Development of Sparkol Videoscribe-Based Learning Media in Fourth-Grade of Elementary School Science Lessons

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Article Info	Abstract
	Learning media that are generally used are less attractive and cannot be used optimally independently. Meanwhile, at the fourth-grade level of elementary school, students need engaging media that can be used independently at home. Sparkol Videoscribe-based learning media can help students understand the material and foster interest in learning and independent learning. This study aims to develop Sparkol Videoscribe-based learning media in science lessons for fourth-grade of elementary schools and determine its feasibility. The research method used is Research and Development (R&D) which was conducted in two elementary schools in Jakarta. The research model used is 4D with define, design, develop, and disseminate stages. The data collection technique used was a questionnaire. The results related to media expert validation were 86.1%, material expert validation results were 88.8%, and linguist validation results were 94.7%, so overall, it became 89.7% with a very decent category. The results of user trials conducted by teachers and students obtained a value of 92.5% for teacher trials and 92.3% for students. These results make Sparkol Videoscribe-based learning media in the fourth grade of elementary school science lessons feasible. If implemented, it will increase learning effectiveness and motivate learners to be more active and creative.
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Info Artikel

Abstrak

Media pembelajaran yang umumnya digunakan kurang menarik dan tidak dapat digunakan mandiri secara maksimal. Sedangkan pada tingkatan kelas IV sekolah dasar, peserta didik membutuhkan media yang menarik dan dapat digunakan mandiri di rumah. Media pembelajaran berbasis Sparkol Videoscribe dapat membantu peserta didik memahami materi dan menumbuhkan minat belajar serta belajar mandiri. Penelitian ini bertujuan untuk mengembangkan media pembelajaran berbasis Sparkol Videoscribe pada pelajaran IPA kelas IV sekolah dasar dan juga untuk mengetahui tingkat kelayakannya. Metode penelitian yang digunakan adalah Research and Development (R&D). Model penelitian yang digunakan adalah 4D dengan tahapan define, design, develop, disseminate. Teknik pengumpulan data yang digunakan ialah kuesioner. Hasil yang ditemukan terkait validasi ahli media yaitu 86,1%, hasil validasi ahli materi yaitu 88,8%, dan hasil validasi ahli bahasa yaitu 94,7%, sehingga secara keseluruhan menjadi 89,7% dengan kategori sangat layak. Adapun hasil uji coba pengguna yang dilakukan oleh guru dan siswa diperoleh nilai 92,5% untuk uji coba guru dan 92,3% untuk siswa. Dengan hasil tersebut dapat disimpulkan bahwa media pembelajaran berbasis Sparkol Videoscribe pada pelajaran IPA kelas IV SD sangat layak untuk digunakan, dan jika diimplementasikan maka akan meningkatkan efektivitas pembelajaran dan memotivasi untuk pebelajar lebih aktif dan kreatif.

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INTRODUCTION

The rapid development of science and technology in the field of information and communication technology supports 21st-century education. This is because science and technology (IPTEK) can affect the quality of education, especially the learning system in schools. Learning at school is the teacher who will determine whether education is good or bad. Regarding this matter, teachers should have qualified abilities and skills in the field of technology to support their role as a teacher because 21st-century learning is different from previous learning which was only done in conventional ways, while education today requires innovation from teachers. One way to support the learning process is that the teacher must innovate to think about the learning process to be more easily understood by students. In facilitating students in the learning process, they can integrate technology into learning by utilizing technology-based learning media (Mudrikah et al., 2022).

One of the uses of technology in learning is learning media. Media is a supporting tool in classroom learning that is used as an intermediary tool in conveying messages. The use of learning media can facilitate the delivery of information related to lessons to students because the media can foster students' interest in learning and are more focused during the learning process (Fransisca & Mintohari, 2018). Media also plays an important role in the learning process because it can be used as a tool to visualize material that is still abstract to become more concrete and can overcome the limitations of experience in students (Triastuti et al., 2017). The use of learning media plays an important role in the learning process both to facilitate the delivery of material and generate interest in learning.

The use of learning media, especially in elementary schools, is essential to facilitate students. However, in reality, learning media requires money, it is difficult to find suitable media, and it has limitations in its use. In this case, teachers need innovations to utilize technology better anytime and anywhere. Learning media accompanied by technological advances can positively impact education and educational facilities, primarily using electronic devices such as smartphone, which is already popular among the education community.

Implementing education can at least face the challenges of 21st-century education by using IT-based learning media and learning media with elements such as images, sound, and text that can be animated, namely audio-visual learning media that can be made through the Sparkol Videoscribe software (Akram et al., 2019). Sparkol Videoscribe is software that creates animations on whiteboards that explain a particular concept or material (Triyani et al., 2021). Sparkol Videoscribe is also defined as software in the form of a white background containing narrative information. It is usually used in designing learning media as attractive animations for students, and their use is faster and easier (Munawarah, 2019). In line with that, Sparkol Videoscribe media is a quickly developed medium for teachers to package material more excitingly and appropriately for learning. Its production does not require special skills (Fransisca & Mintohari, 2018).

Based on several descriptions related to Sparkol Videoscribe and appropriate learning media, it can be understood that Sparkol Videoscribe is a software that can be used as a learning medium in the form of animation with unique characteristics because it presents learning concepts by combining images and sounds so that students can enjoy the learning process. The advantage of Sparkol Videoscribe is its attractive appearance because it has various visual animations, making it easier for students to understand the material.

Sparkol Videoscribe-based learning media can attract students' interest so that it becomes a positive encouragement for students to participate actively. Only lectured students will find it difficult to understand, especially in learning science. Science learning is usually carried out with experiments that adapt to phenomena in the surrounding environment and, of course, be guided by existing theories. Therefore, teachers are expected to be able to innovate in order to create learning media with Sparkol Videoscribe to visualize complex and abstract concepts in science learning (Fransisca & Mintohari, 2018).

One of the learning resources that can be used by teachers and students in learning science at school is Sparkol Videoscribe-based learning media. This media can be accessed and used through mobile learning. This makes it not only used by teachers in the learning process at school but can also be used by students anywhere and anytime. In addition, this media can also improve students' science learning outcomes in elementary schools. This is supported by Hasbullah et al. (2022) saying that the learning process using Sparkol Videoscribe media is more effective and can improve students' cognitive learning outcomes. It was also supported by Mutmainah et al. (2022) who stated that Sparkol Videoscribe-based learning media was able to improve children's learning outcomes in science learning.

Based on the results of the literature analysis above regarding the not optimal use of instructional media, the researchers conducted a needs analysis by observation by distributing questionnaires to teachers and fourth-grade students at the State Elementary School of Bintara Jaya V and the Islamic Integrated Elementary School of Insan Madani Jakarta. These two schools were chosen because they have different characteristics. The State Elementary School of Bintara Jaya V is a public school whereas The Islamic Integrated Elementary School of Insan Madani Jakarta is a private integrated Islamic school. The differences in the characteristics of the two schools can further strengthen the research results compared to schools that have similarities, the aim is that the media developed can be used by schools from a variety of different backgrounds. Then the selection of class levels is based on the school's needs and the suitability of the media being developed. In this case, fourth grade will be able to better absorb the information conveyed through the media than the classes below it, so using this media is expected to start from fourth grade and then continue to the next level.

Needs analysis was carried out through questionnaires with fourth grade teachers conducted at the two elementary schools, namely (1) learning would be interesting if using media, (2) students had difficulty understanding science lessons because of the lack of exciting science learning media and learning is only done in class, (3) learning concretely and using engaging media can support the science learning process in material changes in the form of objects, (4) teachers only use textbooks, power points, and learning videos downloaded from YouTube as science learning media, (5) technology-based learning media for material changes in the form of objects is not yet available, (6) learning media is very important to support an effective learning process, especially in material changes in the form of objects, (7) electronic-based learning media will support students' understanding in natural science lessons material for changing the shape of objects, (8) learning about material for changing the shape of essential objects is done with learning videos, (9) the teacher has never made and used Sparkol Videoscribe learning media, (10) teachers need learning media that is interesting and can make it easier for students in understanding science subject matter.

Filling in the questionnaire was also carried out by students as an analysis of student needs. As for student responses through questionnaires that have been filled out, namely (1) students need learning media in science lessons, especially in material changes in the form of objects, (2) learning media has benefits in learning activities, especially science lessons, (3) students enjoy learning science using media, (4) students have difficulty understanding material changes in the form of objects, (5) students more easily understand material changes in the form of objects through learning media, (6) students like learning media (images, maps, graphs, videos) in online form because they can be accessed wherever and whenever, (7) interesting learning media (images, maps, graphs, videos) can make students more enthusiastic and enthusiastic in learning.

Based on the description above on science learning, the researchers took the initiative to innovate according to the needs, namely Sparkol Videoscribe-based learning media. Teachers can package subject matter that is still abstract to be more concrete and exciting through Sparkol Videoscribe learning media. Through this media, it is hoped that it will make it easier for students to understand science lessons, especially in changing objects' shapes. Therefore, the authors are interested in

developing Sparkol Videoscribe-based learning media in natural science lesson material for changes in the shape of objects.

This is in line with a relevant study, namely Siregar and Sukmawati (2022) who investigated the development of Sparkol Videoscribe-based animation video media for social studies learning in elementary schools. Their research concluded that according to the feasibility assessment by experts, the criteria included good criteria for components suitable for use. Second, the research conducted by Mutmainah et al. (2022) who investigated Sparkol Videoscribe-based learning media in improving science learning outcomes of early grade elementary students in his research it was concluded that it could increase learning outcomes by 86.7% and this media was practical and effective. Third, the research conducted by Dewi et al. (2021) and Firmansah et al. (2020) concluded that learning media was exciting and easy to understand because of the interactive attribute. Fourth, the research was conducted by Kurniawan et al. (2018) with an investigation of the development of learning video media in science subjects about the properties and changes in the form of objects; it was concluded that learning videos are very much needed in science lessons about the properties and changes in the form of objects and increasing residual understanding of the material. In addition, research conducted by Dewi et al. (2019) about the role of Sparkol Videoscribe media on cognitive learning outcomes of students across interests in biology concluded that Sparkol Videoscribe media could improve cognitive student learning outcomes.

This is the background for researchers to conduct a research on the development of Sparkol Videoscribe-based learning media in fourth-grade of science lessons to find out specifically the process of developing and to determine the feasibility of Sparkol Videoscribe-based learning media in fourth-grade of elementary school Science lessons.

METHODS

The research method used in this research is the research and development method, also known as research and development (R&D) and argued that research

and development is a problem or product that is used as an object of research not only for new products but also for developing existing products and reviewing them in order to create higher effectiveness and meaningfulness than the previous stage.

The model used in this study is the 4D development research model. This model was chosen because it has simple steps but can create a suitable product. The 4D model has four stages, namely: 1) the define stage, which includes the activities of beginning-to-end analysis, task analysis, student analysis, concept analysis, and determining learning objectives; 2) The design stage, which includes the activities of selecting the media, choosing the format, and making the initial design; 3) The development stage which includes validation activities by material, media and language experts, as well as product testing activities developed by teachers and students as users; and 4) Stage of dissemination (disseminate) which is the final stage for disseminating the product that has been developed.

The research subjects were fourth-grade students at the State Elementary School of Bintara Jaya V and the Islamic Integrated Elementary School of Insan Madani Jakarta. The data collection technique used in this research is a questionnaire. The data collection instruments used in the product trials were Likert scales, validation sheets, expert assessment instruments, and student response questionnaires with various instrument grids that researchers have made. Then calculations are carried out on the results obtained to determine the quality of the product being developed. The criteria for calculating the results of due diligence and limited trials can be categorized through the feasibility scale of learning media as follows:

Table 1. Learning Media Feasibility Scale

No	Percentage Score	Interpretation
1	< 21%	Very Unworthy
2	21% - 40%	Not feasible
3	41% - 60%	Decent Enough
4	61% - 80%	Worthy
5	81% - 100%	Very Worth it

RESULTS AND DISCUSSION

The research and development carried out in this study was developing Sparkol Videoscribe-based learning media in science lessons for the fourth grade of elementary school using the 4D model. This model consists of four stages, namely the defining stage, the design stage, the development stage, and the deployment stage.

Defining Stage (Define)

The definition stage is the first step taken by the researcher. What the researcher did at this stage was front-end analysis, analyzing assignments, student analysis, task analysis, concept analysis, and formulating learning objectives. The findings in the initial analysis step were carried out on the teacher, namely: (1) students had difficulty understanding science material due to a lack of exciting media; (2) teachers only use media such as books and videos from Youtube; (3) multimedia-based media is not yet available for material changes in the shape of objects; (4) the teacher has never made and used Sparkol Videoscribe media; (5) teachers need media that is more interesting in learning science. As for the initial analysis carried out on students, namely: (1) students need learning media, especially on material changes in the form of objects; (2) students tend to learn science with learning media; (3) students have difficulty understanding material changes in the form of objects; (4) students are happy with online learning media (images, maps, graphics, videos) because they are easy to access and use; (5) learning media (pictures, maps, graphics, videos) can make students enthusiastic in learning.

The second step carried out in the definition stage is student analysis. This analysis was conducted to determine the characteristics of students related to cognitive abilities, language development, and reading abilities. This is done so that the content or material from the developed media can be right on target and understood by students. After making observations, valid data is obtained. Namely, media users are class IV, a high class with typical ability characteristics, the same as children of their age. This can be the basis for describing the media needed, especially in the material for changing the shape of objects.

The third step carried out in the defining stage is task analysis. This analysis is carried out to find out the tasks, all activities that will be developed, and the learning materials that will become the media content. The preparation of material in media products developed based on Core Competency and Basic Competency in the 2013 curriculum. The material that will be packaged in the development of Sparkol Videoscribe-based learning media is about changing objects' shape in everyday life.

The fourth step in the defining stage is concept analysis. This analysis was carried out to discover the concepts taught in the product being developed. The developer analyzes the various media that have been made based on the results of previous research. The developer also analyzes the concept of natural science material, especially material for changing the shape of objects.

The last step in the defining stage is the formulation of objectives. The objectives are formulated following the topic of the material to be taught through the media to become the basis for compiling material and learning activities on material changes in the form of objects. The objectives formulated are that students can collect information related to the properties of objects and collect information related to various changes in the shape of objects and their examples.

The analysis that has been carried out at the define stage can be used as an initial needs analysis for designing Sparkol Videoscribe-based learning media at a later stage, namely the design stage.

Design Stage (Design)

The design stage is the stage in designing a product based on the need analysis carried out in the previous stage. At this stage, the researcher selects the media, namely Sparkol Videoscribe-based learning media. In its design, the researcher selects a format appropriate to the content of the learning material to be taught, the cognitive development possessed, and the student's language development. In addition, the researcher also made an initial design which included the framework, design, and material content to be packaged in the media being
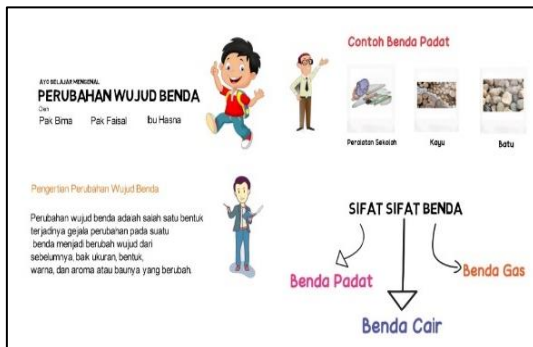
developed. The initial design made is as follows.

Figure 1. Initial Product Design

The design that has been made is then used as an initial draft for follow-up at the next stage, namely the development stage.

Development Stage (Develop)

The development stage (develop) is the stage of product development based on the initial draft. At this stage, the researcher conducts a feasibility test on the media that has been developed (expert appraisal) and tests the products that have been developed (development testing). A feasibility test is an evaluation activity for products that have been developed. The assessment was carried out by experts ranging from media and material experts to linguists. The product design assessed is the initial draft or the draft is validated. The assessment results can be used as a basis for revising the product being developed, and the results of these improvements become draft II. The results of the recapitulation of the assessment of each expert are attached as follows.

Media Expert Validation

Good learning media is media that has gone through an assessment process and is declared valid. Assessment of learning media that has been developed is carried out based on media expert validation sheets that researchers have made. The media expert's assessment of Sparkol Videoscribe-based learning media is as follows:
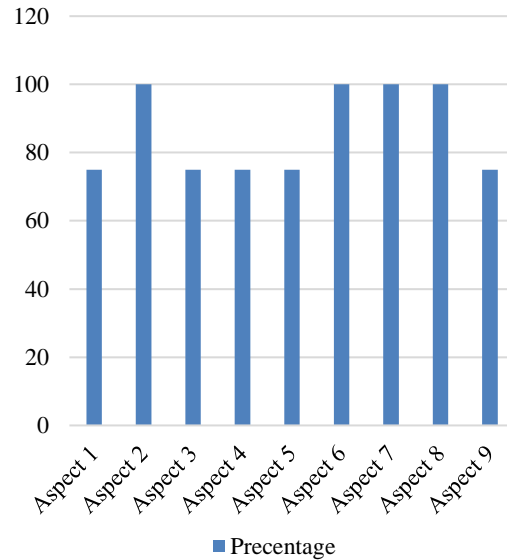

Figure 2. Results of Validation by Media Experts

Figure 2 is the result of media validation conducted by media experts. The aspects assessed consist of 3 aspects: competency alignment, material content, and level of interest and involvement. This aspect consists of 9 assessment indicators with the following results.

Table 2. Recapitulation of Media Expert Validation

Aspect	Mark
Compatibility with basic competencies	75%
Compatibility with good multimedia-based media for children	100%
Easy to understand	75%
The suitability of the color selection with the characteristics of the students	75%
Suitability of the image with the characteristics of students	75%
The suitability of the writing with the characteristics of students	100%
The suitability of media presentation with the characteristics of students	100%
Facilitate students in learning material changes in the form of objects	100%
Facilitate students in the use of media	75%
Average	86.1%

The feasibility of the media expert validation results is good, with a perfect category. This is evidenced by the absence of media-related corrections from media experts, so this also illustrates that Sparkol Videoscribe-based learning has an attractive and precise design, starting from selecting the appropriate color, type, and size of the font so that it can make it easier for students to read it. The development makes the developed Sparkol Videoscribe media attract the attention of students and make it easier for them to understand the subject matter. This is consistent with Tombak and Ateskan, (2019) who stated that learning with Sparkol Videoscribe can increase students' motivation and make students better understand the concepts conveyed compared to everyday learning as is usually done.

Material Expert Validation

Good learning media is media that not only has an attractive design but must be supported by good material content. To determine good material content, it is necessary to validate material experts in science because the material in Sparkol Videoscribe-based learning media is science lessons, especially changes in the form of objects. The assessment is carried out based on several aspects of the assessment instrument that has been made. The results of the material expert validation of the media that have been developed are as follows:
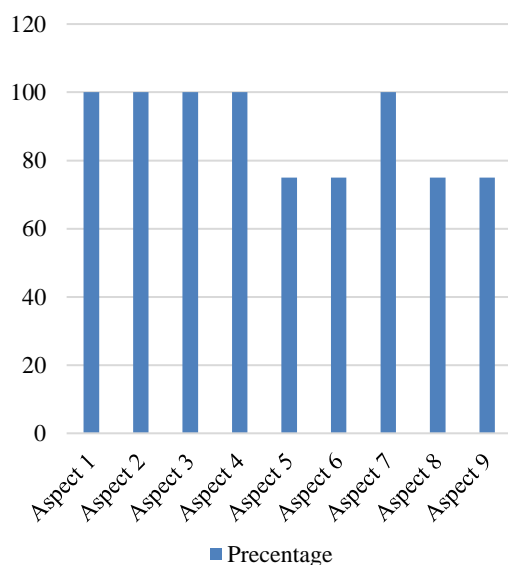
The aspects assessed by material experts consist of 3 aspects: competence alignment, material content, and level of interest and involvement. These aspects are further divided into 9 assessment indicators with the following results.

Table 3. Recapitulation of Material Expert Validation Results

Aspect	Mark
The material contained in the learning media is by the Core Competency (KI)	100%
The material contained in the learning media is by Basic Competency (KD)	100%
The material presented in the learning media is by the learning indicators	100%
The material presented in the learning media is by the learning objectives	100%
The material presented in the learning media attracts the attention of students	75%
The material presented in the learning media is by the needs of students	75%
The material presented in the learning media is by the facts	100%
The material and display of learning media are arranged in an exciting way	75%
The material in the resulting learning media makes it easier for students	75%
Average	**88.8%**

In addition to the assessment above, material experts also provide input as material for improving the media developed to improve the product being developed. As for these inputs, namely: (1) The pictures are less attractive in supporting learning material, liquid objects should not use the sauce example, other images can be used; (2) Writing that uses yellow and green should be replaced because it is less visible; (3) Reduce the speed of presentation of the material so that it is easy to understand. The following is a picture of the media after repair.
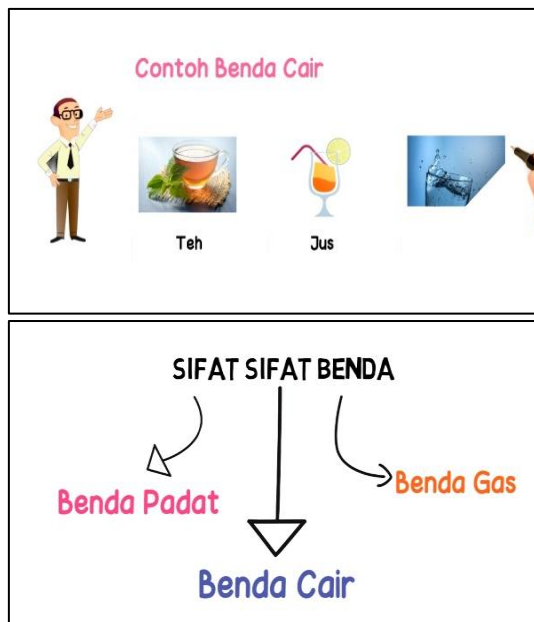

Figure 3. Results of Validation by Material Experts

Figure 4. Media After the Revision of Material Experts

The results of the feasibility test of the material in Sparkol Videoscribe-based learning media in science lessons for four grade of elementary school and after going through revisions show that the suitability of KI, KD, indicators, learning objectives, accuracy, and accuracy of the material with the characteristics of students, namely the cognitive level is appropriate. The suitability of some of these aspects is essential because the material must be presented clearly and structured in accordance with the applicable curriculum to achieve optimal learning objectives. This is in line with the statement by Rokhim et al. (2020) who argued that teacher creativity is needed in developing teaching strategies and techniques to make learning more interesting, but it should not contradict the curriculum.

Linguist Validation

Language validation is evaluating the language used in Sparkol Videoscribe-based learning media. The validator acting is an expert in the language field, in this case, a lecturer in Indonesian language and literature. Assessment is carried out on several aspects determined in the assessment instruments researchers have developed. The results of the linguist's assessment are as follows:
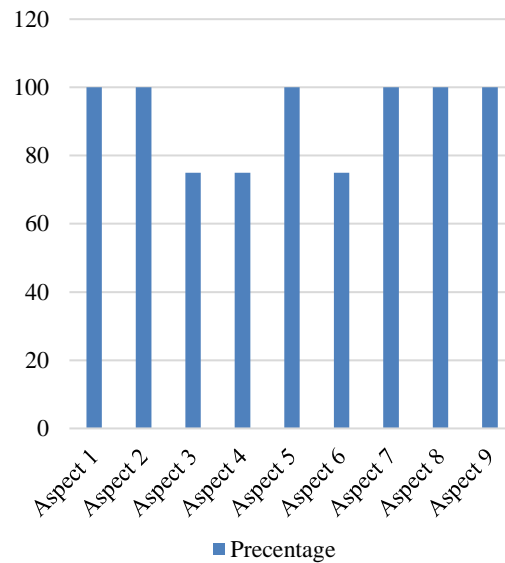

Figure 5. Language Expert Assessment Results

Figure 5 is the result of an assessment of the use of language in Sparkol Videoscribe-based learning media. The aspects assessed are language clarity, communicativeness, and conformity with language rules. These three aspects have nine assessment indicators with the following results.

Table 4. Recapitulation of Language Expert Validation Results

Aspect	Mark
The language used represents the contents of the message to be conveyed so that it is easy to understand	100%
The sentences used are effective	100%
The sentences used are simple and straight to the point	75%
The language used corresponds to the enhanced spelling	75%
The message is conveyed in a clear and exciting language	100%
Messages conveyed using written communication	75%
The suitability of media presentation with the characteristics of students	100%
The spelling used refers to the enhanced spelling	100%
The sentence structure used is easy to understand to convey the message	100%
Average	94.4%

In addition to assessing these aspects, linguists also provide input as material for improving media related to the language used. The inputs given are: (1) several writings are not following the EYD in the word "smell" should be written without using spaces, and writing the title "Examples of solid objects" should be preceded by a capital letter at the beginning of each word; (2) the words spoken are not per the writing in the developed media. The following is a picture of the media before and after the repair.

Figure 6. Media After Linguist Revision

Sparkol Videoscribe-based media illustrates that the language used is obvious and appropriate to the development of students so that it can be understood easily. The development in question is the simplification of the language used by the development of students. So that this simplicity makes students able to understand the meaning of the text, but they can also construct the meaning of the text in an understandable context so that it can improve their learning outcomes (Hasbullah et al., 2022).

The assessment results carried out by the validators/experts from media, material, and linguists obtained a score with an overall average of 89.7%. This value shows that Sparkol Videoscribe-based learning media in science lessons four grade of elementary

school developed to obtain a very feasible category.

Products that have been designed and developed to the point of being assessed by experts are then tested on users, namely students, and teachers, to see the usefulness and effectiveness of the media in their use. The results of the teacher trial obtained a score of 92.5%, and the results of the 34 student trials obtained a value of 92.3%. With these values, Sparkol Videoscribe-based learning media in science lessons for the fourth grade of elementary school is highly feasible. The final result of Sparkol Videoscribe-based learning media development can be shown in the following figure.

Figure 7. The Final Result of The Developed Media

Stage of Dissemination (Disseminate)

The dissemination stage is the final stage carried out to disseminate the product that has been developed after going through the development stage and having met the validation requirements. The dissemination process is not intended for the testing process because it is assumed that the use of video media in learning science material in elementary schools will be effective according to several previous studies (Elsani et al., 2019). The product trials were used as a measurement of the effectiveness and usefulness of the

Sparkol Videoscribe-based learning media that has been developed. Product distribution is carried out to teachers and principals at the State Elementary School of Bintara Jaya V and the Islamic Integrated Elementary School of Insan Madani Jakarta, which was involved in the research and development. After this deployment stage, the products that have been developed can be used by teachers and students in the learning process.

CONCLUSION

Sparkol Videoscribe-based learning media, and it can be concluded that it is declared valid and very suitable for use in science lessons for four grade of elementary school. This is evidenced by the validation results of material experts, namely 88.8%, the validation results of media experts, namely 86.1%, and the validation results of linguists, namely 94.4%, so that the validation results of all experts, namely 89.7%, are categorized as very feasible. Sparkol Videoscribe-based learning media is also exciting and makes students enthusiastic in science lessons, especially material for changing the shape of objects for the fourth grade of elementary school. Trials of teachers and students evidence the fact. The results of the teacher trial obtained a result of 92.5%, and a trial of 34 students obtained a result of 92.3%, so it was in a very decent category. The assessment showed that Sparkol Videoscribe-based learning media in science lessons for the fourth grade of elementary school was very feasible.

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