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Using Sparkol Videoscribe as a Media for Learning Redox Reaction

Aceng Haetami*, Sefrianty Teewa, Dahlan

Department of Chemistry Education, Universitas Halu Oleo, Indonesia

Abstract: This study determined the effectiveness of Sparkol video scribe media and students' responses to redox reaction learning. The sample in this study was 29 students of class X IPA2 SMA Negeri 1 Konawe Selatan, as many as 29 people. The research method used is a pre-experimental research design One-group Pre-test Post-test Design. We collected data in this study using research instruments such as multiple choice questions, student and teacher activity observation sheets, and student response questionnaires to the learning process. The results showed that using sparkol video scribe learning media improved student learning outcomes from an average of 22.51 to 79.92 with effectiveness of 0.73 (high) and student responses of 70.69%. From the results of the analysis it was found that the use of sparkol videoscribe had an impact on the effectiveness of student learning and was able to have an impact on student involvement in learning

Keywords: sparkol videoscribe, learning outcomes, redox reaction.

Abstrak: *Penelitian ini adalah untuk mengetahui efektivitas penggunaan media sparkol videoscribe dan respon siswa pada pembelajaran reaksi redoks. Sampel dalam penelitian ini adalah siswa kelas X IPA2 SMA Negeri 1 Konawe Selatan sebanyak 29 orang. Metode penelitian yang digunakan adalah Pra Eksperimen dengan desain penelitian One-group Pre-test Post-test Design. Pengumpulan data dalam penelitian ini menggunakan instrumen penelitian berupa soal pilihan ganda, lembar observasi aktivitas siswa dan guru, serta angket respon siswa terhadap proses pembelajaran. Hasil penelitian menunjukkan bahwa penggunaan media pembelajaran sparkol videoscibe meningkatkan hasil belajar siswa dari rata-rata 22,51 menjadi 79,92 dengan efektifitas 0,73 (tinggi) dan respon siswa sebesar 70,69 %.Dari hasil analisis ditemukan bahwa penggunaan sparkol videoscribe berdampak opada efektivitas belajar mahasiswa serta mampu memberikan dampak terhadap keterlibatan mahasiswa dalam belajar.*

Kata kunci: *sparkol videoscribe, hasil belajar, reaksi redoks.*

▪ INTRODUCTION

The development of science and technology is increasingly advanced and encourages reform efforts in education (Nikmatussaidah, 2021; Garini et al., 2020). Ayu (2020); Akarsu & Dariyemes (2014) argue that digital technology allows learning to be done anywhere, anytime, at any age. The use of technology as a learning medium is familiar, ranging from effortless to advanced technology (Ghavifekr & Rosdy, 2015; Shah, 2022). Utilizing and developing technology in education requires innovation in addressing educational problems (García-Morales et al., 2021). One of the problems found is in the learning of chemistry.

Chemistry is one of the abstract science subjects that consist of a combination of calculations and theoretical concepts and requires an understanding of the concept. A redox reaction is an abstract chemical material that requires an understanding of the concept (Cardellini, 2012; Sadikin et al., 2017; Pradillasari et al., 2019). Therefore, it is

Aceng Haetami
*Email: acenghaetami@uho.ac.id

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necessary to make the concepts of redox reactions more interesting so that they are easily understood by students, one of which is by using media in the learning process. Based on the results of initial observations and interviews with chemistry teachers at SMA Negeri 1 Konawe Selatan, it was obtained that student learning outcomes on redox reaction materials were below the KKM < 70. This was because, during the learning process, teachers rarely used digital learning media. Therefore, to achieve chemistry learning outcomes, it is necessary to have exciting and appropriate learning media so that students can understand chemistry lessons.

The use of learning media in the teaching and learning process can create a more effective learning situation, create the expected learning situation, improve the quality of the teaching and learning process, equate students' perceptions by seeing the same and consistent object, and be able to concretize abstract concepts (Tamrin et al., 2017; Puspitarini & Hanif, 2019). One example of thrilling learning media is audiovisual-based media (Nurserto, 2011 & Desiningrum, 2015). Audiovisual media are media in the form of videos that produce or deliver material using mechanical and electronic machines to present audio and visual messages (Purwono et al.,2014; Hilmi, 2017; Fuady & Mutalib, 2018). One form of audiovisual media that can be used in the learning process is software in the form of sparkol video scribes.

Sparkol Video scribe is a web-based application that provides users with creating animated presentations, where this software can produce videos that combine interesting pictures, sounds, and music (Aryanti et al.,2021; Rasyid et al.,2019). Sparkol Videoscribe can be seen from its characteristics as an audio-visual-based learning media and a learning machine, namely combining several media elements such as text, audio, and images in one online media. It is being able to provide an excellent stimulus to students and being able to focus students' attention during teaching and learning activities so that messages can be delivered more effectively (Dariyadi, 2018; Widiari & Astawan, 2021; Almatiana et al., 2021; Dewi et al., 2021). Based on the results of research by Basri & Khatiman (2019), the use of sparkol video scribe learning media effective improves physics learning outcomes in class XI students of SMA Negeri 6 Jeneponto in the 2018/2019 school year. Meanwhile, according to research by Fahmi (2019), the Sparkol Videoscribe audiovisual learning media can improve student achievement in class XII MIPA1 SMA Negeri 3 Pati. It can be proven that there is an increase in the average student learning outcomes from pre-cycle completeness of 30%, an increase in cycle 1 is 75%, then cycle 2 is 97%. The student's grades improved and reached the minimum success threshold.

Based on the data and descriptions that have been described, researchers are interested in conducting a study on the topic of effectiveness of using sparkol video scribe learning media on redox reaction materials at SMA Negeri 1 Konawe Selatan. This study aims to determine the effectiveness of sparkol video scribe media and student responses to redox reaction learning.

▪ METHOD

Participant

This research was conducted in the even semester of the 2021/2022 academic year at SMA Negeri 1 Konawe Selatan. The subjects in this study were students of class X IPA2 at SMA Negeri 1 Konawe Selatan who were registered in the even semester of the

2021/2022 academic year. The sampling technique used in this study is purposive sampling. The sample in this study was 29 students of class X IPA2 SMA Negeri 1 Konawe Selatan, as many as 29 people.

Research Design and Procedure

This study uses the Pre-Experimental method with One Group Pre-Test Post-Test Design, namely research carried out in one class without a comparison class. This research was conducted in 3 stages, namely the preparation stage, the implementation stage, and the final stage. The preparation stage is the stage in the research instrument and the development of learning devices. Several things are considered to develop learning tools, namely the material being taught and the learning model that will be applied. Therefore, preliminary observations were made at SMA Negeri 1 Konawe Selatan to determine the initial state of the school and the number of subjects, learning outcomes to be achieved as well as learning objectives and concept analysis regarding redox reaction material.

The implementation stage is the stage of data collection. At this stage, the sparkol video scribe learning media is implemented. Several activities carried out at this stage are giving a pre-test to determine students' initial abilities before taking part in learning and, implementing sparkol video scribe learning media on redox reaction material using a projector, giving a post-test to see student learning outcomes after taking lessons on redox reaction material as a result of using the Sparkol Videoscribe learning media.The final stage is implementing research data in a research report.

Instrument

In this study, the instruments used were learning outcomes tests, observation sheets, and questionnaires. The learning outcomes test used in this study was a multiple-choice test that met good test standards (validity and reliability) and was tested on students of class X2 IPA at SMA Negeri 1 Konawe Selatan before and after the entire series of teaching and learning processes about the subject matter of redox reactions. The observation sheet is intended as a guide for observing student activities and the quality of teacher teaching during the learning process by using sparkol video scribe media. Questionnaires are used to determine student responses to learning activities on redox reaction material.

Date analysis

The data analysis phase begins with distributing the average value of student learning outcomes and standard deviation, calculating N-gain, determining the percentage of student activity and teaching teachers, and analyzing student responses. The categorization of the N-gain index value obtained by the students is processed to determine the criteria for the level of the N-gain index value with criteria N-gain <0.3 low, $0.3 \leq$ N-gain ≤ 0.7 medium and N-gain > 0.7 high ((Helsi et al., 2017).

The observation sheet analyzes student learning activities and teacher teaching quality in the classroom using percentage analysis. The percentage is then interpreted for percentage of learning implementation, namely 0.0% - 24.9% very less, 25% - 49.9% enough, 50% - 74.9% Currently, and 75%-100% good (Prayogi et al., 2017).

Then, the data analysis of student responses in this study used a Likert scale. After the percentage is made, it is matched into the assessment guidelines criteria that is 0.25

– 1.21 very bad, 1.30-2.49 not good, 2.50-3.49 well, 3.50-4.00 very good (Priyono, 2008).

▪ RESULT AND DISSCUSSION

Learning Outcomes

Based on the data analysis of student learning outcomes of class X IPA2 SMA Negeri 1 Konawe Selatan is described in Table 1.

Table 1. Description of class student learning outcomes of x ipa_2

Statistic parametric	Class of X IPA_2		
	Pre-test	***Post-test***	N_{-gain}
Average	22.51	79.92	0.73
Highest score	73.26	99.90	
Lowest Value	6.66	46.62	
Modus	13.32	86.58	
Median	19.98	79.92	
Standard Deviation	13.95	14.24	

Table 1 shows that the learning outcomes of class X IPA2 students have increased before and after being given treatment in the form of using sparkol video scribe learning media which can be seen from the average score of students at the pre-test at 22.51 while at the post-test at 79, 92 post-test of 79.92. This is because, at the time of giving the pre-test, the student's initial abilities or mastery of concepts possessed by students were still very lacking or still below the Minimum Completeness Criteria that the school, namely 70, had set. Students are given an initial test (pre-test) without prior treatment in the form of learning media, so students have not been able to answer the questions correctly. Meanwhile, when giving the post-test, the students' scores looked quite good because the students had been given treatment in the form of sparkol video scribe media. The use of sparkol video scribe learning media can guide students to develop their knowledge, develop skills and become independent students so that students can be more active in the learning process in obtaining new formal knowledge.

Based Figure 1 displayed that the post-test results on learning using sparkol video scribe showed that as many as 24 students, or about 82.75%, have reached the Minimum Completeness Criteria. According to Suryosubroto (2009) & Arianti (2020), student learning outcomes are declared good if at least 85% of all students achieve mastery. If learning mastery only reaches 80% of all students, the learning outcomes are said to be sufficient. Meanwhile, if the learning mastery achieved is less than 60%, the learning outcomes are said to be lacking. Based on this statement, the student learning outcomes in this study are in a good category. The standard deviation of the pre-test scores is 13.92 and at the time of the post-test is 14.24. This data shows the difference in the diversity of student scores, where the diversity of students' pre-test scores is lower than the diversity of students' post-test scores. According to Sekaran (2016) & Philip et al. (2018), the greater the value of the standard deviation, the more diverse the values on the item, and the smaller the value of the standard deviation, the more similar the values on the item.

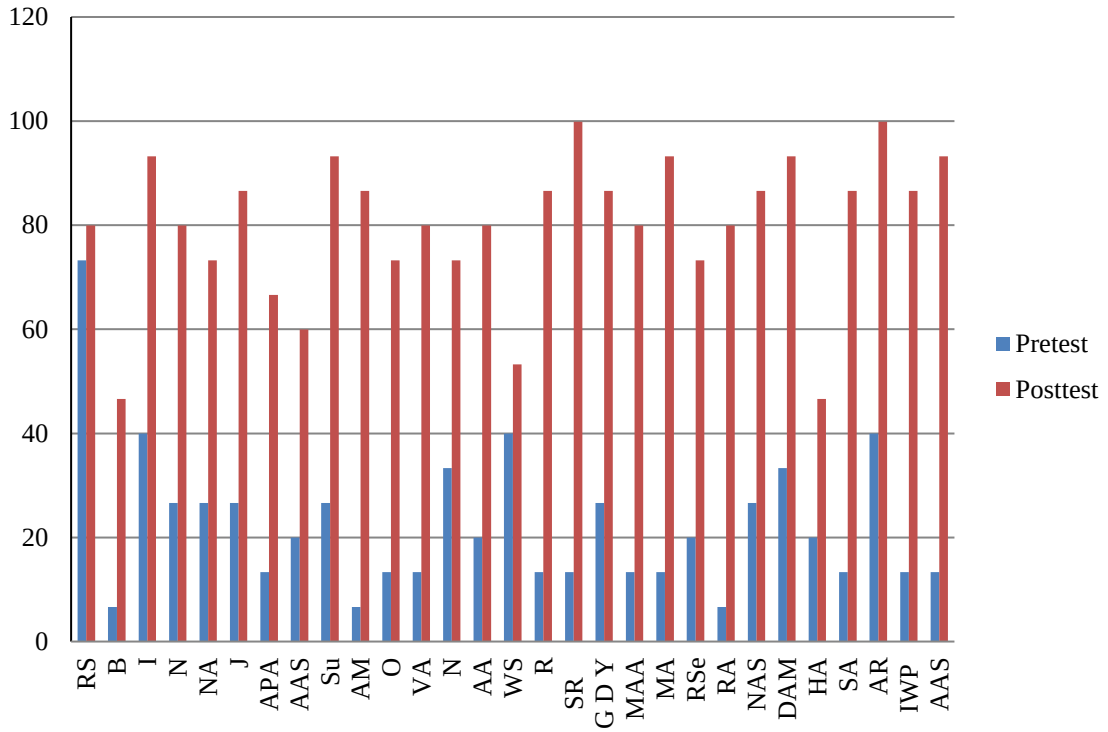

Figure 1. Data analysis results of pretest-posttest each student

In Table 1, the average N-gain value obtained by all students through the use of media learning media based on sparkol video scribe is quite effective in applying the material for developing the concept of redox reactions, determining the oxidation number of an element in a compound or ion, and autoredox or disproportionation reactions in a reaction with an average N-gain of 0.73. Overall, the level of effectiveness of learning is in the high category. The higher the N-gain value, the more effective the use of sparkol video scribe-based learning media is. According to Nismalasari et al. (2016) & Susilawati et al. (2022), the use of N-gain measures the increase in science process skills and students' cognitive learning outcomes between before and after learning.

The use of sparkol video scribe learning media is a new learning medium for students at SMA Negeri 1 Konawe Selatan. However, many students are happy with this learning media, which is marked by better learning outcomes. This learning media is suitable for redox reaction material because the learning process uses sparkol video scribe-based learning media; students are more active in observing, listening, and responding to questions from the teacher very well. In addition, students also play a more active role in interacting with their groups and working together when determining several questions in the Student Worksheet because they have seen how the determination is made on the video that is shown during the learning process. The implementation of sparkol video scribe on redox reaction materials can be seen in Figure 2 (a,b,c).

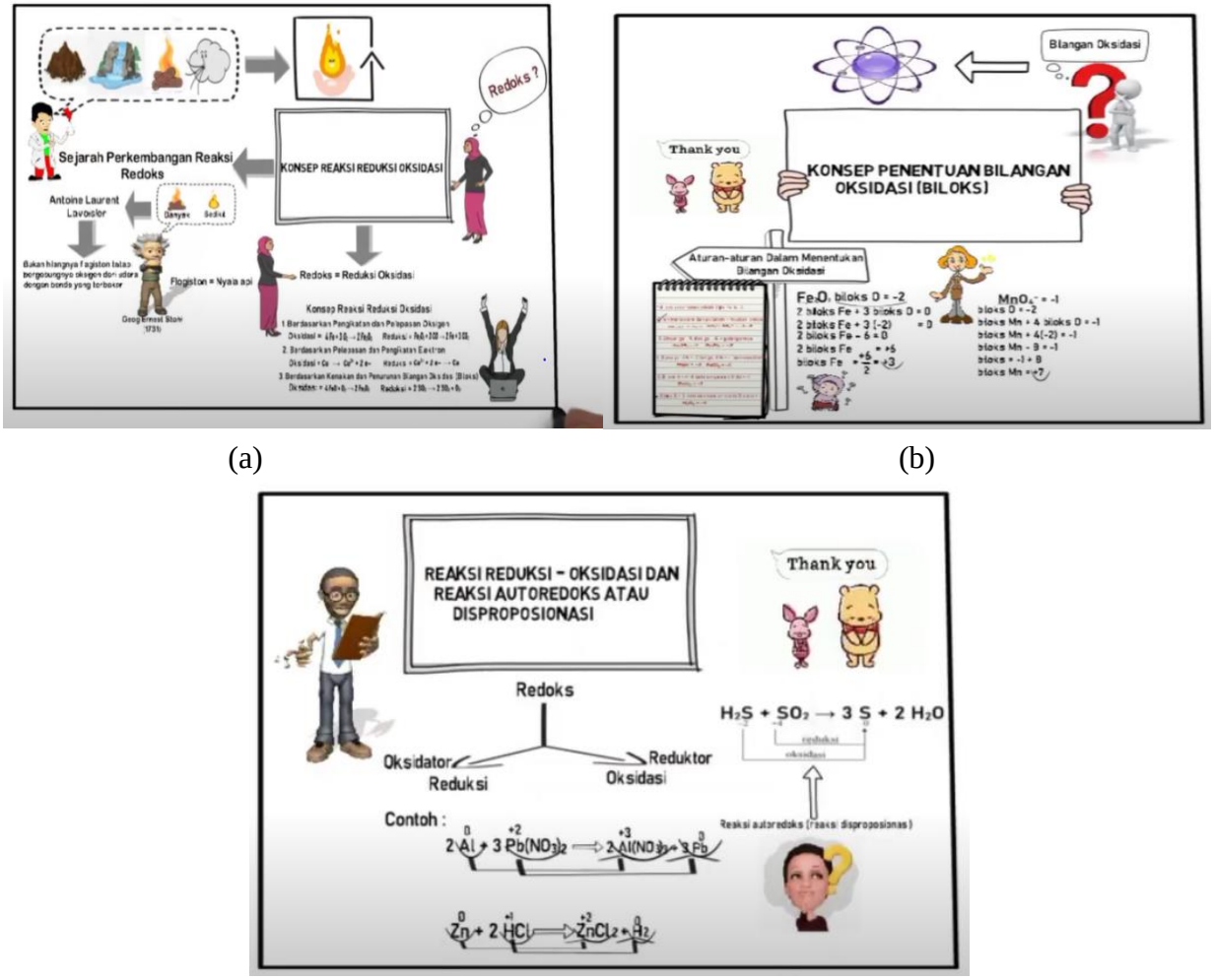

Figure 2. (a) The concept of redox progression; (b) Determination of oxidation number; (c) Autoredox/disproportionation

This is in line with research by Jannah et al. (2019), which stated that the use of sparkol video scribe improved student learning outcomes and critical thinking skills. Jannah et al. (2019) write that audiovisual media can present natural phenomena packaged in the form of videos to make learning more interesting and meaningful. Hasanah et al. (2022), in their article, report that Sparkol Video scribe can focus students' attention during learning activities so that messages can be conveyed more effectively, repetition can be done, clarifying abstract and realistic things, and messages are delivered quickly and easier to remember, and able to combine text, images, audio, music, and images in a single unit so that learning objectives can be achieved.

Teacher and Student Learning Activities

The results of observing the teaching activities of class X IPA2 teachers on the implementation of chemistry learning using sparkol video scribe media are presented in Table 2.

Table 2. Description of teacher activities in learning

Meeting	Teacher activity (%)	Criteria
I	82.5%	Good
II	85%	Good
Average	**83.75%**	**Good**

Table 2 shows that the first meeting of the results of teacher teaching activities was 82.5% or the good category. Then at the second meeting, the results of the teacher's teaching activities increased by 85%; this shows at the second meeting, the teacher can guide students during the learning process by using a sparkol video scribe. Meanwhile, the teacher could not adjust the students' conditions to the learning process at the first meeting. As has been done by researchers in the learning process from the first meeting to the second meeting, the researchers directed students to observe the redox reactions presented in the sparkol video scribe learning video and directed students to find problems in the Student Worksheet which made students more active in learning. Based on the data above, the average of the two meetings was 83.75% and included in the good category. The description of the results of observing the activities of class X IPA2 students during the learning process using the sparkol video scribe learning media is presented in Table 3.

Table 3. Description of Student Activities

Meeting	Student activity (%)	Criteria
I	86.36%	Good
II	88.63%	Good
Average	**87.49%**	**Good**

Table 3 shows that student activities have increased from the first to the second meeting. At the first meeting, the percentage was 86.36%; the second meeting was 88.63% in the good category, with an average of 87.49% and included in the good category. Increased student activity due to the use of sparkol video scribe learning media on redox reaction materials encourages students to develop problem-solving skills confidently and think critically in solving problems to get essential concepts. Where activities that arise from students will result in the formation of knowledge and skills that will lead to increased learning outcomes. The results of the analysis of student activities observed included listening and paying attention to the teacher when conveying learning objectives, guidance from the teacher to students to find problems, preparing and presenting the results of group discussions, and concluding all material from the learning process.

According to Fransisca (2018); Widodo (2018); Ediyani et al. (2020), the use of learning media can be used as an intermediary between teachers and students in understanding learning materials to be more effective and efficient, as well as helping to convey messages to students to make them easier to understand and attract students' attention to be more focused when participating in learning. Meanwhile, according to Pamungkas et al. (2018); Sofyan & Soraya (2019); Pratiwi et al. (2021) wrote that with unique characteristics, Sparkol Videoscribe could present learning content by combining attractive images, sounds, and designs that can explain concepts and as a trigger for discussion between students so that interactions occur between students and

students, students and teachers and students and Learning Resources. Based on several criteria for the effectiveness of the learning media above, it can be concluded that the use of sparkol video scribe learning media effectively improves student learning outcomes in the learning process.

Student Responses to Learning by Using the Sparkol Video scribe learning media

Table 4 Student response questionnaire data

No.	The tendency of student response Percentage (%)	Total student	Category
1.	65.79 – 69.74	14	Enough
2.	90.79	1	Very good
3.	71.05 - 77,63	14	Good
	Average	**70.96**	**Good**

Table 4 identification that is the student responses range from 63.16 (enough category) to 90.79 (very good category), with an average student response of 70.96%, consisting of 19 statement indicators. Students with sufficient and good categories are 14 or 48.27%, and very good categories are one student. Based on the data in Table 7, there are positive responses from students to the use of sparkol video scribe learning media on redox reaction material with good categories for the learning process in the classroom. Using sparkol video scribe learning media can reduce student boredom in the classroom, creating good student interest and motivation. According to Nadia et al. (2022) & Almunawarah (2019), sparkol video scribe-based learning media provides a relaxed learning situation. It reduces boredom in the classroom so that students can follow the lesson well. Meanwhile, according to Muchtadi et al. (2017), there is a significant simultaneous relationship between learning activities and responses to learning outcomes. The learning outcomes can be predicted if the activity and response scores are known. The results of the learning response provide an overview of the relationship between the elements in the learning system, namely between teachers, students, learning materials, and learning outcomes.

▪ CONCLUSION

Animation learning products from sparkol videoscribe include sound, animation, and video components that can help teachers present lesson plans and transfer topics more efficiently, and help students comprehend the information they are being taught. A learning tool known as sparkol videoscribe uses hand drawings to simulate writing or drawing on a blackboard in the form of films or animations. As a result, sparkol videoscribe is a facilitator in the teaching and learning process.

By comparing the outcomes of the pretest and post-test on the usage of the learning media, it was discovered from the analysis's findings that the use of sparkol Videoscribe learning media improved student learning outcomes and activities with an average of 79.92, with the highest score of 99.9. It would be wise to consider when using the sparkol video scribe as a learning tool because it has both benefits and drawbacks. Combining technology (audio-visual and computer) can allow students to boost their passion for learning. However, it cannot be ruled out since this medium

requires complete equipment and may have higher costs than other media using just print media.

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