Effectiveness of Media Cardboard Hoop Multi-size in Improving Student's Learning Motivation during Home Learning

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Abstract

The COVID-19 pandemic has forced educational activities conducted from home for all education levels, not least early childhood. There is good cooperation between teachers as learning designers and parents as implementers accompanying children's learning activities at home connected with the policy. This research aims to develop learning media that can motivate students in learning at home. Using research and development method with a quantitative approach. Determination of research subjects using Cluster Random Sampling technique whose sample was chosen not from individuals but rather groups or areas called clusters. So, it was selected as an experimental group school in grades B1 and B2 with a total of 10 children each, meaning a total sample of 20. It is using three instruments, namely pre-test, post-test, and learning motivation instrument. The instrument used is a Likert-scale questionnaire to determine the view and learning experience through the CB Hoop game. Based on the post-test results of 20 respondents, 45% rated "agree" and 55% rated it "strongly agreed," with none of the respondents rating it as "disagreeing" or "disagreeing." Many of the students' comments also stated that learning about CB hoop multisite media has been the "best part" motivating learning from home.

Keywords: Game-based learning, Cluster strategy, Improving the learning process

Introduction

The COVID-19 outbreak is spreading rapidly to various countries, not least in Indonesia. This virus's impact has a significant impact on the environment, starting in health, economy, and education. The COVID-19 pandemic has forced the implementation of educational activities conducted from home for all education levels, not least early childhood (Alkhraijah et al., 2021; Dong et al., 2020; Kong et al., 2021). There is good cooperation between teachers as learning designers and parents as implementers accompanying children's learning activities at home connected with the policy. Various problems arise from the unpreparedness of parents accompanying the child to study at home. The child's learning schedule that clashes with his work and the most focused is the child's high free time learning from home. The learning process's implementation is not easy to move, initially held in the school and then done from home. The learning process in school can be carried out according to the planning made, but at the time of learning from home, it can't be the same as in school.

Addressing these problems, teachers should develop learning media that can motivate students to learn from home. Student learning motivation is essential to make the situation

conducive to achieving the desired learning goals (Ariani, 2017; Escobar Fandiño et al., 2019; Uysal et al., 2018). Teachers must develop innovations to facilitate the learning process that can motivate students to continue learning and choose the suitable learning medium; according to Jarudin et al. (2018) that the media is a tool that can be used as a message channel to achieve learning goals (Jarudin et al., 2018, 2020). The accuracy of choosing learning media can also support the success of the learning process.

Ping et al. (2012) mentions that there are at least two popular motivational theories related to learning media design (Ping et al., 2012). Malone's motivational theory states that one's motivation can be increased by four elements: challenge, curiosity, ability to control, and fantasy (Malone, 1981). At the same time, Keller's theory suggests increasing one's motivation by using learning media (Keller, 2016). Learning media is needed to attract the attention of learners, not only at the beginning (attention) but related to the situation and conditions faced by students (relevance), the confidence of learners in the learning process (confidence), and learning satisfaction because they can do and use what they learn (satisfaction). Based on this understanding, it can be asserted that learning motivation is all motivation that can provide energy and spirit to perform learning actions to achieve the desired direction and objectives.

Previous research relevant to this study states that significant learning styles are strongly felt during the home study, and students face anxiety problems during the learning period from home(Srivastava et al., 2021). Face-to-face learning is still quality compared to learning from home because of environmental factors and being a family burden in-home learning assistance (Bdair, 2021). Online learning instead of classical learning is strongly influenced by learning design, interaction, motivation, application tools, and network quality (Khamis et al., 2021). Home learning causes teachers and students to have difficulties due to minimal technology, unreliable internet network quality, and fatigue when listening to online learning (Tuma et al., 2021). Learning during the pandemic should be implemented with a hybrid strategy because the online learning process is highly dependent on the quality of the internet network (Muthuprasad et al., 2021).

Some previous research opinions have only discussed how to facilitate learning at home during the pandemic, not discussing the students involved in the learning process. This research aims to develop learning media that can motivate students in learning at home. Develop media cardboard (CB) hoop multisize to motivate students to learn to become excited and interest in learning increases. The questions in the study are how to develop CB Hoop Multisite media to increase the child's motivation to study at home? and is it effective for CB Hoop Multisize media to increase the child's motivation to learn at home? CB Hoop media is an innovation of learning media in educational game tools that adopt hula hoop. Media was developed to answer solutions to problems of children's learning interests during home learning activities.

Learning media innovations make use of used goods from cardboard. The printed cardboard resembles a hula hoop with four types measuring 8 cm in diameter, 35 Cm, 50 Cm, and 70 Cm. Activities performed with CB Hoop Multisize media include jumping, running relays,

edging, throwing, and catching. This CB hoop multisize media game allows children to play physical activities individually in small and large groups. The advantage of CB Hoop Multisize media is that it can present 25 varieties of game activities using 1 set of learning media to make the child unsaturated. This study's novelty is the learning-based game CB hoop multisize that can motivate learning at home during a pandemic. The learning process's implementation is done face-to-face by creating a cluster system of students adjacent to their residence, and teachers attend the place and apply health protocols.

Methods

Research design

The research was conducted to determine CB Hoop's use of Multisize learning media innovation in improving children's learning motivation during home learning. They were using the research and development method with a quantitative approach. The research was conducted in Karawang Regency. Determination of research subjects using Cluster Random Sampling technique whose sample was chosen not from individuals but rather groups or areas called clusters. So that selected PAUD (Early Childhood Education) Puri Amanah as a school of experimental groups in grades B1 and B2 with several ten children each, meaning a total sample of 20 children assuming after using hoop multisize media can increase the motivation of children's learning, Design used in the study observing the learning model ADDIE (Analysis Design Development Implementation Evaluation), as in figure 1.

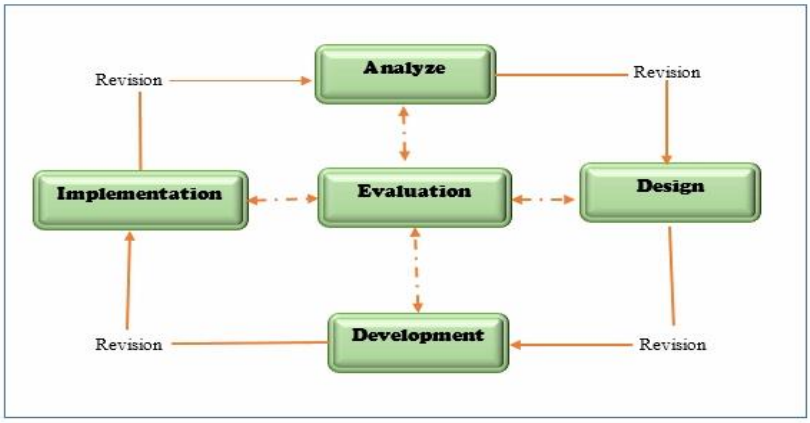

Figure 1. Research Design(Reiser & Dempsey, 2012)

At the analysis stage, educators ensure students' needs to prepare learning objectives and determine learning materials to achieve learning objectives. In the design phase, educators create an overview or blueprint that explains how to deliver learning to meet the goals identified during the analysis phase. Each learning component is planned in as much detail as possible to meet the design phase's blueprints in the development phase. In the implementation phase, educators deliver learning, with or without first implementing through small or large groups. Finally, at the evaluation stage, educators get feedback through with evaluation of large groups.

Evaluation of large groups for the effectiveness test of developed products. While this paper describes the phases sequentially, decisions, in practice, continue to be made and revised throughout the process, moving back and forth between all phases. For example, the learning objectives identified in the analysis phase may be considered too difficult to convey during the development phase, which requires a slight revision of the objectives. Alternatively, practical difficulties during the learning program's initial implementation may require immediate changes to the elements developed during the design or development phase. Thus, during the description of each subsequent phase, it is essential to note that the movement from one phase to the next will not be linear exclusively.

Instruments

They were using three instruments, namely pre-test, post-test, and learning motivation instrument. The instrument used is a Likert-scale questionnaire to determine the view and learning experience through the CB Hoop game. Pre-tests aim to diagnose a student's experience before using CB Hoop in learning and post-test t after using CB Hoop. The number of questionnaires as many as ten questions with indicators as in table 1.

Table 1. Pre-test and post-test Instrument Indicators

No.	Question indicator	Number of items
1.	Jump	4
2	Running relay	2
3.	Creeping	1
4.	Throw	2
5	Catch	1
	Totally	10

Motivational instrument indicators to know the motivation level of students during the home study with CB Hoop media. As in table 2.

Table 2. Motivational instrument indicators

No.	Question indicator	Number of items
1.	Interest	8
2	Tenacious	5
3.	Independent	1
4.	Believe	1
	Total	15

The criteria of learners' learning motivation scale are categorized into 2, namely: high and low. To categorize it, first, specify the magnitude of the interval with the equation, e.g., (1) and assessment criteria score can be seen in table 3.

$$I=(Sh-Sl)/C \quad (1)$$

Description:

I=Interval

S=Score

h=High

l= Low; and

C= Criteria

Table 3. Assessment of learning motivation criteria(Sugiyono, 2016)

Interval	Assessment Criteria
46- 75	High
15-45	Low

The higher the score, the higher the learning motivation level and vice versa, the lower the score, indicating low learning motivation in learners.

Data Analyst Technique

Data analysis techniques are based on information from questioners filled by students and observation results. Students fill out questioners based on their perspective on CB Hoop learning. To answer research questions, information from questioners is described using descriptive statistics. Descriptive statistics are used to summarize a collection of calculation information. For the main stage, researchers processed all the survey data and found the frequency/percentage. In this study, the frequency used to view the most preferred items was highest.

Results and Discussion

Analysis Results

During the analysis phase, researchers gather information about the knowledge, skills, or attitudes students need to achieve and what needs to be taught to motivate students in learning at home. It is also important to filter out information that does not need to be taught in achieving learning objectives, thus focusing more on time and resources for essential learning needs. Focus on increasing student engagement so that it meets the expected goals.

Several methods are used in gathering information during the analysis phase, such as focus groups (Cook et al., 2015; Zundel et al., 2015), one-on-one interviews, anonymous questionnaires or surveys, and expert opinions. Using this information collection tool, the analysis stage can be further divided into needs analysis, student characteristic analysis, and objective learning analysis.

First, an analysis of the need is done to determine whether specific learning methods or strategies are needed to motivate students during home learning in the current pandemic. In this case, we conduct interviews with students and parents over the phone and ask if learning from home is fun, easy to fit all learning processes, can manage learning time, and the learning system can motivate. We also ask for anonymous surveys to capture the information they may find uncomfortable disclosing directly. We surveyed schools to ascertain their impressions of the learning process during the current pandemic. Our analysts' results ensure that it is essential to increase students' motivation from home during the pandemic period required game-based learning strategies to increase the learning motivation of kindergarten students through CB hoop multisize media so that students do not get bored during home learning.

Second, analysis of student characteristics; here, researchers define students' knowledge and skills, provide motivation, and preferences for home learning. By using a group or cluster system, teachers will attend each group or cluster. The learning process is carried out face-to-face by obeying the health protocol according to the needs analysis results.

Lastly, the objective learning analysis is to choose the steps to provide information about the learning program in achieving its objectives. In improving student learning motivation, appropriate learning strategies are required based on the analysis of learning objectives, and it is determined to develop multisize CB Hoop media to increase students' motivation during home learning.

Design Results

After the analysis phase, there comes a design phase where researchers create an overall blueprint of how the learning process will be delivered—choosing the optimal learning strategy and creating valuable and motivating learning objectives for students. Potential learning strategies with small groups of students are limited to five(Agnihotri & Ngorosha, 2018; Burgess et al., 2020; Springer et al., 1999), game-based learning(Cress et al., 2018; Dankbaar et al., 2017; Kordaki & Gousiou, 2017; Teichmann et al., 2020; Warren & Jones, 2017), and home-based learning(Kemp et al., 2013; Ozerbas & Erdogan, 2016; Ruest et al., 2018).

Thus, it is essential to decide what is needed from the instructions and choose or design a delivery strategy. We decided to implement a face-to-face learning strategy with a small group system that can provide direct feedback and incorporate some learning and feedback flexibility. So, we rely on learning that performs different time rotations. And, to improve learning retention, we want to facilitate peer-to-peer learning using small groups.

Development Results

After choosing a learning delivery strategy and creating learning objectives in the design stage, the development stage consists of creating and selecting actual learning materials to be used during learning. Researchers compile competency maps created in the design stage and think about, step by step, practical ways of conveying each feature of the instructions. We decided to deliver 14 instructional teaching sessions, each lasting 40 minutes. We included five indicators: learning to jump, run relays, crawl, throw, and capture CD Hoop multisize-based activities. The results of CB Hoop's media development can be seen in figure 2.

Figure 2. Results of CB Hoop Multisize Media Development

Implementation results

After careful Analysis, Design, and development, the instructions must then be carried out or delivered. Researchers want to apply the learning process using small groups before the learning will be done pre-test to know students' initial ability before learning interventions. Here, some participants, students, and instructors run the course slowly before applying it, providing feedback after each step of the process and overcoming unexpected practical difficulties.

This process, although thorough, can take a lot of time. Alternatively, trials can be conducted in which part of the instruction is given to smaller groups in real-time, given to the entire group (Floress et al., 2021; Piskurich, 2015). Then problems in implementation, especially time constraints, can be found and improved. The implementation of the learning process can be seen in figure 3.

Figure 3. CB Hoop game-based Learning Implementation Results

Evaluation Results

Previously, during the analysis of learning objectives, the tools for evaluating the effectiveness of instructions should have been considered and selected. Either during or after carrying out the instructions, these tools should now be used to determine whether the instruction program achieved its intended goals and what, if any, changes were needed to improve the program. Evaluation of learning effectiveness through extensive group tests whose implementation is divided into four small groups in a cluster. Each cluster consists of five students, so that a total of 20 students participated.

In the implementation of the learning process, we asked students to use a 5-point assessment scale (i.e., (1) strongly disagreed, (2) disagreed, (3) doubt, (4) agreed, and (5) strongly agreed, to assess whether they felt an effective game-based learning process effectively improved students' motivation to learn at home. Of the 20 respondents, 25% rated it "disapproval," 45% rated it "doubt", 25% rated it "agree", and 5% rated it "strongly agreed".

Then, after being given interventions with the learning process with a clustered face-to-face strategy, post-test results from 20 respondents, 45% rated "agree" and 55% rated them "strongly agreed," with none rating them as "disagreeing" or "disagreeing." Many of the students' comments also stated that learning about CB hoop multisize media has been the "best part" motivating learning from home.

Results of motivation instrument analysis

After the CB hoop multisize game-based learning intervention, the results showed students' perception of CB Hoop media's use to increase the motivation of students to learn at home presented in Table 3.

Table 3. Student Motivation questionnaire results in learning at home

No.	Question items	Strongly agreed	Agreed (%)	doubt (%)	disagreed (%)	Strongly disagreed (%)

		(%)				
1.	Kids want to know about CB Hoop games	60	40	0	0	0
2.	Children start learning on time	100	0	0	0	0
3.	Child pays attention to teacher exemplifying CB Hoop	70	30	0	0	0
4.	Children willing when asked to play CB Hoop	55	40	5	0	0
5.	The child is silent when he hears the teacher's explanation	70	20	10	0	0
6.	Kids feel challenged by CB Hoop games.	60	30	10	0	0
7.	Children want when asked to try a game of CB Hoop	70	30	0	0	0
8.	The child listens to the teacher's explanation	65	35	0	0	0
9.	Children enthusiastic when studying with CB Hoop	55	45	0	0	0
10.	The child can answer the teacher's question	40	60	0	0	0
11.	Kids are very interested in CB Hoop games	40	60	0	0	0
12.	Children are happy during the learning activities	65	35	0	0	0
13.	Children are happy when asked to play CB Hoop	40	60	0	0	0
14.	Children can follow the CB hoop game movement	40	45	15	0	0
15.	Children can follow the CB hoop game movement	40	60	0	0	0

Based on the results of motivation polls in table 3 can be illustrated in a chart to illustrate the level of motivation of students after intervention with CB Hoop media can be seen in figure 4.

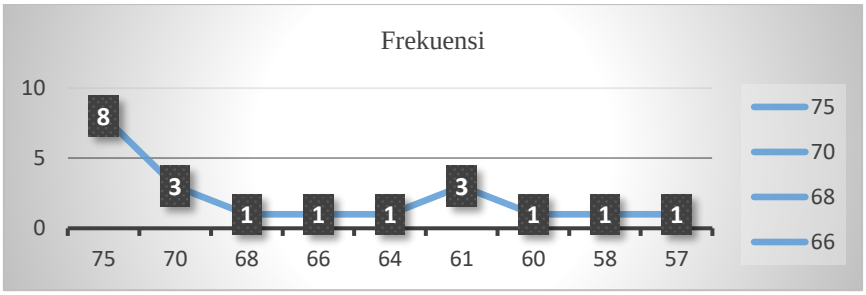

Figure 4. Motivation Instrument Analysis Results

Based on figure 4 that all students can increase learning motivation after intervention with CB Hoop multisize media. CB Hoop Multi Size media is a learning media innovation designed by the research team to increase children's learning motivation during learning activities from home to compensate for screen time activities. CB Hoop Multi Size aims to provide actual play activities for children aged 4-5 years. CB Hoop Multi Size is a modification of Hula hoop media, the fundamental difference of CB Hoop Multi Size media is made of used cardboard. It has various sizes, ranging from diameter 8 Cm, 35 Cm, 50Cm, and 70 Cm.

CB Hoop Multi Size media's advantage is that it is easy to be made by parents at home, and materials used to use recycled materials can be found in the surrounding environment. The learning aspect of media excellence CB Hoop Multi Size provides play opportunities for children individually and in groups. CB Hoop Multi Size allows children to play with their parents. Play activities that can be done using CB Hoop Multi Size media include jumping, relay running, edging, throwing, and catching.

The following steps to implement the learning of CB Hoop Multi-Size games include (a) students wearing full sportswear and shoes; (b) familiarize students with prayers; (c) invite the child to sing as well as pat to be excited; (d) Introduce activities and rules performed while playing; (e) prepare CB Hoop Multi-Size Physical Activity media consisting of several sizes and variety of media that will be used in the activity (g) start the game with individual games, then continue to create groups to play small and large group games; (h) the teacher submits the rules of the CB hoop game.

Students carry out movement activity orders delivered by teachers/parents (e.g., children throw a small CB hoop into a bottle that has been provided in front of it), etc. (i) perform game systematics regularly following the instructions given by the teacher or parents in the game CB Hoop Multi-Size; (j) after the student has re-edified the game that has been used; (k) students conduct handwashing activities and toilet training after the activity is completed; (l) teachers and parents recalling activities conducted today; (m) End the game by praying.

Based on the research that has been done at Early Childhood Education (PAUD) Puri Amanah, from the analysis of data that has been done, it can be concluded that CB Hoop Multi-Size media is effective in increasing children's learning interest during learning from home. This research is following research conducted by Lya (2020) one of the ways to increase children's learning interest during the covid-19 pandemic, one of which is by

inviting children to be actively involved in a learning activity guided using learning media, both audio, visual and audio-visual (Lya et al., 2020).

Optimization of the increase in children's learning interest can't be separated from teachers' active role and parents accompanying the child during play and home learning. Effective communication between the teacher and the child will cause the child's learning interest to appear more, coupled with the innovation of games that are quite varied from the CB hoop media, making the child not quickly saturated in doing play activities. At the early childhood education level, learning media in learning activities has a significant role in creating more concrete and fun play activities for children to develop optimally (Eke, 1997; Puspitarini & Hanif, 2019). In this case, the use of learning media in children in the form of CB Hoop learning media can increase students' learning interest.

Children's language development and literacy can be stimulated through this game when the child communicates in small group and large group games (Petrovska et al., 2014; Silva et al., 2021). Children's cognitive development can be stimulated in CB Hoop colour recognition activities designed in several different primary colours so that the child can recognize the colour and the size of CB Hoop consisting of different diameters allows the child to sort objects from small to large. The child's social, emotional aspects can be developed, such as the child queuing waiting for the turn to play, the child cooperates with his friends at the time of the game in small groups and large groups. In the aspect of Religious Moral Values, the stimulation begins when the child is invited to pray before the play begins.

Conclusion

Based on the results of research that has been done by using CB Hoop media innovation in increasing children's learning interest when learning from home, it can be concluded that the use of CB Hoop Multisize media when learning from home can be: (a) Provide alternative new learning media for PAUD teachers during home learning; (b) CB Hoop Multisize media may increase children's learning interest during home learning; (c) CB Hoop media may also be used to stimulate other aspects of development such as language development, cognitive, social-emotional, and religious, moral values.

The advantage of CB Hoop media is that it is easy to use and can be applied to a curriculum that teaches knowledge, skills, or attitudes. But regardless of the media used, a structured and comprehensive approach to the development of learning media can help educators meet the needs of learners. Further research can track whether there is an improvement in learning outcomes due to learning media interventions

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