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THE DEVELOPMENT OF LEARNING VIDEOS WITH PROBLEM-SOLVING BY USING THE SCREENCAST O MATIC

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Abstract

Starting from students and teachers need interesting and innovative learning media that can help teachers during the learning process in class so develop the learning video as mathematical learning media. The purpose of the research is to describe the results of the developed learning video by using the problem-solving approach with screencast o matic application. The research is R&D research with the ADDIE model. The data collecting methods used are questionnaire, interview, observation, test, and documentation. Then for data analysis methods used are analysis of the item, product feasibility test analysis, and product practicality test analysis. The research result is material validation obtained a score of 3.19 while media validation obtained a score of 3.67 so can be concluded that the learning video is valid and has appropriate criteria for use. Then the result of the student's response obtained an average score of 76% and the teacher's response showed results of 80% which means that learning video is practical to use. The conclusion of this research is the developed learning video covers some steps of analysis, design, development, implementation, and evaluation then the result of this developed learning video is valid with an average value are 3,43 from material and media validators and practical to use with the average value are 78% from teacher and student response. The suggestion for this research is to make learning videos interesting for the user needs to improve the appearance and give reality problems in the case.

Keywords: problem-solving; screencast o matic, learning video.

Abstrak

Berawal dari siswa dan guru yang memerlukan media pembelajaran menarik dan inovatif yang dapat membantu guru selama proses pembelajaran di kelas maka dikembangkanlah video pembelajaran sebagai media pembelajaran matematika. Tujuan penelitian adalah untuk mendeskripsikan hasil pengembangan video pembelajaran dengan pendekatan pemecahan masalah berbantuan aplikasi screencast o matic. Penelitian ini merupakan penelitian R&D dengan model ADDIE. Metode pengumpulan data yang digunakan adalah angket, wawancara, observasi, tes, dan dokumentasi. Kemudian untuk metode analisis data yang digunakan adalah analisis uji kelayakan produk, dan analisis uji kepraktisan produk. Hasil penelitian validasi materi memperoleh skor 3,19 sedangkan validasi media memperoleh skor 3,67 sehingga dapat disimpulkan video pembelajaran tersebut valid dan memenuhi kriteria layak untuk digunakan. Kemudian hasil respon siswa memperoleh skor rata-rata 76% dan respon guru menunjukkan hasil 80% yang berarti video pembelajaran praktis untuk digunakan. Kesimpulan dari penelitian ini adalah video pembelajaran yang dikembangkan meliputi beberapa langkah yaitu analisis, desain, pengembangan, implementasi, dan Evaluasi, hasil video pembelajaran yang dikembangkan ini valid dengan rata-rata skor 3,43 dari validator materi dan media serta praktis untuk digunakan dengan rata-rata skor sebesar 78% dari respon siswa dan guru. Saran dari penelitian ini adalah membuat video pembelajaran yang lebih menarik bagi pengguna, perlu dilakukan perbaikan tampilan dan memberikan permasalahan yang nyata pada kasus.

***Kata kunci**: Pemecahan masalah, screencast o matic, video pembelajaran.*

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INTRODUCTION

During the Covid-19 pandemic, meaningful learning was needed where students as learning actors were required to study independently and master every stage of problem-solving for the cases they faced, the process of solving problems can develop mathematical strengths including the ability to analyze, and identify deficiencies, test the impact to be selected, and propose alternative solutions to the problems faced then prepare students' mentality better be ready to compete in the real world (Irawati & Mahmudah, 2018; Dewi & Marsigit, 2019; Siskawati & Nurdin, 2021; Nurhasanah et al., 2022). The skill of problem-solving can be trained by giving related cases to the real world (Azmidar et al., 2017; Suhermi & Widjajanti, 2020; Siskawati et al., 2021). Apart from having to get used to mastering problem-solving skills students also need to be assisted to make learning easier and interesting through the provision of learning media.

Learning media is one of the elements that play an important role in the learning process, using media can make the learning process to be effective, make students can see the object, and help them easy to understand (Hadza et al., 2020; Lastrijanah et al., 2017) . Making the material easy to understand requires the effort of the teacher to produce a good learning medium. Good learning media is media that supports the advancement of science and technology (Mukarromah & Siskawati, 2020). One of the learning media that can help the learning process is a learning video.

Based on that explanation in line with the results of observations and interviews that have been conducted, it can be concluded that students and teachers need interesting and innovative learning media that can help teachers during the learning process in class. Besides that, it can increase students' enthusiasm for learning and increase their understanding of the material being studied. Efforts made to overcome these problems are to develop learning media. The technology that will be used to develop the media is supported by the opinion that state technology could improve learning quality (Nugroho & Wilujen, 2019). The learning media that will be developed is learning videos.

The learning video that will be used in this study utilizes the Screencast O Matic application. Screencast O Matic is a website-based software used to record screens on Windows, Mac, and Linux programs (Hasanudin et al., 2018). This software is available for free (free) and paid (pro). The purpose of the mathematics learning videos is to support the learning activities carried out so that students are motivated by what they see. Using learning videos will attract more students' attention and learning activities will be more effective.

The development of a learning video was done based on several relevant research as follow, (Siskawati & Chandra, 2017; Susanto & Yudanti, 2020; Afriani et al, 2021; Harefa & La'ia, 2021; Septia, 2021; Heryandi & Nur`aini, 2022) they say the use of a learning video can stimulate thoughts, feelings, interests, and attention of the learner in such a way that the learning process can run optimally, the use of video also has a positive effect, then video can reduce the level of students' mathematical misconceptions, it can increase students' understanding of concepts and problem-solving abilities then so interest because the problems

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given can be taken from real problems that occur in everyday life.

The purpose of the research is to describe the result of the development learning video using problem-solving approach with screencast o matic application. This media is expected can help students to study independently and master every stage of problem-solving for the cases they faced.

RESEARCH METHOD

The type of research is research and development (Sugiono, 2019). This research means developing learning videos with the problem-solving approach by using the screencast o matic application. The subject of the research is students in class VII, VIII, and IX at SMP Islam Nurul Mu'minin Sukowono as 36 students. The model of the research is the ADDIE model, it is chosen because this model is simple and easy to use (Irawati et al, 2022). ADDIE model it's covers five steps it is analysis, design, development, implementation, and evaluation.

In the analysis steps, use learning analytics to know the condition of learning in the class, students analysis to know students' characteristics, and material analysis to know the material that is not easy to be understood (Siskawati & Chandra, 2018). In the design steps formulates the competencies and learning indicators, chooses the learning approach that will be used, then compile the examples of questions and practice questions that will be included in the learning video, and the last arrange the flow of display learning video. After that in the development steps carried out item analysis and expert validation. In the implementation steps applies the learning video that has been developed to teach in front of the class. And last is the evaluation step analyzes media deficiencies and other findings that can be used to correct deficiencies. The design and procedure of the ADDIE can be seen in Figure 1.

Figure 1. The Design of ADDIE Model

Furthermore, the data-collecting method used are interviews, observations, tests, questionnaires, and documentation. The data analysis methods used are the analysis of the item done by SPSS, product eligibility test analysis is seen by score that given by validators, and product practicality test analysis is seen by score of students and teachers' responses. The following table is presented to summarize the eligibility and practicality of the development results. Table 1 is used to conclude eligibility (Arikunto, 2007) and Table 2 is used to conclude practicality (Riduwan, 2010).

Table 1. Eligibility Criteria

Quality Score	Eligibility Criterion	Description
$3{,}26 < \bar{x} \leq 4{,}00$	Valid/fit for use	No revision
$2{,}51 < \bar{x} \leq 3{,}26$	Valid enough/fit for use	Partial revision
$1{,}76 < \bar{x} \leq 2{,}51$	Less valid/fit for use	Partial revision & re-assessment
$1{,}00 < \bar{x} \leq 1{,}76$	Not valid/fit for use	Total revision

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Table 2. Practicality Criteria

Quality Score	Practicality Criterion
$80 < x \leq 100$	Very practice
$60 < x \leq 80$	Practice
$40 < x \leq 60$	Practice enough
$20 < x \leq 40$	Less practice
$0 < x \leq 20$	Not practice

RESULT AND DISCUSSION

The first step of the ADDIE model is analysis it includes learning analysis, students' analysis, and material analysis. Based on the results of questionnaires and interviews analyzing the needs of students and teachers, stated that students need interesting learning media that can assist in the learning process, especially when learning mathematics. Based on that it makes it easier for students to understand the learning material. The results of interviews with teachers also stated the same thing that requires new, more interesting learning media. So based on this explanation, is developed media in the form of interesting learning videos to help students and teachers during the learning process in class. In the interviews conducted with the teacher, it was also revealed that previously the development of instructional media had never been carried out, the teacher wanted to make media the result of his development but was constrained by various activities and lack of knowledge. Besides that, the school is also very limited in providing learning media facilities. So that teachers can only take advantage of existing media such as textbooks, and blackboards. So, at this step of the analysis, students and teachers need more interesting learning media.

The second step is designing, this step produces a learning video design. The first thing that was done was to design the initial learning videos that would be made for research by determining competencies according to the school curriculum used, compiling in-depth material related to Social Arithmetic, examples of problems, and practicing questions in daily life. Then arrange the cover design and contents. So that produces a learning video design consisting of 25 slides, the first slide is part of the cover or title of the learning video that is made, and the second and third slides are parts of the core competencies and indicators that students need to take, the next slide is a part of deepening the material where students are expected to be able giving opinions regarding the illustrations of the images seen, the next slides have several examples of problems presented in real videos and the steps for solving them, slides nineteenth to twenty-fourth have exercises in the form of essay questions, and the last slide has the profile maker.

The third step is development, this step conducts item analysis, and media validation on material and media experts. For item analysis, the validity test uses the product moment correlation formula in the SPSS application version 29 to analyze. There are valid questions with a reliability of 0,66. The questions also have good discriminating power because as many as 10 questions (67%) are in the accepted category, 5 questions (33%) are in the corrected category, with a level of difficulty of 13 questions (87%) in the medium category and 2 questions (13%) in the easy category. Furthermore, questions number 2, 9, 10, 13, and 15 are taken, the remaining questions in the accepted category are entered into the question bank and the corrected category will be corrected or replaced with new questions whenever possible as a measuring tool for evaluation.

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The material expert validation step is carried out to determine the eligibility of the material that is developed. At this validation step, a value consisting of several aspects was obtained, namely the content eligibility aspect, the presentation eligibility aspect, and the language eligibility aspect with an average of 3.19 which included valid criteria or was suitable for use with partial revision because it was in the range 2.51 - 3,26. So learning videos with a problem-solving approach by using the Screencast O Matic application is suitable for use in learning after making revisions according to comments and suggestions from the validator.

The media expert validation step is carried out to find out whether the media presented is under the eligibility criteria of learning media. At this validation step, a value consisting of several indicators is obtained, namely the size of the learning media, the cover design of the learning media, and the design of the content until the end of the cover of the learning media. The results of this media expert questionnaire analysis as a whole obtained an average of 3.67. The average obtained includes valid criteria or is suitable for use because it is in the range of 3.26 – 4.00. So, the learning video with the problem-solving approach by using the Screencast O Matic application is suitable for use in learning after making revisions according to comments and suggestions from the validator

After conducting expert validation, the development of learning videos with a problem-solving approach by using the Screencast O Matic application was then revised according to criticism and suggestions before conducting trials of learning media. Based on the results of expert validation, it can be concluded that learning videos with a problem-solving approach by using the Screencast O Matic application is appropriate for use in the learning process to teach about Social Arithmetic material.

The fourth step is implementation. In this step, applies the media design that has been developed to real situations in the classroom. Researchers conducted trials in small groups in implementing Video Learning, then students were asked to fill out a response questionnaire, the goal was to find out the practicality of learning media. So, at this step, it can be concluded that as many as 76% of students said that learning videos with a problem-solving approach by using the Screencast O Matic application was practically used in classroom learning. While the results of the teacher's response questionnaire show a score of 80%, which means that this media is practical to use.

The last step is evaluation. In this step, conducted an analysis of student responses, where the results of the student response questionnaire analysis showed that this learning media can increase student enthusiasm for learning and understanding of the material as seen from the enthusiasm of students when participating in learning. One student said that the numbers or amount of money used in the practice questions were too high so students still had difficulty counting. Students stated that researchers should update the questions to simpler ones which indeed often occur in students' lives. So here the researcher will make improvements to the next development so that students are easier to understand. In addition, there were also students who stated that the display of the media was less attractive because the animated images

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presented were few, and in the exercise, questions were not given how to answer the questions, so here the researcher will make improvements in further development by providing steps or ways to answer the practice questions. From the teacher's response questionnaire, there were several statements that did not agree, namely the statement of clear instructional video activity instructions, this was because before proceeding to the practice questions there were no instructions or instructions for student activities, other than that regarding the material statements presented in accordance with student abilities, this because students' numeracy skills are still very low plus using numbers or arithmetic values that are too high so that students find it difficult to count. The teacher suggests fixing the number of calculated values to simpler ones to use in practice questions.

The validation result states that learning videos with the problem-solving approach by using the screencast o matic application is eligible. It can support that if the media is used will bring positive effects for teachers and students. Teachers can find it easier to explain the material and students can find it easier to understand the material. Furthermore, the response result states that learning videos with the problem-solving approach by using the screencast o matic application is practically. Based that the media is appropriate used for students in middle school. Students and teachers are easy to use. So, it must be used in mathematical learning process in class.

In line with some related results of the research that state the use of video in the learning process has a positive effect and is good to be used (Susanto & Yudanti, 2020; Afriani et al, 2021; Harefa & La'ia, 2021; Septia, 2021; Heryandi & Nur`aini, 2022). The use of learning videos can help the students easier to remember learning material (Halim & Kurniawan, 2021). When we learn about Social Arithmetic, we must know some formula. To make the formula is easy to remember this opinion can used to support.

Furthermore, learning media that can be seen, make sounds and move is very interesting for students and helps easier to understand the lesson material (Risnawati et al., 2018). To make students interest with material to be learn must be provide something that students like. One thing that can make students like to learn is given happier learning, the learning video can make happier learning. So, it can support is chosen learning video to develop.

Other opinions also state that using animated videos in learning mathematics can improve students' motivation and could mature students in the online learning process (Wiryanto et al., 2021). It appropriate to be solution to make students not bored in the class not only in offline class but also in online class. The using of learning video helps student to be mature in learning process where study must not together with teacher but can do alone.

Then the similar researches result also state that screencast o matic application is appropriate used to make learning media not only mathematical learning but also in sosial science (Khotimah & Pebri, 2021), furthermore the use of screencast o matic application can help the teacher to teach students even without teacher besides students or we can say in online learning (Dewi et al., 2019; Siregar et al., 2021), the used of screencast o matic as learning media make learning process not bored and excited to follow, motivate student to be batter learner with knowing what they

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learn (Kholifah, 2016) (Hasanudin & Fitrianingsih, 2018). Based research result and other support opinion from more related research the development of learning video especially learning videos with the problem-solving approach by using the screencast o matic application eligibility and practically to do in big scale not only in Nurul Mu'minin Islamic Middle School but also in other school.

CONCLUSION AND SUGGESTIONS

Based on the results of the research conducted, it can be concluded that the learning video is valid and has appropriate criteria for use supported by the result of material validation obtained a score of 3.19 while media validation obtained a score of 3.67 with an average value are 3,43 from material and media validators. Then the result of the student's response obtained an average score of 76% and the teacher's response showed results of 80% so the average value is 78% from teacher and student response which means that learning video is practical to use. And then the results of the student response questionnaire analysis showed that this learning media can increase student learning enthusiasm as seen from students who are more enthusiastic in the learning process and can improve understanding of the material.

After that based on the results of research that has been conducted at Nurul Mu'minin Islamic Middle School, the several suggestions can be given are as material for consideration in the learning process, namely (1) Learning video with a problem-solving approach by using the Screencast O Matic application needs to be developed in further research according to input from students and teachers, namely by improving some media displays to make them even more attractive; (2) Learning video with a problem-solving approach by using the Screencast O Matic application needs further development in other subjects, especially in mathematics.

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