected to participate in the Taneyan Lanjheng puzzle trial. Each student who is the subject of the experiment will assess the feasibility of Taneyan Lanjheng's puzzle voluntarily and seriously.

Data collection technique

The data collection techniques in this study were divided into two: qualitative and quantitative. Qualitative data were collected through interviews and observations of Taneyan Lanjheng puzzle users. Quantitative data were collected through user trials of the Taneyan Lanjheng puzzle product and analysis of expert validation results.

Data analysis

The data analysis of this research refers to Milles and Hubberman, including data reduction, data display, and conclusions (Ridder et al., 2014). Meanwhile, quantitative data was analyzed using descriptive statistics presented as percentages. Percentage calculations were performed using a specific formula to determine the level of suitability of the learning media based on expert and student assessments.

Results

The Taneyan Lanjheng puzzle was developed as a learning medium to introduce Madurese culture to elementary school students. The development of the Taneyan Lanjheng puzzle product was carried out to answer the research problem formulation. The following is a complete description of the research results.



Figure 1. Taneyan Lanjheng puzzle products

Develop Taneyan Lanjheng puzzle for students

The development of the Taneyan Lanjheng puzzle aims to introduce culture to elementary school students. The procedure for developing the Taneyan Lanjheng puzzle is carried out through several stages, including analyzing students' learning needs, developing the concept and format of the Taneyan Lanjheng puzzle, and designing the Taneyan Lanjheng puzzle. The analysis of students' learning needs is carried out by reviewing various references about Madurese culture that will be included in the Taneyan Lanjheng puzzle, such as arts, traditional foods, and traditional clothing. The materials that have been explained are then selected and collected according to the learning theme and the needs of the Taneyan Lanjheng puzzle development.

The concept and format of the puzzle developed is the Taneyan Lanjheng puzzle for student learning media. The reason for choosing the Taneyan Lanjheng puzzle format is to introduce Madurese culture in a more interesting way to students. The Taneyan Lanjheng puzzle is intended for elementary school students so that learning Madurese culture is more interesting and fun. The Taneyan Lanjheng puzzle was designed using the Canva application and then printed as a puzzle. The choice of the Canva application in creating the Taneyan Lanjheng puzzle design is that it can be used easily and has complete features. By

using the Canva application, the resulting Taneyan Lanjheng puzzle image looks extraordinary and attractive to elementary school students. This Taneyan Lanjheng puzzle is dominated by Taneyan Lanjheng images and various interesting Madurese cultural elements, so that students enjoy learning. With the Taneyan Lanjheng puzzle, it is hoped that Madurese culture can be introduced to students easily and fun.

Form of puzzle Taneyan Lanjheng

The puzzle developed in this research is the Taneyan Lanjheng puzzle. This puzzle is designed for second-grade elementary school students. The purpose of choosing the Taneyan Lanjheng puzzle is to introduce Madurese culture through an engaging and enjoyable game. By using this puzzle, it is hoped that students will gain an understanding of Madurese culture. The term "Taneyan Lanjheng" is used to describe a culture characterized by the unique shape of traditional houses in Madura and their special historical value.

Learning activities in Taneyan Lanjheng puzzle

There are three learning activities students can engage in using the Taneyan Lanjheng puzzle. First, they can learn about the traditional houses of Taneyan Lanjheng. Second, they can name and explain the types of Madurese culture. Third, they can assemble the Taneyan Lanjheng puzzle. Each of these learning activities is explained as follows.

Getting to know Taneyan Lanjheng

Before students put together the puzzle, the teacher explained Taneyan Lanjheng. Each student was asked questions about Taneyan Lanjheng, such as the meaning of Taneyan Lanjheng, the characteristics of Taneyan Lanjheng, and the parts of Taneyan Lanjheng.



Figure 2. The teacher is explaining Taneyan Lanjheng

Explain the types of Madurese culture

After learning about Taneyan Lanjheng, the teacher instructs students to name and explain the types of Madurese culture depicted in the Taneyan Lanjheng puzzle. Students who are able to name the types of Madurese culture can begin assembling the puzzle. This activity indirectly stimulates students' understanding of Madurese culture in an engaging and enjoyable way.



Figure 3. Students are mentioning Madurese culture

Put Together a Puzzle Taneyan Lanjheng

Students can assemble the Taneyan Lanjheng puzzle once they are able to name various Madurese cultural elements as determined by the teacher. Students can assemble the puzzle independently or in

groups. This puzzle consists of 11 pieces that can be assembled into the shape of a traditional Madurese house, the Taneyan Lanjheng.



Figure 4. Students are putting together the Taneyan Lanjheng puzzle

Testing the eligibility of Taneyan Lanjheng puzzle

The expert validation results for the feasibility of the Taneyan Lanjheng puzzle indicate that this puzzle can be used as a learning medium for Madurese culture in elementary schools. The assessment score from the material expert was 94% out of 10 statements, while the assessment score from the media expert was 92% out of 10 statements. The average assessment score for the feasibility of the Taneyan Lanjheng puzzle was 93%. Thus, it can be concluded that the developed product is very suitable for implementation in elementary school learning. The complete results of this expert validation can be seen in Table 2.

Table 2. Expert validation results

No	Validator	Number of statements	Number of assessment scores	Assessment Percentage	Assessment Category
1	Material expert	10	47	94%	Very eligible
2	Media expert	10	46	92%	Very eligible
Average Percentage Assessment Score				93%	Very eligible

During the validation process, experts provided extensive input on the development of the Taneyan Lanjheng puzzle. The content experts provided feedback that the content of the Taneyan Lanjheng puzzle was appropriate for the learning materials and student characteristics in elementary schools. Furthermore, the appearance of the Taneyan Lanjheng puzzle was very attractive for students to use to learn about Madurese culture. It is hoped that the developed Taneyan Lanjheng puzzle will be beneficial for both teachers and students in learning about Madurese culture. With the Taneyan Lanjheng puzzle, learning about Madurese culture will be more engaging and enjoyable. The Taneyan Lanjheng puzzle received a positive response from primary school students. The results of the Taneyan Lanjheng puzzle trial involving 10 second-grade elementary school students showed that the product was very engaging for classroom learning. The trial score obtained from students regarding the suitability of the Taneyan Lanjheng puzzle was 87% out of 10 statements. The trial data on the suitability of this product for students can be seen in Table 3.

Table 3. Student Assessment Scores

No.	Student	Number of Statement	Number of Assessment	Assessment Percentage	Assessment Category
1	S1	10	34	68%	Less eligible
2	S2	10	34	68%	Less eligible
3	S3	10	39	78%	Quite eligible
4	S4	10	46	92%	Very eligible
5	S5	10	46	92%	Very eligible
6	S6	10	49	98%	Very eligible
7	S7	10	48	96%	Very eligible
8	S8	10	48	96%	Very eligible
9	S9	10	44	88%	Very eligible
10	S10	10	47	94%	Very eligible
Average percentage of assessment scores				87%	Very eligible

From the feasibility test of the Taneyan Lanjheng puzzle, both from material experts, media experts, and students, it can be concluded that the Taneyan Lanjheng puzzle is very suitable for use by primary school students as a learning medium in getting to know Madurese culture. Teachers and students can use this Taneyan Lanjheng puzzle in learning activities. It is hoped that the use of the Taneyan Lanjheng puzzle in learning will facilitate the introduction of Madurese culture in an interesting and enjoyable way.

Discussion

The main findings of the research, namely: (1) the Taneyan Lanjheng puzzle consists of 11 pieces with 9 types of Madurese culture, (2) the feasibility from experts is 93%, from students 87%. The form of Taneyan Lanjheng culture here is in the form of a long yard or a settlement on which there are 5 or even more houses that are still related to each other (Mansur et al., 2020), (Kusumawati, 2022). In addition, the Taneyan Lanjheng house pattern consists of a living room, langghar, pakèbân as well as a stable and kitchen. The meaning and philosophical value of Taneyan Lanjheng is to uphold family values, moral values are politeness, respecting older people, throwing garbage in its place, respecting the opinions of others (Jannah et al., 2021; Kusumawati, 2022). For this reason, Taneyan Lanjheng is very important for the community and must continue to be maintained. Children as the younger generation of the community must know and understand this Madurese culture. Taneyan Lanjheng as one of the identities of the Madurese community needs to be disseminated in various forms of activities and learning at school. The introduction of Taneyan Lanjheng in the form of a puzzle game is very possible to be used as a learning medium in getting to know Madurese culture.

Puzzles are visual media because they can only be understood through the sense of sight (Anjani & Nurjanah, 2014; Biantonga et al., 2023). Puzzles are a modern game that is played by arranging pieces of a picture to form a complete picture according to the original shape or according to what is desired. (Fadlillah, 2018). Playing puzzles can train and make students think and train their imagination, which is closely related to cognitive development. (Kurnietin et al., 2025). Several studies show that playing puzzles can develop children's cognitive abilities (Kurnietin et al., 2025). Puzzles can also improve students' thinking skills (Darmayanti, 2023; Rabiyaniti et al., 2024). By arranging and combining separate picture pieces, children can think creatively and imaginatively. Therefore, by playing puzzles, children's intelligence can increase. Puzzle games can sharpen the brain, train eye and hand coordination, train reading, train reasoning, train patience and children's knowledge. Some of the benefits of playing puzzles are: improving cognitive skills, training fine motor skills and training reasoning abilities and improving memory and concentration. Puzzles can increase student interest in studying social and cultural issues (Azzahra & Irawan, 2025). Thus, it can be understood that puzzle games are very important and can be used to introduce culture in the form of perfectly arranged images.

Puzzles are not only used as games, but can also be an engaging learning medium and increase student motivation. Research shows that puzzles can improve the motivation and learning outcomes of elementary school students (Biantonga et al., 2023; Iriani & Çoruh, 2023; Oktaviani & Elmojahed, 2023; Syafmen & Indri, 2023). In addition, puzzles can also be used as game-based learning media for various fields of study. This reason, puzzle games are very appropriate if used as a learning medium. The Taneyan Lanjheng Puzzle

is a learning tool for exploring Madurese culture, a topic that hasn't been widely explored in elementary schools. Therefore, it's very different from other learning tools. It's designed to help students learn and understand Madurese culture in an easy, engaging, and enjoyable way.

The Taneyan Lanjheng puzzle is very useful for teachers and students as a medium for studying Madurese culture. Taneyan Lanjheng is a form of Madurese culture that remains preserved to this day. Taneyan Lanjheng is known as the traditional Madurese house. This traditional Madurese house reflects unity, togetherness, and the strengthening of brotherhood among the Madurese people (Jannah et al., 2021). Taneyan Lanjheng itself is defined as a collection of houses consisting of families that bind them (Kusumawati, 2022). Taneyan Lanjheng linguistically means a yard or a wide, spacious open space. This space is in the form of a large courtyard surrounded by several houses. The distinctive characteristic of Taneyan Lanjheng lies in its spatial pattern and philosophical function, which are then manifested in the lives of the Madurese people. Taneyan Lanjheng consists of a grandfather, father, children, grandchildren, and their respective wives or husbands (Kusumawati, 2022). This traditional Madurese house has a noble, philosophical meaning and is imbued with Islamic values (Agustin et al., 2020).

Taneyan Lanjheng puzzles are unique compared to other learning media. The Taneyan Lanjheng puzzle integrates various types of Madurese culture as a game-based learning medium so that it is more interesting and innovative. Introduction to Madurese culture can be introduced through game-based learning media in the form of the taneyan lanjheng puzzle. The Taneyan Lanjheng puzzle can be used as an engaging, game-based learning medium for students. The Taneyan Lanjheng puzzle learning medium is expected to motivate elementary school students to learn about Madurese culture. A limitation of this research is that it has not yet integrated digital technology into its use. Therefore, a recommendation for future research is to integrate digital technology into the Taneyan Lanjheng puzzle, such as incorporating QR codes.

Conclusion

The Taneyan Lanjheng puzzle can provide students with knowledge about Madurese culture. The development of Taneyan Lanjheng puzzle must continue to be carried out so that they can be a solution to culture problems, especially in Madurese. The results of expert validation and assessment during trials with students show that the Taneyan Lanjheng puzzle is very suitable for use by students and teachers as a learning medium for Madurese cultural material in elementary schools. In the Taneyan Lanjheng puzzle there are interesting learning activities that can motivate students in learning Madurese culture. The success of the Taneyan Lanjheng puzzle in learning is largely determined by the students' learning conditions. It is hoped that through the development of the Taneyan Lanjheng puzzle, it can arouse students' interest in getting to know Madurese culture from an early age in elementary school. The Taneyan Lanjheng puzzle as a learning medium for Madurese culture requires further testing. Therefore, future researchers can test the effectiveness of the Taneyan Lanjheng puzzle on students' cognitive abilities in understanding Madurese culture.

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