Development of Interactive Teaching Materials Using Whiteboard Animation for Civic Learning in Elementary School

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Abstract: This study aims to describe the development designed of whiteboard animation interactive teaching materials and student behavior as long as they used interactive whiteboard animation teaching materials for civic learning in Elementary schools. This study used the Hannafin & Peck development model and the researcher has modified it, which consists of three main processes the needed assessment stage, the designed stage, and the development implementation phase. Before the implementation of product trials, validation was carried out by material experts and ICT learning experts. Individual test subjects were 3 students, Small group trials were conducted by 9 students and a large group trial of 15 students. The results of the study described the design of interactive whiteboard animation for teaching material products by using the analysis stage, designed phase, and development implementation phase produced. Interactive teaching material products get categories "very good" when learned civic learning in elementary schools; student learned behavior when they used whiteboard animation teaching materials in terms of motivation, getting the category of "good" and from the aspect of learning activity getting the category of "good" in the learning process.

Keyword: Civic learning, elementary school, whiteboard animation

INTRODUCTION

The education process is manifested in learning activities in formal schools. Learning has learning objectives. To achieve the learning objectives required quality learning activities. According to Mukarom and Rusdiana[1] write, "now the world of education is starting to integrate technology in various aspects including learning. Technology that is developing rapidly helps teachers to develop competencies, for example, in developing learning resources, teaching materials, learning media, and learning evaluation[1].

Teachers entering the 21st century are not just teaching (transfer of knowledge) but must be learning managers, each teacher is expected to be able to integrate information and communication technology in learning activities[2]. Teachers can utilize technology by creating and developing interactive teaching materials in independent learning so as to create a conducive and pleasant learning climate. The information system used is more focused on computer-based

[1] Z.dan Rusdiana Mukarom and A., *Komunikasi Dan Teknologi Informasi Pendidikan* (Bandung: CV Pustaka Setia, n.d.).

[2] Deni Kurniawan Rusman and Cepi Riyana, "Pembelajaran Berbasis Teknologi Informasi Dan Komunikasi," *Bandung: Rajawali Pers* (2011).

information systems[3]. Integrating information and communication technology into learning, among others, to improve teaching competencies in teaching and improve the quality of student learning[4].

Interactive learning instructional materials are needed as changes and technological developments in the sense of hardware, software, and technology regarding new theories in learning. One of the ways to innovate is to develop instructional materials using various computer applications or software. Teachers can utilize technology by creating and developing interactive teaching materials in independent learning so as to create a conducive and pleasant learning climate[5].

Based on the results of interviews with the principal of SD Negeri 2 Sadaniang, Mr. Hery Sumantri, S.Pd. SD, M.Pd., that students in schools find it difficult to understand material about the government system in Indonesia, then he said there are limitations to books, media, and information technology in Sadaniang sub-district. Mass media and television media are still rarely owned by community members because of constrained access to electricity, the internet, and transportation facilities. This makes it difficult for students to understand learning such as Civics learning, especially the central government system.

Researchers develop interactive whiteboard animation teaching materials for learning Civics. This development research was chosen because in the area of learning technology development produces an ideal product design that can also be developed/implemented by its users on an ongoing basis. The existence of these advantages is expected to make students more interested, comfortable, and generate enthusiasm, interest in learning and more fun. Interactive whiteboard animation teaching materials are expected to facilitate students in mastering the concept of Civics.

The development of interactive whiteboard animation teaching materials was carried out at SD Negeri 2 Sadaniang because the school was considered to have sufficient facilities to support learning using interactive teaching materials, namely the availability of electricity, library space, laptops, LCDs, projectors and related to research material. The reason for choosing central government material in research, first it is because the interactive whiteboard animation teaching materials are suitable for the material so as to describe in full the shape of the central government organization which includes the president, vice president, and ministers. Second, because Sadaniang region students find it difficult to access information about the central government, due to electricity and internet limitations. With the use of interactive whiteboard animation teaching material that is inserted an explanation of the central government organization accompanied by pictures/photos of the president, vice president and minister and their duties, it will certainly open students' insights to the material.

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[3] S Murhaini, *Menjadi Guru Profesional Berbasis Teknologi Informasi Dan Komunikasi* (Yogyakarta: LaksBang PRESSindo, n.d.).

[4] Munir, *Kurikulum Berbasis Teknologi Informasi Dan Komunikasi* (Bandung: Alfabeta, n.d.).

[5] H E Mulyasa, "Character Education Management," *Jakarta: Bumi Aksara* (2011).

Research and development of interactive whiteboard animation teaching materials are carried out in class IV because the material on the central government which includes the positions and tasks of the president, vice president, and ministers is taught in class IV. Civics program emphasizes the competence (ability) of students (study subjects) to have an insight into nationalism and love for the country[6]. It is expected that the attractiveness of teaching materials as previously explained provides real experience and at the same time develops character in the Civics learning process for grade IV students at Sadaniang State Elementary School 2.

Researchers are interested in conducting development research entitled "Development of interactive whiteboard animation teaching materials for learning Citizenship Education in Class IV 2 Sadaniang State Elementary School". This development research is deemed necessary because it is a necessity as a result of the times, in addition to that development research tries to construct a quality innovative product.

METHOD

The form of research used in this research is development research. The model used in this study is a procedural model. Emzir[7] defines that the model is a broad framework for seeing reality. The research design is a research plan and procedure that includes: from broad assumptions to detailed methods in data collection and analysis[8]. Simply understanding the research model is a framework in a scientific activity both as a development of science and as a solution to a problem.

The model used in this study is a procedural model. Procedural models are descriptive models[9]. The adapted procedural model is the Hannafin & Peck model[10] which consists of three main processes. The first stage of this model is the needs assessment stage, followed by the design phase and the third stage is the development and implementation. The three phases are linked to "evaluation and revision" activities.

Development Procedure

This product development research model uses Hannafin & Peck's development procedures which have been modified by researchers in accordance with the applicable curriculum.

The steps of the development stage are as follows: (1) conducting a needs analysis, which includes: classroom observations and identification of learning problems; conduct analysis of learning and determine competency standards, indicators and learning objectives; prepare learning materials, compile instructions, and evaluation tools; develop strategies, methods, technology, and learning materials. (2) Making software design, which includes making manuscripts; storyboarding;

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[6] Suparlan Hakim and A dkk, *Pendidikan Kewarganegaraan Dalam Konteks Indonesia* (Malang: Madani, n.d.).

[7] Metodologi Emzir and M Pd, "Metodologi Penelitian Kualitatif Analisis Data," *Jakarta: Raja Grafindo* (2012).

[8] John W Creswell and J David Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (Sage publications, 2017).

[9] A Saukah and dkk, *Pedoman Penulisan Karya Ilmiah* (Malang: IKIP Malang, n.d.).

[10] M J Hannafin and K L Peck, "The Design, Development and Evaluation of Instructional Software," n.d.

and making flowchart view; Material collection which includes making and collecting animated images; and audio recording and collection; (3) Developing product forms in the form of validation by ICT learning experts and subject matter experts; initial product revision; individual and small group trials; analysis of the results of individual and small group evaluations; revision of phase II; field trials; field trial analysis; revised stage III.

In this study, the subjects of the trial were students who would provide responses to the product development that had been validated by ICT learning experts and Citizenship Education material experts, while the respondents of this study were 3 class IV students who had high classification abilities, medium classifications, and low classification; 9 students in class IV consisting of 3 students having high classification abilities, 3 students having medium classification abilities, and 3 students having low abilities; 15 class IV students consisting of 5 students have high classification abilities, 5 students have medium classification abilities, and 5 students have low classification abilities. The selection of the students was based on recommendations from the fourth-grade teachers of the study site by taking into account the different qualifications of children's abilities.

The qualitative data in this study used observations, and interviews with research subjects. Qualitative data collection methods that are mostly independent of all data collection methods and data analysis techniques are in-depth interviews and observation[11]. Observations and interviews carried out to the research subjects at the needs analysis stage in order to provide an initial picture for the design of the initial product design. Qualitative data was also obtained from the results of expert validation in the form of comments and suggestions for improvement. The assessment questionnaire sheet was also given to material experts, ICT learning experts, teachers and students in field trials. The data is analyzed as study material in the revision of interactive whiteboard animation teaching material products.

The qualitative data found and the results of the conversion will provide an overview of the quality of the learning strategy, the quality of the content of the material, the quality of the display, the quality of the integration of the material, and the quality of visual communication. A questionnaire sheet is given to respondents in the product trial phase to get data about the quality of motivation, the quality of program results and the effectiveness of interactive teaching materials to students. While the description of learners' behavior is obtained from the results of direct observation and student behavior assessment sheets.

In a study needed several techniques in collecting data. Researchers used interview techniques and observation sheets at the needs analysis stage in developing products. While at the trial stage, besides using the observation sheet also using a questionnaire or questionnaire.

Questionnaire is a technique or a way of collecting data indirectly. Questionnaire or questionnaire is an indirect data collection technique in this case the researcher does not conduct

[11] Burhan Bungin, *Analisis Data Penelitian Kualitatif* (PT RajaGrafindo Persada, 2007).

a question and answer directly with the respondent[12]. The instrument or data collection tool contains a number of lists of questions that must be answered by respondents. In this study questionnaires were given to (1) subject matter experts, (2) ICT learning experts, and (3) questionnaires for students.

Activities undertaken by researchers to obtain instruments that have validity in terms of content (content validity) are (1) document analysis or pre-survey; (2) making the specification table (lattice); (3) consultation with experts (mentors); (4) writing the instrument.

Data collection was carried out by giving questionnaires to Citizenship Education subject matter experts and ICT learning experts. The data obtained are analyzed and used to revise (first revision), if there are improvements from subject matter experts and ICT learning experts. The third questionnaire was given to 3 students when individual trials were carried out, 9 students when the small group trials, and 15 students when the large group trials.

The level of quality of the feasibility of the interactive teaching material products produced can be known by interviewing and giving questionnaires to material experts, ICT learning experts and also to students as users (users).

A questionnaire is given using a format with a range of values 1-5 from the Likert scale, namely 1 (strongly disagree - STS), 2 (disagree - TS), 3 (disagree - KS), 4 (agree - S), and 5 (strongly agree - SS). On a Likert scale, the statements submitted both positive and negative were assessed by respondents with strongly disagree, disagree, disagree, agree, and strongly agree.

Data obtained from the questionnaire were analyzed by steps namely, (a) the completed questionnaire examined for the completeness of the answers; (b) the answers to the questionnaire for each statement are given a score in accordance with the specified weights; (c) the score obtained is made in the form of tabulated data and (d) calculates the percentage of each variable using the formula below[13], namely:

$$NP = R / SM \times 100$$

Information :
NP = Percentage value expected
R = raw score
SM = Maximum score
100 = fixed number

The results of the percentage score above are then converted into assessment criteria. The assessment criteria according to Miller, Patrick, W. (2008), "if considered in relation to a traditional

[12] Nana Syaodih Sukmadinata, *Metode Penelitian Pendidikan* (Program Pascasarjana Universitas Pendidikan Indonesia dengan PT Remaja Rosdakarya, 2005).

[13] Ngalim Purwanto, *Prinsip-Prinsip Dan Teknik Evaluasi Pengajaran* (Bandung: Remaja Rosdakarya, n.d.).

grading scale (90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D , and 59 and below = E) "[14].

RESULTS AND DISCUSSION

Development research was intended to obtain an ideal learning product by carrying out a certain procedure, so that researchers could construct the design and stages of the development of learning products namely interactive whiteboard animation teaching materials.

Design of Whiteboard Animation Interactive Teaching Materials Development

The development of interactive whiteboard animation teaching materials for learning Citizenship Education for Class IV Elementary Schools was designed through the Hannafin & Peck Model stages that have been modified by researchers.

Requirement Assessment Phase

A needs assessment can be done by conducting a series of analyzes related to the needs needed to develop a good learning program. These analyzes include (a) analysis of instructional problems (instructional problem analysis), for example analysis in the learning process of Civic Education in class IV material on central government in Sadaniang State Elementary School 2 still faces obstacles.

According to the results of preliminary observations made at Sadaniang 2 Public Elementary School on Thursday, January 18, 2018, it was revealed that the learning that was carried out tended to be conventional; (b) analysis of learners (audience analysis) based on the analysis of findings in the field of the learning process makes students less interested in learning.

Learning resources used in the form of textbooks are still less liked by students because the presentation of the material in it is still monotonous. Students tend to feel bored and lazy in learning and (c) goal analysis. Efforts so that students do not feel bored quickly in learning and increase learning motivation, one of the ways that can be used is to present material more attractively.

Researchers develop interactive whiteboard animation teaching materials because interactive teaching materials have the advantage of being interesting teaching materials and in accordance with the age development of students.

Design Stage

The stages of making the design of whiteboard animation teaching material products are (a) the making of interactive teaching material product scripts by combining various sources of teaching materials. Manuscripts are made by taking into account the limitations in the scope of the

[14] Patrick Miller and W., *Measurement and Teaching. The United States of America: Patrick W* (Miller & Associates, n.d.).

central government material for grade IV elementary school and adjusting to the development of students; (b) making flowchart view as a flowchart of thinking the contents of the program; (c) making Storyboard which is a story idea and information to be conveyed and what is shown by interactive teaching materials; (d) design the product by working on software, applications and materials, which have been prepared.

Development and Implementation Stage

Expert Validation of Learning Materials

The White Board Animation interactive teaching material was validated by the expert on Civics Learning material in elementary schools namely Mrs. Sri Utami, M.Kes. Validation to obtain information that will be used to improve the quality of interactive whiteboard animation teaching materials for learning Citizenship Education concerns aspects of learning strategies and content of subject matter to be learned by students.

Validation of ICT Learning Experts

White Board Animation interactive teaching materials are validated by ICT learning experts. The researcher chose Mr. Dahli Ahmad, M.Pd. who is a professional expert in manufacturing interactive teaching material products? Validation to obtain information that will be used to improve the quality of interactive whiteboard animation teaching materials for learning Citizenship Education concerns aspects of appearance, content integration, and visual communication.

Individual Trial

Subjects of individual trials are students who will respond to developing products that have been validated by Citizenship Education material experts and ICT learning experts. Respondents for individual trials are 3 class IV students who have high classification ability, medium classification, and low classification. The selection of the students was based on recommendations from the fourth-grade teachers of the study site by taking into account the different qualifications of children's abilities.

Small Group Trials

After individual trials, a small group trial is conducted. The small group trial subjects are students who will provide responses to the product development of interactive teaching materials. The small group trial respondents consisted of 9 class IV students consisting of 3 groups in which each group consisted of 3 students. The criteria for selected students are 3 students having more ability, 3 students having the medium ability and 3 students having less ability. The selection of the students was based on recommendations from the fourth-grade teachers of the study site by taking into account the different qualifications of students' abilities.

Large Group Trial

After a small group trial, a large group trial is conducted. The large group trial subjects are students who will provide responses to the product development of interactive teaching materials. Large group trial respondents were conducted on 5 groups with the number of students for each group being 3 students. The criteria for selected students are 5 students having more abilities, 5 students having medium abilities and 5 students having fewer abilities. The selection of the students was based on recommendations from the fourth-grade teachers of the study site by taking into account the different qualifications of students' abilities.

Material Expert Validation Results

Material expert validation from the interactive white board animation teaching material for learning Citizenship Education for Grade IV Elementary Schools was conducted by Dr. Sri Utami, M.Kes. who is a lecturer in Civics Education in the Master Education Program for Elementary School Teachers in the Teaching and Education Faculty of Tanjungpura University.

Material experts provide comments and suggestions for improving product quality. Comments and suggestions are also written on the validation sheet. Then the expert gives a validation score on the material expert validation sheet. Comments, suggestions, and validation scores are a reference for improving the product developed. The validation results from the material experts can be seen in table 3.

Results of ICT Learning Expert Validation

The validation of the ICT learning expert was carried out by Mr. Dahli Ahmad, M.Pd., he was a national trainer, the inventor of the training channel and the central leader of the Indonesian Teachers Association. The researcher chose Mr. Dahli Ahmad, M.Pd. as a validator because he is a professional SAGUSANDI (One Teacher One Educational Animation). The validation results of ICT learning experts in the form of assessment scores can be seen in Table 1.

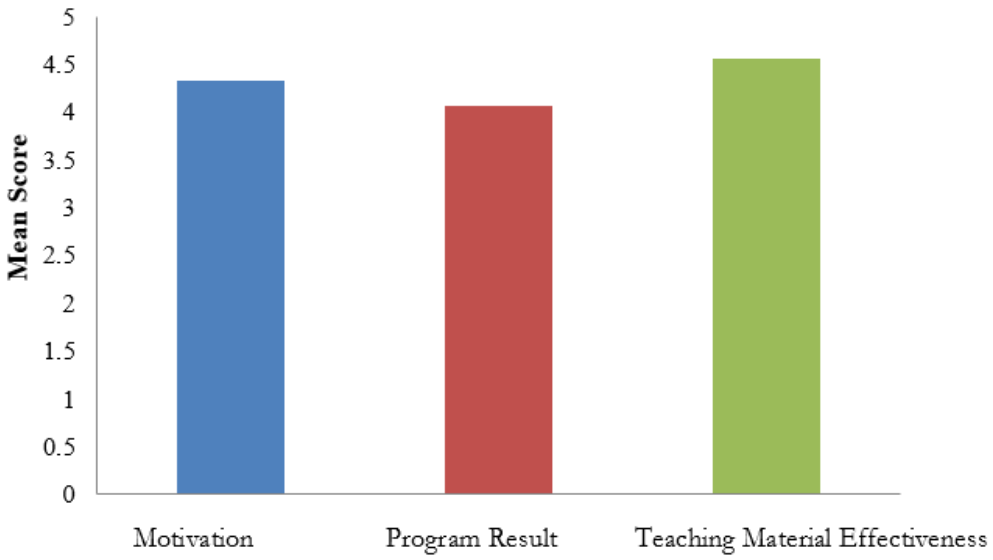
Table 1. Results of Validation of Material Experts and ICT Learning Experts

No	Validator	Aspect	Score	Mean	(%)	Criteria
1.		Learning strategies	5,00	5,00	100	Very Good

	Teaching Material Experts	Teaching material content	5,00			
2.	ICT Learning Experts	Display of interactive material	4,57	4,85	96,6	Very Good
		Material	5,00			
		Visual communication	5,00			
Total			24,57	9,85	196,6	
Mean				4,9	98	Very Good

Individual Trial Results

After learning to use interactive teaching materials is finished, students are asked to become respondents by filling out questionnaires on interactive teaching materials that are designed by putting an (x) mark on the choices they think are in accordance with reality. The results of the assessment of students who are respondents in individual trials can be seen in Graph 1.



Graph 1. Histogram Quality of Interactive Teaching Material Aspects of Motivation, Quality of Program Results and Effectiveness in Individual Assessment

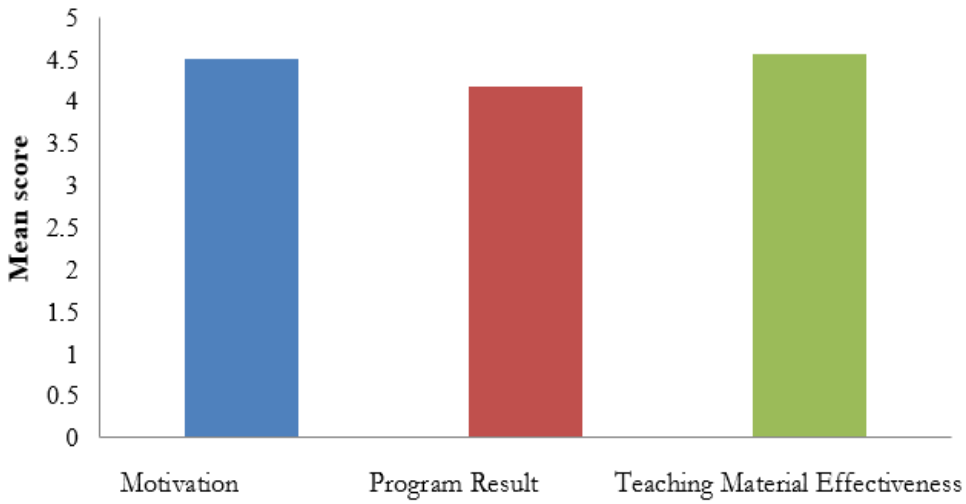
From the results of the respondents' evaluation of interactive teaching materials on individual trials the motivational aspects obtained an average score of 4.33 with a percentage of 86.67% getting good criteria. Aspects of the results of the program obtained an average score of 4.07 with a percentage of 81.33% getting good criteria. While the aspect of the effectiveness of

teaching materials gained a score of 4.56 with a percentage of 91.11% getting very good criteria. Then the three respondents were triangulated to ensure there were no obstacles in operating interactive teaching materials in learning. Based on the results of triangulation. Therefore, the interactive white board animation teaching materials for learning civics do not need to be revised to be tested on small groups.

Small Group Trial Results

The procedure for conducting small group trials is carried out exactly as the procedures for individual trials are, the teacher explains the purpose of the activities and the steps in operating interactive teaching materials. All three groups of respondents were given the opportunity to use these interactive teaching materials. The operation is left up to students to choose their friends who are able to operate computers. During the trial process, sometimes they take turns in operating the computer. The teacher also provides direction in using interactive teaching materials.

The three groups of respondents did learning using interactive teaching material, conducted discussions in the group and answered questions contained in the interactive teaching material. During the learning process, students feel they do not find obstacles in operating interactive whiteboard animation teaching materials. After the learning process is completed, each respondent is given a questionnaire and asked for their response to the interactive teaching material designed by putting an (x) mark on the questionnaire. The results of an individual trial assessment of interactive whiteboard animation teaching materials can be seen in Graph 2.



Graph 2. Histogram Quality of Interactive Teaching Material Aspects of Motivation, Quality of Program Results and Effectiveness in Small Group Assessments

Based on the results of the assessment of interactive teaching materials in small group trials on the aspects of motivation and the results of the program according to the analysis of the

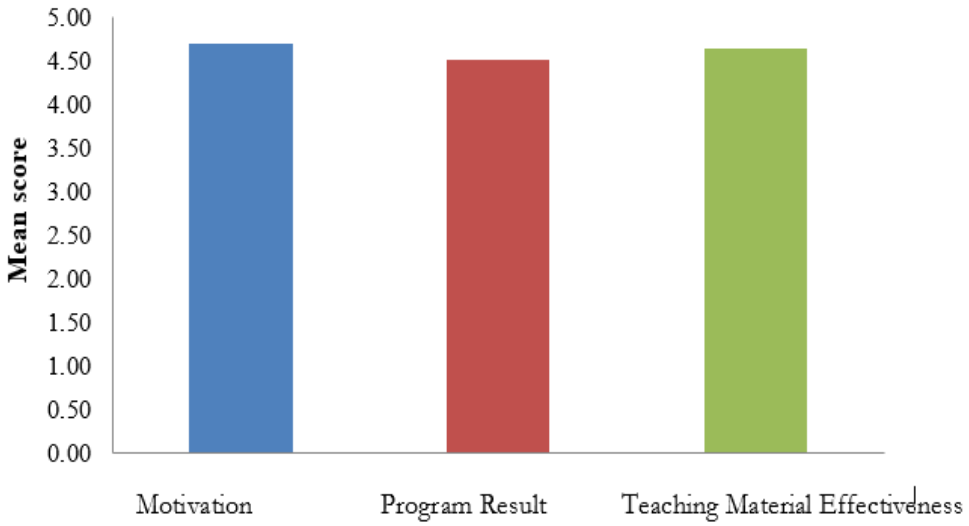
numbers have improved namely for the aspects of motivation to obtain an average score of 4.50 with a percentage of 90.00% and get very good criteria. Aspects of the results of the program obtained an average score of 4.17 with a percentage of 83.54% getting good criteria. While the aspect of the effectiveness of teaching materials did not improve and decrease, namely obtaining a score of 4.56 with a percentage of 91.11%. Then to the three groups of respondents namely nine students, triangulation was carried out to ascertain the constraints in operating the interactive learning instructional material and the content of the interactive teaching material. Based on the results of the triangulation, interactive learning teaching materials need to be revised in terms of clarifying the narrative vocals and clarifying the narrative text for testing in large groups or field trials.

Large Group Trial Results

Implementation of large group trials or field trials is carried out with procedures such as small group trials, the teacher explains the purpose of activities and steps in operating interactive whiteboard animation teaching materials. The five groups of respondents were given the opportunity to use these interactive teaching materials.

The operation is left up to students to choose friends in their groups who are able to operate computers. During the trial process, sometimes they take turns in operating the computer. The five groups of respondents held a discussion in their group then answered the questions contained in the interactive learning teaching material. During the learning process, no obstacles were found in operating interactive teaching materials in learning.

After the learning process is completed, each respondent is given a questionnaire and asked for their response to the interactive teaching materials designed by crossing (x) on the questionnaire. The scores of students' assessment results in large group trials can be seen in Graph 3.



Graph 3. Histogram Quality of Interactive Teaching Material Aspects of Motivation, Quality of Program Results and Effectiveness in Large Group Assessments

Then the five groups of respondents consisting of fifteen students were triangulated to ascertain the constraints in operating interactive learning instructional materials.

Based on data analysis of large group trials or field trials. The average aspect of motivation gets a score of 4.70, the results of the program 4.51 and the aspect of effectiveness gets a score of 4.64. In the large group trials, overall interactive whiteboard animation teaching materials for elementary school students received a very good predicate with a score of 4.62 or 92.34%.

Based on the results of the triangulation, overall the interactive whiteboard animation teaching materials on Civics Education learning on central government materials do not need to be revised and can be used for learning activities in the classroom, especially in class IV Elementary Schools.

Student Behavior Analysis

Based on the results of an assessment of students' learning behavior when using interactive whiteboard animation teaching materials on aspects of student motivation to learn from indicators of attention from 15 students 3 students are considered to have attention to learning, 9 students are considered to have attention to learning and 3 participants students are considered to have enough attention to learning. For the enthusiasm indicator of 15 students, 3 students were considered very enthusiastic in participating in the learning, 9 students were considered as enthusiastic, 2 students were considered quite enthusiastic and 1 other was considered less enthusiastic.

This is due to students who are considered less enthusiastic can not use computer equipment and do not dare to try to use it. For indicators of responsibility 3 students are considered

to be very responsible, 7 students are considered responsible, and 5 students are considered to be quite responsible. Whereas for the indicators of students' happiness in learning 6 students were considered very happy and 9 students were considered happy in learning.

In the aspect of student activeness, for indicators of participation of 15 students 5 students were considered to be very participating, 7 students were considered to participate, 2 students were considered to be sufficiently participating and 1 student was considered not to participate. Students who did not participate complained about the difficulty of using teaching materials because they were not accustomed to using computers.

On the indicator of curiosity of 15 students, 3 students were considered very active asking questions, 9 students actively asked questions, 2 students asked questions quite often and 1 student asked questions less in learning. Students who ask less are judged to be lacking in courage to ask questions. For indicators of carrying out group discussions, out of 15 students 5 students were considered to be very involved in group discussions, 7 students were considered to be involved in group discussions and 3 students were considered to be quite involved in group discussions.

From the results of the assessment of the students 'learning behavior, the aspects of students' learning motivation got an average score of 4.12 with a percentage of 82.33% with a good category. In the aspect of learning activeness students get an average score of 4.18 with a percentage of 83.56% with a good category. The observations show that the learning behavior of students in using interactive whiteboard animation teaching materials in Sadaniang State Elementary School 2 is classified in the good category, with an average of each aspect getting a score of 4.15 with a percentage of 82.94%.

Whiteboard Animation Product Form

After the procedure for developing interactive whiteboard animation, teaching materials has been carried out, the next step is to design the final product form for interactive whiteboard animation teaching materials. Product of interactive whiteboard animation teaching materials for learning Citizenship Education class IV Elementary School is designed in the form of Digital Versatile Disk-Recordable (DVD-R) pieces.

DVD-R can store data up to 4.70 GB standard data has a diameter of 120 millimeters (4.7 in) and can store up to 120 minutes of compressed audio or 4.7 GB of data, store up to 120 minutes of audio. Therefore, interactive teaching materials use DVD-R to be able to store data. The use of DVD-R is intended to be more effective and efficient in facilitating the process of installing interactive teaching materials.

CONCLUSIONS

Based on the results of data analysis and field testing in the development research that has been described, it can be concluded that (1) the development of interactive whiteboard animation teaching materials according to Hannafin and Peck is divided into 3 stages namely: needs assessment, design stage, development/implementation stage.

Whiteboard animation interactive instructional products are very well used in learning with consideration of the results of expert validation on aspects of learning strategies, material content, display of instructional materials, material integration and visual communication received very good categories, while the results of field evaluations from aspects of motivation, program results and the effectiveness for learners get a very good category; (2) based on the results of an assessment of the learning behavior of students when using interactive teaching materials on aspects of learning motivation and learning activeness of students obtaining good criteria; (3) interactive whiteboard animation teaching materials are designed in the form of Digital Versatile Disk-Recordable (DVD-R), to be more effective and efficient in their use.

SUGGESTIONS

Based on the results of the study, the suggestions that can be given as input for further development of interactive whiteboard animation teaching materials can be improved again in terms of learning strategies, preferably in using interactive teaching materials the teacher plans learning activities with more attention to the time of learning activities, for example, design the time each step of the learning in the Learning Implementation Plan (RPP)

In terms of learning material, teachers should pay more attention to the truth and recency of the material, the accuracy of the scope of the material, and logical exposure, for example, central government material will always be updated. Therefore teachers must update information from teaching materials so that there is no misunderstanding and the latest information.

In the display of teaching materials, pay attention to the fonts of letters used, voice-over using sophisticated tools, choosing a narrator who has a good voice, providing animated images, videos, which are in accordance with the material and environment of students. For example in the use of letters must pay attention to large fonts with a size of 16 by using a striking color so it is easy to read by students. The voice recorder uses a standard microphone so that the sound is clear and can be understood by students. Using images that have a standard size so that when inputting images into teaching materials, the image is not damaged (unclear) due to blur. Choose a narrator who has a clear vocal voice, so that with good voice vowel helps make it easier for students to understand the learning material.

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