



DEVELOPMENT OF POWERPOINT-BASED KARIRO LEARNING MEDIA ON STRAIGHT LINE EQUATIONS

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Abstract

There is a lack of interest among students at SMP Plus Al Amanah in mathematics lessons, so a new learning method is needed, namely the use of learning media in the teaching and learning process. hoped that KARIRO's power point-based learning media on straight line equations can help educators convey material to students. This type of research is research and development or what is commonly known as R&D. R&D research is a type of research that produces a product. The assessment of the development of KARIRO learning media based on Power Point on Straight Line Equations was carried out by media experts, obtaining a percentage of 80%, which was stated in the Valid criteria, by material experts, a percentage of 94% was obtained, which was stated in the Very Valid criteria. Validation by the Mathematics subject teacher at SMP Plus Al-Amanah Dander, obtained a percentage of 92.3% which was declared to be very valid criteria. The feasibility test carried out at SMP Plus Al-Amanah by 30 students obtained a percentage of 92.1% of KARIRO learning media products which were declared to be very feasible.

INTRODUCTION

The aspect of education has a big role in determining the progress of a country, and every action in the world of education always aims to achieve the desired results (Amran, 2015). Educators always hope that the achievements of current students are superior and satisfactory compared to previous achievements. Learning outcome assessment has an important role in measuring the development of student competencies.

Mathematics learning at the secondary school level not only aims to teach mathematics material, but also considers mathematics material as a tool and means to develop students' competencies. Learning mathematics often requires an abstract understanding, with concepts gradually interrelated. The impact of this approach often makes a number of students experience difficulties in the mathematics learning process.

Success in learning mathematics in high school depends heavily on the extent to which students understand the material as well as their ability to solve problems related to the material that has been taught. The teaching procedures used by educators also have a significant influence on students' learning achievements. Some math educators still use conventional teaching methods. This makes learners feel bored and less motivated, especially when they are faced with challenging tasks or require high-level thinking, which can ultimately reduce their motivation to learn

Based on field analysis at the time the author carried out PLP, the results were obtained that the methods used in the learning process often use conventional methods, namely using lecture, question and answer, discussion and assignment

methods. As well as the results of interviews with educators and several students in grade VIII at SMP Plus Al-Amanah Dander that many students are easily bored and do not want to listen to the explanations delivered by educators, so it is necessary to deliver material that is different from what is usually delivered by educators. Therefore, an interesting learning media is needed and able to increase the motivation of students in the teaching and learning process. The media must have the ability to visualize objects and arouse students' interest in learning.

One form of visual media that can be used to illustrate mathematical concepts is *Microsoft Power Point*. One of the multimedia-based programs that allows the creation of effective, professional, and easy presentations through the use of slides. Therefore, educators can use it as a tool in the learning process at school (Azhar, 2017). PowerPoint also offers a variety of interesting features, including the ability to edit text, insert images, audio, animations, and effects that can be customized to the user's preferences. The use of learning media, such as PowerPoint presentations, can make students more interested and involved in the material presented (Misbahudin, et al., 2018).

KARIRO learning media based on *power point* on straight line equations is expected to help educators in delivering material to students that is more enjoyable and delicious because many students have lost their enthusiasm for learning after the covid 19 pandemic and the implementation of an independent curriculum. The formulation of the problem determined by the researcher in this study is how to the validity and feasibility of developing KARIRO Based learning media *Power Point* on a straight-line equation.

RESEARCH METHODS

This research is included in the type of research and development (Research and Development) or often referred to as R&D. R&D research is a type of research that aims to produce a product (Sugiyono, 2013). The product developed in this study is a PowerPoint-based KARIRO learning media for learning about straight line equations. The development model used in this study is the Borg and Gall development model. The research subjects were selected from students of class VIII C at SMP Plus Al-Amanah Dander.

Collection of research data from observations, questionnaires, and documentation. Observation is carried out before conducting research to obtain information, questionnaires are given to validators, educators, and students to obtain validity and feasibility data from the developed media. The research instruments in filling out the questionnaire based on the grids and assessment categories are as follows:

Table 1. Categories Validity scale assessment

Score	Criterion
$0\% \leq x \leq 20\%$	Invalid media are used
$20\% < x \leq 40\%$	Invalid media are used
$40\% < x \leq 60\%$	The media is valid enough to be used
$60\% < x \leq 80\%$	Valid media used
$80\% < x \leq 100\%$	Very valid media to use

Modified (Riduwan, 2014, p.71)

Table 2. Categories Qualification scale assessment

Score	Criterion
$0\% \leq x \leq 20\%$	Media is not suitable for use
$20\% < x \leq 40\%$	Media is less suitable for use
$40\% < x \leq 60\%$	The media is quite decent to use
$60\% < x \leq 80\%$	Media worth using
$80\% < x \leq 100\%$	The media is very worthy of use

Source (Riduwan, 2014, p.71)

RESEARCH RESULTS

This research was conducted at SMP Plus Al-Amanah Dander, Preliminary data obtained from this school indicates that learning in the school is less diverse, and educators often do not use learning media in the classroom teaching process.

This research and development follow the Borg and Gall development procedure as described in Sugiyono's book, which consists of six stages. These stages include initial information collection, planning, product design development, small group testing, product revision, and large group testing. The following is the data of the results of each stage in the research and development procedures that have been carried out.

Initial information gathering

The first step in this research and development was to create a learning medium called KARIRO for Straight Line Equations. The challenge faced in this research and development is that, although educators have used learning tools in their learning process, the tools used are still simple and less diverse. As a result, students tend to lose focus in following learning in class, because learning becomes monotonous and boring for them. Therefore, the researcher aims to develop KARIRO for Straight Line Equations as an additional learning tool that will stimulate students' active involvement in the learning process.

Planning

After obtaining information from an interview with an educator at SMP Plus Al-Amanah Dander, conducted by the author while conducting PLP, the next step is to collect reference sources that will support the development of KARIRO learning media on Straight Line Equations. These sources of reference are obtained through a variety of sources of information, including journals, books, and the internet.

Product Design

After collecting data through interviews with educators and gathering information from various sources such as books, journals, and the internet, the next step is to design KARIRO learning media products for Straight Line Equations. Based on the material to be taught, the researcher begins the design process by making slides in PowerPoint. After designing the slides, they adjust them to fit the content of the material. Then, the researcher continued with the creation of a background and the addition of images. They also include every question and answer required in the learning medium.

a. Media Expert Validation

The media validator was Mr. Mula Agung Barata, S.ST., M. Kom, a lecturer at the Department of Informatics Engineering at Nahdlatul Ulama Sunan Giri Bojonegoro University. The purpose of the validation of learning media by media experts is to obtain the views of media experts as a basis for improving and

improving the quality of learning media. The media validation process involves two main aspects, namely Software and Visual Communication. The validation process is carried out by providing learning media to media experts to be assessed, and they are asked to fill out a validation sheet consisting of 10 statements divided into two aspects. The results of validation by media experts are then presented in the table below.

Table 4. 1 Media Expert Ratings

Yes	Aspects assessed	Score	
		Scores obtained	Expected score
A	Software Aspects		
1	<i>Maintainable</i>	4	5
2	<i>Usable</i> (Easy to use and simple to operate)	4	5
3	<i>Compatible</i> (Multimedia learning can be installed)	4	5
4	Multimedia learning operations	4	5
5	<i>Reusable</i> (Partial or all of other learning multimedia programs)	4	5
B	Visual Communication Aspects		
6	Communicative, in accordance with the message and acceptable to the target	4	5
7	Navigation in media operations	4	5
8	Audio (Narrator, <i>Sound effects, background, music</i>) can be heard clearly	4	5
9	Visuals (<i>layout design, colors</i>) are attractive	4	5
10	Animations and images in the media are interesting and can run well	4	5
Sum		40	50
Presentation and Criteria		80%(Valid media used)	

Based on the explanation, the assessment from media experts got a percentage of 80%, so that it meets the Valid criteria and can be used as a medium in learning activities.

b. Subject Matter Expert Validation

The material validator is Mrs. Naning Kurniawati, S.Pd., M. Pd, who serves as the Head of the Department of Mathematics Education at Nahdlatul Ulama Sunan Giri Bojonegoro University. The purpose of learning media validation by subject matter experts is to obtain the views of subject matter experts as a basis for improving and improving the quality of learning media. The process of validating learning media by subject matter experts considers two main aspects, namely the content of the material and the learning strategy, which can be seen more fully in the appendix. Material validation is carried out by providing copies of the material presented in the learning media to material experts for assessment, while also providing material validation sheets. The validation sheet for subject matter experts consists of 10 statements related to the content of the material and its presentation in learning media. The results of the material validation can be found in the table below.

Table 4. 2 Expert Assessment

No	Aspects assessed	Shoes	
		Score obtained	Expected score
1	Clarity of writing	5	5
2	Word selection	5	5
3	Clarity of Material	5	5
4	Suitability of the media materials used	4	5
5	Adaptation of the question to the material	5	5
6	Diversity of questions	4	5
7	Question level	4	5
8	Sufficiency of examples given for explanation	5	5
9	Adequacy of the practice questions given	5	5
10	Adequacy in generating learning interactions	5	5
Total Assessment Scores		47	50
Presentation and criteria		94%(very valid)	

Based on the explanation, the assessment from the material expert got a percentage of 94%, so it is included in the criteria for being very valid to be used as a medium in learning activities.

Small Group Test

a. Educator Response

The results of the development of learning media are evaluated by subject educators at the school where the test is conducted. Mrs. Hanny Rizqia Lestari, S. Pd, an educator of Mathematics subjects at SMP Plus Al-Amanah Dander, was responsible for this assessment. The assessment process involves providing learning media to educators to view, observe, and use, while also providing a Media

Use Manual and asking educators to fill out a response questionnaire. The response questionnaire from educators can be grouped into two main aspects, namely the learning design and visual communication aspects, which consist of 13 different statements. The results of the educator's assessment of the KARIRO PowerPoint-based learning media for Straight Line Equations can be found in the table below.

Table 4. 3 Educator Assessment

No	Question	Value	
		Score obtained	Expected score
1.	Instructions in learning media are easy to understand	3	4
2.	Easy to use Learning Media	4	4
3.	Interesting learning media display	3	4
4.	Color combinations in interesting learning media	3	4
5.	The text/writing in this learning media can be read clearly	4	4
6.	Pictures and animations in interesting learning media	3	4
7.	Language in learning media is easy to understand	4	4
8.	The material in the media is easy to follow and understand	4	4
9.	Questions in learning media are easy to understand	4	4
10.	This learning media makes you more enthusiastic in the teaching and learning process	4	4
11.	This learning medium is easy to use in teaching and learning activities	4	4
12.	This media supports students to learn independently	4	4
13.	This learning media makes it easier to understand the material	4	4
Total Score		48	52
Presentation and criteria		92.3% (very valid)	

Based on the explanation, the assessment from educators got a percentage of 92.3%, so it meets the criteria is very valid to be used as a medium in learning activities.

b. Student Responses

The media test was carried out on 4 students of grade VIII C at SMP Plus Al-Amanah Dander. The instrument given to students consists of 13 statements that must be answered by choosing one of the following value ranges: strongly agree, agree, disagree, and disagree. The test process is carried out by providing opportunities for students to use learning media on computers. The students were instructed to explore all the menus available in the learning media, and then they were asked to provide written assessments and provide suggestions and comments on the learning media by filling out the questionnaire that had been prepared. The

results of students' assessments of learning media can be seen in the table below.

Table 4. 4 Assessment of learners in small group tests

No	Question	Value		Presentase
		Score obtained	Expected score	
1.	Instructions in learning media are easy to understand	12	16	75%
2.	Easy to use Learning Media	12	16	75%
3.	Interesting learning media display	13	16	81,25%
4.	Color combinations in interesting learning media	14	16	87,5%
5.	The text/writing in this learning media can be read clearly	13	16	81,25%
6.	Pictures and animations in interesting learning media	14	16	87,5%
7.	Language in learning media is easy to understand	13	16	81,25%
8.	The material in the media is easy to follow and understand	13	16	81,25%
9.	Questions in learning media are easy to understand	12	16	75%
10.	This learning media makes you more enthusiastic in the teaching and learning process	14	16	87,5%
11.	This learning medium is easy to use in teaching and learning activities	13	16	81,25%
12	This media supports students to learn independently	13	16	81,25%
13	This learning media makes it easier to understand the material	14	16	87,5%
Total Score		170	208	
Presentation and criteria		81.73% (Media eligible to be used)		

Based on the explanation above, the small group test assessment got a percentage of 81.73%, so it meets the criteria very feasible to be used as a medium in learning activities.

Large group test

The media test was conducted on 30 students of class VIII C at SMP Plus Al-Amanah Dander. The instrument given to students consists of 13 statements that must be answered by choosing one of the following value ranges: strongly agree, agree, disagree, and disagree. The test process is carried out by providing opportunities for students to use learning media on computers. The students were instructed to explore all the menus available in the learning media, and then they were asked to provide written assessments and provide suggestions and comments on the learning media by filling out the questionnaire that had been prepared. The results of students' assessments of learning media can be seen in the table below.

Table 4. 5 Assessment of students in large group tests

No	Question	Value		
		Score obtained	Expected score	Presentation
1.	Instructions in learning media are easy to understand	111	120	92,5%
2.	Easy to use Learning Media	112	120	93,3%
3.	Interesting learning media display	108	120	90%
4.	Color combinations in interesting learning media	112	120	93,3%
5.	The text/writing in this learning media can be read clearly	107	120	89,1%
6.	Pictures and animations in interesting learning media	112	120	93,3%
7.	Language in learning media is easy to understand	115	120	95,8%
8.	The material in the media is easy to follow and understand	105	120	87,5%
9.	Questions in learning media are easy to understand	109	120	90,8%
10.	This learning media makes you more enthusiastic in the teaching and learning process	110	120	91,6%
11.	This learning medium is easy to use in teaching and learning activities	112	120	93,3%
12.	This media supports students to learn independently	111	120	92,5%
13.	This learning media makes it easier to understand the material	114	120	95%
Total Score		1.438	1.560	
Presentation and criteria		92.1%(Media Very suitable to use)		

Based on the explanation above, the large group test assessment got a percentage of 92.1%, so it meets the criteria very feasible to be used as a medium in learning activities.

CONCLUSION

The development of KARIRO Learning Media Based on *Power Point* on Straight Line Equations was carried out by media experts obtained a percentage of 80% stated in the Valid criterion, by material experts obtained a percentage of 94% stated in the very Valid criterion, Mathematics subject educator at SMP Plus Al-Amanah Dander, obtained a percentage of 92.3% stated in the very Valid criterion. Based on the results of the assessment above, the overall average assessment of 88.7% was

declared very valid as a learning medium.

The implementation of this small group test was carried out to get assessments as well as input and suggestions. The respondents of the small group test were taken from four students at SMP Plus Al-Amanah Dander grade VIII C. obtained a percentage of 81.73% stated in the criteria of very feasible. The last stage of the assessment was carried out a large group test involving 30 students of SMP Plus Al-Amanah Dander class VIII C. obtained a preemtpasse of 92.1% of KARIRO learning media products stated in the criteria are very feasible. Based on the results of the assessment above, the overall average assessment of 86.91% was declared feasible as a learning medium.

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