

Development of Learning Videos on Integer Material Assisted by Sparkol VideoScribe to Enhance Junior High School Students' Learning Motivation

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Abstract

This study aims to produce valid, practical, and effective learning videos on Integer material using Sparkol Videoscribe. The video development follows the 4-D model, excluding the dissemination stage. The study involved 28 seventh-grade students and one teacher from SMPN 1 Rambatan as test subjects. Research instruments included validation sheets and questionnaires, which measured student responses, teacher responses, and learning motivation. Data analysis was conducted using a percentage formula. The findings revealed that the proposed learning video was considered very valid by three expert validators with an average value of 83%. In addition, the learning video was considered very practical in terms of ease of use and time efficiency for teachers and students with an average value of 86%. The average increase in student learning motivation after using the learning video was 62%, which is in the fairly effective category. So, the learning video is valid, practical, and quite effective in increasing students' learning motivation.

INTRODUCTION

Learning motivation plays a crucial role in a student's academic success. Wahab et al. (2021) stated that motivation serves as a driving force for achieving positive outcomes. An individual engages in an activity primarily due to self-motivation, making it a key factor in the learning process. Motivation plays a crucial role in initiating, sustaining, and directing learning activities. Previous research indicates that highly motivated students tend to be active, persistent, and resilient. They are less likely to give up and actively engage in reading to enhance their learning outcomes and problem-solving skills. In contrast, students with low motivation often appear indifferent, easily discouraged, and struggle to focus on learning.

These conditions make it difficult for them to grasp new concepts effectively.

An initial study was conducted at SMPN 1 Rambatan, where the school has adopted the *Kurikulum Merdeka*. However, teachers have struggled to implement it effectively. The primary issue is a decline in students' learning motivation, leading to reduced engagement during lessons. Through interviews, researchers identified the main challenge: students have low motivation to learn.

Several external factors contribute to students' low motivation to learn, including teaching strategies, methods, and the use of instructional media. Integrating media into the learning process can significantly enhance students' interest and motivation. Students who

were initially uninterested may become more engaged and enthusiastic with the right media approach. According to Zuhri & Rizaleni (2016), learning media offer three key benefits. First, they help reduce students' misinterpretation of the teacher's explanations. Second, they save time in lesson preparation. Lastly, they effectively boost students' motivation to learn.

Interviews revealed that teachers do not utilize either printed or digital media when teaching integer material. They rely solely on traditional printed resources, such as textbooks and LKPD. However, observations show that the school is equipped with a laboratory and even a projector, which remains unused by teachers.

Interviews also showed that students were too lazy to read books because the pictures were less interesting. There was a desire for students to use other more interesting media. There is animation, but it is effective and efficient in learning.

An example of animation usage can be seen in animated films or cartoons. Teachers can modify the content of these films by incorporating mathematics learning materials, making them an engaging medium for teaching mathematics (Noviyanto et al., 2015). One user-friendly software for creating animations is Sparkol VideoScribe, which can be easily operated on both computers and mobile devices.

Sparkol VideoScribe allows users to create videos that integrate concept maps, images, sound, and music. A powerful combination that encourages student engagement in learning. This application also offers a variety of creative and unique features, making lessons more enjoyable and motivating students to participate actively in the learning process (Ramadhaniati et al., 2021).

The use of learning videos created with Sparkol VideoScribe is not a new approach, as several studies have explored similar solutions. Previous research has shown its effectiveness in improving students' understanding of mathematical concepts, such as probability for junior high school students (Rosyita & Tsurayya, 2021), elementary school statistics (Khairani & Ain, 2021), and trigonometry (Akram et al., 2019). Additionally, Sparkol has been combined with Wondershare Filmora for

teaching geography, specifically on natural disaster mitigation (Bouato et al., 2020). However, no studies have yet developed learning videos for integer material. This study aims to produce valid, practical, and effective learning videos on Integer material using Sparkol Videoscribe.

METHOD

This study employs a research and development (R&D) method using the 4-D model, which consists of four stages: Define, Design, Develop, and Disseminate. However, due to time and cost constraints, the dissemination stage was not conducted.

1. Define Stage: This phase involves conducting interviews with teachers and students, analyzing student characteristics, reviewing teaching modules, evaluating media usage, and conducting a literature analysis.
2. Design Stage: In this phase, learning materials are developed, including creating flowcharts, designing storyboards, planning the visual presentation of learning videos, exporting videos, and developing research instruments.
3. Development Stage: Researchers validate the product and conduct limited trials to assess the practicality and effectiveness of the learning videos.

The product trial involved 28 seventh-grade students and one teacher from SMPN 1 Rambatan. Students completed a response questionnaire to assess the practicality of the learning video, as well as a learning motivation questionnaire to measure the impact of using Sparkol VideoScribe-assisted videos. Additionally, the teacher provided feedback by filling out a response questionnaire on the use of these learning videos.

The research instruments used in this study included validation sheets, student response questionnaires, teacher response questionnaires, and learning motivation questionnaires. The validation sheet assessed various aspects of Sparkol VideoScribe-assisted learning videos, including visuals, audio, typography, presentation, content, language, and competency alignment. The teacher and student response questionnaires measured ease

of use, benefits, and time efficiency. The learning motivation questionnaire evaluated factors such as enthusiasm and desire for success, learning drive and needs, future aspirations, appreciation in learning, engagement in learning activities, and the conduciveness of the learning environment.

The results obtained from the research instrument were processed using a percentage method using the formula proposed by Riduwan & Akdon (2013).

$$\text{Percentage} = \frac{\text{Total scores obtained}}{\text{Highest score total}} \times 100\%$$

The percentage value obtained is determined based on the criteria outlined in the Table 1.

Table 1. Interpretation of Validity and Practicality Results of Learning Videos

Percentage (%)	Validity	Practicality
81 – 100	Very valid	Very practical
61 – 80	Valid	Practical
41 – 60	Quite valid	Quite practical
21 – 40	Less valid	Less practical
< 20	Not valid	Not practical

Source: Riduwan & Akdon (2013)

The learning motivation questionnaire was analyzed using the normalized gain method (Sukarelawan et al., 2024). The effectiveness of student learning motivation after using Sparkol VideoScribe-assisted learning videos was also evaluated based on the criteria established by Sukarelawan et al. (2024), as shown in Table 2.

Table 2. Interpretation of the Effectiveness of Learning Videos

Percentage (%)	Interpretation
< 40	Not Effective
40 - 55	Less Effective
56 - 75	Quite Effective
> 75	Effective

RESULT AND DISCUSSION

At the define stage, the researcher conducted interviews with teachers and students regarding motivation and learning media. The key findings from the interviews were as follows: 1) Students experienced boredom in learning due to a lack of interest; 2) Students were less active during lessons; 3) Teachers did

not have specific learning media for integer material; 4) Teachers had never utilized the computer lab for mathematics instruction; 5) Students were reluctant to read source books; and 6) Students showed greater interest in animation.

Next, the researcher examined the characteristics of students at SMPN 1 Rambatan. Observations revealed that seventh-grade students were between 13 and 14 years old. According to Piaget, as cited in Juwantara (2019), students at this age have reached the formal operational stage, where they develop abstract thinking abilities. Additionally, they possess logical reasoning skills and can evaluate various potential solutions to their own problems. Furthermore, students in this age group have sufficient psychomotor skills to engage with different forms of media, including multimedia (Rasyid et al., 2016). Therefore, it is natural that students at SMPN 1 Rambatan show a greater interest in animation than in reading books.

At the define stage, the researcher also explored the learning objectives for students in the integer material. Additionally, an analysis was conducted on how the material was presented in learning resources and the media used by teachers. The findings revealed that the way integer concepts were delivered in these resources failed to motivate students. To address this issue, the researcher reviewed literature on media that could enhance student motivation. Sparkol VideoScribe-assisted learning videos emerged as a potential solution. Therefore, these videos need to be well-designed, visually appealing, and easy to use for both students and teachers.

At the design stage, the researcher developed the learning materials by selecting and summarizing content from electronic textbooks available online. Relevant images and videos from various sources were then incorporated into the materials. The integer topics covered in the learning video include number concepts and types, ordering numbers, and comparing two integers.

The second step in the design stage involves creating a flowchart (see Figure 1). The third step is developing a storyboard, which provides a detailed visual and auditory explanation of each step in the flowchart (see Table 3).

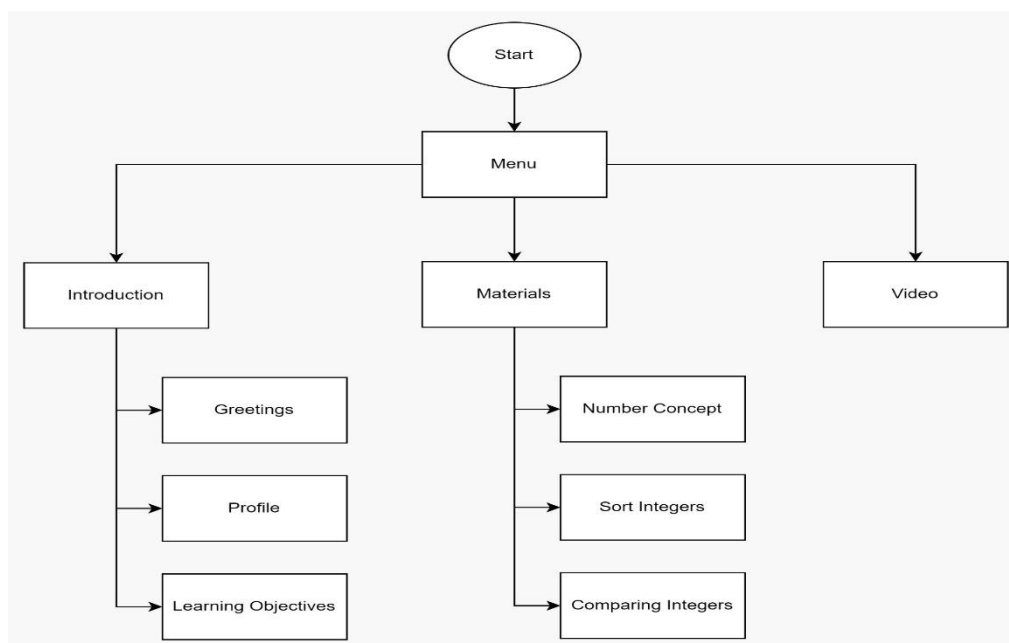


Figure 1. Flowchart of Sparkol VideoScribe-Assisted Learning Video for Integer Material

Table 3. Storyboard of Sparkol VideoScribe-Assisted Learning Video for Integer Material

Information	Visual		Audio
	Text	Animation	
Opening greetings	Greetings and video title	Hand writing	Text voice and instrumentation music
Video identity	Developer profile		
	Learning objectives		
Number concept	Number concept		
Types of numbers	Types of numbers		
Integer concept	Integer concept		
Sort integers	Sort integers		
	Example of a problem ordering integers		
Comparing integers	Comparing integers		
	Example of a problem comparing integers		

In the fourth step, the researcher designed the video presentation using cartoon images, text, narration, and instrumental music. Several examples of Sparkol VideoScribe-assisted learning videos on integer material are shown in Figure 2.

After completing the learning video design, the researcher exported it in .mp4 format. The Sparkol VideoScribe-assisted

learning video can be accessed at the following link:

https://drive.google.com/file/d/1ePuhS27_GFwX5Q2oK3_XpUhHMHj8boP2/view?usp=drivesdk.

In addition to creating the video, the researcher also developed research instruments to assess its validity, practicality, and effectiveness.

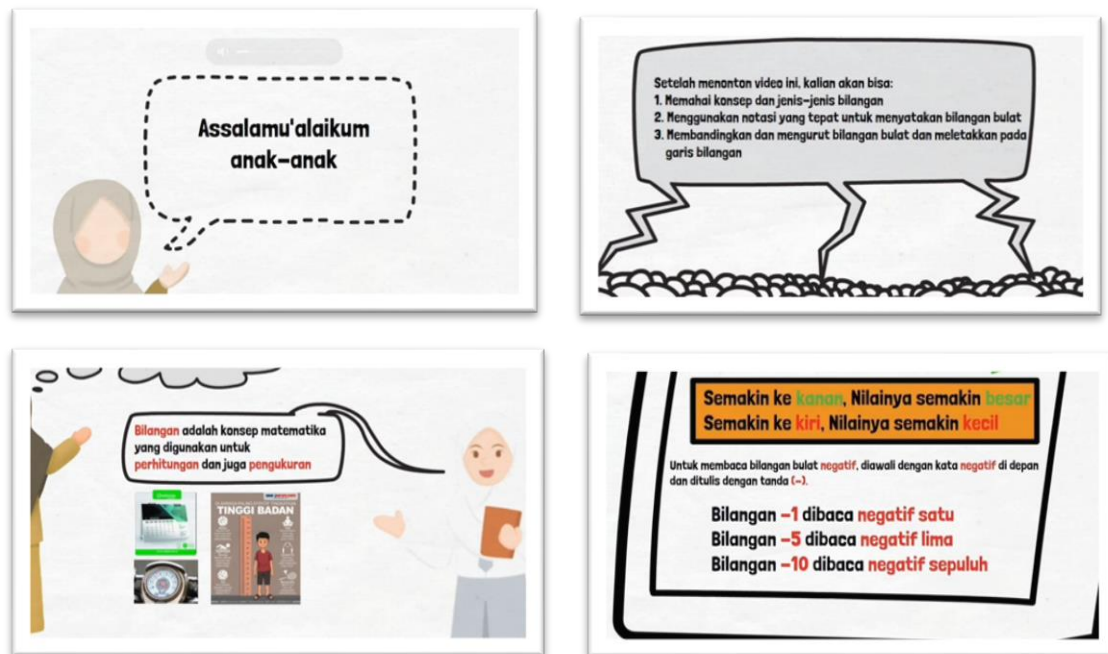


Figure 2. Visual Representation of Sparkol VideoScribe-Assisted Learning Video

The validity assessment of the Sparkol VideoScribe-assisted learning video on Integer material according to 3 mathematics education experts yielded a score of 83%, categorizing it as highly valid (see Table 4). The validator suggested several improvements, including

enhancing the video's identity and opening, refining text and narration, using more communicative language, and adding pauses between slides to allow students time to respond.

Table 4. Validation Results of Sparkol VideoScribe-Assisted Learning Video

No	Validated Aspects	Validator			Count	Max Score	Percentage %	Information
		1	2	3				
1	Visual	20	21	21	62	72	86,11	Very Valid
2	Audio	9	9	10	28	36	77,78	Valid
3	Typography	8	6	8	22	24	91,67	Very Valid
4	Presentation	12	14	14	40	48	83,33	Very Valid
5	Material	24	22	26	72	84	85,71	Very Valid
6	Language	12	13	13	38	48	79,17	Valid
7	Competence	6	6	7	19	24	79,17	Valid
		Summary					582,94	Very valid
		Average					83 %	

According to the validator's assessment in Table 4, the visual aspect of the learning video is considered highly valid due to its clear image quality, appealing color selection, well-designed backgrounds, and engaging animations. Effective learning media should be visually clear, engaging, simple, useful, accurate, valid, and well-structured (Nurseto in Sugianto et al., 2013). Additionally, the speed

of image transitions in the video is deemed appropriate for junior high school students.

The audio quality in the learning video is also valid, as the narrator's voice is clear, well-paced, and informative. High-quality audio is characterized by clear vocals with proper intonation on key points (Riyanto & Asmara, 2018). The accompanying background music further enhances the learning atmosphere. An effective audio-visual medium should be able to

stimulate students' thinking, emotions, and focus through both language and voice (Sediyani et al., 2017).

Furthermore, the learning video was tested in a seventh-grade class during two sessions on integer material. After the trial, both

students and teachers were asked to complete a response questionnaire. The practicality of the learning video, based on student and teacher feedback, was analyzed and presented in percentage form (see Table 5).

Table 5. Practicality Results of Sparkol VideoScribe-Assisted Learning Videos

No	Practicality aspect	Student response (%)	Interpretation	Teacher response (%)	Interpretation
1	Ease of use	87,80	Very practical	94,44	Very practical
2	Benefits gained	86,79	Very practical	75	Practical
3	Effectiveness of learning time	84,38	Very practical	87,5	Very practical
	Summary	258,96		256,94	
	Average	86	Very practical	86	Very practical

According to Table 5, the benefits of using learning videos are categorized as practical for teachers, while students find them highly useful. In terms of ease of use, the videos are considered very practical. Effective learning videos should include clear instructions, be easy to use, and convey messages aligned with scientific standards (Tversky dalam Riyanto & Asmara, 2018). This indicates that, overall, Sparkol VideoScribe-assisted learning videos are user-friendly for

both students and teachers, both in terms of implementation and time efficiency.

The effectiveness of the integer learning videos developed with Sparkol VideoScribe can be evaluated through their impact on student learning motivation. In this study, student motivation was assessed based on six indicators (see Table 6). The results of the student learning motivation questionnaire, analyzed using normalized Gain, are presented in Table 6.

Table 6. Student Learning Motivation Questionnaire Results

No	Indicator	The number of students who experienced an increase			N-Gain
		Low	Medium	High	
1	Having a desire and wish to succeed	0	26	2	0,58
2	Having a drive and need to learn	1	15	12	0,63
3	Having hopes and aspirations for the future	4	15	9	0,62
4	Having appreciation for learning	1	22	5	0,61
5	Having interesting activities in learning	4	17	7	0,60
6	Having a conducive learning environment	1	15	12	0,67
Average					0,62

Overall, the increase in students' learning motivation, as shown in Table 6, falls into the moderate category across all indicators. The highest increase is observed in learning motivation and needs (Indicator 2) and a conducive learning environment (Indicator 6). This suggests that Sparkol VideoScribe-assisted learning videos enhance students' desire to learn by creating a more engaging and supportive learning atmosphere.

However, only a small number of students showed a high increase in their desire to succeed in learning after using the videos. On average, students' learning motivation increased

by 62%, placing it in the fairly effective category. Thus, Sparkol VideoScribe-assisted learning videos can be considered moderately effective in boosting students' learning motivation at SMPN 1 Rambatan.

These videos help increase motivation because dynamic visuals, combined with varied sounds, capture students' interest and engagement (Riyanto & Asmara, 2018). Additionally, students' motivation and need to learn improved as they could replay the videos multiple times, allowing them to review concepts at their own pace (Marliani, 2021).

CONCLUSION

The development of Sparkol VideoScribe-assisted learning videos for Integer material includes video identity, learning objectives, instructional content, and sample questions. Expert validation categorizes the video as highly valid. The very valid criteria are achieved in the visual, typography, presentation, and material aspects. Teacher and student assessments indicate that the video is very practical in 5 of the 6 practicality aspects measured. Additionally, the learning videos prove to be moderately effective in enhancing students' learning motivation.

The increase in learning motivation after using Sparkol VideoScribe-assisted learning videos has not been as expected because students only met twice using this learning video. For further researchers, it is better to apply learning videos like this for a longer duration so that there is a significant increase in learning motivation. In addition, subsequent researchers can test it in a larger number of classes.

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