



Validity of Interactive Learning Media Using Sparkol Videoscribe on Limits of Algebra Functions

Miranty Novita Sari¹, Sefna Rismen²
and Lita Lovia³

^{1,2,3} Mathematics Education Department, Faculty of
Science and Technology, Universitas PGRI Sumatera
Barat, Padang

Abstract- The development of IT in the 21st century has become the main complement in every Learning activity such as using learning media. Learning media is a tool that can help the learning process so that learning objectives are conveyed. This study aims to produce interactive learning media using Sparcol Videoscribe on valid algebraic function limits. This research is a Research and Development (R&D) research with a four-D (4-D) development model. The subject in this study were students of SMAN 12 Padang. The data collection technique used a validation sheet. The results of this study are: Validity of interactive learning media using Sparkol Videoscribe which is designed to be very valid with the percentage results obtained 95,99% with a very valid category. Based on the results of the study, it can be concluded that the validity of interactive learning media using Sparkol Videoscribe is valid and feasible to use on the material limit of algebraic functions SMAN 12 Padang.

1. Introduction

Formal education can be interpreted as a learning process that can be realized by the teaching and learning process, especially in schools. Learning in schools certainly covers various aspects of subject areas, one of which is mathematics. Mathematics is a science that is learned at every level of education, because consciously or not mathematics is always used in everyday life or to study other sciences (Wijaya, 2020).

However, nowadays, students often assume that mathematics is a difficult subject, especially in the material of limiting algebraic functions. Mathematics is used as a science that underlies the development of science and technology in the world of education. Along with the rapid development of science and technology, the world of education also needs to innovate or renew in the implementation of its learning strategies, such as

development through learning media. Development itself is a way or effort towards something with a specific goal in order to get the appropriate result. While learning media is a tool that can help the teaching and learning process which has a function to clarify the material presented in the learning process, so that the learning objective are conveyed (Firmadani, 2020).

Learning media are tools and materials that contain and carry information or learning materials so that learning objectives can be achieved (Hodiyotno, et al 2020). Kuswanto and Radiansah (2018) conveying that learning media are tools, methods and techniques used as communication intermediaries between a teacher and students in order to make communication and interaction between teacher and students more effective in the teaching education process in schools. According to Rizqika (2021) learning media are learning media which include physical tools used to convey the contents of teaching materials, which consist of books, tape recorders, casts, video camera, video recorders, films, slides (Picture frame), photos, picture, graphics, and computers. Several types of learning media according to Melanda and Heinich in Asrori (2009:20) such as text, audio media, visual media, motion projection media, and artificial or miniature objects. This learning media certainly has a function, the main function of learning media is as a tool to make it easier to convey a material that can affect the needs of the learning environment created by students.

According to Suyanto quoted by Winarno (2009:5) the results of research from Computer Technology Research (CTR) show that a person can only remember what he saw as much as 20%, 30% heard and 80% heard, seen and done simultaneously. From the explanation above, it can be concluded that learning using interactive media for students can produce 80% of the good effectiveness of the learning that students learn. There are several types of interactive learning media, including E-Learning-Based Interactive media, Web-based interactive media, Android-based interactive media, Software-based interactive media.

Software-based interactive media is widely used in learning media, one of which is the use of learning media using software with the Sparkol Videoscribe application. Sparkol Videoscribe is an application that is designed and used to create a video with handwritten animation that creates an image, a collection of these images will be assembled and form a series of stories that are presented in the form of video (Arifin, 2017). Sparkol Videoscribe also known as whiteboard is an animated video application set on a white board with hand movements or animation (Firdayanti,2020). So, this application is a video-based learning technology media that aims to provide an explanation of the material in the form of videos accompanied by moving animated pictures that are presented in a unique and interesting way. Based on the results of research (Akram, et al 2019) with his research, namely "Development of Sparkol Videoscribe Assisted Learning Media on Trigonometry Material" which uses the ADDIE research method, produces effective and practical learning media. Using data collection techniques by distributing instruments in the form of questionnaires to material experts and media experts, the use of Sparkol Videoscribe as a means of delivering material is in the appropriate category for use. Based on the attractiveness test and the effectiveness test of Sparkol Videoscribe in medium criteria, so that the Sparkol Videoscribe media is feasible and can be used during the learning process by producing a significant increase in effectiveness.

Manzilina (2018) also conducted a study entitled "Development Sparkol Videoscribe Media on Two Variable Linear Equation System (SPLDV) Materials, STKIP PGRI Bangkalan. By using the ADDIE development model. Whit the results of his research showed that the level of validity of the material experts reached 4.833 with a very valid category. While the assessment of media experts reached 4,058 with a valid category. The average final score of the two validants, namely material and media experts, reached 4,445. In this article, we will discuss the validation of the development of interactive learning media using Sparkol Videoscribe on the material of limiting algebraic functions.

2. Methods

This research is a research and development. According to Borg and Gall (2016:28) development research is a method or method used to develop and validate products. In this study, the product developed was the Sparkol Videoscribe application on the Limits of Algebraic Functions using a 4-D model with the definition stage, the design stage, the development stage, and the dissemination stage proposed by Thiagarajan and Semmel (Trianto, 2007:65). This learning media development research only reached the development stage (Develop). This stage is also limited to the validation stage. The research subjects consisted of students with a variety of learning abilities, namely high, medium and low.

At the definition stage there are several activities in the form of observation, teacher and student interviews, analyzing students, analyzing syllabus, analyzing textbooks, analyzing pre-existing media, and reviewing literature related to the development of interactive learning media using Sparkol Videoscribe. At the design stage, what is done is to design a format for making interactive learning media using Sparkol Videoscribe on the Limit of Algebraic function material. At the development stage, the validity of the learning media was carried out using a validation sheet filled out by material experts, namely calculus learning lecturers and media experts, namely learning media lecturers. Aspects in validation can be seen in Table 1.

Table 1. Indicators of Validation of Interactive Learning Media Using Applications Sparkol Videoscribe By Media Expert

Rated Aspect	Method of collecting data	Instrument
Presentation Content Eligibility Graphic Language	Provide validation sheet to media	Validation sheet

Table 2. Indicators of Validation of Interactive Learning Media Using Applications Sparkol Videoscribe By Material Expert

Rated Aspect	Method of collecting data	Instrument
Presentation Content Eligibility Language	Provide validation sheet to material experts	Validation sheet

Data analysis techniques in this study are qualitative data and quantitative data. Qualitative data obtained from interview and quantitative data obtained from the results of the validation sheet. There are three forms of data analysis carried out. The first is the media validity analysis technique using the following score criteria:

Table 3. The score criteria used by research and assessment of media validators

Symbol	Description	Weight
SB	Very Good	5
B	Good	4
CB	Pretty Good	3
TB	Not Good	2
STB	Not Very Good	1

Source: Sudaryono dkk (2013:49)

From the calculation of the score of each statement, the percentage of respondents' overall answers are searched with the formula:

$$\text{Validation Value (NV)} = \frac{\text{Sum of all scores}}{\text{Maximum score}} \times 100\%$$

The look for the percentage of validation criteria. The validation criteria used can be seen in the following table:

Table 4 Criteria for Interpretation of Validator Responses

Percentage Score	Criteria
$80\% < NV \leq 100\%$	Very Valid
$60\% < NV \leq 80\%$	Valid
$40\% < NV \leq 60\%$	Quite Valid
$20\% < NV \leq 40\%$	Invalid
$0\% \leq NV \leq 20\%$	Very Invalid

Source: Modification of (Ernawati, 2017)

In the table, it is shown that the higher the percentage value of the interpretation value, the better the validity / feasibility of the learning media using the Sparkol Videoscribe application.

3. Results and Discussion

The data presented in this section are data obtained and collected during the process of developing interactive learning media using Sparkol Videoscribe. Each data is grouped by type and stage of development. First, the definition stage. The data from the definition stage were obtained from observations, interviews with mathematics teachers and students, student analysis, syllabus analysis, textbook analysis, media analysis and literature analysis. The results of observations and interviews with mathematics teachers in SMAN 12 Padang found that students had difficulty in learning mathematics because the teacher's teaching method was monotonous with the lecture method. Teachers only use module books and blackboards to teach. It also causes students to be inactive and less focused on learning. The results of student analysis showed that most of the students did not like mathematics very much because the initial assumption was that mathematics was a difficult subject. There were also some students who enjoyed learning mathematics. Students also want changes in learning. From the results of student learning obtained from their daily scores that most students scored below the KKM, which was below 78.

The results of the syllabus analysis, it was found that the learning materials presented in the syllabus were in accordance with the competencies that must be achieved by students ranging from easy to difficult material. Based on the syllabus analysis, the material contained in the interactive learning media using Sparkol Videoscribe was developed in accordance with the competencies contained in the 2013 curriculum syllabus. The results of the analysis of teaching materials, obtained the material is in accordance with the competencies, then some modules do not provide examples in everyday life, and also the completeness of the presentation is not appropriate.

The results of the literature analysis were carried out on interactive learning videos and research relevant to the research conducted with the results that the media developed was valid and feasible to use. The results of media analysis, on pre-existing media, were found that existing media only presented writing in the presentation, explanation of the material and giving examples, icons to increase student interest in viewing media broadcast were very few, the display time was also too fast.

Second, the design stage. Interactive learning media is designed using Sparkol Videoscribe which contains material about the limits of algebraic functions. The initial design of the media or storyboard on this media includes several part, namely the opening (cover) contains the title of the material, class, and meeting in learning.

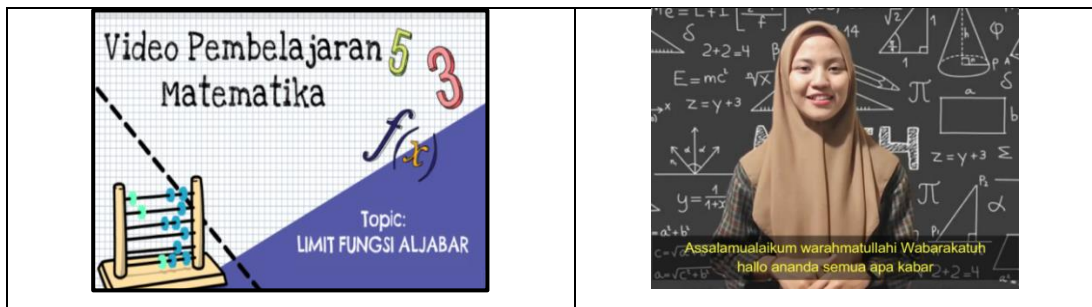


Figure 1. Initial design Figure



Figure 2. Initial View

Third, the development stage. The following is the development stage for making learning media using the Sparkol Videoscribe application. After the interactive learning media using Sparkol Videoscribe on the limit material of the algebraic function has been revised based on the validator's suggestions, while the result of the validation assessment is obtained the percentage of media and material can be seen in Table 5.

Table .5 Learning Media Validation Results

Aspects of Category	Final Grade	Assessment
Appearance	100 %	Very Valid
Presentation	93,33 %	Very Valid
Content Eligibility	90 %	Very Valid
Language Eligibility	96,66 %	Very Valid
Graphics	100 %	Very Valid
Final Value of Learning Media Validation	95,99%	Very Valid

In Table 5. It can be seen that the expert validation value on the display aspect is 100 % with a very valid category. The validation result show that the media display is attractive. The media validation value in the presentation aspect is 93.33% with a very valid category. The validation results show that the material on the learning media has been presented in a systematic order. The media validation value on the content feasibility aspect is 90% with a very valid category. The result of the validation of the learning media show that the material that has been presented is in accordance with the competencies, indicators and objectives to be achieved. The validation value on the feasibility of the language is 96.66% with a very valid category. The result of the media validation show that the learning media developed are in accordance with the Indonesian language rules. In the graphic aspect, the media validation value is 100% with a very valid category. The result of validation of the learning media show that the developed learning media has an interesting layout and narrative.

The overall validation value of the validation aspect of interactive learning media using Sparkol Videoscribe is very valid. So it can be concluded that the media displayed is attractive, the presentation of the material is systematic and clear, the material presented is in accordance with the competencies, indicators and learning objectives, the language used is in accordance with the Indonesian language rules so that it is easy to understand. Then the layout displays and narration on the video are also interesting and the material presented is in accordance with the competencies to be achieved.

4. Conclusion

Based on the research and data analysis that has been done, it can be concluded that the interactive learning media using Sparkol Videoscribe on the material limit of algebraic functions SMAN 12 Padang is very valid with an assessment percentage of 95,55%. This means that interactive learning media using Sparkol Videoscribe has been validly used on the limit of algebraic functions.

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