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DEVELOPMENT OF ISPRING MULTIMEDIA BASED ON INQUIRY APPROACH IN CLASS VIII SCIENCE SUBJECT

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ABSTRACT

The purpose of this research is to identify the stages of the inquiry approach-based iSpring multimedia development procedure and to determine the level of validity, practicality, and effectiveness of inquiry-based iSpring multimedia. This research uses development research (R&D) procedures with the ADDIE development model. The data collection instruments used were documentation, interviews, questionnaires, and assessment of student learning outcomes. This research shows the following results: 1) the process of developing multimedia iSpring based on an inquiry approach in science class VIII is by the stages of the ADDIE model; 2) the validity level of iSpring multimedia products based on an inquiry approach in science subjects class VIII from material experts gets a percentage of 95.38% with very valid criteria, from media experts gets a percentage of 94.29% with very valid criteria, and from experts, the language gets a percentage of 92.5% with very valid criteria; 3) the practicality level of iSpring multimedia products based on an inquiry approach in science subjects class VIII from students is 92.72% with very practical criteria and from teachers is 94% with very practical criteria; and 4) the level of effectiveness of iSpring multimedia products based on inquiry approaches in class VIII science subjects shows the criteria of effectiveness. Based on student learning outcomes, t-count (37.399) > t-table (2.045), means that there is a significant difference between the pretest and *Post-test* scores. The results of the research show that iSpring multimedia based on an inquiry approach in class VIII science subjects at Junior High School (JHS) 1 Rambatan, Tanah Datar is appropriate to be used as a learning medium for class VIII students of JHS.

Keywords: Multimedia, iSpring, Inquiry Approach, Science Subjects, JHS.

INTRODUCTION

The current era of globalization which is colored by the industrial revolution 4.0 in terms of information and communication technology will urge every person, agency, and educational institution to react to this transformation. Advances in information and communication technology greatly affect every individual or community in all life activities, activity techniques, learning methods, lifestyles, or ways of thinking. The development of information and communication technology provides a lot of relief in human life, including in solving educational problems.

Increasingly rapid technological advances must be used in such a way as to support learning systems, one of which is computer technology. This research intends to improve science learning media, to create interesting learning media for students to continue to be motivated to pursue natural sciences, especially the structure and function of plants. In line with the opinion of Sadiman et al (2018) who states that learning media is anything that can be used to transmit messages from the sender to the recipient so that it can stimulate students' thoughts, feelings, attention, and interests in such a way that the learning process occurs. This type of subject like science would be great if using media in teaching because science subjects are scientific. Samatowa (2016) states that science is rational and

objective knowledge about the universe and everything in it. In line with the opinion of Lelilita & Zuhdi (2020) who state that material in learning natural sciences contains natural knowledge that is closely related to students' lives. Perfect science learning needs to master aspects of the material being taught using the right method so that students can master concepts in their daily experiences by understanding the natural world around them in a scientific way.

Based on direct interviews with science teachers, the learning procedure that takes place at JHS 1 Rambatan for special science subjects, so far still uses one-way media such as whiteboards assisted by textbooks. In certain materials, the teacher uses several teaching aids in the Science Laboratories. It's just that the teaching aids in the laboratory is limited, causing learning to be less effective. Occasionally use presentation media with a very simple appearance. Teachers still predominantly use the lecture method to convey subject matter in front of the class, students write and pay attention, and as a result, when students are allowed to ask questions, the majority of them do not take that opportunity. When the teacher asked, only a few students could answer. The teacher said that if you don't use the right media during the learning process, some students don't pay attention to the teacher's explanation. Not only that, students get bored quickly and don't catch what the teacher is saying. During the pandemic, schools also held online learning. The delivery of material is only done through a social media application, namely Whatsapp. The teacher gives material in the form of a simple presentation. Students who do not understand the material, are allowed to ask questions. It's just that the average student does not take advantage of that opportunity. Most of them do not care about the material provided so this affects the evaluation results of students in science subjects with KKM 75.

Based on the initial observations that the researchers made through interviews and direct observation in class, the authors found a problem the teacher's lack of maximum use of instructional media caused students to become bored. Along with the development of this technology, teachers need to develop learning media. The use of instructional media in science subjects, especially material on the structure and function of plants, will feel urgent because most of the learning material that will be delivered is abstract which requires visualization. An effort to improve the quality of learning, especially on the material structure and function of plants, requires the use of interesting learning media. This is intended to provide visualization and move material easily from the instructor to the teaching participants. Learning will be more meaningful if students experience real experiences about what they will learn. From that experience, students are expected to be able to understand science holistically and in-depth and can be remembered for a long time. Therefore, educators must also use a learning approach that can make students active in the learning process, more creative in the process, and not passive. The author chose an inquiry approach for this study. The reason is that according to the author, this approach is suitable for application in science learning because learning science will be difficult for students to understand in real terms if they only use the lecture method.

The inquiry approach consists of six stages, namely orientation, formulating problems, formulating hypotheses, collecting data, testing hypotheses, and drawing conclusions. In line with the opinion of Rositawati (2018) who states that the inquiry method is understood as an approach that uses systematic steps such as orientation, formulating problems, submitting hypotheses, collecting data through experiments, testing hypotheses, and drawing conclusions. This step allows students to find the answers to the problems they face. The inquiry approach encourages students to appreciate the learning process and discovers new knowledge a valuable achievement for the students themselves. This inquiry approach is very suitable for encouraging students to be able to solve the problems they face actively and creatively so that they can provide experience lifelong learning.

The advantage of this inquiry approach, according to Erlina (2019), is that learning becomes more meaningful because students are required to be skilled in thinking logically and critically by mobilizing all of their cognitive, affective, and psychomotor abilities in a balanced way to find and formulate the desired answers themselves. While the weakness of this inquiry approach is that it is difficult to control, plan, and implement the learning process because students play an important role in learning. Therefore it is necessary for cooperation between teachers and students according to their respective roles so that the learning process using the inquiry approach can run smoothly.

The importance of using media in learning, in this case, the researcher tries to develop multimedia iSpring based on an inquiry approach. According to Nuraini et al (2019), iSpring is a tool that can convert presentation files that are compatible with PowerPoint to be made in flash form. So it can be concluded that iSpring Suite 9 is software that is integrated with PowerPoint which can turn presentation files into attractive flash forms and also does not require complicated skills and the manufacturing time is faster than using Adobe Flash. The research that will be carried out is very reasonable because according to the author, the school has good potential for the use of learning media. This potential includes the facilities available at JHS 1 Rembatan which are very adequate for the development of multimedia iSpring based on an inquiry approach, such as LCD projectors, laptops/computers, and others.

METHOD

This study uses R&D methods (Umam & Sulaikho, 2021). According to Sugiyono (2018), research and development methods are "research methods used to produce certain products, and test the effectiveness of these products". Researchers use the ADDIE development model which consists of five steps, namely analysis, design, development, implementation, and evaluation. The subjects of the inquiry-based iSpring multimedia trial were 30 grade VIII students of JHS 1 Rambatan 2022-2023 odd semester. Data collection instruments used were documentation, interviews, and questionnaires.

RESULTS

The development of instructional media in this study refers to three quality requirements, namely valid, practical, and effective. The development of this media is through five stages. The first stage is analysis. The analysis starts with needs analysis, student analysis, and material analysis. The purpose of the analysis is to obtain information related to problems and potentials that occur in the field. The second stage is planning or design. iSpring Multimedia based on an inquiry approach contains competencies that must be achieved, the material on the structure and function of plants, pictures, learning videos, and various quizzes. This learning media is also equipped with modules and guidelines for use. At this stage, the researcher also arranges the content that will be displayed in the learning media. The researcher then makes a flowchart and also a storyboard.

The third stage is development. This development stage is the stage where the design is realized into a real learning medium. Multimedia components that are developed must pay attention to the appearance design, quality of the audio, video, and so on. The use of

iSpring multimedia based on an inquiry approach is also supported by modules so that the learning process using an inquiry approach can run according to the steps and usage guidelines that help students understand the steps for operating the iSpring multimedia that has been developed.

After the product is finished, it is validated by experts. A validity test is a test step carried out on the content of an instrument measuring the accuracy of the instrument to be used in a study. Akker (1999) explains that validity is related to two main things, namely 1) validity refers to the extent to which the design developed is based on strong theoretical rationale (content validity); and 2) the various components have a relationship with each other (construct validity). Assessment or validation by experts can be determined by the eligibility criteria obtained from the average score of the respondents. The average value obtained is then converted according to the eligibility conversion table to determine the feasibility level of learning media. The aim is to determine the feasibility of the initial iSpring multimedia design based on the inquiry approach. The results of the validation of experts on the development of iSpring multimedia based on an inquiry approach can be summarized as follows.

Table 1. Recapitulation of validity assessment

No	Description	Score	Category
1	Theory	95,38%	Very Valid
2	Media	94,29%	Very Valid
3	Language	92,5%	Very Valid

Based on the validity category above, the results of the validity of the inquiry approach-based iSpring multimedia development are included in the very valid category. The fourth stage is implementation. Research on the development of iSpring multimedia based on an inquiry approach was carried out in 5 meetings. At the first meeting, introductions were made. After that, a pretest was carried out to see students' initial abilities about the material to be studied. When finished, students have distributed science learning modules and also guidelines for using the iSpring multimedia that had been made. The second meeting was held for 3JP x 40 minutes. The third meeting was held for 2JP x 40 minutes. The fourth meeting was held for 3JP x 40 minutes. The second to the fourth meeting was carried out according to the steps of the inquiry approach. At the fifth or last meeting, a *Post-test* was carried out to see the results of the learning process so far. After that students were asked to fill out a practical questionnaire to see student assessments of the product and also the learning process that had been carried out. As well as the teacher also filled out the teacher's practicality questionnaire. In the Big Indonesian Dictionary, practicality or practicality is defined as something practical and efficient. So practicality implies media usability, ease of use, and use. Akker (1999) also explains that the practicality of a medium refers to the extent to which users and practitioners state that the developed media can be applied and can be used under normal conditions. The practical results of students and teachers towards the development of iSpring multimedia based on an inquiry approach can be summarized as follows.

Table 2. Practicality assessment recapitulation

No	Description	Score	Category
1	Student	92,72%	Very Valid
2	Teacher	94%	Very Valid

Based on the practicality category above, it can be concluded that the use of iSpring multimedia based on an inquiry approach is very practical for use in science subjects and has a positive influence on the learning process, and can increase student activity in learning due to the use of an inquiry approach which requires students to be active in every activity learning process. The fifth stage is evaluation. The last stage in this research is the evaluation stage which includes formative evaluation and summative evaluation. The implementation of formative evaluation by collecting data at each stage was carried out to perfect the iSpring multimedia development product based on this inquiry approach, while the summative evaluation was carried out at the end of the study to see the effect of this iSpring multimedia on student learning outcomes and learning quality. This summative evaluation is a way to see the effectiveness of the development of learning media (BiThesically, the general notion of effectiveness shows the level of achievement of results, often or always associated with the notion of efficiency, even though the differences between the two. Effectiveness emphasizes the results achieved, while efficiency looks more at how to achieve the results achieved by comparing the input and output. So the greater the contribution made to the achievement of learning objectives, the more effective this multimedia will be. To find out the results of this effectiveness test is done by giving a pretest and *Post-test* to students. Following are the results of the comparison of students' pretest and *Post-test* scores.

Table 3. Comparison results of pretest and *Post-test*

		Mean	N	Std. Deviation
Pair 1	*Pre-test*	45,33	30	4,901
	Post-test	84,5	30	4,798

Table 3 above is a summary of statistical comparisons at the pretest and *Post-test* which shows that the average student pretest score was 45.33 with a standard deviation of 4.901. While the average *Post-test* score of students is 84.5 with a standard deviation of 4.798. Based on the analysis of the paired sample statistics, it can be seen that the pretest average gain is smaller than the *Post-test* average, namely 45.33 <84.5. This means that there is an average increase between the scores of the students' pretest and *Post-test* 39.17. It can be interpreted that there are positive developments by students after implementing learning innovations using iSpring multimedia based on an inquiry approach. Then an analysis of the difference in the average score was carried out using analysis calculations and interpretation of the output of the Paired Sample Test to further ensure that there was a significant development in student learning outcomes after carrying out learning innovations using the iSpring multimedia. The calculation results are as follows.

Table 4. Test the difference between pretest and *Post-test*

		Paired Differences		t	Df	t tabel
		Mean	Std. Deviation			
Pair 1	*Pre-test* - *Post-test*	-39,17	5,736	37,399	29	2,045

Based on Table 4 above, it was obtained that the average difference test for students' pretest and post-test scores was 39.17. The calculated t value obtained is 37.399 and the *t-table* is 2.045. Because the *t-count* > *t-table*, it can be concluded that there is a significant difference between the pretest and *Post-test* values.

CONCLUSIONS

Based on the results of research and development of iSpring multimedia based on an inquiry approach in class VIII science subjects at JHS 1 Rambatan - Tanah Datar, it can be concluded that the multimedia is very valid with material validation of 95.28%, media validation of 94.29%, and language validation by 92.5%. Overall, the validity level of iSpring multimedia based on an inquiry approach in class VIII science subjects at JHS 1 Rambatan is in very valid criteria. The results of the practicality of iSpring multimedia based on an inquiry approach in class VIII science subjects at JHS 1 Rambatan - Tanah Datar for student practicality is 92.72% and teacher practicality is 94%. This shows that the practicality level of the iSpring multimedia is very practical. Based on student learning outcomes, namely the pretest and post-test tested using the t-test formula, the t value obtained was 37.399 and the *t-table* was 2.045, it can be concluded that there is a significant difference between the pretest and post-test scores.

REFERENCES

Akker, J. V. D. (1999). Principles and Method of Development Research (Chap 1). (Online) (www.cite.hku.hk/events/doc/2000/ICOch1.doc).

Biggs, J. (1998). Assessment and classroom learning: A role for summative assessment?. Assessment in Education: Principles, Policy & Practice, 5(1), 103-110.

Erlina, S. (2019). Upaya Meningkatkan Aktivitas dan Hasil Belajar Sejarah dengan Menggunakan Pendekatan Inkuiri Pada Siswa SMA Negeri 1 Metro. Jurnal Dewantara VII. 128-129.

Lelilita, L. N., & Zuhdi, U. (2020). Pengembangan Multimedia Interaktif Berbasis HTML Materi Perpindahan Kalor Kelas V Sekolah Dasar. Jurnal Penelitian Pendidikan Guru Sekolah Dasar, 8(3).

Nuraini, I., & Sutama, S. (2020). Pengembangan media pembelajaran berbasis power point Ispring Suite 8 di sekolah dasar. Jurnal Varidika, 31(2), 62-71.Rositawati, D.N. (2018). Kajian Berpikir Kritis Pada Metode Inkuiri. Prosiding SNFA.

Sadiman, A S, (2018). Media Pendidikan. Jakarta: Rajawali Pers.

Samatowa, U. (2016). Pembelajaran IPA di Sekolah Dasar. Jakarta: PT. Indeks.

Sugiyono. 2018 . Metode Penelitian Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta.

Umam, I. M., & Sulaikho, S. (2021). Feasibility of Android-Based iSpring Suite Learning Media in Fiqh Subjects. Al-Hayat: Journal of Islamic Education, 5(1), 122-131.