JPPIPA 9(7) (2023)

Jurnal Penelitian Pendidikan IPA

Journal of Research in Science Education

http://jppipa.unram.ac.id/index.php/jppipa/index

Development of Learning Media Assisted Adobeflash CS7 by Using the Demonstration Method in Science Learning

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Received: April 21, 2023
Revised: June 20, 2023
Accepted: July 25, 2023
Published: July 31, 2023

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DOI: 10.29303/jppipa.v9i7.4535

Abstract: The purpose of this project is to create an Adobe Flash CS7 application-assisted learning resource for science instruction in class IV of an elementary school. Development research was the method adopted in this study. The phrase "research and development" is used. The analysis, design, development, implementation, and evaluation phases of the ADDIE model are used in this work. The 40 students who make up the study's subjects are instrument validators, class IV students at public elementary school 01 Sawahan and class IV students at public elementary school 05 Sawahan. A questionnaire was employed in this development research to gather information from media professionals, material experts, and students in order to evaluate the learning media that were being created. To gauge students' motivation for learning, questionnaires of their responses are employed. Validity analysis, which examines the applicability of learning medium, is the method of data analysis applied. The generated learning materials were proven to be reliable and useful for usage in primary classrooms. Learning materials created with the Adobe Flash CS7 program are acceptable for use in grade IV elementary schools while teaching science. An average validity score of 3.71 is obtained, falling into the very valid group. The practicality test results demonstrated that the created product was usable, with an average value of 88.25 falling into the very practical category.

Keywords: Adobe Flash Cs7 Learning Media; Demonstration Method; IPAS Learning

Introduction

Learning material is crucial for enhancing the caliber of instruction. According to (Jalinus, 2016; Yaumi, 2018) Learning media includes all software and hardware components that can be used to communicate the contents of instructional materials from learning resources to students, both individually and in groups, and that can pique their curiosity and interest in learning. In line with that according Dony et al. (2018), a learning medium should ideally support the teaching and learning process by assisting teachers in explaining content and assisting students in better comprehending it so that learning objectives are met. Teachers might try to produce and use learning media that are adaptable to technological advancements in order to make the learning activities they create today more exciting (Saddam Husein, 2018). One of the key components in attaining the objectives of the learning process is the usage of learning material. Technology advancements and media development are inextricably linked in the educational process. Today's technology makes it possible to create a wide range of media. This is done to keep the educational process current with what kids require in this day and age (Azrianti & Sukma, 2020). Teachers must be able to use instructional strategies and media that are appropriate for the subject matter being covered in order to assist the attainment of learning objectives related to competency and to inspire students to learn. However, in practice, teachers have neglected to use the media as a source of information and as a tool in the learning process (Rachmadtullah et al., 2018).

According to the findings of teacher interviews, there are a variety of reasons why media isn't used in the learning process, including a lack of preparation time, difficulty locating the appropriate media, prohibitive costs to provide media, and a limited capacity to use and create engaging learning materials. Teachers are not good at designing learning media needed by students, especially designing technology-based learning media.

Maharani, R.A., Erita, Y., Darmansyah, D., & Sukma, E. (2023). Development of Learning Media Assisted Adobeflash CS7 by Using the Demonstration Method in Science Learning. *Jurnal Penelitian Pendidikan IPA*, *9*(7), 5376–5382. https://doi.org/10.29303/jppipa.v9i7.4535

Teachers often use conventional learning when learning takes place which results in low student learning outcomes. In public elementary schools, adequate facilities have been provided for the use of learning media using supporting technology, but teachers have not been able to use it properly. Research conducted by the SEAMOLEC institute in 2010 which described that teachers' ICT mastery abilities were still classified as lower middle class. The majority of participants only access the computer for less than 3 hours a day or never, 58% access the internet for less than 3 hours a day or never (Ahmadi et al., 2017). This has an impact on the lack of motivation of students in the learning process. Passive students in the implementation of learning, many students have difficulty understanding the material because there is too much material and limited learning resources. Teachers have not used multimedia-based learning media as a teaching aid for the lecture method that has been used so far (Rahmaibu et al., 2017). In addition, students quickly feel bored and are not concentrating in participating in the learning process. Factors that really influence is the use of instructional media that is not optimal and the saturation of students with learning media that is still monotonously used by the teacher in the learning process (Ananda, 2018).

Information and communication technology (ICT), sometimes known as ICT (Information and communication technology), has evolved as a result of advances in science and technology (Liesa-Orús et al., 2020). Education as an aspect of human life also benefits from the development of science and technology. The use of computers as supporting learning media is equipped with various animation editing software such as Lectora Inspire, Macromedia and Adobe Flash as well as other software.In this study using the application *Adobe Flash*. *Adobe Flash*is an animation maker program from the United States, namely Adobe Systems Incorporated. This program has many functions, such as making animated objects, making presentations, drawing 3-dimensional objects, games, and can be used for making animated films (Oktafiani et al., 2020; Wahyuningtyas & Sulasmono, 2020). The software that the author will use in making this learning media is Adobe Flash CS7. This media is popular among animators, various facilities and the latest features have been provided for the convenience of its users. *Adobe FlashCS7*mis an application that combines graphic text, animation, audio and video, and animations that are created require a small amount of memory, the layout created can be adapted to the creativity of the developer, navigation buttons can be made on Android. The resulting animated images are more flexible for window sizes and screen resolutions of various sizes on the user's monitor, the image quality is maintained, the resulting program is interactive, provides interesting features (Astatin & Nurcahyo, 2016). The use of this media is carried out in IPAS learning in class IV of elementary school.

It is hoped that the learning media used will also use methods that are suitable for learning natural sciences in grade IV elementary schools. Learning can be stimulated and directed in a variety of ways that lead to different goals. But whatever the subject, teaching is essentially nothing more than helping students to acquire knowledge, skills, attitudes, and idealism, and appreciation that leads to changes in behavior and growth of students. The teacher using the demonstration method will simplify all matters relating to the material so that the expected learning outcomes are achieved (Endayani et al., 2020). The demonstration technique involves providing examples to help students understand concepts or to demonstrate how a certain formation process works (N. Simbolon et al., 2021; Ramadhany et al., 2015). Another understanding states that the demonstration method is a teaching method in which a teacher shows students the original object (representative of the original object) or a process, for example, how to make an embossed map, how to use a camera with good results, and so on. Using the demonstration method will simplify all matters relating to the material so that the expected learning outcomes are achieved (Endayani et al., 2020). Based on the description above, this study aims to develop an application-assisted learning media *Adobe Flash CS7* By Using the Demonstration Method On Class IV Elementary School Science Learning. The hope of this research is that learning outcomes and student learning motivation can increase after learning using learning media application assistance *Adobe Flash CS7* in IPAS lessons.

Method

Development research was the method adopted in this study. The phrase "research and development" is used. The goal of research and development is to create an effective product. This includes creating and testing theories as well as creating useful goods for educational settings (Desyandri et al., 2019). Research and development techniques are those used to create specific items and evaluate their efficacy (Sugiyono, 2017). The processes of analysis, design, development, implementation, and evaluation make up the ADDIE paradigm used in this study. This study, which examines the evolution of educational media, is conducted in the stages described below:

Analysis Phase (Analysis)

The analysis stage usually includes carrying out needs analysis, curriculum analysis, identifying problems and formulating goals (Restu, H.R. Marwan Indra Saputra, Aris Triyono, 2021). The researcher

identified that the use of learning media had not been maximized and that learning had not emphasized value too much. Especially in the use of media based on Adobe Flash CS7 which has not been implemented at all. In addition, it is also important to consider the characteristics of students, goals, experiences and how these can be utilized in the learning process. At this stage a needs analysis, curriculum analysis, analysis of the teacher's book were carried out by considering sub-themes that were suitable for integration with learning media so that they were in accordance with the goals to be achieved, the author chose class IV in developing Adobe Flash CS7-based media.

Design Stage (Design)

Design is the stage in designing learning media based on Adobe Flash CS7 in class IV Elementary School. The learning media designed include: learning media based on Adobe Flash CS7, learning media that contains material that has been integrated in grade IV Elementary School, using language that is precise, clear, and easily understood by students, displaying learning media that is attractive and innovative.

Stage Development (Development)

The development stage seeks to provide items that are prepared to be incorporated into classroom instruction, such as lesson plans, summaries of the topic, and learning media built on Adobe Flash CS7 and designed based on expert advice. This phase comprises expert validation of the instructional media. The objective is to gather opinions from specialists on the learning material created using Adobe Flash CS7. If the created learning materials are ineffective, they will be revised; however, if they are effective, students can use them.

Implementation Phase (Application)

The implementation stage includes the use of product development to be applied in the learning process that has been designed and validated. At this stage it begins with preparing learning equipment and the conditioned environment. After everything is available, the researcher can implement the product developed into the learning process. As previously explained, because of the limitations of the writer in various ways, both in terms of manpower, cost, and time, the writer did this stage in two schools.

Evaluation Stage (Evaluation)

The process of evaluation determines whether or not the learning media that have been designed are successful and meet initial expectations. Giving a questionnaire based on the teacher's response and a questionnaire based on the students' responses is how the evaluation stage is carried out. The progression of this study is as follows:

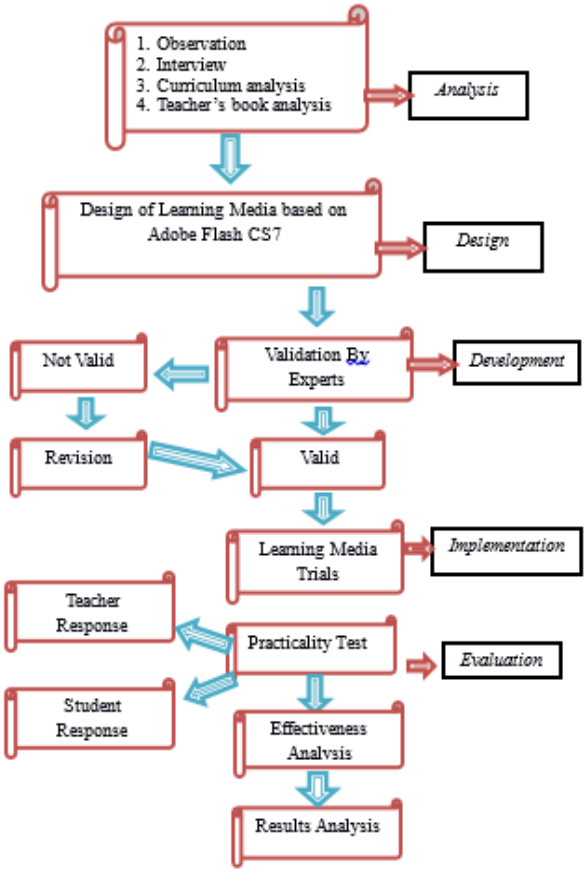

Figure 1. Media Development Flow Learning media based on Adobe Flash CS7

The 40 students who make up the study's subjects are: (1) instrument validators; (2) class IV students at public elementary school 01 Sawahan; (3) class IV students at public elementary school 05 Sawahan. A questionnaire was employed in this development research to gather information from media professionals, material experts, and students in order to evaluate the learning media that were being created. To gauge students' motivation for learning, questionnaires of their responses are employed. Validity analysis, which examines the applicability of learning medium, is the method of data analysis applied.

Result and Discussion

This study used the ADDIE development process, which includes analysis, design, development, implementation, and evaluation elements, to build instructional media that were based on Adobe Flash CS7. However, because a number of factors were taken into account in this study, it was restricted to the development stage.

Analysis Phase

The analysis phase is the initial stage in the ADDIE model development step. At the analysis stage, it is known that teachers and students need innovative learning media to assist in the process of giving and receiving learning materials, as well as increasing motivation and enthusiasm in learning, especially when learning science is carried out. Adobe Flash CS7 learning media was developed to help with problems faced by students and teachers, which have been adapted to the existing competencies and curriculum. This learning media is implemented in the Independent Curriculum Science Science learning in class IV of elementary school.

Planning stage

The planning stage is carried out, where the analysis of the material and basic competencies is carried out. After knowing the basic competencies and the material to be taught, designing indicators and learning objectives is carried out. The needs analysis that the researcher carried out was by conducting interviews with the fifth grade teacher at SD N 62/III Mukai Mudik regarding problems that often occur in learning. The interview was conducted on January 19, 2022 using the previously prepared interview guidelines. From the results of the interviews, several problems were found, including learning resources in schools only by using textbooks issued by the government. Teachers also rarely use learning media. Besides that, for learning that requires practicum activities in schools are often not carried out, for example activities that require simple laboratory equipment. This is because in elementary schools there are no laboratories and also the tools for practicum activities are not available. In fact, in elementary schools, knowledge of practicum is very important as a basis for carrying out further scientific activities.

Analysis of students can influence the development process that will be carried out so that the products developed are in accordance with the characteristics of students. When researchers observed learning activities, it was seen that students were somewhat less active in learning, because learning was only dominated by the teacher. In addition, it was seen that most of the students did not seem to focus on what the teacher explained, this was seen when the teacher explained learning, only a small number of students really paid attention. In addition, during learning activities that require practicum such as heat material and its transfer, students are seen only observing practicum activities in the textbook. Researchers also conducted interviews with students, they said that practicum activities were often omitted. Learning only uses textbooks, there are no tools and materials for practicum and practicum activities only by looking at the practicum activities in the book. This way of learning is not in accordance with the development of students, especially in improving students' science process skills.

The learning achievement analysis stage is carried out by analyzing each keyword in the achievement and then reducing it to learning objectives. Furthermore, from the learning, the researcher proceeded to the flow of learning objectives. The material chosen is science learning material in Chapter 6 Topic 2. The selection of this material is due to the results of observations and interviews with teachers, that students find it difficult to understand the material in practicum activities, because practicum activities are rarely carried out in elementary schools. The unavailability of tools and materials used in practical activities and learning is only dominated by lectures. So that science process skills do not develop or are less owned by students. As for the analysis of learning outcomes in the science of science material in Chapter 6 Topic 2.

Development stage

There are four steps in the development stage, namely: pre-development, drafting, review editing, and revision. In the pre-development stage, scripts or learning media scripts are written. The second stage is drafting. The process of drawing sketches and giving color to learning media can be seen in the following figure:

Figure 1. Front View of Learning Media

Figure 2. Apperception of Learning with Learning Media

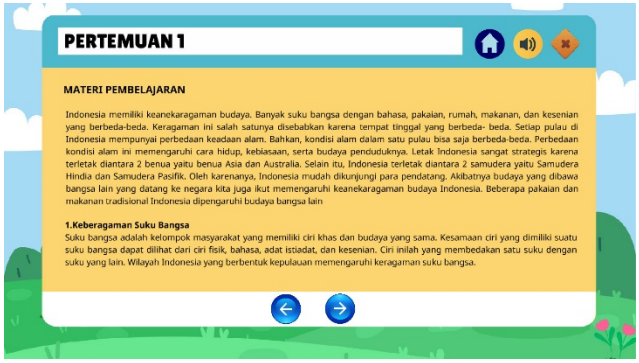

Figure 3. Learning on Learning Media

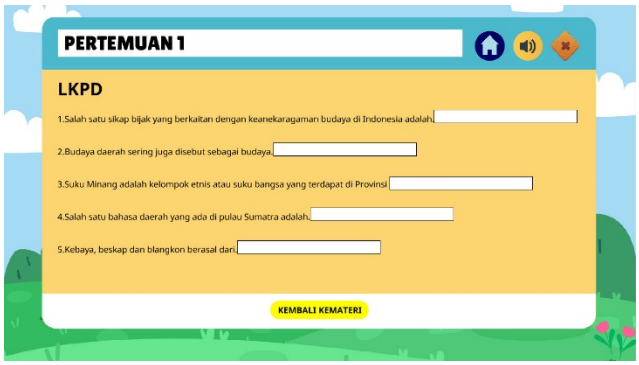

Figure 4. Practicum on Learning Media

Discussion

The third stage is review-edit. Material validation and media validation were carried out. Expert validation of material on learning media by lecturers who are experts in their fields. Validation is carried out by providing a statement validation questionnaire with a maximum score of 5 and a minimum score of 1, as well as learning media to experts. The results of the material expert validation are presented in the following table:

Table 1. Learning Media Validity

Aspect	Average	Category
Material Expert Validation	3.6	Very Valid
Linguist Validation	3.71	Very Valid
Media Expert Validation	3.83	Very Valid

According to the table 1, scientific instruction in grade IV elementary schools can use learning materials created using the Adobe Flash CS7 application. An average value of 3.60 is found for the validity of the material experts, falling into the extremely valid category. An average value of 3.71 is found regarding linguists' validity, which falls into the extremely valid group. Experts' average score on the media's validity was 3.83, placing it in the very valid category. Thus, it can be said that this learning media product is quite reliable and that it may be applied to science instruction in elementary school's fourth grade. The product's viability must first be tested after it has been produced.

The following table displays the findings of the feasibility test or the practicality of certain learning media products.

Table 2. Data on practicality test results on teachers and students

Aspect	Percentage Value (%)	Category
Conformity of material with curriculum competencies	87	
Material support	91	
Serving technique	90	
Presentation Support	85	
straightforward	89	Very
Communicative	82	Practical
Conformity with the level of development of students	88	
Knowledge and Skills learned by students	94	
Average value	88.25	

The items developed have been used practically, according to the table above, with an average practicalization value of 88.25, which places them in the extremely practical category. According to the learning media for instructors' practicality test instrument, the results of the practicality test according to the teacher were analyzed, whilst the results of the practicality test according to the students were analyzed using the practicality test instrument for students. The majority of the learning media's components, in the teacher's opinion, fall under the very practical category. As a result, this instructional tool can be used to enhance student learning outcomes and motivation in grade IV elementary schools when teaching IPAS.

According to research by Ahmad Danial Zulkarnain et al. (2018), Adobe Flash-based learning materials are of high quality. Learning media can be judged to be valid based on the validation results from media experts, which received an average score of 4.17, and for validation from material experts, which received an average score of 4.13. The learning medium could be considered practical because they received a score of 3.62 on the student response questionnaire, which was incorporated and included in the very good criteria. While only 4 out of the 29 pupils received grades below the KKM, or 70, the 80% completeness score attained was included in very good criterion, indicating the efficacy of Adobe Flash-based learning materials. Therefore, based on the findings of the data collected, this product satisfies the three relevant criteria, which experts consider to be practical and efficient. Therefore, it can be said that the educational material aided by Adobe Flash CS6 is of high quality (Zulkarnain & Jatmikowati, 2018).

Another thing was also expressed by Ilham Muhammad in his research which showed that the results of student responses to the use of Adobe Flash

Cs6 Professional Software as learning media obtained a percentage with an average of 82.74% which was classified as very high, this shows that student responses to the use of Adobe Flash Software Cs6 Professional as a positive learning media so that it can be used later for the learning process that can attract students' interest in learning (Muhammad & Yolanda, 2022).

Herdiansyah's research which has been cited in a number of papers on the creation of interactive learning multimedia, found that using Adobe Flash to create an interactive learning media game is both legitimate and efficient (Herdiansyah et al., 2019). Learning materials utilizing technology can boost students' enthusiasm and interest in their studies (Budiana et al., 2015; Sari et al., 2021). The developed interactive media provides interest for students and benefits the effectiveness of learning in the classroom so that students can understand learning material better and foster positive interactions in the form of generating interest and student motivation in learning (Simanjuntak et al., 2022; Nugraha, 2017). Thus it can be concluded that the development of learning media using information technology is very effective. In this study, learning media was developed using the Adobe Flash application.

The Ministry of Education, Culture, Research and Technology has made efforts improve the quality of education through curriculum development known as "Curriculum Independent". In the independent curriculum, the independent curriculum is learning natural sciences integrated with social science to become IPAS. Science learning objectives in this curriculum namely developing interest and curiosity, playing an active role, developing skills inquiry, understand oneself and the environment, and develop knowledge and understanding of the science of IPAS concepts (Agustina et al., 2022; Ardianti & Amalia, 2022).

Conslusion

This educational tool can be used to enhance student motivation and learning outcomes in class IV primary schools when teaching science. The generated learning materials were proven to be reliable and useful for usage in primary classrooms. Learning materials created with the Adobe Flash CS7 program are acceptable for use in class IV elementary schools while teaching science. An average value of 3.60 is found for the validity of the material experts, falling into the extremely valid category. An average value of 3.71 is found regarding linguists' validity, which falls into the extremely valid group. Experts' average score on the media's validity was 3.83, placing it in the very valid category. The product developed passed the practicality test, with an average practicalization rating of 88, indicating that it was usable.

Acknowledgments
Thanks to all those who have supported and facilitated the writing of this article. This research ran smoothly thanks to the help of the elementary school, Padang State University, class teachers, validators and peer researchers.

Author Contributions
The roles of the authors in this researchare divided into executor and advisor in this research.

Funding
This research does not have special funding from any party.

Conflicts of Interest
In this study did not have a conflict of interest from various parties.

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