



## *Development of Microsoft Powerpoint Learning Media in Science Subjects in Class V in Elementary School*

### **Pengembangan Media Pembelajaran Microsoft Powerpoint pada Mata Pelajaran IPA di Kelas V Sekolah Dasar**

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#### **Abstract**

PowerPoint-based learning media is the development of learning tools by creating presentation slides and integrating various media such as images, animation, and text as teaching materials. Media use in learning activities needs to be done to facilitate the learning process and achieve optimal results from the learning objectives. Therefore, as a component of education, teachers must be more creative and innovative in presenting learning, such as using learning media as teaching materials. This research uses the Borg and Gall model of research development (R&D) methods. The steps in this development research include potential problems, literature study, information gathering, product design, product design validation, and prototype. The feasibility of the product is based on the results of assessments by media experts, material experts, and class teachers as test subjects. Data collection techniques use interviews, questionnaires, and documentation. The results of the research show that the assessment from media experts received a score percentage of 92.22%, including in the very appropriate category, material experts received a score percentage of 96%, including in the very appropriate category, and validation teachers received a presentation score of 96.66%, including in the very appropriate category. It can be concluded that Powerpoint media for science learning at SDN 1 Nonapan II is suitable as teaching material.

**Keywords:** Learning Media, Powerpoint, Science, Water Cycle.

#### **Abstrak**

Pengembangan media pembelajaran berbasis power point merupakan pengembangan perangkat pembelajaran dengan membuat slide presentasi dengan mengintegrasikan berbagai media seperti gambar, animasi dan teks sebagai bahan ajar. Penggunaan media dalam kegiatan pembelajaran perlu dilakukan agar dapat mempermudah proses pembelajaran, sehingga mencapai hasil yang optimal dari tujuan pembelajaran. Oleh karena itu, sebagai salah satu komponen dalam pendidikan, guru harus lebih kreatif dan inovatif dalam menyajikan pembelajaran, seperti menggunakan media pembelajaran sebagai bahan ajar. Penelitian ini menggunakan metode penelitian pengembangan (R&D) model Borg dan Gall. Langkah yang ditempuh dalam penelitian pengembangan ini meliputi: potensi dan masalah, studi literatur, pengumpulan informasi, desain produk, validasi desain produk, dan prototipe. Kelayakan produk didasarkan pada hasil penilaian ahli media, ahli materi, dan guru kelas sebagai subjek uji coba. Teknik pengumpulan data menggunakan wawancara, angket, dan dokumentasi. Hasil penelitian menunjukkan bahwa penilaian dari ahli media mendapatkan presentase skor 92,22% termasuk dalam kategori sangat layak, ahli materi mendapatkan presentase skor 96% termasuk dalam kategori sangat layak, dan validasi guru mendapatkan presentasi skor 96,66% termasuk dalam kategori sangat layak. Dapat disimpulkan bahwa media Powerpoint untuk pembelajaran IPA di SDN 1 Nonapan II layak digunakan sebagai bahan ajar.

**Kata Kunci:** Media Pembelajaran, Powerpoint, IPA, Siklus Air

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## **INTRODUCTION**

The development of science, technology, and arts requires teachers to utilize technology, communication, and information, especially computers, in learning. Teachers need to follow developments in science and technology to improve the quality of learning (Hanafy, 2014). One of them is having the ability to create and use Information Communication Technology (ICT)-based learning media. Technology in learning provides rich learning conditions for students, rich information and learning resources, and can be inserted with various multimedia-based learning elements (Suri, 2019).

According to Minister of National Education Regulation Number 22 concerning Content Standards of 2006, natural science involves a systematic approach to understanding nature, namely understanding, responding to, appreciating, and instilling habits (Permendiknas, 2006). Therefore, science is not just a collection of knowledge but a discovery process. Seeing the importance of science learning in elementary schools, teachers must be creative and innovative in providing science learning materials to students so that students can gain a deep understanding of the natural environment. However, science learning is considered difficult for students to understand, especially in elementary schools, because science is an abstract subject, and in elementary schools, the student age range is 7-11 years, which is the age of concrete operations (Sani, 2022). Students can think logically about specific events during this period and classify objects into various forms. The ability to classify things already exists but cannot solve abstract problems (Marinda, 2020). Therefore, if teachers are less creative and innovative in teaching science subjects, students will have difficulty digesting the learning content. Therefore, as an integral part of education, teachers have an essential task in learning. The learning process plays a significant role in developing and improving the quality of students (Rahayu & Firmansyah, 2019).

The learning process's success depends on applying the methods and media chosen and used by the teacher in presenting the lesson material. Learning activities require media assistance to expedite learning and achieve the best results from learning objectives (Kim, 2016). In order to make the learning process easier for students, learning media is needed, both in speeding up and understanding the learning content. In general, learning media is used to provide concrete experiences, provide learning motivation, and increase students' learning absorption and retention in understanding subject matter.

However, learning media is explicitly used to add to the appearance of the material to make it more attractive, to impact students' focus on what they are learning in the learning process, and to increase motivation and interest in learning (Zaiful Rosyid, 2020). Seeing the benefits of media in learning, the presence of media is an essential element in learning.

Media are all the resources needed to communicate with students. Media can be hardware such as computers, televisions, projectors, and software used on that hardware (Wena, 2012). Media use can increase students' interest in learning and help teachers convey messages and lesson content. In the learning process, using media, especially technology-based media, can help students understand learning and also increase students' knowledge about how to use technology correctly. This also helps students keep up with current developments. However, not all schools have adequate facilities and infrastructure to support the learning process, so the learning process is less effective (Krisnasari, 2016). PowerPoint is one of the learning media that can be used in the learning process. Powerpoint is a medium that can create presentations or teaching materials in an attractive form because it is supported by displays of animation, video, audio, text, images, and even 3D images, making the teaching and learning process more manageable. In line with that, PowerPoint is an application people or educators use to present teaching materials, reports, and their work (Azhar, 2015).

Based on the results of observations and interviews conducted at SDN 1 Nonapan II, which uses the 2013 curriculum, it can be seen that the implementation of the learning process carried out by teachers so far has linked the Core Competencies (KI) and Basic Competencies (KD) contained in the 2013 curriculum. Research This will be implemented at SDN 1 Nonapan II, which has provided teachers with ICT-based media facilities with a Liquid Crystal Display (LCD) and supporting components to plug in multimedia devices in the classroom. The use of media in learning activities needs to be done to facilitate the learning process and achieve optimal results from the learning objectives. Therefore, as a component of education, teachers must be more creative and innovative in presenting learning, such as using learning media as teaching materials.

PowerPoint-based learning media in the teaching and learning process is necessary for the learning process to be effective (Musjah, 2016). Therefore, researchers developed a Powerpoint-based learning media. Powerpoint is software for creating

presentation slides that integrate various media, such as images, animations, sounds, and text. Significant research is carried out at SDN 1 Nonapan II to improve student learning outcomes in science subjects.

## **RESEARCH METHODS**

This research uses the Borg and Gall Model research and development (R&D) method (Sugiyono, 2018). In this research, researchers developed PowerPoint learning media for Natural Sciences (Science) subjects in class V of SDN 1 Nonapan II. In this level of research, the researcher does not produce the design that has been created and does not test the product externally (field tested). The stages include potential problems, literature study, information gathering, product design, design validation (media validation, material validation, teacher validation), and tested designs tested on students. Data analysis techniques use qualitative data analysis and quantitative data analysis.

## **RESULTS AND DISCUSSION**

In this research, two types of data were obtained: qualitative and quantitative. Qualitative data was obtained through interviews with the principal and class teachers at SDN 1 Nonapan II and documentation that obtained water cycle material from textbooks and lesson plans as a reference for what steps were studied in the water cycle material. Then, quantitative data was obtained through two stages of assessment, namely product validation and one-to-one trials with class teachers. The validation data was obtained by two validators: media experts and material experts. In the validation process, qualitative and quantitative data were obtained. Qualitative data is in the form of additional assessments or suggestions from validators. Meanwhile, quantitative data comes from a Likert scale assessment questionnaire.

### **Potential Problems**

The learning media developed by researchers is PowerPoint-based media for science subjects with the material "Water Cycle" in class V elementary school. This learning media consists of material on the process of the Water Cycle and other explanations. The media researchers produce during development is a cover page, main page (home), button instructions page, materials page, and developer information.

This PowerPoint-based learning media is intended for teachers or students to study the process of the Water Cycle. The media presented is relatively easy for teachers and students to understand and easy to use because there are button instructions in the

learning media, making it easier for teachers and students to use Powerpoint-based learning media. Hopefully, the development of PowerPoint-based learning media can become a reference for teachers to develop learning media more creatively and innovatively.

### **Study of Literature**

Based on the explanation of the potential and problems, by using learning media to deliver learning material, students prefer or are more interested in teaching material that uses interesting things, such as audio-visual media.

### **Information gathering**

In the next step, the researcher gathered information using interviews and documentation. At the interview stage, the researcher interviewed the class V teacher at SDN 1 Nonapan II and asked a series of questions about learning media. In the interview instrument, the researcher responded and provided conclusions from several questions, and the teacher said that in delivering material, the teacher sometimes used media and sometimes not. He uses types of image media or directly uses textbooks as learning media, and he uses the media as an intermediary for conveying learning material. Then, in the next stage, the researcher used documentation instruments by collecting several pieces of documentation in the form of textbooks as reference material for creating learning media lesson plans as to what steps students had to learn in the Water Cycle material.

### **Product Design**

This product design stage is a continuation stage of the initial research results, starting from determining potential problems, then carrying out literature studies and gathering information. From the initial research results, researchers found problems at SDN 1 Nonapan II. In solving this problem, researchers tried to design Powerpoint-based learning media with the following steps: 1) Formulate the content of learning materials, in consultation with the fifth-grade teacher at SDN 1 Nonapan II related to the theme "Humans and the Environment," 2) Look for material references from various sources such as textbooks, journals, and the internet. Browsing Pictures or looking for images that support and are related to the Water Cycle material, 3) Implementation of product development. The PowerPoint learning media produced has several aspects: the start page, home page, contents section, practice questions, and supplementary sections.

Development of learning media design using Microsoft Powerpoint 2010, layout size 28.58 cm x 50.8 cm.

### **Product design validation**

After the product is developed, the next step is to test the feasibility of the resulting learning media product, which is then validated by media experts, material experts, and teacher assessment. First, the validation of media experts is carried out by filling out an assessment questionnaire sheet by media experts. Validation of media experts is carried out by filling out an assessment questionnaire sheet that media experts have developed. Based on the results of validation from Powerpoint learning media experts, the percentage obtained in the Media display aspect was 92%, and in the Media Programming aspect, the percentage obtained was 92.5%. The average result of the validation of Powerpoint learning media as a whole obtained a percentage of 92.22% with a very feasible category so that teaching materials can be used.

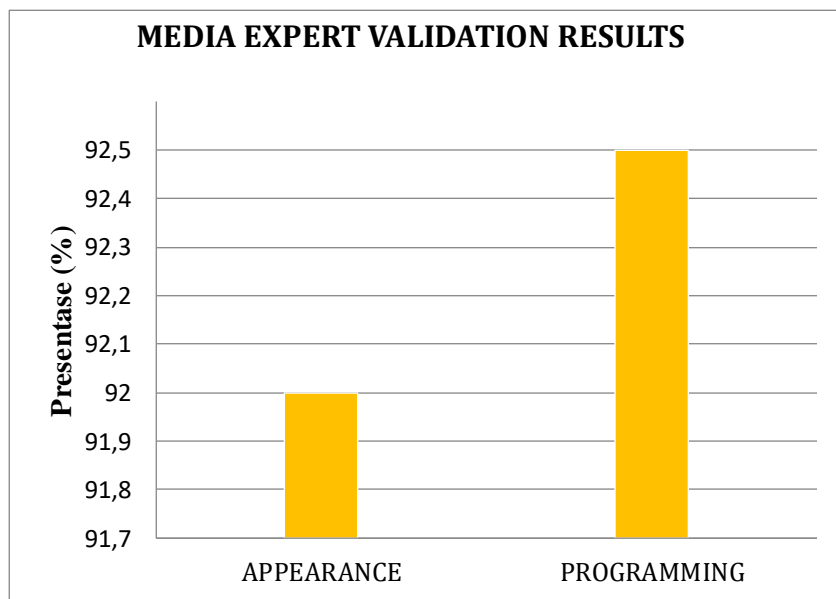


Figure 1. Media Expert Validation Results

After the validator has finished filling out the questionnaire and giving scores on each instrument, the validator provides comments and suggestions for researchers to revise the initial product design.



Figure 2. Product Before (a) and After Revision (b) in Media Validation

Second, material experts are validated by filling out an assessment questionnaire sheet that material experts have developed. Based on the results of material validation on PowerPoint learning media, the Learning aspect obtained a percentage of 95.55%, and the Content aspect obtained a percentage of 96.36%. The average result of material validation on Powerpoint learning media obtained a percentage of 96% with a very feasible category so that teaching materials can be used.



Figure 3. Product Before (a) and After Revision (b) in Material Validation

After the validator has finished filling out the questionnaire and giving scores on each instrument, the validator provides comments and suggestions for researchers to revise the initial product design.

Third, teacher validation was carried out on one class V teacher at SDN 1 Nonapan II, by providing a questionnaire sheet and the Powerpoint learning media developed by

the researcher. Next, the researcher explained the learning media to the teacher and invited the teacher to use the media. Then, the teacher is directed to fill out each instrument in the questionnaire to assess the media the researcher has developed. Based on the results of teacher validation on PowerPoint learning media, the Learning aspect obtained a percentage of 97.14%, the Material aspect obtained a percentage of 97.5%, and the Media aspect obtained a percentage of 95.55%. So, the average results from teacher validation on Powerpoint learning media obtained a percentage of 96.66% with a very feasible category so that the teaching materials could be used.

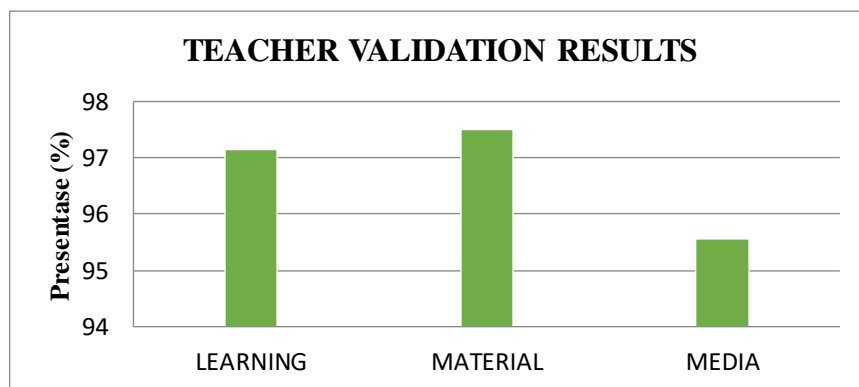


Figure 4. Teacher Validation Results

This aligns with the opinion (Jim, 2016) that using PowerPoint learning media is very suitable for students to use correctly so they can more easily understand the material.

#### **Analysis of learning media design results**

The final form of this PowerPoint learning media is still in the form of a prototype pattern on the Water Cycle material. This media aims to attract students' interest in learning. The design of this Powerpoint learning media is based on the fact that at SDN 1 Nonapan II there is no Powerpoint learning media available for science subjects with Water Cycle material. Thus, the Powerpoint learning media is intended as a reference for using learning media at SDN 1 Nonapan II.

This learning media design procedure is carried out in several stages as follows: 1) the first stage is to carry out a needs analysis, 2) the second stage is preparing the product design, 3) the third stage is product testing by validating media experts, material experts, and class teachers, and 4) the fourth stage is revising the product to perfect the learning media.

Then, if the learning media meets the teaching material procedures, it will produce PowerPoint learning media suitable for use as teaching material (Soeyono, 2014).



PowerPoint is a learning medium because it is very effective and professional as a learning medium and makes it easier for students to understand the material presented because the PowerPoint media that researchers have developed contains material demonstrating the process of the water cycle as well as practice questions to test students' understanding of the water cycle material, and also instructions for using buttons that use the hyperlink feature to make it easier for teachers and students to move from one slide to another.

### **Expert validation analysis of Powerpoint media**

In developing this learning media product, experts carry out validation to assess the product design being developed. Therefore, the validation results obtained values from the questionnaire instrument using a Likert scale and suggestions and input for improvements from the validator to perfect the learning media that the researcher developed. The analysis of expert validation is as follows:

#### **Analysis of media expert validation results**

Based on the assessment results from media experts, an average percentage of 92.22% was obtained in the very feasible category. The media expert's assessment includes two aspects, namely the appearance aspect, with a percentage of 92%, and the programming aspect, with a percentage of 92.5%.

#### **Analysis of material expert validation results**

According to experts, PowerPoint learning media on the water cycle material is very suitable because it follows the RPP and grade V elementary school textbooks with a feasibility percentage of 96%. The material expert assessment includes two aspects: the learning aspect, with a percentage of 95.55%, and the content aspect, with a percentage of 96.36%. According to material expert validators, PowerPoint learning media is very good because students will be more interested in explaining the material.

#### **Analysis of expert learning results**

Based on the assessment of learning experts by class teachers at SDN 1 Noanapan II, shows the appropriateness level of Powerpoint learning media with an average percentage of 96.66%. With three assessment aspects, namely the learning aspect, 97.14% was obtained, and the material aspect was 95.55%, with the qualification being very suitable for use. It is suitable because the average teacher validation results for

Powerpoint learning media obtained a percentage of 96.66%, with the category very suitable for use as teaching material.

The media developed for learning in the form of Microsoft PowerPoint can support the learning process, especially in science lessons (Adittia, 2017), which is also in line with research that Powerpoint-based learning media contains Subtheme 2 science education material which has been validated by media experts, material experts, and declared feasible (Wijayanti, 2019). This research has something in common: developing PowerPoint media in science subjects in class V elementary schools (Dewi, 2018). The difference is in the material in this study, which uses material on the Concept of Respiration in Humans and Animals (Irfan, 2019).

## **CONCLUSION**

Based on the research results, it was concluded that in the process of developing Microsoft PowerPoint learning media, a feasibility score was obtained by media experts in the "very feasible" category, material experts in the "very feasible" category, and teacher validation in the "very feasible" category. Thus, it can be concluded that PowerPoint learning media for science learning at SDN 1 Nonapan II is suitable for teaching. It is hoped that further research can add animation to learning media to improve learning outcomes more effectively.

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