



Early Childhood Board Games with School Objects and Anatomical Theme to Facilitate Learning

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ARTICLE INFO

Article history:

Received August 10, 2023

Revised August 12, 2023

Accepted November 08, 2023

Available online November 25, 2023

Kata Kunci:

Papan Permainan, Objek Sekolah, Tubuh Manusia, Anak Usia Dini, Memfasilitasi Belajar

Keywords:

Board Games, School Objects, Human Body, Early Childhood, Facilitate Learning

DOI:

<https://doi.org/10.23887/jet.v7i4.67384>

ABSTRAK

Pemahaman anak usia dini yang rendah terhadap materi dasar seperti objek sekolah dan anatomi tubuh akan berdampak kurang baik pada jenjang pendidikan selanjutnya. Tujuan pelaksanaan penelitian ini adalah guna menghasilkan dan mengetahui efektivitas produk media pembelajaran berupa papan permainan yang dapat memfasilitasi proses pembelajaran anak usia dini dalam topik objek sekolah dan anatomi tubuh. Penelitian ini termasuk dalam jenis penelitian pengembangan dengan model APPEd. Subjek dalam penelitian terdiri atas siswa anak usia dini, 3 orang guru, dan 3 orang validator. Pengumpulan data dalam penelitian ini menggunakan teknik wawancara, observasi, dan angket. Instrumen yang digunakan berupa pedoman wawancara, lembar angket ahli materi dan ahli media, pretest, posttest, serta analisis data menggunakan teknik analisis deskriptif. Hasil penelitian menghasilkan sebuah produk papan permainan dengan hasil uji kelayakan materi sebesar 4.7 dan uji kelayakan media sebesar 4.1. Uji efektivitas dengan kegiatan pretest dan posttest menunjukkan bahwa terdapat peningkatan pemahaman anak dari skor 50.6 menjadi 82.6. Papan permainan dengan topik objek sekolah dan anatomi tubuh ini layak dan efektif digunakan dalam pembelajaran anak usia dini.

ABSTRACT

Early childhood's low understanding of basic material such as school objects and anatomy will have an adverse impact on the next level of education. The purpose of this research is to produce and find out the effectiveness of board games learning media that can facilitate the early childhood learning process on the topic of school objects and anatomy. This research type is research and development with the APPEd model. The subjects in the study consisted of early childhood students, 3 teachers, and 3 validators. Collecting data are using interviews, observation, and questionnaires. The instruments used were interview guides, questionnaires for material experts and media experts, pretest, post test, and data analysis using descriptive analysis techniques. The results of the research resulted in a board game product with a material feasibility test result of 4.7 and a media feasibility test of 4.1. The effectiveness test with pretest and post test activities showed that there was an increase in children's understanding from a score of 50.6 to 82.6. Board games with the topic of school objects and anatomy are appropriate and effective for use in early childhood learning.

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1. INTRODUCTION

Humans cannot be separated from the learning process. Almost all aspects of human life will be filled with learning activities. According to the theory of expected value theory, humans will continue to learn new things according to their experience (Kuhn et al., 2022; Murray, 2021). Learning is a process of developing human abilities obtained from experience that has been passed. Human learning activities have started from birth to the end of age. The way humans learn will change with age and adapt to the surrounding environment (Barrot et al., 2021; Djamaluddin & Wardana, 2019). Early childhood is one of the phases where humans will get the learning process through play. The games played by early childhood will determine the development of thinking in the future. Early childhood is an golden age individual who is calculated from the age of birth to the age of 6 years (Nisa & Sujarwo, 2021; Rahmadiani, 2020). One container that facilitates the early childhood learning process is through early childhood education. Early childhood education is a child's learning assistance with a teacher who acts as a parent's guardian until the age of 6 with the main activity being carried out is learning (Boyd-Swan & Herbst, 2020; Oktaviana et al., 2022).

Currently, early childhood education in Indonesia has implemented the Merdeka curriculum. The Merdeka Curriculum is an intra-curricular learning curriculum with a variety of themes, topics and concepts that students can learn by prioritizing competence development. The implementation of the Merdeka curriculum in early childhood education has a significant difference compared to the previous curriculum (Jannah & Rasyid,

2023; Rahmadayanti & Hartoyo, 2022). In the past, the early childhood learning process used a combination of learning media and books, but now the early childhood learning process is prioritized using visual aids or learning media that are appropriate for the child's age. Learning media is a tool used to support the learning process by prioritizing practical activities by applying previously obtained theory (Ayu & Manuaba, 2021; Puspitarini & Hanif, 2019). According to previous research the use of instructional media plays an important role in achieving the desired learning objectives (Dwijayani, 2019). There is also research also found that teachers who apply the use of instructional media will tend to more easily transfer knowledge to students (Sari et al., 2022).

Seeing the importance of using learning media, in fact education in Indonesia is still relatively minimal in the development and use of learning media. There are still many early childhood schools in Indonesia that do not yet have learning media facilities. Previous research also found that quality early childhood learning processes in Indonesia only focus on urban areas (A. Safitri et al., 2021). Based on the results of observations in the field, it was found that early childhood schools were not yet included in the priority for procurement of learning media. The principal also said that when the Merdeka curriculum was implemented, teachers had to be more innovative in developing learning media. The media available today are still classified as traditional and have not been tested for their feasibility. There are still many learning media for early childhood that actually harm children when playing them (Abdi & Cavus, 2019; Hidayatullah et al., 2022). The criteria for suitable learning media for early childhood are safe for children, comfortable, easy, interesting, and can support the process of developing children's thinking. In its development, children will go through various stages in the development of fine motor and gross motor. Children's fine motor skills include writing, composing, drawing, and so on. Children's gross motor skills include running, jumping, hitting, and so on (Aisyah et al., 2019; Ningsih & Watini, 2022; Ulfah et al., 2021).

Early childhood learning has various differences from the learning process of elementary school students and above. Early childhood uses themes in each lesson. The teacher must determine what theme his students will learn every week by compiling it in the form of a lesson plan. One of the themes in early childhood learning activities is the theme of my school and my body. This theme is a theme that has a high level of difficulty because it has many components that must be learned (Hayati et al., 2019; Nadar, 2018). The concepts studied in my school theme include objects in the school environment, class, and school yard. While the concepts studied in my body include the parts of the body that support body movements in human life (Kotaman et al., 2022; Mumford et al., 2019). Based on interviews with several teachers, it was found that the child had quite difficulty getting to know the objects around him. As a requirement for entering the elementary school level, children are also required to know at least general knowledge in the form of body parts, objects and things in the surrounding environment (Noviyani, Sania, & Wiwit, 2020).

However, conditions in the field say otherwise, children tend to find it difficult to know the names of body parts, have difficulty spelling how to pronounce them, and have difficulty indicating which parts of the body function and which parts of the body are proposed by the teacher. Previous research said that early childhood is important to know the objects that are in their school environment because it will support their ability to learn until adulthood (Ibrahim et al., 2023). It is also important to introduce body parts from an early age because of the safety factor of the child itself. Children need to know the functions and parts of the body to provide knowledge to children on how to look after and care for the limbs they have (Michielsen & Brockschmidt, 2021; Yuniarni, 2022). The rise of child abuse also underlies how important it is to introduce body parts to children so that children are aware that the body they have is a very precious gift from God (Noviyani et al., 2020; Oktarina & Liyanovitasari, 2019).

One of the media that can solve this problem is board game media. Board games are learning media using boards and various other components for the transfer of knowledge. The activity of playing board games is almost similar to playing snakes and ladders and monopoly (Farahdiansari & Nurudduja, 2023; Robinson et al., 2021). Several studies state that the use of board games in learning can support children's thinking processes. Previous research stated that there was an increase in knowledge when board games were applied in the learning process of graphic design (Putra & Surjono, 2023). The application of board games in early childhood learning also helps the teacher in explaining the theme being studied. Children in the learning process are more dominant in playing activities, so learning while playing with board games is an effective step tried by the teacher (Aurumajeda & Nurhidayat, 2022; Nakao, 2019; Nurfaizah et al., 2021). In the process of learning body anatomy for some students, the use of board games is also very helpful for students' understanding compared to without using board games. Therefore, this research will develop learning media in the form of board games that will be used to support early childhood understanding of objects at school and parts of the human body. The components on this game board include dice, pawns, question cards, and game sheets. The purpose of this study was to produce board game learning media for early childhood that met the eligibility aspects based on media expert tests and material expert tests. This feasibility test will later be used as a reinforcement that this board game is feasible to use in the learning process. Another objective is to find out whether the APPED model can be used in the development of printed learning media or not.

Some previous research related to the application of board games in the learning process is research from which states that the application of board games is very effective in the learning process for early childhood (Nurhayati & Nurzaelani, 2020). Previous research also found that there was an increase in students' abilities in the cognitive aspect by applying the board game method in the learning process (Maryanti et al., 2021). The results of subsequent research also state that students tend to be more enthusiastic in learning difficult material, such as mathematics, in the learning process with the help of board games. Physics and biology learning activities at the senior high school level also found good results and made it easier for students to digest the material provided by the teacher (Siregar & Ananda, 2023; Suliyannah et al., 2021). Other research with several teachers found that the learning process by playing will minimize excess effort on the teacher because the learning process is more focused on students (Avianto & Prasida, 2018; Chau, 2019). Students who use learning media facilities in the learning process also have a low stress level due to a balance between acquiring material and playing activities.

The novelty of the research is in how it is played. This board game has challenges in the form of question cards that students must answer if they want to win the game. During the playing process there are also challenges in the form of "bonuses" taking a few steps forward or "zank" taking a few steps back. This will add to the fun of learning because children will naturally think this is a completely playful activity. The design of the question cards and dice also have 3 different colors and numbers so that before answering the questions, students are required to take the type of color that appears on the dice first, so that in learning they not only understand school objects and anatomy, but also learn colors, numbers, strategies, and teamwork. The purpose of this research is to produce and find out the effectiveness of board games learning media that can facilitate the early childhood learning process on the topic of school objects and anatomy.

2. METHOD

The type of this research is research and development using the APPED model. The APPED model is a model that was created to facilitate research on the development of an instructional media that is tailored to the needs for development research (Kusuma et al., 2019). In the book Multimedia Interactive Learning Concepts and Development, the stages in the APPED model are analysis and initial research, design, production, evaluation, and dissemination, but in this study it only focuses on the production and evaluation stages because the initial research analysis and design stages have been carried out in previous studies. The subjects involved in this study included early childhood students, 3 teachers, and 3 product validators. Determining subjects uses a purposive sampling technique, where subjects have certain criteria that are in accordance with the research. Data collection was carried out by interview, observation, questionnaire, pretest, and posttest methods. The instruments used were interview guides, material expert questionnaire sheets, media expert sheets, pretest and posttest instruments. The material expert questionnaire measures material aspects with 17 statement items and language aspects with 5 statement items, while the media expert questionnaire measures technical aspects with 14 statement items and content aspects with 6 statement items. The scale used in the measurement uses a 5-level Likert scale, and data analysis uses descriptive analysis techniques. The grid on the media test questionnaire can be seen in Table 1, while the material test questionnaire grid can be seen in Table 2.

Table 1. Media Test Questionnaire Grid

No	Aspect	Indicator
1	Technical	Appropriate pattern Appropriate imaging range Appropriate use of symbols Appropriate setting The writing on the game board is steady Appropriate player level The question on the card is clear Sentence sound Capital letters and punctuation are appropriate The typeface is suitable for early childhood Correct sentence length The word on each component is clear Materials used according to the rules Containers use children's designs
2	Content	The play command is clear Complete board game components Types of obstacles according to the learning theme

No	Aspect	Indicator
		The diversity of obstacles according to the learning theme Proper information provision The information provided is complete

Table 2. Material Test Questionnaire Grid

No	Aspect	Indicator
1	Material	The material in the game corresponds to the theme and sub-theme Learning objectives on the appropriate theme Core competencies and basic competencies on appropriate themes The theme is clear The attractiveness of the material being studied Clarity of use of language Understanding the theme is easy Clarity of sentences in the description of the material The play command is clear Clear text Question level Useful pictures Giving clear questions The suitability of questions with the cognitive level of early childhood The questions used in the theme are sufficient Helps the child's cognitive growth Helping the affective growth of children
2	Language	Accents are easy to spot The accents used are natural There is nothing wrong with the spelling of words Correct use of punctuation marks The use of sentences in Indonesian is appropriate

3. RESULT AND DISCUSSION

Result

Based on the results of exploring user needs with teachers and students, data is obtained that early childhood education requires an innovative learning media to be used in the learning process in the classroom. The media developed is in the form of a board game that uses paper as material. The use of this material is in accordance with material selection standards for early childhood toys which must be safe, comfortable, easy to use, and attractive. Paper has the characteristics of being light, easy to use, and minimally harmful to children. The theme that is loaded on the game board is the theme of object recognition in the school environment and important parts of the human body. Product development is carried out with the help of Canva software for graphic design processing and element layout. The product development stage begins with making a prototype to ensure the layout settings are appropriate for the age of early childhood. After the prototype is approved by the coach and teacher, the next step is product work. The results of the product certainly cannot be directly tested for feasibility, but still go through the discussion and guidance phases for every progress made. The components in this board game product are game board sheets, question cards, dice, pieces, packaging, and usage guide modules. The materials used in each component vary. Board game sheets use art paper which has the characteristics of being flexible and easy to fold. Meanwhile, the play guide module uses the same paper as the game board because the characteristics of the module resemble a book, so it requires paper that is light and easy to use.

Early childhood in playing this board game will be accompanied by the teacher during the implementation process. Teachers play an important role in the use of this product. There are rules that must be followed by teachers and students in every course of the game. The game will be played by 4 people divided into 2 groups. Each player will cooperate in answering questions as a challenge in playing this game. The teacher as a companion will direct the course of the game and help students understand the instructions on the questions. On the game board sheet there are 20 steps that players must pass to reach the finish line. In steps 10 and 18 there are obstacles to motivate students and add interest to the nuances of the game. While playing this board game, students will not only learn about school objects and parts of the human body, but will also indirectly add insight regarding numbers, colors, patterns, and students' critical thinking. Figure 1 is a board game product that is a core component of this development. The game board measures 41 cm x 30 cm. The elements contained on this sheet, namely numbers,

colors, patterns, and pictures. The various components in this game board sheet will support children's imagination and add critical thinking patterns to children, so that the learning process becomes more interesting and fun. The display of board game product is show in Figure 1. Then question card product is show in Figure 2.



Figure 1. Board Game Product



Figure 2. Question Card Product

Figure 2 is a question card product that will provide a challenge for students. This is a major component in the process of transferring new knowledge to students. There are 36 question cards divided into 3 different colors. The color corresponds to the 3 colors on the dice, namely yellow, green and blue which aims to increase children's knowledge regarding colors and numbers. On the front side of the card there are pictures and questions that students must answer if they want to win the game. On the back of the card is the logo of this learning media product. Figure 3 is a play guide module which contains information regarding how the game works and what are the roles of each player. This module consists of 3 pages. The cover page contains elements of text, images, patterns, and colors. The contents page contains instructions for playing the board game, and the developer's identity page contains information from the developer of this board game learning media.



Figure 3. Play Guide Module

After the learning media has been developed, the next step is to carry out a feasibility test and an effectiveness test to find out whether the resulting media is feasible and effective for use in learning or not. [Table 3](#) is information related to the results of the material test on board games.

Table 3. Material Feasibility Test Results

No	Aspect	Score	Predicate
1	Material	4.7	Very Good
2	Language	4.7	Very Good
Average		4.7	Very Good

Base on [Table 3](#), there are 2 aspects that are measured, namely material and language aspects. In the material aspect, a score of 4.7 was obtained with a very good predicate, while the language aspect also received the same score and predicate. Therefore for material testing, an average score of 4.7 is obtained with a very good predicate. [Table 4](#) is information related to the media test results with the aspects tested are technical and content aspects.

Table 4. Media Feasibility Test Results

No	Aspect	Score	Predicate
1	Technical	4.0	Good
2	Content	4.2	Good
Average		4.1	Good

Base on [Table 4](#) technical aspects get a score of 4.0 with a good predicate and content aspects get a score of 4.2 with a good predicate. Therefore the results of the media feasibility test for this board game product obtained an average score of 4.1 with a good predicate. [Table 5](#) show the result of the effectiveness test with a comparison of testing before using learning media and after using learning media in the learning process with the theme of school objects and the human body.

Table 5. Effectiveness Test Results

No	Examination	Score
1	Pretest	50.6
2	Posttest	82.6
Increase Percentage		63.24%

Discussion

The board game media produced in this study shows that the resulting product meets the eligibility aspects for use in early childhood learning. With the sub-theme of school objects and anatomy, this study succeeded in answering initial problems related to the lack of availability of learning media for early childhood that are suitable for use with material school objects and anatomy. The findings in the field are in accordance with the results of research which state that early childhood learning by utilizing instructional media will tend to be more interesting ([Nursyifani, 2020](#)). The results of research also state that board games are very suitable for use in the learning process of students in class ([W. Safitri, 2020](#)). The ease with which the teacher does it when teaching the theme of school objects and anatomy to early childhood is felt compared to the previous learning process which only used makeshift media. This is consistent with the findings which state that the application of interesting learning media will make it easier for teachers when interacting with students ([Anam & Priharto, 2021](#)).

The results of the material test stated that board games with the theme of body parts were very appropriate for early childhood. Knowledge related to body anatomy is important to be given to children from a young age to introduce them from an early age regarding functions and how to take care of the organs they have. This board game product will support research which states that currently there are many cases of child abuse caused by children's lack of knowledge about how valuable body parts they have, so they need all learning media that can make it easier for children to increase this knowledge ([Dewiani et al., 2019](#)). Giving object material is also very important because it will make it easier for children to adapt to the environment later ([Kotzebue et al., 2022](#); [Sukatin et al., 2019](#)). This is proven by research which states that the more children get to know various objects around them, the more creative and innovative children will tend to be ([Farihah, 2018](#); [Kotzebue et al., 2022](#)). The implication of this research is can be a reduction in sexual abuse for children, because children already have knowledge regarding vital body parts. In developing the scientific field of early childhood, the contribution of

research results can be reused in other learning themes so that children can more easily understand more subject matter.

Early childhood during the learning process will tend to play more and need to be properly directed so that the learning process becomes more optimal. The application of this board game can make it easier for teachers to direct the course of the learning process by focusing on playing while learning. Inappropriate use of media will make children bored and reluctant to learn. Findings in the field show that students tend to be motivated when they know the teacher will invite them to play board games. This can be seen based on the results of the effectiveness test which shows an increase in students' understanding of school objects and the human body. Learning playing will be very effective for early childhood learning because children will be more motivated when they know that they are currently playing, not learning (Nurhayati & Nurzaelani, 2020; Ratnawati & Asniawati, 2020).

Based on the research produced and its relation to previous research, it can be seen that the development of board games is very feasible and effective to be used to meet the learning needs of early childhood. These results are in accordance with previous research which states that the use of board game media in learning can reduce stress on students, so that the learning process can be carried out properly and students' understanding of subject matter can increase. The limitations of this study lie in how young children use the product. Research in the field found that several parts of the product were damaged due to students not being good at using the product. This is normal because children at an early age are still not yet sensitive to the use of an item. So the suggestions put forward are for teachers to be able to give directions to students to be better at playing the product and avoid placing liquid objects around the product.

4. CONCLUSION

The results of the study show that the APPED model can be applied in developing a printed learning media. Board game products to facilitate early childhood learning are suitable for use in the learning process in the classroom. The novelty of this board game is that it was developed using the APPED model, where there has been no research on the development of board games using this model. Novelty can also be seen in the design that is owned, besides being able to be used to increase students' knowledge on the topic of objects and body parts, this board game can also help students recognize colors, numbers, patterns, and train gross and fine movements in early childhood.

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