DEVELOPMENT OF POWTOON MEDIA IN LEARNING SCIENCE CLASS IV ELEMENTARY SCHOOL

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Abstract: *The observation results show that the material does not understand what is conveyed by the teacher. Learning media is the main choice in teaching to accelerate the teaching and learning process and help students understand the teacher's understanding. For this reason, this research will develop a powertoon media that only focuses on learning natural science materials, energy sources and changes in energy forms. The purpose of this research is to develop powtoon media and to find out the feasibility of powtoon media in science learning. The sample in this study were 20 students of class IV at SD Negeri 2 Baru. Research data collection techniques were obtained through interviews, validation questionnaires, response questionnaires and tests. The results showed that learning media in science learning was valid based on the results of the material experts' assessment of 90% (very valid), media experts 88% (very valid), linguists 94% (very valid). The overall percentage of the three validation experts is 90.6% which can be concluded that powtoon media is very feasible to be tested on fifth grade students. The feasibility level of powtoon media in science learning based on student response questionnaires gets a proportion of 97.8% in the "very valid" category. The assessment of the teacher's response value reached a proportion of 98% in the "very valid" category. The feasibility level of learning media in science learning based on the results of student evaluation tests after product trials obtained an average of 84.5. Student interview data were analyzed so students understood the material easily. Based on the results obtained, it can be concluded that in science learning using powtoon media can make it easier for students to understand the material.*
Keywords: learning media, cartoon media, science learning

INTRODUCTION

Science learning in general is learning to understand the surrounding natural conditions so that they can apply them in everyday life. Science learning does not only emphasize the concepts in the material, but also carries out the learning process, and improves the quality of learning so that learning becomes meaningful (Primayana et al, 2019) . In this case science learning can be planned in a structured way so that the delivery of material in the implementation of learning is easy to apply by applying direct learning experiences to students.

Science learning in elementary schools contains knowledge materials that exist in the life around living things. Science learning is the initial foundation for students to develop knowledge, skills and attitudes. It is expected that students can recognize and understand events and knowledge that occur in nature. Science learning can guide students to understand the natural surroundings systematically, because science learning plays a very important role in the student education process. In the science learning process in elementary schools, a teacher is the main factor in helping students understand the material so that the teaching and learning process achieves its goals. Therefore, the teacher's knowledge and skills in science subjects will determine the success or failure of student learning (Prasetyo, 2017) .

Natural Sciences (IPA) is one of the subjects in school, which is able to provide roles and experiences for students (Primary et al, 2019) . Science subjects are taught to train students to learn about events that occur in the natural environment, so the teacher must motivate and attract students to learn science. In this case, natural science is needed in everyday life to solve problems to make ends meet. There are two things that cannot be separated from natural science, first natural science as a product, which is factual, conceptual and procedural, second natural science is a process, namely scientific work. With this, the teacher must be able to make plans to make the material he teaches interesting so that students can easily understand it.

Based on the results of observations with the fourth grade teacher at SD Negeri 2 Tahunan Baru, it is known that the results of the fourth graders' Daily Test (UH) show that there are still many students who have not achieved the KKM applied at school, the KKM implemented at school is 75. Of the 20 students , 5 students (25%) achieved the KKM that was implemented at school, and for 15 students (75%) had not reached the KKM. Of the 15 students in learning science, they still experience

difficulties, especially the lack of understanding of the material in the energy chapter and its changes. This is because the learning carried out still emphasizes theory. The learning media used by the teacher in the science learning process is still as simple as *PowerPoint* , in which the *PowerPoint* contains a summary of the material. As a result, the teaching and learning process becomes boring, because students are asked to read and understand the material. In science subjects, students must think actively and critically. Therefore, the teacher must choose the right means for students to understand the material, such as the need to use interesting learning media.

Learning media is anything that can be used to stimulate students' thoughts, feelings, attention, and abilities or skills so that they can stimulate the learning process (Ekayani, 2017) . The use of learning media in learning activities is very important, namely to make it easier for teachers to deliver material and make it easier for students to understand the material they have learned. Media can also generate enthusiasm and new interests, thus inspiring students to learn. Based on this, we need a media that can carry out learning.

One of the means to arouse students' enthusiasm for learning is *Powtoon learning media . Powtoon* is an online application that can present presentations or material that can be accessed on the screen, so *Powtoon* can easily be used as a learning medium with animated models and other cartoon objects, which can make media appearance more attractive for learning (Lestari, 2020) . Based on the research conducted Fitriani, (2019) **that** *powtoon* learning media is effective when used in the learning process of students in elementary schools.

Powtoon media can help students understand the material for learning activities to achieve their goals. This *powtoon* media is suitable for use in science subjects, one of which is for energy source material which requires learning media in the form of a real picture by displaying pictures so that the material is easily understood by students. The advantages of *powtoon media* are that they have interesting animations and can cover all aspects of the sense of hearing and sense of sight. *Powtoon* media can also show science learning material through animated images. So learning using *powtoon media is* expected to attract students' interest in learning to take part in science learning. Based on the background described above, the researcher wants to carry out research with the title "Development of *Powtoon Media* in Class IV Elementary School Science Learning".

METHOD

This type of research is a type of development research. Research and development or what is commonly called Research and Development is a method used to produce certain products and test the feasibility of these products (Sugiyono, 2017) . Development research has a broad meaning in that research is used to produce learning products, development research is the use of learning technology (Rayanto & Sugianti, 2020) . Related to this understanding, researchers conducted research with media development using research and development methods .

This research was conducted at SD Negeri 2 Tahunan Baru, Tegalombo District, Pacitan Regency. The population in this study were Class IV Elementary Schools in Tegalombo District. The sample in this study was fourth grade students at SD Negeri 2 Tahunan Baru, totaling 20 students. Data collection was carried out by means of interviews, questionnaires, tests, and documentation. The research and development procedures used in this study came from the *Robert Maribe Branch* who developed a learning design using the ADDIE model which stands for *Analysis, Design, Development, Implementation and Evaluation.*

RESULT AND DISCUSSION

1) Development of *Powtoon Media* in Learning Science for Grade IV Elementary School Students at SD Negeri 2 Tahunan Baru

Researchers in this case found problems in the learning process. The problem found was in the form of a lack of students' understanding of the science learning material provided by the teacher, causing many science scores to not reach the KKM. This information provides problem-solving ideas for researchers, namely the need to develop interesting learning media for students to support the learning process so that students can understand the material presented.\

The potential possessed by SD Negeri 2 Tahunan Baru has an LCD *projector* . Therefore, researchers developed *powtoon media* in learning science class IV. This is reinforced by the opinion of Wulandari et al, (2020) that *powtoon media* has characters and animations that can convey messages for students to understand a material so that students can receive information visually and audio which can be combined in the form of an interesting video. The following is a display of *powtoon* media that has been developed by researchers:

Figure 1 Initial view of the media

Picture 1 is a display from the beginning of the media, the first time that students see is a picture or animated cartoon of two children who can move to greet students with a sentence inviting let's learn. The *background* colors used by researchers are blue and green, researchers also insert images of trees, clouds, and the sun to beautify the appearance. With this appearance, it is hoped that it can attract attention to take part in science learning. This agrees with Fitriyani, (2019) if the images in the media can foster student motivation in implementing learning.

The next display is a display of basic competencies and learning objectives to be studied. Basic competence in *powtoon media* to be used as a reference in preparing indicators for science subjects. While the learning objectives to measure the ability to be achieved by students. In this view there is an animation of the teacher moving, so that it can attract students' attention to stay focused on listening to the material. Then there is a display by asking how the students are doing, this is done as a form of the teacher's attention to students.

Picture 2 Display presentation of the material

Figure 2 is a display of the presentation of the material, namely the type of energy source. The first thing students see is the title of the material and the images contained in the media. In the display of this section, it is known that there are pictures that function as a tool to help students understand the material. This view is supported by a green *background* . In this view there is also a motion animation when the teacher explains the material. This animation is used to help the researcher's voice explain the material.

Researchers also insert *backsound* in the media to make learning fun. This agrees with Qurrotaini et al, (2020) the use of audio-visual technology in learning media can be used as a means to explain material in learning. The next display is a display regarding the explanation of the material. The material presented is renewable and non-renewable energy sources. In this view, the researcher uses images that are in accordance with the material, there is also a researcher's voice explaining the material. Illustrative pictures are given so that students can know clearly what is happening in the explanation of the material.

Figure 3 Example of an explanation of the material

Figure 3 is a display of an example of an explanation of the material, the first time that students will see in the display is an example of an illustrated image. In this view, the researcher provides an illustration of the sun and clothes that are being dried. Researchers explained that the sun can be used to dry clothes. These illustrations can help explain the material, so that students can easily remember and understand the material. This agrees with Liesdiani et al, (2016) saying that the pictures in the PowerPoint media *are* expected to make it easier for students to master the material quickly and easily.

The next display is an explanation of material about changes in energy forms. In this display, it is explained that the material changes

the form of electrical energy into light energy by providing animations of lights that can turn on and televisions that can emit light. This is done to help students understand material explanations related to real situations in students' lives, so that students can easily remember material.

Figure 4 Example of changing chemical energy into light

Figure 4 is a display of an example of changing chemical energy into light. The first thing students will see is an example of an animated flashlight that can turn on. In this display it is explained in a researcher's voice that the chemical energy from the battery can make light energy in a flashlight. The flashlight animation used can make it easier for students to understand the material by connecting real events in students' lives. This is reinforced by the opinion of Damayanti, (2014) that science subjects should be implemented in real terms and be able to communicate them so that they can help students gain a deeper understanding of the natural surroundings.

The next stage is an explanation of the material about changing electrical heat energy into heat energy, here the researcher uses an oven animation. The researcher explains the material about changing electrical energy into motion energy, here the researcher uses an animation of a moving fan and *mixer* . This is done to help students know the process of changing forms of energy. The researcher also explained the material by inserting the researcher's voice. So that students can read the explanation of the material in the *powtoon media* and listen to the voice of the researcher.
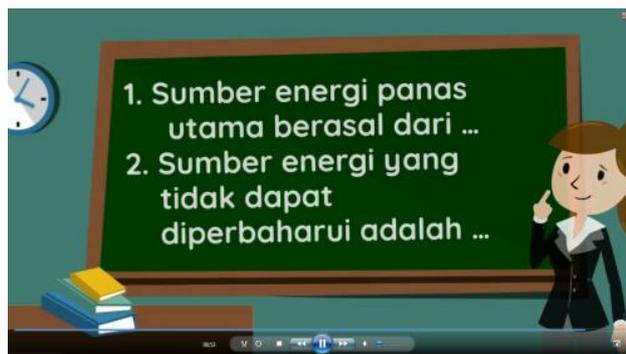
Figure 5 Practice questions

Figure 5 is a display of practice questions, the researcher provides practice questions in the *powtoon media* . This practice question is to try students in terms of the level of student understanding to what extent students understand the material that has been presented in the *powtoon media* . In this practice problem, the researcher provides practice questions with easy level questions. However, these practice questions are different from evaluation test questions. These practice questions are not included for data collection. Furthermore, the researcher conveyed closing greetings by writing the word thank you, this indicated that the presentation of the material had been completed.

2) The Feasibility of *Powtoon Media* in Learning Science for Grade IV Elementary School Students at SD Negeri 2 Tahunan Baru

Powtoon media can be assessed from its validity. The validity of *Powtoon* media can be determined from the results of validation experts' assessments, student response questionnaires, teacher response questionnaires, and student evaluation tests. There are 3 validation experts involved in this validation process, namely material experts, media experts, and language experts.

Validation is carried out to assess whether the developed learning media is suitable for use in the learning process and to find out input and suggestions from validation experts to improve and perfect the *powtoon media* being developed. The results of the validation of development experts, student evaluation test results, student and teacher response questionnaires are as follows:

1. Expert Validation Results

Powtoon media experts in learning Natural Science class IV of Elementary School, media experts gave an assessment of 88%. The percentage of these achievements is in very valid criteria (81% -

100%). This shows that the *powtoon media* in learning Natural Sciences is stated to be "very valid" because in the *powtoon media* there is a media title page with an attractive design to foster students' enthusiasm for learning. From this explanation it can be concluded that the *powtoon media* in learning Natural Sciences is good.

Powtoon media linguists in learning Natural Science class IV Elementary School, linguists gave an assessment of 94%. The percentage of these achievements is in very valid criteria (81% - 100%). This shows that the *powtoon media* in learning Natural Sciences is stated to be "very valid" because the sentence structure used in the *powtoon media* is correct. From this explanation it can be concluded that the language used in *powtoon learning media* is good.

The three validation experts provided assessments and suggestions for improvement. The combined validation results of the three validation experts obtained 90.6%. The percentage of achievement is in the criteria of very valid (81% -100%), thus indicating that the *powtoon media* in learning Natural Science class IV elementary school is declared "very valid". With the assessment of these experts, it can be concluded that the *powtoon media* is feasible to be tested on fourth grade students of SD Negeri 2 Tahunan Baru.

2. **Student Evaluation Test Results**

The researcher also gave evaluation test questions to students to determine students' cognitive abilities. Student learning outcomes were obtained after conducting product trials with 20 students as research subjects. To find out students' cognitive abilities is done by distributing evaluation test questions after learning. Activities carried out by researchers in product trials before giving evaluation test questions are as follows: (1) carry out science learning activities by displaying *powtoon media* , (2) researchers review a little of the learning material in *powtoon media* , (3) after going through learning activities , students are asked to work on evaluation test questions. The evaluation test sheet is in the form of multiple choice which consists of 20 questions.

Based on the results of the evaluation test questions, it showed that 19 students got more and the same score from the KKM and for 1 student got a score below the KKM. The KKM score at SD Negeri 2 Tahunan Baru is 75, students are declared to have completed learning with individual scores if they meet the KKM score. Of the 19

students who were declared to have fulfilled the KKM, these students got the lowest score, namely 75. During the interviews the students answered that they did not remember the material presented in the *Powtoon media* so they were hesitant to answer the evaluation test questions. The highest score of the 19 students who fulfilled the KKM was getting a score of 100. When the researchers conducted interviews with these students, the students answered that the material in the *Powtoon media was* easy to understand so students could easily work on evaluation test questions .

The results of the student evaluation tests included 1 student whose score was below the KKM, which was 70. When the researchers conducted interviews with these students, the students answered that they actually felt happy in learning science using *powtoon media* . However, students find it difficult to remember the material that has been presented in the *PowerPoint media* , so students find it difficult to answer evaluation test questions. Based on the results of the student evaluation tests carried out, the results of 20 students showed that 19 students (95%) had fulfilled the KKM, while 1 student (5%) had not fulfilled the KKM and obtained an average of 84.

CONCLUSION

The results of the development research by taking the title Development of *Powtoon Media* in Science Learning Class IV Elementary Schools held at SD Negeri 2 Tahunan Baru there are several conclusions that can be drawn, namely:

1. The media developed is in the form of *powtoon media* using the ADDIE model research and development procedure which has the stages of *Analysis, Design, Development, Implementation and Evaluation* . The content of the *powtoon* media product contains material on energy sources and changes in energy forms developed by researchers using interesting learning animations, *backgrounds* that are appropriate to the material, *backsounds* that animate the media, and there are researchers' voices in explaining the material.

2. *Powtoon* media is measured through assessment by validation experts, assessment of student response questionnaires, teacher response questionnaires, and evaluation test results. The validity level of *powtoon* media in science learning is based on the results of the assessment of the three experts, namely material experts at 90%, media experts at 88%, linguists at 94%. The combined results of the validation experts reached a percentage of 90.6% in the "very valid" category. The feasibility level of *powtoon media* in science learning based on student response questionnaires obtained a percentage of 97.8% in the "very valid" category. The teacher's response questionnaire assessment reached a percentage of 98% in the "very valid" category. The feasibility level of science learning *powtoon* media based on the results of student evaluation tests after product trials obtained an average of 84.5. With the percentage results (95%) getting a score above the KKM, and (5%) still getting a score below the KKM.

SUGGESTION

Based on conclusion, so could suggested as following:

1. For student
   a. Researchers hope that students can understand the material sources of energy and changes in forms of energy conveyed in the *powtoon media,* so that they can improve student learning outcomes.
   b. Researchers hope that students will be more enthusiastic and motivated to learn science by using *powtoon media* .
2. For Teachers
   a. The researcher hopes that the *powtoon media will* become an alternative for teachers to attract students' interest in learning by presenting interesting and fun learning media.
   b. The results of the research are also expected to be a reference for teachers to develop similar media with other materials.

3. For the School
   The results of this study can be used as considerations for schools as educational institutions that are school policy makers to improve the quality of education by developing *powtoon learning media* .
4. For Other Researchers
   The results of this study are expected to be a reference for other researchers, so that they can conduct research by developing *powtoon media* with *full* animation in science learning as well as in other creative and interesting learning .

REFERENCE

Damayanti, I. (2014). Application of the Inquiry Learning Model to Improve Learning Outcomes in Elementary School Science Subjects. JPGSD , 02 (03).

Ekayani, P. (2017). (2017). The Importance of Media Use. Journal of the Faculty of Education, Ganesha Singaraja University of Education , 2 (1), 1–11.

Fitriyani, N. (2019). Development of Powtoon Audio-Visual Learning Media About Self-Concept in Group Guidance for Elementary School Students. Tunas Bangsa Journal , 6 (1), 104–114.

Lestari, ND (2018). Development of Audio-Vidual-Based Learning Media Using Powtoon for Class I Elementary School Thematic Learning . Unpublished thesis. Bandung: PGSD Study Program.

Liesdiani, D., Syaodih, E., & Mariam, P. (2016). Development of Audio Visual Powtoon-Based Learning Multimedia to Increase Student Learning Motivation. Journal of Education and Learning in Accounting Economics , 2 (2), 139–149.

Prasetyo, S. (2017). Development of Android-Based Science Learning Media for Elementary/Middle School Students. JMIE (Journal of Madrasah Ibtidaiyah Education) , 1 (1), 122–141.

Pratama, F., Firman, F., & Neviyarni, N. (2019). The Effect of Student Learning Motivation on Science Learning Outcomes in Elementary Schools. Educative : Journal of Educational Sciences , 1 (3), 280–286.

Primayana, KH, Lasmawan, W., & Adnyana, PB (2019). The Effect of Environment-Based Contextual Learning Model on Science Learning Outcomes in View of Outdoor Interests in Grade IV Students. Indonesian Journal of Science Education and Learning , 9 (2), 72–79.

Qurrotaini, L., Sari, TW, & Sundi, VH (2020). The Effectiveness of Using Powtoon-Based Video Media in Online Learning. Proceedings of the UMJ LPPM Research National Seminar , E - ISSN: 27 , 7.

Rayyanto, YH, & Sugianti. (2020). ADDIE and R2D2 Model Development Research: Theory & Practice . Academic & Research Institute.

Sugiyono. (2017). Quantitative Research Methods, Qualitative, and R&D. Bandung: Alphabet