


A Study of Traditional Games “Engklek” in Mathematics for Elementary School

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ARTICLE INFO	ABSTRACT
<p>Article history Received 04, 21, 2020 Revised 08, 11, 2020 Accepted 08, 22, 2020</p>	<p>This study aims to determine whether teachers know that a traditional game “Engklek” can be integrated into elementary school learning. The current 2013 curriculum implemented by the government states that teachers should incorporate the surrounding values into the learning. The research method used was a mixed method with a sequential explanatory model. The research participants were 34 elementary school teachers in Batanghari. The data was collected using observation sheets and interviews conducted with respondents. The results of this study show that the teacher has a good knowledge of traditional games. However, the teachers do not know that traditional games can be integrated into learning, even though applying them to learning helps to educate students, as well as preserve their culture.</p>
<p>Keywords Elementary school Engklek Traditional games</p>	<p>Penelitian ini bertujuan untuk mengetahui apakah guru sekolah dasar mengetahui permainan tradisional “engklek” dapat diintegrasikan kedalam pembelajaran. Karena, dengan mengikuti kurikulum 2013 yang diterapkan oleh pemerintah harus mengintegrasikan nilai-nilai yang ada disekitar kedalam pembelajaran. Metode penelitian yang digunakan adalah mixed method dengan model sequential explanatory, dimana jumlah sampel pada penelitian ini sebanyak 34 responden yang berasal dari guru sekolah dasar yang ada di Batanghari melalui lembar observasi dan wawancara yang dilakukan bersama responden. Hasil pada penelitian ini guru memiliki kategori yang baik mengenai pengetahuan guru terhadap permainan tradisional, akan tetapi, para guru tidak mengetahui bahwa permainan tradisional dapat diintegrasikan kedalam pembelajaran, padahal dengan menerapkannya kedalam pembelajaran selain mendidik siswa, juga dapat ikut melestarikan kebudayaan yang dimiliki</p> <p>This is an open access article under the CC-BY license.</p> 

I. Introduction

Local wisdom is an idea that is wise, full of knowledge, and good value, which is embedded and followed by community members. According to Law No. 32, the Year 2009, local wisdom is the noble values that apply in the community way of life to protect and manage the environment in a sustainable manner. In foreign languages, it is often referred to as local policy, local wisdom, local knowledge, local genius, or local intelligence (Fajarini, 2014). Local wisdom is a view of life and science as well as a variety of life strategies in the form of activities carried out by local communities in answering various problems in fulfillment

(Fajarini, 2014). Local wisdom is influenced by the culture of each region, so that cultural diversity will potentially produce different local wisdom. There are positive character formation values in traditional games (Lavega et al., 2014). Local wisdom is basic knowledge gained from living in balance with nature. It is related to culture in the community, which is accumulated and passed on (local wisdom is the basic knowledge gained from living in balance with nature. This is related to the culture in Indonesia, which the community accumulates and continues (Mungmachon, 2012). Further, the local wisdom also has a function and direction that is achieved and learned. Accord-

ing to (Basyari, 2011), superior local cultural values must be inheritance social values, that make social attitudes more closely. This is in line with (Edwards, 2009) explains that all local wisdom are the social foundations essential to improve the solidarity of society.

Education that is based on local wisdom makes students remember the culture in their surrounding area. In relation to that, (Munawaroh, 2017) mentions that one of the educational stimuli to convey academic, religious values and religious norms, as well as good behavior habituation, is fun activities. Education associated with local culture should be linked early in the basic education environment. Education has a significant role in the progress of a country because learning can improve the quality of human resources. It is in line with (Omeri, 2015) that national education functions to develop capabilities and form community agreements. Education is an essential part of human life that can never be abandoned. Improvement of human resources can be made through one of the curriculum developments. The curriculum in Indonesia has changed several times. As stated by (Wahyuni, 2015), that curriculum is designed to provide learning experiences and develop students' life skills. Curriculum transformation is completed to adjust to the objectives of national education. Each curriculum has different goals, principles, and methods (Asrial et al., 2019; Syahril et al., 2019). The curriculum used must be in accordance with the National Education system and adapted to the cultural potential to optimize Education goals attainment.

Law Number 20, the year 2003 concerning the National Education system, states that curriculum at all levels and types of education are developed with the principle of diversification in accordance with Education units, regional potentials, and students. This is supported (Asrial et al., 2019), which states that the curriculum without the learning process is just a plan; therefore, any plans and objectives in the curriculum should be implemented in learning. (Kemendikbud, 2013) concerning the implementation of the curriculum, explains that a learning activity can develop attitudes, knowledge, and skills in a variety of combinations and emphases. The curriculum that is adapted to local wisdom and culture can help students to process material with abstract concepts more quickly. Additionally, curriculum development involves philosophical thoughts, psychology, technological science and culture (Wirianto, 2014). Education is the process of

changing attitudes and behavior of a person, as well as a group of people to mature humans through teaching and training efforts (Kovačević & Opić, 2014). Basically, students already know the environment before coming to school. So, by implementing a curriculum that is tailored to local wisdom and culture, students will more easily understand the material presented because the examples are real and close to their environment. (Khasanah et al., 2011) mention that local cultural values are found in various cultural phenomena of the community, one of which is in traditional children's play.

Traditional games have become one of the practical and fun media in the application of culture-based character education (M Ridwan, 2016). Indonesian children must be able to maintain traditional games in Indonesia. (Prisia Yudiwinata, 2014) argue that conventional games do not merely represent a play, but there are elements of culture and education firmly attached and must be preserved. The advantages contained in traditional games also benefit students. As stated by (Pratiwi & Kristanto, 2014) that traditional games can introduce, maintain, while increasing the love for the nation's cultural heritage and noble values contained in it.

Based on the results of the field data taken from the interview results of the Ministry of Education, traditional leaders, communities, and teachers at the State Elementary School 64 / I Muara Bulian, traditional games have not been included in learning, because there is no implementation of classic games in the curriculum. As a result, the culture of the Indonesian people will fade. Therefore, the local wisdom, especially traditional games, should be incorporated into learning in elementary schools.

One of the traditional games that can be included in learning is the traditional Chinese game. In line with (Fitriyah & Khaerunisa, 2018), among the many ways to reintroduce "Engklek" game is to make it as a means and medium of learning in schools. With movements in a series of checkered boxes contained in the image of the game, the Engklek can be played and included in learning. As explained by (Febriyanti et al., 2018), this game contains mathematical aspects, such as 1) introduction to numbers and numeracy; 2) the introduction to flat structures found in cricket plots, flat buildings used vary in each region and a combination of triangles and rectangles. Therefore, this study aims to determine whether the traditional

game "Engklek" can be included in the 2013 curriculum precisely in elementary school mathematics lessons.

II. Method

The research method used in this study was a mixed research method (mixed method). Mixed research is a general type of research (one of the three paradigms) in which quantitative and qualitative methods, techniques, or other paradigm characteristics are mixed in one study (Johnson & Christensen, 2019). This research used an explanatory sequential mixture design. This design consists of collecting quantitative data and then collecting qualitative data to explain or elaborate on the quantitative results (Cohen et al., 2013; Creswell, 2012).

The quantitative data were obtained through observation sheets about the teacher's knowledge of the traditional game that can be incorporated into learning, then followed by conducting interviews with the teacher. This study involved 34 elementary school teachers with total sampling techniques. The total sampling technique is a collection technique that uses the whole population (Kerlinger et al., 2014). The instruments used in this study were observation and interview sheets.

The first data collection process obtained quantitative data through observation sheets given to the teacher. The observation sheet had been validated by experts who are competent in their fields, resulting in 24 statements with a

Cronbach alpha value of 0.71 using a Likert Scale of 4. After that, a semi-structured interview was conducted to confirm the quantitative results that have been carried out. The obtained data were analyzed using the SPSS 21 application to look for descriptive statistics to view quantitative data. In contrast, the qualitative data were analyzed using Miles & Huberman, namely data reduction, data display, and conclusions (Miles & Huberman, 1994). The descriptive statistics were presented in summary frequencies, such as mean, mode, median, minimum, maximum, and standard deviation (Cohen et al., 2013). In this study, the descriptive statistics used were mean, min, max, and category. The categories of observation sheets can be presented in Table 1.

Table 1. Categories of teacher knowledge about traditional games

Category	Interval
Very Not Good	24.0 – 42.0
Not Good	42.1 – 60.0
Good	60.1 – 78.0
Very Good	78.1 – 96.0

III. Results and Discussion

The traditional game is a game that has been passed down and has become local wisdom in an area. Therefore, to preserve it as local culture, this game should be applied in learning. The results of the observation sheet distributed to the teacher are shown in Table 2.

Table 2. Results of Observation Conducted on Teachers about Traditional Games that can be Incorporated in the Learning Process

Classification			Mean	Min	Max	%
Range	Category	Total				
24.0 – 42.0	Not very good	2	67.8	39	92	5.9
24.1 – 60.0	Not good	5				14.7
60.1 – 78.0	Good	18				52.9
78.1 – 96.0	Very good	9				26.5
TOTAL						100

Table 2 shows results data from 34 respondents from the elementary school in Batnaghari after they were obtained. The data were analyzed using the SPSS 21 application program. The results indicate that the dominant result is good, 52.9% for 18 teachers out of 34 teachers. The remaining results obtained a very good category (26.5% for 9 teachers), not good (14.7% for 5 teachers), and very poor (5.9% for two teachers) out of a total of 34 teachers. From 34 teachers, the mean result of 67.8 was ob

tained, with a maximum score of 92, and a minimum score of 39.

The results of Table 2 shows that the teacher has good knowledge of traditional games, as indicated by 52.9% of teachers knowing the "Engklek" game. However, they only know it as a traditional game. Besides, the interview results are discussed below.

"Do you know the traditional game of "Engklek"?"

"Yes, I know it, because I often played it when I was a child until I was a teenager."

"Are you aware that the game can be implemented in learning for mathematics?"

"I didn't know that and realized that traditional games could be included in learning."

Based on the results of interviews that have been done, the results show that the teacher knows the traditional game of "Engklek." However, the teachers have not considered implementing it in learning, because according to them, the game is a mere play. The results obtained by researchers clearly indicate that there is no implementation of traditional games into learning. Because it has not been included in the primary school curriculum, but the informants fully support the incorporation of this traditional game to the learning. In addition to be a teaching media in elementary schools, this can preserve the Indonesian culture so that their existence does not fade. The government is expected to give their support, so that traditional permits continue to develop among children today.

In this study, the traditional game of "Engklek" is very influential on students. The implementation of thematic-integrated approaches in character education can be carried out by adopting some parts of local cultural values as teaching materials (Floersch et al., 2010). Unconsciously, traditional games are precious for children if they can be implemented in learning activities (Orlick, 1981). The implementation of conventional games is one of the ways to introduce elements of sociocultural values and traditions in early childhood learning activities. Many people are not aware in their everyday life that many mathematical concepts are used and applied. Basically, mathematics is a basic science with rapidly developing material and implementation (Arnidha, 2018).

One of the games that can be included in learning is the traditional Engklek game, which can be used as a medium for learning mathematics in flat-build material (Wijayanti & Trisiana, 2018). Besides being useful in the context of the introduction and preservation of the traditional Chinese game, learning like this will create a new and exciting atmosphere. In line with (Utami et al., 2018) that an innovation developed in the form of applying the traditional Engklek game into a medium of mathematics learning. The term "Engklek" is used in East

Java. It represents a traditional game of jumping on flat plots drawn on the ground by drawing squares, then jumping with one foot from one box to the next (Winarsih, 2017). This finding is in accordance with (Asrial et al., 2020) that the factors that influence the success of gamification for education are the independence and competence of participants, which can be facilitated by combining several learning paths.

Based on the curriculum analysis conducted, this game can be included in mathematics learning in grade III Elementary Schools, as listed in The Ministry of Education and Culture Regulation No. 37, the year 2018 about basic and core competencies which are used in the teacher's book theme eight subthemes two 2nd learning 6. Counting is a part of mathematics learning, which is not only related to cognitive abilities but also mental, emotional readiness of students. (Sari, 2015; Sugiyo & Purwastuti, 2017) mention that in this "Engklek" game, there are ten boxes that can be filled with numbers; thus, by playing the game, the child is more enthusiastic in learning, especially knowing numbers. The learning to count process must be conducted in an interesting, varied, and fun way to motivate children to learn. Fig. 1 illustrates the "Engklek" game shape in one flat web of netting, consisting of a square, rectangle, half-circle. In this game, not all Engklek game images contain a flat shape and only a shape.



Fig. 1. Traditional Games "Engklek" plot

For instance, circles, rectangles, squares, triangles, and parallelograms or rhombus that the feet will make in the form of human cricket play that contains elements of the flat build. The human "Engklek" in mathematics consists of a circular head, a rectangular shaped hand, a square-shaped stomach, a thigh-shaped segment, and a parallel-shaped leg (Butsi, 2015). In learning mathematics, the use of teaching aids is essential because mathematics learning is generally dominated by the introduction of formulas and concepts verbally without sufficient attention to student understanding

(Febriyanti et al., 2018). Therefore, this “Engklek” game can be used as a learning media in mathematics, especially in flat shape material. Besides, this game can also make students have creative and beneficial qualities. As discussed by (Nugraha et al., 2018), “Engklek” game activities improved students' social skills, obtained from student interaction and cooperation in learning observation.

In addition to creating fun mathematics learning for students, this traditional game of Engklek also has benefits in developing creativity and developing gross motor skills of students. (Hasibuan & Jannah, 2017) argue that in “Engklek” game, the children can train to jump to square with details. Consequently, children train their bodies to other place movements. This activity requires gross motor skill abilities. Therefore, it was concluded that children's gross motor abilities increase through traditional game Engklek.

Thus, the traditional game learning method Engklek brings a positive effect on students. The traditional game method of the ankle is one of the ways that can be used to carry out active and fun mathematics learning. In the traditional game, there is a mathematical element in the form of flat images. This method is suitable to be applied because it is in accordance with the characteristics of elementary school students who still like to play”

IV. Conclusion

Based on this description above, it can be concluded that traditional games are games that have existed since ancient times, which can be integrated into learning. The traditional game “Engklek” has mathematical elements in the form of a flat shape. This traditional game can also train the character of students, such as honesty, sportsmanship, togetherness, and patience. The game also can train fine motor and gross motor skills of students who play. The results of this research are expected to be used as a reference for other researchers.

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