Development of Video Learning Concept Counting on Kindergarten Students of Darma Medan Marindal

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ABSTRACT

The research problems are the lack of understanding of the concept of numbers, the relationship of the concept of numbers with the symbol of numbers, the concept of summing and subtraction of integers 1 to 10 of kindergarten students. One of the causes is the learning model and supporting media that corresponds to the level of concrete thinking has not been applied to the culture to support the purpose of learning. The purpose of the research was to develop a video of counting learning and to know the effectiveness of its use in kindergarten students of Karya Darma Medan Marindal.

This type of research is research development of 4-D model that follows 4 stages of activities, namely the stage of defining (*define*), designing (*design*), developing (*develop*), and dissemination stage (disseminate). The theoretical validation stage involves 3 media and material experts and 5 students as the subject of a limited trial. The research sample consisted of 20 students of TK Karya Darma Medan Marindal who were randomly selected from 2 parallel classes with 45 students.

The results showed that the theoretical validity value (V_a) of the three media expert validators was 3.53 (valid category) and the material expert validator was 3.45 (valid category). Classical learning completion as an indicator of effectiveness based on the analysis of written test result data is 0.82 or in the complete category. Out of 20 students, it turns out that the absorption in the concept of numbers and symbols of numbers is 0.86 (medium), the concept indicator of summation is 0.81 (medium), and the subtraction indicator is 0.80 (medium). The findings suggest that; (1) the use of color on the object used in the video should not dominate the student's mind over the understanding of the concept of summing and subtraction of numbers, (2) the learning of the skills of writing number symbols is carried out in conjunction with the concept of numbers, (3). Problem views should be designed not to be too dense and relatively small, including questions that contain objects as a number display.

Based on the results of the analysis, it was concluded that the video media of counting learning developed is valid and effectively used to pursue the concept of numbers and symbols of numbers, the concept of summation and the concept of subtraction at the kindergarten level.

Keywords: Development, Video Media, Learning, Numeracy, Kindergarten Students.

1. INTRODUCTION

Children Education Age Dini (ECD) has always been vital to start tumbuhkembang early childhood. They must be equipped with knowledge that can prepare them for further education / primary school. At the golden age of 5-6 years or what is often called the golden age, is the best age to be given the provisions children need to develop. All countries in the world have to pay serious attention to the education of children of age early is more popularly known as Kinder garten or kindergarten. Considering the benefits of early childhood education, developing to developed countries, including Indonesia, are trying to create better curricula and systems to suit the development of national education in their respective countries.

This is in accordance with the demands of Law no. 20 of 2003 Article 1:14, that early childhood education 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 assist physical and spiritual growth and development so that children have readiness to enter further education. carry on. Further education is meant in the form of elementary school, middle school to high school level. The main objective under this law is to give back as early as possible to develop physically and spiritually properly and correctly.

The play-based approach to teaching children can also be clarified by referring to the work of Izumi-Taylor and Rogers (2016). As a result of the discussion on how Japanese teachers delegate roles and authority to children, they describe the influence of Japanese belief on the "divine nature of children" which views children as having "a natural inclination to play; Thus, parents do not need to change the child's nature to learn something, but are more likely to use the child's nature to learn something. Indonesian society in general, through many educational institutions that organize PAUD ECD formal and non-formal all racing to pursue existence for their own institutions, in order to attract parents to want to send their children to these institutions, applying c alistung (Read, Write, and Calculate). Many pros and cons of the application of functional calistung for children age early, because those who receive calistung really want their children to fast reading writing and arithmetic are functional, no matter how look at its impact on early childhood. Conversely, those who refuse calistung knowing that equipping children aged early will not only focus on matters of cognitive but also affective, motor, social, and spiritual. However, it is very unfortunate if c alistung do functionally, in a material sense calistung taught directly to early childhood, without notice tumbuhkembang early childhood is in accordance with the needs at an early age masi or not. During the golden age of brain cells from early childhood on masi formed, so as not worthy to be taught directly, because it was feared would affect negati f learners in later life. In plain view, early childhood can be able to follow everything that is given by the teacher such as counting lessons directly to their students at PAUD institutions, without caring about the impact that will be received for the next few years. Biologically, early childhood 0-6 years are not It is allowed to teach calistung functionally, this is because biologically the brain from early childhood is still in the developing stage.

This is in line with the Circular Letter of the Ministry of National Education Number: 1839/C.C2/TU/2009 which states that the introduction of reading, writing, and arithmetic (calistung) is carried out through an approach that is in accordance with the stage of child development, namely learning while playing, or playing while learning. The context of calistung learning in PAUD should be carried out in activities that develop all aspects of children's growth and development in a fun way, carried out through a play approach, and adapted to children's developmental tasks. As in the case of counting, media must be able to bring children into a fun activity such as singing or audio-visual, so that they do not feel that they are being stressed that they are learning. Because if not, there will be long-term effects that will be received by early childhood with their learning achievements.

Backed by the research S aniy (2014) descriptively shows that the achievement of learning in primary school students (SD) grade 3 Sampangan 02 Semarang of 68 students who received calistung while attending calistung currently have early age criteria lower educational achievement than students who did not get calistung directly, which is seen from the average value of the tests given. Contrary to students who did not participate in calistung at an early age, learning outcomes actually showed better learning outcomes. The results of this study show that teaching calistung necessarily directly is less appropriate teaching given to children aged early without using media that make them learn in a fun way. Although calistung is very much needed for initial debriefing, it must still be considered to be in accordance with the development of students. It is essential to apply the material with the appropriate learning media and appeal to children aged prematurely. Because with interesting learning media for children, they will be able to seize their attention to learn in a fun way.

With a pleasant visual touch with audio and the help of technology that has developed, it can be combined and used for learning needs, as a learning medium called video. Learning will be easily remembered by students if the learning process involves more than one sense (Arsyad, 2014). Learning outcomes using the senses of sight and hearing are around 75%. Learning outcomes using the senses of sight and hearing are around 75%, the senses of hearing are around 13% and other senses are around 12% (Dale, 1969). One of the media that uses multiple senses is audio-visual -based media. Audio-visual learning can increase memory from 14% to 38% (Silberman, 2013).

Video can be a learning medium that can be adapted to teaching materials. So it is very suitable for use in large groups, small groups and even individuals. Preferably with visual displays of children aged early, the video will be able to make learners feel like learning. Counting materials that were originally only taught directly and functionally will make children feel depressed. In contrast, with learning videos with fun animations, children will find it easier to learn and not get negative impacts from the inappropriateness of direct functional calistung teaching.

In line with Alaa Sadik and Khadeja Badr (2012 vol 5 no3 p. 29) that the results of their research indicate that early childhood classes taught by video media have a significant impact on calistung development compared to the control class. Supported by the results of research (Boeckmann 2009), that the results of interviews conducted by researchers showed that children liked the percentage of videos prepared by their teachers, and parents saw that the videos were very useful for the development of their children's literacy compared to learning that was monotonous. So that kindergarten will have good development when learning with video media.

Based on the results of interviews with teachers of Kindergarten at Karya Dharma Medan Marindall, some students have relatively low learning motivation. This can be seen when students are less active in learning, slower in completing assignments than their colleagues, less active in asking questions during discussions with their groups. Indeed, the media used and available are still relatively lacking, especially the audio-visual media for numeracy material is not yet available. Generally, the existing media are in the form of pictures, models, and concrete objects in the form of props of geometric shapes. At this time the medium and intensive use of media used relatively recently, soft copy p embelajaran in video format is not yet available, and equipment Audio Visual as VCD Player available in schools only used to track the children alone. We recommend that the VCD Player media can be used to help learning if media or soft learning such as learning videos are available for some materials or learning topics at the kindergarten level. With complete equipment, you should be able to apply video-based learning media. Along the development, m edia This video-based learning will certainly also be able to take home with soft copy sent via smartphones parents to be played back at home, in order to absorb the material better and stays pleasant.

Based on the problems above, the researchers are interested in conducting research on the development of video media for learning numeracy concepts at the kindergarten level with the title "Development of Numeracy Concept Learning Videos for Kindergarten Students of Karya Darma Medan Marindal"

1.1. The Nature of Learning Media

The word media comes from the Latin " medius " which literally means middle, intermediary or introduction. In Arabic, the media is an intermediary or introductory message from the sender to the recipient of the message. While learning media as expressed by Tri Mulyani (2000:7) which states that learning media are equipment used to present information to students so that they can achieve their goals. More specifically, the notion of media in the teaching and learning process tends to be interpreted as graphic, photographic or electronic tools to capture, process and rearrange visual or verbal information (Arsyad Azhar, 2007: 3).

So, learning media is a tool that is used as an intermediary for presenting messages that the teacher wants to convey to students in learning in order to achieve good learning objectives. The types of learning media used are quite a lot, both electronic and non-electronic media. One of the electronic media that is often used is a computer. With the help of computers, the development of learning media will be more helpful. Media as a learning aid is very important to help students achieve learning goals and should be adapted to technological developments. Based on the results of research as stated by Mayer (2009: 116) that adding animation to the narration can help students better understand the material or explanation presented , Meyer (2009:64) also states that based on dual-coding theory (dual channels) The underlying cognitive theory of multimedia learning is that humans have separate channels for processing visual information and auditory information , where animated images are processed in the visual channel and narratives are processed in the auditory channel. Media is one form of tool used to improve and facilitate performance. The demands of technological progress necessitate development. Innovation of a media is always done in order to get better quality. According to the Law of the Republic of Indonesia Number 18 of 2002 Development is a scientific and technological activity aimed at utilizing proven scientific principles and theories to improve the functions, benefits, and applications of existing science and technology, or to produce technology. - new technology. Development in general means a pattern of growth, change slowly (evolution) and change gradually.

According to Seels & Richey (Sumarno, 2012) development means the process of translating or elaborating design specifications into the form of physical features. Development specifically means the process of producing learning materials. In the opinion of Tessmer and Richey (Sumarno, 2012) development focuses not only on needs analysis, but also on broad issues of early-late analysis, such as contextual analysis. Development aims to produce products based on the findings of field tests.

In essence, development is an educational effort both formal and non-formal that is carried out consciously, planned, directed, regularly and responsibly in order to introduce, grow, guide, develop a personality basis that is balanced, intact, in harmony, knowledge, skills in accordance with talents, desires. as well as abilities, as a provision on their own initiative to add, improve, develop themselves towards the achievement of optimal human dignity, quality and abilities and an independent personality (Wryokusumo in Sumarmo 2012).

According to Sweller (2010:40) that the development of interactive learning media needs to consider students' cognitive load or Cognitive Load Theory (CLT). This theory is based on cognitive architecture (cognitive architecture) which contains limited working memory with processing units divided into two, namely processing visual information and audio information. Sweller distinguish the sources of cognitive load in working memory into three, namely: (1) cognitive load intrinsic (intrinsic cognitive load), (2) cognitive load extraneous (extraneous cognitive load), and (3) the cognitive load germane (germane cognitive load). Based on the opinions of the experts above, it can be concluded that development is a conscious, planned, directed effort to make or improve, so that it becomes a more useful product to improve quality as an effort to create better quality.

1.2. Model Learning Method Counting on Children kindergarten

Suyanto (2009: 4) in the Circular Letter of the Ministry of National Education Number: 1839/C.C2/TU/2009 states that the introduction of counting is done through an approach that is in accordance with the stage of child development, namely through a play approach. The world of children is a fun world, so the introduction of counting in early childhood should be done by paying attention to the fun and comfort of children. The fun and comfort can be obtained by children, one of them is through play activities. Play can be a means to stimulate children's development optimally.

According to (Sofia Hartati, 2005: 85), play functions as a force, influence on development, and through playing also gains important experiences in the world of children. Obidike (in Jetraps, 2013: 823) states that playing is the most appropriate learning method for children's developmental level and playing is the most appropriate teaching method for children's developmental level. B ermain form of self-development activities, children engage in play due to a child's will, not because it was asked to do so by family members or teachers. Play is freely chosen, allowing children's attention to become more focused and independent during play. When playing, children are really involved mentally, emotionally, socially, and usually physically active; and they do meaningful learning. Play supports the whole development of a child. The description in the above can be concluded that the teaching methods appropriate for early childhood is to play, because play is an activity in accordance with the stages of child development. Therefore, learning to count in kindergarten should be packaged in a play activity.

1.3. Kindergarten level numeracy learning media

Arief S. Sadiman, R. Rahardjo, Anung Haryono, and Rahardjito (2008: 7) define learning media as anything that can be used to transmit messages from the sender to the recipient of the message. In this case, it is the process of stimulating the thoughts, feelings, concerns, and interests and concerns of children so that the learning process can be established. Media Learning is ne of aids that are used by teachers as a teaching aid. In learning, the teacher conveys messages in the form of learning materials to children. Media as learning aids must be adjusted to the level of child development so that in choosing learning media the teacher must consider certain things or criteria. Azhar Arsyad (2006: 76) states that basically teachers can choose media by taking into account the criteria relating to the following matters: a. Objectives: The selected media should be in harmony and support the learning objectives that have been set. b. Material: The selected media should be in accordance with the learning material, c. Target students: The selection of learning media must pay attention to the conditions of the target students from factors of age, intelligence, characteristics, educational background, culture and environment of students, d. Availability: The selected media is practical, flexible and enduring. Availability of time, funds or other resources to produce the media to be selected. Media are expensive and take a long time to produce it is not a guarantee as the best medium, but which are easy to obtain and can be used in anywhere and anytime with the equipment available in the vicinity. e. Teachers are skilled in using it: Whatever the media, the teacher must be able to use it in the learning process. The score and benefits of the media are largely determined by the teacher who uses it. f. Target grouping: Media that is seen as an effective media is not necessarily effective if it is used inappropriately. In a sense, the teacher must adjust the portion of the media to the target students, there are media for large groups, medium groups and small groups. g. Technical quality: Learning media has good quality in terms of materials, appearance and usability. As an example of visual media, the image or photograph must meet certain technical requirements. The visuals on the slides must be clear and the information to be conveyed should not be disturbed by other elements. h. As has been described above that in selecting instructional media should pay attention to the characteristics of the target students. Kids Kindergarten The work of Darma Marindal Medan is in the preoperational period where one of its characteristics is thinking concretely, so the media used in learning to count uses concrete objects. Objects to introduce counting can be objects from nature or objects made by humans. Natural objects that can be used can be in the form of living things, namely humans, animals , and plants , as well as inanimate objects, namely stones, soil, seeds, shells, and others. Meanwhile, man-made objects

that can be used as counting media can be in the form of blocks, legos, color balls, counting trees, and many more. Based on some of the opinions above, good learning media in terms of learning materials must consider: the suitability of the media with the competence of the content of the material, the use of simple and clear language, as well as being useful as a tool for achieving goals. Meanwhile, in terms of the media itself, it must: have an attractive visual appearance, be easy to use, display steps in accordance with the order of the material, have benefits for achieving goals, and be attractive in terms of the graphic layout of the presentation.

2. METHOD

This type of research is a research and development (Research and Development) that is developing a video for learning mathematics at the kindergarten level. The scope of the media is: the concept of numbers, sequences of numbers, addition and subtraction operations on the universe of integers 1 to 10. The development technique uses a 4D model developed by Shivasailam Thiagarajan, which consists of 4 stages, namely: define (define), design (design), develop (develop), and disseminate (spread). This research will be conducted at the Karya Darma Kindergarten school which is located at Jalan Bajak 1 Medan Marindal. P enelitian will dilaksaknakan at the end of the semester g ponder 2020/2021. The research subjects were 20 students of TK Karya Darma Medan Maridal-Medan. The object of research is the development of video media for learning the concept of counting on the universe of integers up to 10 in kindergarten students. The concept of numeracy consists of: the concept of numbers, number symbols, adding and subtracting numbers in integers 1 to 10. The video media device for learning to count at the early childhood level in this study was developed based on the 4-D Model. The model was developed by Sivasailam Thiagarajan, Dorothy S. Semmel, and Melvyn I. research procedures p Developing device with m odel consists of 4 stages: define, design, d evelop and d isseminate.

3. RESULTS AND DISCUSSION

3.1 Trial Results 1 and 2

The search for the comparison of absorption and the level of completeness of the trial stage 1 and stage 2, it turns out that the concept indicator of the number symbol number has decreased from 0.95 (very high) to 0.86 (high), but the other two indicators have improved. For indicators of the concept of addition 0.72 to 0.81 and indicators of subtraction from 0.70 to 0.80 (both are in the high category). This illustration shows that the concept of numbers and number symbols should really use objects or objects that have been known to students and learning is done side by side. This means that the image or object is accompanied by a number symbol

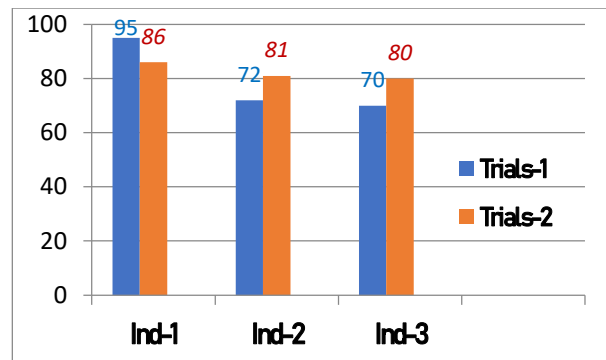that represents it. Visually these changes are presented in Figure 1.

Figure 1. Comparison of Completeness Percentage

Between Trial Stages The results of the analysis of the two stages of testing the video media for counting learning, it turns out that there is a tendency that the level of completeness in the concept of subtraction is lower than the concept of addition. The test results from 20 students turned out to be 9 people (45%) whose test scores on the addition indicator were smaller than the subtraction indicator test scores, there were 6 people (30%) whose scores were greater and 5 people (25%) the same. In general, this variation of change occurs in the internal questions which are arranged in a symbolic or formal form. This symptom shows that concrete objects or objects still have gaps to get to a formal or symbolic form.

3.2. Discussion

The development of numeracy learning video media in this study is supported by several relevant theories and research results. The results showed that the learning video media that was developed was feasible to be used as a medium to help the learning process to achieve learning objectives on the concept of numeracy in early childhood in kindergarten. Video media developed using objects or objects that are already known to students everyday and packaged with a play approach, so that it is in accordance with the thinking stage of early childhood. This media can create an atmosphere of "learning while playing". The video media developed can foster a sense of fun, because it connects counting activities with daily life (Ahmad Susanto, 2011), learning is carried out in a fun way with a play approach (Suyanto, 2009), and is applied to early childhood who still love to play. while studying (Obidika, 2013).

4. CONCLUSION

The results of this study are in accordance with the research results of Purwanti (2013) and Anggreani (2013). The level of mastery achievement of the results of this study is lower than the results of Purwanti's

research, Purwanti's research using blocks as a game medium was able to achieve completeness up to 0.82 and this study also reached a level of 0.82. While the results of Anggreani's research using fish media in an aquarium as a game medium can reach a level of completeness of 0.75 and it is lower than the results of this study (using learning video media) which reaches a level of 0.82. Based on the results of the analysis and discussion in this study, it can be concluded as follows: 1. The counting concept learning video media developed is valid (valid) as a learning medium for early childhood at the Kindergarten level group B. This is concluded based on the average validation results from 3 media experts of 3.54 (valid category) and of 3 material experts is 3.54 (valid category). 2. The counting concept learning video media that was developed was effectively used for counting concept material for students at the Kindergarten level in group B. This is indicated by the level of completeness of the learning objectives of each power indicator in the "completed" category with classical completeness being in the medium category. Each concept indicator and number symbol is 0.86 (completed), the addition concept indicator is 0.81 (completed), the subtraction indicator is 0.80 (completed), while classical completeness is 0.81 (medium).

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