

# DISSEMINATION OF INTERACTIVE WHITEBOARD MEDIA IN KINDERGATEN SCHOOL

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**Abstract**— This advanced research aims to determine the feasibility, effectiveness and practicality of Interactive Whiteboard media to improve the psychomotor abilities of kindergarten children. Based on previous research with limited testing in TK Tunas Kekancan Mukti Pedurungan is known that Interactive Whiteboard media is suitable for use in the learning process based on the assessment are material experts, media experts and teachers. In this follow-up study, 2 samples were selected to be used in the process of implementing the Interactive Whiteboard media in an expanded manner, namely 1) TK Tunas Kekancan Mukti Pedurungan Semarang and 2) TK Sendangmulyo Semarang, so that Interactive Whiteboard media can be used as much as possible in the children's learning process early age and improve psychomotor children.

This research method uses the Borg and Gall development model with 10 stages that's are (1) Research and information collecting, (2) Planning, (3) Develop preliminary form of product, (4) Preliminary field testing, (5) Main product revision, (6) Main field testing, (7) Operational product revision, (8) Operational field testing, (9) Final product revision, (10) Dissemination and implementation. In this follow-up study using steps 7-10 with the produced IWB products have been tested expanded by providing student and teacher response questionnaires, with the results average percentage of student responses namely the media aspect by 80%, material aspects by 95%, language and display aspects by 85% and the example aspects of questions and exercises by 90% its means that students generally assessment this product are valid and practical to use in classroom learning, while the results of average percentage teachers responses are media aspects by 85%, material aspects by 90%, aspects language and appearance by 85% and the example aspects of questions and exercises by 95% its means that teachers in general assessment this product is very valid and practical to use in learning animals and plants in class, then the posttest results in TK Sendangmulyo Semarang are obtained the experiments class are better than the control class 85,65 > 70,25 and t count < t table which is 1,35 < 1,42 so that this product is effectively used as fun the learning media for kindergarten children.

**Keywords**— *Development, Interactive Whiteboard, kindergarten*

## I. INTRODUCTION

The development of learning media is very rapid in the last 10 years, this is very challenging for the world of education in Indonesia, especially in universities using it in lectures, one of the renewable media such as interactive whiteboard has not been used generally in kindergarten schools and colleges in

Indonesia. Interactive whiteboard is a large touch screen panel that can function as a regular whiteboard or as a computer projector screen that can control images on a computer by touching the panel surface without using a mouse or keyboard. This technology allows users to write or draw directly on the surface and store it on a computer. [1]

Based on interviews with several kindergarten teachers in Semarang city, data was obtained that the majority of kindergarten teachers did not yet know what whiteboard interactive and still reluctant to use interactive whiteboard media because the price was still quite expensive at around 80 million. However, if seen from its usefulness to the world of education, it is very important because it makes easier for teachers to deliver material directly on the touch screen and are free to express their ideas from both teachers and students. Now, teachers and students have never used interactive whiteboard to support the learning process. This makes its own concern because this media is needed to support the lecture process and make students more active in the learning process by directly interacting with the interactive whiteboard media in conveying their ideas.

### A. Special Purpose

This study generally aims to produce interactive whiteboard media that is able to improve psychomotor skills of early childhood.

### B. Urgency of Research

The psychomotor improving abilities of early childhood there is need for learning media that can be touched directly by children, one of which uses interactive whiteboard so as to foster motivation and psychomotor for children in learning.

This research is expected to produce theoretically and practically as follows: theoretically it is expected to rich learning media, especially those based on ICT. Practically, the results of this study are expected to provide input namely in early childhood so that they are more interested in learning and can develop psychomotor abilities using interactive whiteboard media.

## II. PRELIMINARIES

### A. Development of Interactive Whiteboard

The use of Interactive Whiteboard was not originally intended for the world of education, but for offices. According to [2], Interactive Whiteboard is designed for office settings, and has never been used in schools. IWB was originally developed for office management and is a relatively new addition to education [3]. One reason why this new technology tool began to be considered for use in educational settings was because it was identified as a method to integrate various multimedia sources, such as written text, sound, images, software packages, video clips, CD-ROM, images and internet sites, into classroom instruction [1]

There are three types of Interactive Whiteboard products on the market, namely:

1. Electromagnetic Interactive Whiteboard
2. Infrared Interactive Whiteboard
3. Optical Interactive Whiteboard

In principle, all types of Interactive Whiteboard are written media that do not require conventional pens or markers, they can even be written or erased only with your fingers. The Interactive Whiteboard is called an electronic whiteboard or SMART board, is a device that is connected to a computer and connected to a multimedia projector. Computer images are projected on the Interactive Whiteboard by the projector, and users can control and manipulate the projected image through software installed on the computer.

### B. Main Theory Development of Interactive Whiteboard

There are several learning theories that are used as the basis for developing the Interactive Whiteboard, which include:

#### 1. Behavioristic Theory

Behavioristic learning theory is a theory triggered by Gagne about varied and different human behavior resulting from learning. Behaviorism sees learning as observable behavior change caused by external stimulus. They see the mind as a "black box", a response to a stimulus.

#### 2. Cognitivism Theory

Cognitivism seeing learning is an internal process that sees memory, motivation, reflection thinking, and meta cognition. In view of the flow, the human mind manipulates symbols such as computers manipulating data. Therefore, learners are considered information processors. Cognitive psychology includes the learning process of processing information where information is received in various senses, transferred to short-term and long-term memory

#### 3. Constructivism Theory

Constructivism sees students build their knowledge from their own learning experiences. Learning can be seen as an active process, and knowledge cannot be received from outside or from others. Students should be given the opportunity to build knowledge instead of being given knowledge through teaching. The nature of constructive learning by Brooks says that knowledge is non-objective, temporary, always changing, and uncertain. Learning is seen as a compilation of knowledge from concrete experience, collaborative activities, and reflection and interpretation.

### C. Student of Interest Learning

Interactive Whiteboard is one of the media included in visual presentation media. Visual presentation is a combination or combination of text, audio and video images. This merger aims to shape motivation and a good learning atmosphere. Interest in learning can lead to motivation to learn. A good learning motivation and atmosphere will support learning to be optimal.

There are several indicators of students who have a high interest in learning, this can be recognized through the learning process in the classroom and at home. According to [4] these indicators are:

#### 1. Feeling happy

A student who has a feeling of being happy or fond of mathematics, then he must continue to study science related to mathematics. There is absolutely no feeling forced to study the field.

#### 2. Attention in learning

Attention is also an indicator of learning interest. Attention is the concentration or activity of our soul towards observation, understanding by putting aside the other. Someone who has an interest in a particular object then naturally he will pay attention to the object.

#### 3. Interest

In addition to the feeling of pleasure, attention in learning and also learning materials and interesting attitudes of teachers The existence of benefits and functions of the lesson (in this case animal material) can cause students to be interested in learning it.

## III. RESEARCH METHODS

This research includes the types of research and development or types of development research. The development carried out was the development of whiteboard interactive improving the psychomotor abilities of early childhood education programs which will be carried out for 2 years. The procedure for developing learning devices uses a model developed by Borg and Gall which includes 10 stages, namely (1) Research and information collecting, (2) Planning, (3) Developing preliminary form of product, (4) Preliminary field testing, (5) Main product revision, (6) Main field testing, (7) Operational product revision, (8) Operational field testing, (9) Final product revision, (10) Dissemination and implementation

In the second year, stage (7) Operational product revision is carried out in an integrated manner where the activity at this stage is a trial draft 2 to find out whether draft 2 has shown a performance as expected. If there are still weaknesses then the stage is carried out (8) Operational field testing is an improvement in draft 2 to analyze weaknesses based on the results of the expanded trial. The next step is (9) Final product revision that produces a revised draft 2. The results of the improvement from draft 2 are then called the final draft that is ready to be published. The final stage of this research is (10) Dissemination and implementation. This stage is taken with the aim that the product that has just been developed, namely mobile learning in the geometry course can be used by the wider community. The core activity at this stage is to disseminate products from development at regional and national levels. This publication is carried out through

professional meetings and in the form of seminars, scientific journals both national and international journals.

The research procedure that adopts the 10 stages of development of Borg and Gall can be seen in Figure 1 below.

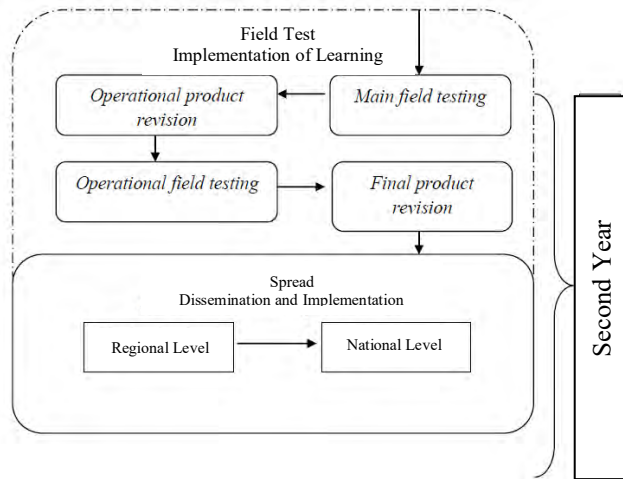


Fig. 1. Research Schemes for the Development of Borg and Gall of the Second Year

A. Research subject

Research subject is class kindergarten A and class kindergarten B from Sendangmulyo Kindergarten Semarang school year 2018/2019.

B. Data Collection Method

Data collected on the development of the Interactive Whiteboard in the form of quantitative data as the main data and qualitative data in the form of advice and input from respondents as additional data. The data provides an overview of the feasibility of the product being developed

IV. RESULT

The students Sendangmulyo kindergarten Semarang has received a very good response, because in the Sendangmulyo kindergarten Semarang has been not used by teachers in learning. Based on the results of interviews and filling in questionnaires by kindergarten the results average percentage of student responses namely the media aspect by 80%, material aspects by 95%, language and display aspects by 85% and the example aspects of questions and exercises by 90% its means that students generally assessment this product are valid and practical to use in classroom learning.

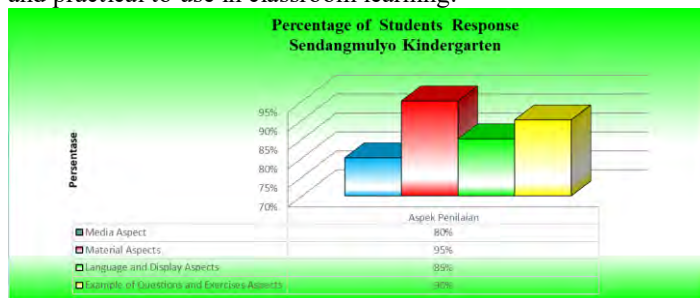


Fig. 2. Students Response Sendangmulyo Kindergarten

The results of average percentage teachers responses are media aspects by 85%, material aspects by 90%, aspects language

and appearance by 85% and the example aspects of questions and exercises by 95% its means that teachers in general assessment this product is very valid and practical to use in learning animals and plants in class.

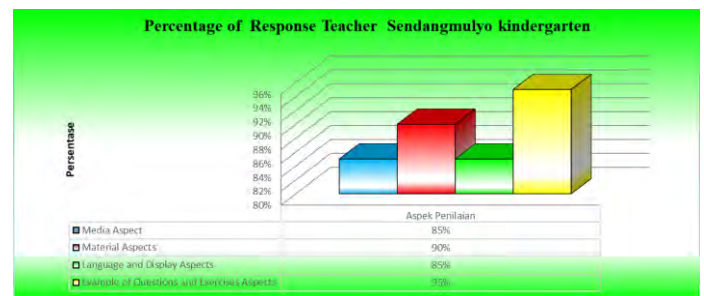


Fig. 3. Teacher Response Sendangmulyo Kindergarten

Based on the posttest results in Sendangmulyo kindergarten Semarang are obtained the experiments class are better than the control class 85,65 > 70,25 and t count < t table which is 1,35 < 1,42 so that this product is effectively used as fun the learning media for kindergarten children.

V. CONCLUSION

Based on the results from second year research, several aspects of teachers and student responses have been produced holistically. It can be concluded that IWB final products have been produced that are suitable for use in the learning process at early childhood education programs level and have received excellent responses from teachers and students so that IWB products are marketed in schools. Where as the advice given is that kindergarten teachers in Semarang are required to use IWB products even though they have not received national standards and it is expected that IWB products can be submitted to simple patent and submitted a patent through Google Playstore or Applestore.

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