

The Development of Number Card Assistant Engklek Game to Boost Motor Ability of Kindergarten Children

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Abstract: One of the developments in early childhood is motor development. This research is motivated because the motor skills of children in kindergarten have not reached the expected target. Children's motor skills are less developed because learning is less varied. Types of learning media related to motor development aspects are still limited. Kindergarten children's learning media does not attract students' interest so it makes children bored. Teachers are less creative in making student learning media. Lack of teacher attention in increasing students' interest in learning, especially in the field of motor competence. Students learning motivation is still low to improve motor skills. The purpose of this study was to determine the design of learning media development based on an engklek game with the help of number cards to improve the motor skills of kindergarten children. This research method is Research and Development (R&D). The population is teachers and students of Kartika 2 Kindergarten in Tlogotunggal Village, Sumber District, Rembang Regency, totaling 20 children. Data were collected by purposive sampling. Data collection techniques with questionnaires, observations, interviews, and documentation. The research instrument was validated theoretically, which was consulted with research supervisors and also validators which in this study were material experts, learning media experts, and teachers. This study resulted in an attractive illustrated number card design for kindergarten children that could increase children's interest in learning and it was hoped that teachers would be more creative in making learning media for children.

Keywords: Learning media, engklek game, number card, motor

1. Introduction

Early childhood education (PAUD) is a coaching effort aimed at children from birth to the age of six years which is carried out through the provision of educational stimuli to help physical and spiritual growth and development so that children have the readiness to enter further education (Nasional, 2012). Early childhood education learning programs are designed to develop all the potential of children (the whole child) so that later they can function as complete human beings to the culture and philosophy of a nation. Education in early childhood focuses more on laying the foundation for child growth and development. In the learning process, the teacher is a facilitator to explore the potential of children. Teachers as a bridge to make children ready to enter further education in terms of academics, religious values and norms, and habituation of good behavior (Manning et al., 2017).

Forms of educational stimulation to prepare academics, religious values, religious norms, and habituation of good behavior can be done through the development of learning media (Harun et al., 2021). Learning media has an important role in the process of teaching and learning activities. The process of teaching and learning activities will be increasingly felt by using the right media. The use of media is expected to foster positive impacts, such as the emergence of a more conducive learning process, the occurrence of feedback in the teaching and learning process, and achieving optimal results (Sakat et al., 2012). The use of media is one of the assistances that has an important role in the process of early childhood learning. Because the media has a function as a tool to clarify the message conveyed by teachers in early childhood (Ayuni & Setiawati, 2019).

Education in early childhood focuses more on laying the foundation for child growth and development. In the learning process, the teacher is a facilitator and motivator to explore the potential of children. Teachers as a bridge to make children ready to enter further education in terms of academics, religious values, religious norms, and habituation

of good behavior. One of the educational stimulations to prepare academics, religious values, religious norms, and habituation of good behavior can be done through play activities (Mundiri & Hamimah, 2022). Good education must be able to create interesting learning so that learners are motivated to learn. Learning resources as a supporting tool in learning are packaged as attractively and systematically arranged to be able to help achieve curriculum goals. Learning resources will be able to focus attention and generate student interest and motivation in learning (Sanchez et al., 2022). Learning resources must also be arranged systematically, which displays a complete figure of the competencies that students will master and use in the learning process with the aim of planning and studying learning implementation (Freeman & Lewis, 2016). Play is one of the activities that can help children towards better development (Bali et al., 2021).

The principle of childhood education must adhere to the needs of children, namely stimulating optimal development. Effective education is done through the process of play. Play activities apply to learn methods, strategies, facilities, and media that stimulate children to explore, find and use objects around. Ki Hajar Dewantoro emphasized that the role of play is very important for children because it can affect the mindset that plays a role in child development. Mindset is formed from a group of thoughts that occur repeatedly in various places and times. Therefore the selection of appropriate children's games early is very important to form a child's personality (Munawaroh, 2017). One game that has varied procedures and forms, is complex, is best known by children compared to other traditional games, and has a high therapeutic value is engklek (Muslimah, 2018).

Engklek is a traditional game that has various designations in various regions. This game is popular in the Dutch colonial period called "Zondag Vandaag" which was then played by indigenous children so that it expanded to the homeland. This type of engklek game includes moving games that are related to physical and motor activities that require children who play it to jump over the plots depicted on the ground/floor in turn. Modern engklek games are very important for their role to support aspects of development, especially in the physical motor ability of early childhood (Hariyani & Fitri, 2018). Aspects of children's motor development need to be developed because they will determine the child's achievements in the future. Physical development will determine the ability to move. Indirectly, physical growth and development will affect how the child perceives himself and others. Physical development includes the development of the body, rough muscles, and smooth muscles, which are further referred to as gross motor and fine motor (Carson et al., 2016).

Based on the statement above, this study aims to find out the improvement of motor development of Kindergarten Children Kartika 2 through the game Engklek assisted by number cards. The conceptual framework is shown in Fig. 1.

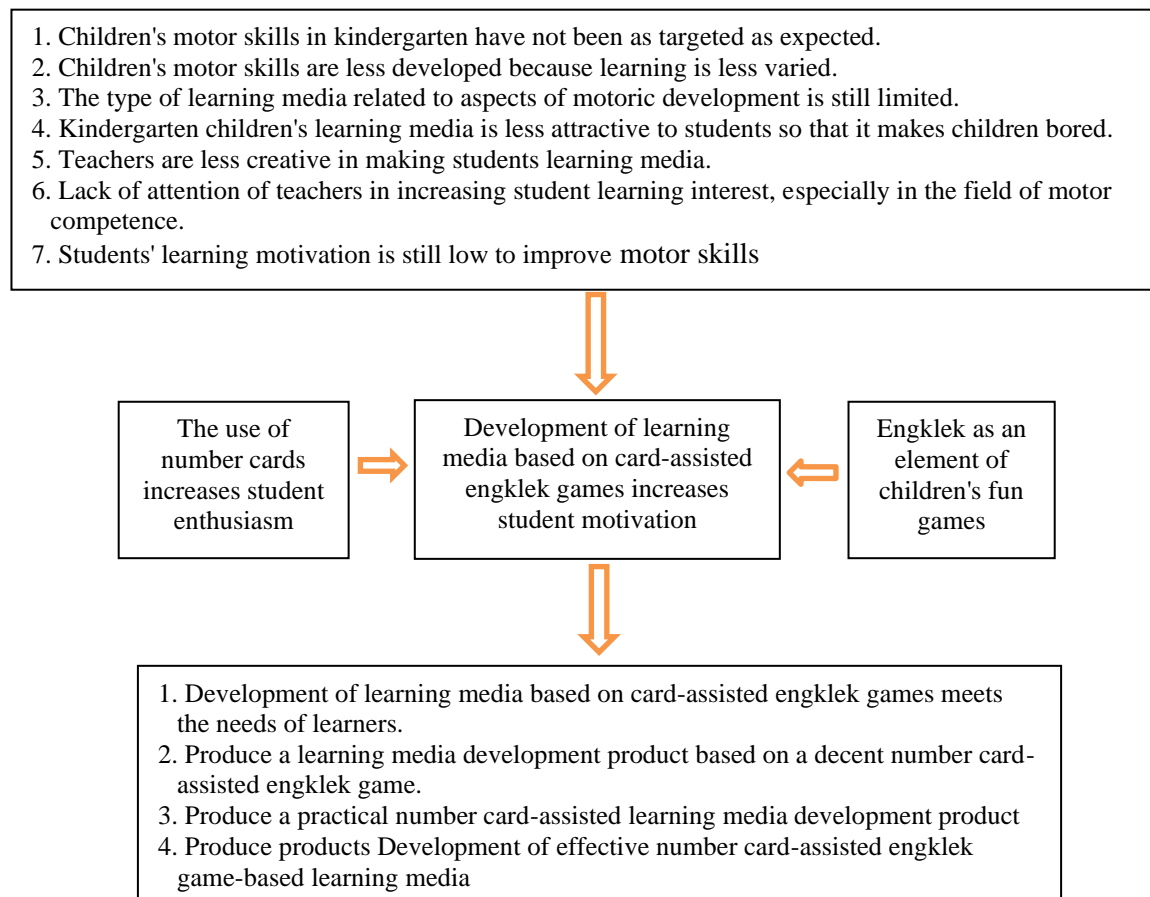


Fig. 1 - Conceptual framework.

2. Literature Review

Education in early childhood focuses more on laying the foundation of child growth and development. In the learning process, the teacher is as a facilitator and motivator to explore all the potentials possessed by children. One of the educational stimuli to prepare academics, religious values and religious norms and habituation of good behavior can be done through play activities. Play is one of the activities that can help children towards better development. One of the games that teachers can use to develop all aspects of such development is the traditional engklek game. The aspect of development that must be developed in early childhood can use traditional engklek games is the motor aspect.

The child's motor skills in kindergarten have not been as targeted as expected. Children's motor skills are less developed because learning is less varied. The type of learning media related to aspects of motoric development is still limited. Kindergarten learning media is less attractive to students so that it makes children bored. Teachers are less creative in making students learning media. Lack of attention of teachers in increasing student learning interest, especially in the field of motor competence. Students' learning motivation is still low to improve motoric abilities. It takes the development of learning media based on number card-assisted engklek games to improve the motor skills of kindergarten children. Engklek game learning media as a form of play that involves the concentration of students to improve motoric abilities. The number card-assisted engklek game has not been intensively introduced to students. The game is assisted by number cards as a form of play activity that is easily known to children so that it makes it easier to explore through direct examples in improving motor skills.

Gross motor development is associated with basic, brain-coordinated movements such as running, walking, jumping, hitting, and pulling. While fine motor serves to perform more specific movements such as writing, folding, cutting, buttoning clothes and tying shoelaces. Gross motor development is a movement that occurs due to the coordination of large muscles (Soini, Watt, & Sääkslahti, 2014). Teachers and educators can optimize gross motor skills for early childhood through a variety of interesting and fun activities. One of the activities that can be given to develop gross motor skills in children is activities involving the feet, hands, and the entire limbs, namely through traditional educational games (Alink et al., 2006).

Play will be meaningful for early childhood because through games will encourage the development process. This game for early childhood is a game that can stimulate creativity and fun for children (Bali et al., 2021). The games given to children do not have to be expensive, which is important to be safe and quality taking into account the child's age, interests, creativity and safety. Hamidah's research explains that traditional engklek games help children in making it easier to learn numbers and counting, because with the medium of play does not force children to think that makes children bored. The implementation of this engklek game is more interesting by using the medium of number cards (Hamidah, 2018). Asmonah explained that with the medium of cards with larger and varied sizes will attract the attention of students, and the form of activities that are fun and challenging, will be more effective and make children happier. This card media is made of thick rectangular cardboard inscribed with numbers and accompanied by pictures of objects around the child, so that children will get a meaningful experience (Asmonah, 2019).

3. Methodology

The type of research used in this study is Research and Development (R&D). Research and development methods are research methods used to produce a particular product and test its effectiveness of that product (Sugiyono, 2017).

The development research procedures used are those put forward by Borg and Gall. Development research procedure according to (Richey & Klein, 2005) shown in Fig. 2.

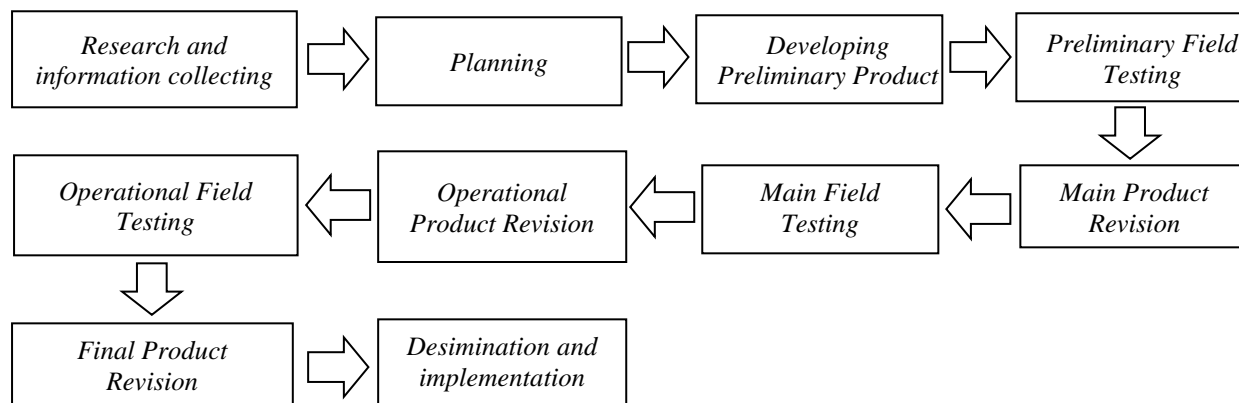


Fig. 2 - Development research procedures.

4. Findings and Discussion

The following is the result of data collection in determining scientific knowledge and analyzing the effectiveness of number card-assisted engklek games to improve children's motor skills.

4.1 Analysis of Learning Outcome Improvement Data (N-Gain)

The n-gain normality test according to Vaclavik, Sikorova, & Barot, (2018), the test that can provide an overview of the improvement in learning outcome scores between before and after the implementation of the method.

Based on the definition of gain and N-Gain, it can see the difference in student ability scores, both in the form of improvements and decreases, so this test is a suitable method to be applied to determine whether or not there is development. The test data analyzed is pre-test and post test data. Pre-test and post test data from the control group and experimental group were analyzed using the n-gain formula.

$$N - Gain < g > = \frac{Post-test\ score - Pre-test\ score}{Maximum\ score - Pre-test\ score} \quad (1)$$

Increased student learning outcomes calculated by n-gain formula are made in categories N-Gain effectiveness interpretation category.

Table 1 - N-gain effectiveness interpretation category.

Percentage (%)	Interpretation
<40	Ineffective
40 <- 55	Less Effective
56-75	Effective Enough
> 76	Effective

4.2 Paired Sample t-test

After testing N-gain, the pre-test and post-test value data are analyzed with the t-test. Before the t-test is carried out the analysis stage of the normality test to find out whether the results of the pretest and post-test have a significant increase or not with the formula.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}} \quad \text{with} \quad r_{xy} = \frac{N\epsilon_{XY} - \epsilon_X\epsilon_Y}{\sqrt{[N\epsilon_X^2 - (\epsilon_X^2)][N\epsilon_Y^2 - (\epsilon_Y^2)]}} \quad (2)$$

The conclusion of the hypothesis is accepted if the result of $< \alpha$ signification is $\alpha = 0.05$. The presence and absence of differences in learning outcomes in the control group and experimental group indicated a Sig. (2-tailed) value if Sig. (2-tailed) $> q = 0.005$ then H_0 is accepted. On the other hand, when Sig. (2-tailed) $< q = 0.005$ then H_0 is rejected.

Based on the results of this study, it is recommended to teachers to choose games that are systematic in supporting child development, as well as develop these types of games so that the results are more optimal such as the development of engklek games with the help of number card media.

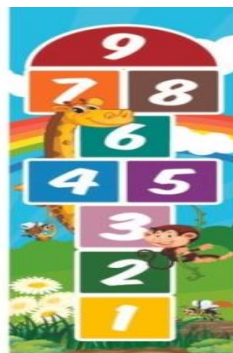


Fig. 3 - Engklek game media.



Fig. 4 - Figures of number card media.

5. Conclusions and Recommendations

Needs analysis is obtained through interviews with students, teachers, and kindergarten heads. Observation is made on learning, to teachers and students. The learning media needed must be able to provide directed stimulation, namely through engklek games. The results of interviews with 5 kindergarten principals in The Menur Cluster showed that only 20% of kindergartens budgeted for learning media specifically, for government assistance only a few kindergartens received assistance. Media procurement of almost all kindergartens comes from purchases and the creation of media independently by teachers is still lacking, although the school has given the flexibility to make media independently by teachers, more than 50% of the media owned is still not following the needs of children and themes.

This is similar to previous research by Arifiyanti (2019) which states that childhood is an ideal time to learn motor skills because the child's body is more flexible than teenagers or adults. Children tend to do repetitive activities for things they like. Khadijah (2020) also stated the importance of optimal child motor development because it affects behavior in everyday life. Therefore, a medium is needed that can improve the child's fine motor and gross motor skills.

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Conflict of Interest

The authors declare no conflicts of interest.

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