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Analysis of the Effectiveness of Learning Multimedia Based on Contextual Learning in Elementary Schools

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A B S T R A C T

Science is one of the main subjects that must be taught in schools. Elementary school students think science learning materials are difficult, boring, and even scary. Media is needed to connect material with real student activities. So the researchers analyzed contextual-based multimedia. This research is a descriptive study with a literature review and field observations. The results showed that the fifth grade teachers at SDN 250 Sinar Gading II used multimedia presentations and effectively increased student learning outcomes with an average score of 73 and 88. The results showed that multimedia was effective in improving student learning outcomes.

INTRODUCTION

Education is a measure of one's competence. A student's competence relates to three aspects, namely attitudes, skills, and knowledge. In the traditional view, education is a form of knowledge service that must be obtained by the community, namely students. Education has a goal as set out in Law number 20 of 2003 concerning Indonesian national education, namely to develop student competencies so that they become human beings who believe in and fear God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become citizens. democratic and responsible state (Permendikbud No. 20 Tahun 2016 Tentang Standar Kompetensi Lulusan Pendidikan Dasar Dan Menengah, 2016). Education is an effort to improve human resources (Yus, 2020).

Education is identified with learning at school. The learning process in the classroom is related to several components, namely teachers, students, and learning resources. The component that has main role is the teacher. Education is said to be of high quality not only for the acquisition of numerical learning outcomes but also for the attitudes, skills, and knowledge of students. So that aspects of student learning can be achieved, learning activities are effective and efficient and learning objectives can be achieved optimally, teacher professionalism is the determinant (Dudung, 2018). One of the professionalism of teachers is being able to present learning to students effectively and efficiently as well. Teachers must be able to use approaches, strategies, methods, models, media, and learning environments. So that the information related to the message of the material delivered by the teacher can be well understood by the teacher, a learning model is needed (Prihastuti et al., 2021).

The contextual learning model or contextual teaching and learning (CTL) is a learning step that relates learning to students' experiences in everyday life (Febriana & Sakti, 2021). Contextual learning provides experience through what students see, what students find, students feel and what students do so that students' knowledge is easy to obtain and they construct it themselves as a learning experience. For the contextual learning model to be maximized, media is used (Yuliana, 2021).

Learning media is quite diverse. In the current digital era, learning media continues to develop towards multimedia learning (Nurhayati & Ulfah, 2021). Multimedia is thought to provide attractive learning to students, students are given a complete presentation with text, sound, and visual components ts, and there are animations and videos to increase student interest and learning outcomes (Rafmana et al., 2018). If a learning process is carried out without media, boredom will appear so that learning is teacher-centered. This is supported by research that has been done by Putra & Suryono (2009) that multimedia learning can improve student understanding. A similar study was carried out by Tobing *et al*. (2022) Multimedia can improve learning outcomes. Based on empirical evidence from several researchers, it is necessary to analyze contextual learning multimedia in elementary schools learning objects and their changes.

LITERATURE REVIEW

Learning

Explanation of the theory here Study in the Big Indonesian Dictionary online (2022) is a change in behavior due to experience. Learning is a process of acquiring knowledge and providing behavioral changes to these students (Mustika et al., 2018). Learning is behavior that is changed due to the acquisition of knowledge (Trisnawaty, 2017).

Learning in the online Big Indonesian Dictionary is an act of learning. Learning is a process of teacher causation as a cause for the process of acquiring knowledge and as a result, students can understand the material presented (Hermawan, 2019). Learning is an activity to fully understand the material by students (Saputra et al., 2019). Learning is the interaction of students with teachers and learning resources in the learning environment (Trisnawaty, 2017).

Constructivism.

Constructivism in the online Big Indonesian Dictionary is to repair, foster, build, and so on. Constructivism in learning and learning is a view that knowledge is obtained gradually not instantly students acquire and build their knowledge (Dautzenberg et al., 2016).

Contextual Learning

Contextual learning is a learning pattern in which student learning is associated with real activities in everyday life (Yuliana, 2021). Contextual has the characteristics of the steps including; 1) Constructivism; 2) Inquiry; 3) Questioning; 4) Learning Community; 5) Modelling; 6) Reflections; and 7) Authentic Assessment (Nurdyansyah & Fahyuni, 2016).

Multimedia

Multimedia in the Big Indonesian Dictionary online (2022) is the provision of information on computer devices that is presented using sound, graphics, animation, and text. Multimedia is a learning tool that combines text, images, sound, and video in one presentation format (Wardani, 2021). Multimedia is a means to provide students with learning anywhere with complete features and foster interest in learning and improve student learning outcomes (Indriani et al., 2021). The advantages of learning multimedia include: Can provide real and concrete learning, interactive displays to foster student interest, provide contextual and constructive learning, through developments in information technology. In addition to having multimedia advantages, it also has weaknesses, including requiring knowledge or skills in use, requiring devices to create, develop, or present, and requiring networks for online multimedia (Indirawati Leztiyani, 2021). Media is an important learning tool in building student understanding by connecting students' real lives (Wibowo et al., 2022).

Sains (IPA: natural science)

Science (IPA) in the online Big Indonesian Dictionary (2022) is systematic knowledge about nature and the physical world, including botany, physics, chemistry, geology, zoology, and so on; natural science. IPA is the science that studies all of nature and its contents and various symptoms and tests (Dapiha,

2019). IPA (science) is a system for understanding the universe through systematic and controlled observations and experiments (Sugrah, 2020).

Contextual Framework The research that was carried out is shown in Figure 1 below.

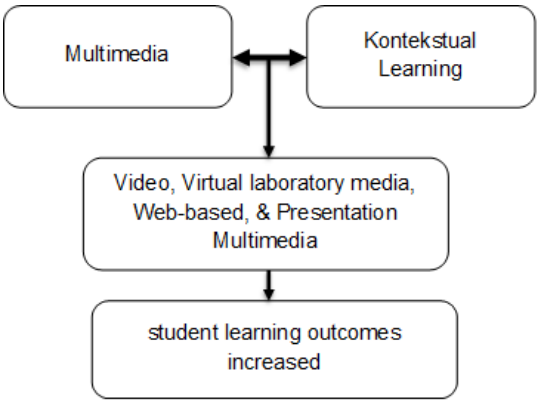

Figure 1. Conceptual Framework

METHODOLOGY

This research adopts a descriptive qualitative approach. This study describes narratively based on a literature review by examining research results (review studies), journals, articles, theories, critical books, and other empirical results with facts in the field (Sari & Asmendri, 2018). The fifth-grade students subjects were 25 students. In the second semester of the 2021/2022 academic year.

RESULTS

Multimedia power point presentations are effective in improving student learning outcomes in the test of materials around objects, the number of students is 25 people. The results of the daily assessment show an average value of 73 from the minimum completeness criterion (KKM) of 65. In the second learning material changes in the form of solid, liquid, and gas objects show an average value of 88. So multimedia in general improves student learning outcomes in science class V SDN 250 Sinar Gading. Learning outcomes are seen from the results of the daily assessment of material objects that are around and changes in the shape of objects, which can be seen in Table 1 below:

Table 1. Results of the Class V Science Daily Assessment

Cycle I	Meeting 1	Meeting 2
Total	1835	2195
Average	73,4	87,8
Achievement Percentage	73%	88%

Based on Table 1 above the results of the daily assessment of the material around objects and changes in the shape of objects can be seen in Figure 2 below:

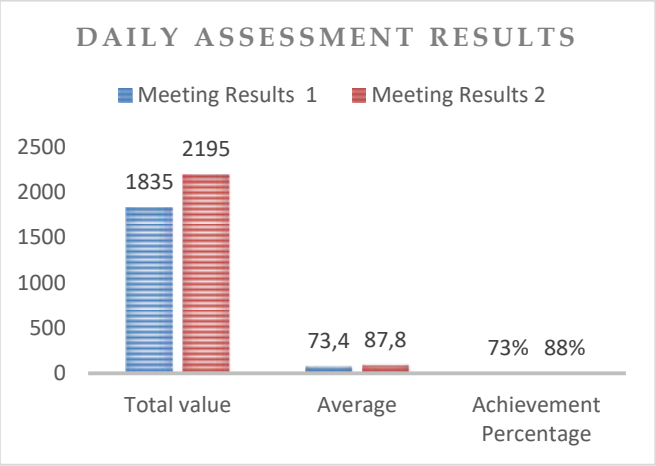

Figure 2: Graph of Class V Science Daily Assessment Results.

DISCUSSION

Learning media is a tool that can present material for the occurrence of communication in learning by teachers and students to understand the information presented (Ariani, 2022). In learning media is getting more advanced so that the facilities provided can be maximized in learning. With these advances, the media is better known as multimedia, namely the merging of media not only text but also merging, sound, animation, and video (Yuliana, 2021). The development of media to multimedia certainly demands teacher skills in using, creating, and developing. Media skills have become a professional demand for teachers in presenting learning to students to be innovative, creative, effective, and efficient (Silalahi, 2018). The government, especially education policymakers, has also made efforts to improve teacher skills, especially in learning media, some several media or multimedia can increase learning effectiveness. The use of media in learning is adjusted to the goals and how best to understand students in the teaching material or content being discussed. Judging from the character of elementary school students entering the concrete pre-operational stage aged 7-11 years, it would be more appropriate if learning was related to their environment. (Anitah, 2019). Learning to link learning with the real world of students is contextual learning. By associating teaching materials with students' lives, it will make it easier for students to acquire their knowledge (Jabir et al., 2016). In this contextual presentation, learning media or multimedia is needed.

Science subjects are mandatory learning taught in elementary schools. Science material contains all the phenomena and events and impacts that exist in nature. Based on observations in the field, students think that science is one of the most difficult, boring, and even frightening lessons for students, especially fifth-grade elementary school students (Prihastuti et al., 2021). One reason is the teacher's lack of innovation, creativity, and effectiveness in presenting the material. The teacher as the main key to learning must be able to present material concretely and link the student learning environment. This can be done by using learning multimedia which can present broad material to be simple, abstract material to be concrete, and linking experience with student

knowledge. Some of the media or multimedia that can be used in science learning are material forms and changes in the form of objects, among others:

YouTube-assisted video media.

Video media is electronic media that contains audio and visuals in an integrated and interesting way (Paramita et al., 2019). Video media can provide contextual-based learning to students on material with what they know. Research conducted by (Novita et al., 2019) that using video media improves student learning outcomes. Similar research by Nurwahidah e*t al*., (2021) that video media can improve student learning outcomes. That can be seen from empirical evidence that video media is effective in learning. So learning using YouTube-assisted video media is very helpful for teachers in carrying out contextual learning. With a variety of natural science learning videos on objects and changes in the shape of objects, students can relate their knowledge to their daily lives. So that students get more learning experience not memorize the subject matter.

Virtual laboratory media on the learning house portal.

A virtual laboratory is an electronic space that can be used to carry out practical activities. The virtual laboratory is one of the features of the learning house portal which is a multimedia practicum facility provided by the Center for Data and Information Technology (Pusdatin) of the Indonesian Ministry of Education and Culture. With this media, teachers and students can practice without having to go to the laboratory with all the materials and tools. With a virtual laboratory, practicum activities can be done anywhere. This is proven in research by Ardius (2020) that virtual laboratory media can provide convenience and effectiveness in student learning by presenting practicums that are easier and more interactive than conventional laboratories. Something similar was done by Wilasari & Budiyanto (2021) in that virtual laboratory media can provide understanding related to misconceptions of Archimedes' law. So the virtual laboratory practicum can also be carried out related to objects and changes in form so that it makes it easier for the teacher to understand the material. However, virtual laboratory media also has several weaknesses, namely: it requires devices, operational capabilities, and network availability. For elementary school students, learning practicum in science subjects is contextual learning where students can relate their learning to events that are around or in everyday life.

Multimedia in the form of a web-based articulate storyline.

An articulate storyline is computer software that has full features for creating interactive learning media (Amiroh, 2020). With this application, the teacher can create learning multimedia that contains text, images, sound, animation, and video. With the articulate application, it produces contextual media that can present concrete material related to students' lives. This is according to research by Asmawati (2021) that learning multimedia assisted by articulate storylines it can improve student learning outcomes in class IV SD science subjects. Something similar was done by Syabri & Elfizon (2020) that learning multimedia assisted by articulate storylines can improve student learning outcomes in electronic material. The empirical evidence is clear that learning multimedia assisted by articulate storylines can be effective in learning science.

Multimedia PowerPoint presentations

PowerPoint presentations are electronic media that can display text, images, audio, animation, and video. A very popular Multimedia Presentation, namely Ms. Power point or often called PPT even though PPT is a type of file format. With multimedia presentations, it can make it easier for teachers and students in the learning process with features that attract students' learning interests. Presentation presentations can be combined with animation, audio, images, and videos related to the environment of students' daily lives. To be able to provide learning that can build knowledge independently through context.

In science subjects, material objects and forms of objects can be presented with multimedia presentations so that students do not have misconceptions about differentiating objects and changing their forms. The use of multimedia PowerPoint presentations has been researched (Toybah, 2016) and multimedia PowerPoint presentations can improve student learning outcomes. Similar research was conducted by Gowasa *et al.*, (2019) explained that multimedia power point presentations are effective in improving student learning outcomes. In line with research, Maryatun (2015) states that multimedia PowerPoint presentations can improve student learning outcomes. The empirical test proves that multimedia PowerPoint presentations can be effective in learning.

Based on the advantages of learning multimedia and has been proven empirically by several researchers. Effective multimedia in the implementation of learning can be seen as motivating, providing learning experiences, and improving student learning outcomes. This is what the class V teacher does in learning to use multimedia presentations. This can be done with supporting devices such as laptops, internet networks, and projectors. The teacher designs and presents learning by displaying text, images, animations, and videos that are packaged attractively so that students are motivated in learning. The teacher also associates learning with a pattern or model of contextual learning. Contextual learning designed by teachers in science subjects is to provide video presentations related to objects around students. Continuing with a few questions so that students awaken their curiosity. Next, the teacher presents animated examples of objects around the students. Students are divided into discussion groups observing pictures and determining the types of objects. Students are directed to discuss and give an evaluation. This is done by the teacher in advanced material, namely changes in the shape of objects. The teacher presents a model of an object that changes. The model is in the form of images along with the text. Then the teacher presents a video related to changes in solid, liquid, and gas objects. As well as showing examples of changes in objects in everyday life or experiences they have encountered so far.

Multimedia power point presentations are effective in improving student learning outcomes in the test of materials around objects, the number of students is 25 people. The results of the daily assessment show an average value of 73 from the minimum completeness criterion (KKM) of 65. In the second learning material changes in the form of solid, liquid, and gas objects

show an average value of 88. So multimedia in general improves student learning outcomes in science class V SDN 250 Sinar Gading.

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that multimedia is an advanced development of learning media. Multimedia has various advantages with the complexity of the contents, namely text, images, audio, animation, and video. These advantages make it easier for teachers and students to understand learning material and can relate learning contextually. Contextual learning is real learning and provides learning experiences to increase understanding so that learning outcomes will be optimal. This has been attempted by the class V teacher at SDN 250 Sinar Gading II in the Natural Sciences subject matter of objects and changes in their form, these efforts are effective in increasing student learning motivation so that student learning outcomes also increase. It is hoped that the use of learning multimedia is not only at the stage where the teacher uses it but also in media development or innovation. And the use of other media in learning material or other subjects

FUTURE STUDY

This study examines the extent to which the effectiveness of multimedia in contextually based science learning. The material is limited to objects and changes in their form in grade V elementary school. This research is expected in science learning to be able to visualize learning by linking real life with students' knowledge. As well as how multimedia is proven to construct knowledge with the context of understanding they experience.

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