Increasing Higher Order Thinking Skills of Elementary School Students through Video in Environmental Pollution Case

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Abstrak

Penelitian yang dilakukan pada proses pembelajaran IPA pada materi lingkungan merupakan salah satu topik penting. Siswa di tingkat sekolah dasar memiliki peran penting dalam menjaga lingkungan di sekitar mereka. Penelitian ini dilakukan dengan tujuan untuk meningkatkan Higher Order Thinking Skills (HOTS) siswa dalam pembelajaran IPA materi lingkungan. Adapun metode penelitian yang digunakan dalam penelitian ini menggunakan Penelitian Tindakan Kelas dengan rincian 3 siklus. Penelitian dilaksanakan selama bulan September-0ktober 2021 di SDN 054/IV dan SDN 048/IV. Jumlah sampel yang diambil adalah 76 siswa. Pada penelitian ini perlakuan yang diberikan adalah dengan memutar video pembelajaran berbasis kasus di kelas. Hasil penelitian menunjukkan bahwa terdapat peningkatan HOTS siswa pada pembelajaran mata pelajaran IPA dengan menggunakan video berbasis kasus. Kesimpulan dari penelitian ini adalah video pembelajaran berbasis kasus dapat meningkatkan HOTS siswa SDN di Kecamatan Teluk Teluk Kota Jambi.
Kata Kunci: HOTS, Video Pembelajaran Berbasis Kasus, Pembelajaran Lingkungan

Abstract

The research was carried out on the science learning process on environmental material which is one of the important topics. Students at the elementary school level have an important role in protecting the environment around them. This research is carried out to improve Higher Order Thinking Skills (HOTS) students in learning science on environmental materials. The research method used in this study uses Classroom Action Research with details of 3 cycles. The research was conducted from September-0ktober 2021 at SDN 054/IV and SDN 048/IV. The number of samples taken is 76 students. In this research, the treatment given is to play case-based learning videos in class. The results showed that there was an increase in students' HOTS in science subjects learning using case-based videos. This study concludes that case-based learning videos can increase the HOTS of SDN students in the Teluk Teluk Subdistrict, Jambi City.
Keywords: HOTS, Case-based Learning Video, Environmental learning

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INTRODUCTION

This critical thinking ability is very important for students to have because in it there is a process of activity mentally in receiving, processing, analyzing, synthesizing, and evaluating the information obtained to make a decision or action in solving problems. The problems that will be faced by students are not only found in only a lesson but in life, there are so many problems every day that will be faced by students. Students are required to have critical thinking skills can make a decision or appropriate action to solve every problem faced. As it is known that essentially learning activities is a process that is passed by individuals to obtain changes in behavior towards a better direction as a result of individual experiences in interacting with the environment. (Musyaffa et al. 2020)

Environmental problems must be found solutions by the community. Students are one part of the community that has a role in protecting the environment. One of the solutions to the environment can be done by criticizing existing environmental phenomena. The process of criticizing something is included in the 21st-century skills, namely Higher Order Thinking Skills (HOTS). Students who have high HOTS will be able to understand and criticize various problems that exist in their environment, (Syafryadin et al. 2021). The problem is that the HOTS of students at the elementary school level is still not too high. This makes learning in schools still tend to prioritize memorization skills rather than higher abilities.

In the learning process at school, teachers usually only teach the material according to the conventional. Meanwhile, 21st-century learning does not only require students to understand the content of the material but rather leads to HOTS (Schon et al. 2016). This makes research on HOTS important because of the low HOTS of students at the elementary school level. This problem has actually been around for a long time but has only started to become the focus of teachers and researchers since the implementation of the 2013 curriculum and national exams with a large composition of HOTS questions. The purpose of this research is of course to find solutions to increase the low HOTS of elementary school students. Video learning is a medium that is often used by teachers. Various types of learning videos are usually displayed by teachers teaching science in elementary schools. This becomes interesting because not all types of videos can spur an increase in HOTS. Videos that are thought to increase HOTS are problem or case-based because students will be stimulated to think higher, not just memorize (Karimah and Fuad 2018) (Hadi et al. 2018).

RESEARCH METHODS

This research was conducted using the classroom action research method using 3 cycles. Each cycle contains stages (1) Planning (2) Implementation (3) Observation and (4) Reflection. The research was carried out in September-October 2021 at SDN 054/IV and SDN 048/IV in Danau Teluk District. The sample used in this study was 76 grade VI students. enforcement activities by providing environmental-based learning video shows.

The HOTS activity process is measured using 3 different instruments in each cycle. The measured HOTS were adjusted according to Anderson's taxonomy, namely analyzing, evaluating, and creating (Siahaan 2015). In cycle 1, the material discussed is water pollution. In cycle 2, it focuses more on air pollution. Meanwhile, in cycle 3, the discussion focused more on efforts to tackle environmental pollution. Analysis of the data used to measure the increase in HOTS using a gain score. The formula for calculating the gain score according to Fauziyah & Jailani (Rachmawati, Wijayanti, and Kartika 2020)(2014) can be seen below.

Gain score =   average score each cycle 2 – the average score of each cycle 1

100 - the average score of each cycle 1

Once calculated, the gain score will be categorized. This categorization is based on what was stated by (Rachmawati et al. 2020), Puspitorini, Prodjosantoso, Subali, & Jumadi (2014). More details can be seen in Table 1 below.

Table 1
Criteria Gain Score

Gain Score	Criteria
$g \geq 0{,}7$	High
$0{,}7 \geq g \geq 0{,}3$	Currently
$g < 0{,}3$	low

FINDING AND DISCUSSION

Based on the results of classroom action research, where the data were taken shows an increase in each cycle. The average students' score is in cycle 3. Details of the average score can be seen in Table 2 below.

Table 2
Average of each cycle

Step	average
Cycle 1	58, 16
Cycle 2	65, 40
Cycle 3	76,00

The average score obtained is then measured using the gain score formula and interpreted into available criteria. Based on the calculation results Obtained the gain score criteria obtained namely low and medium. The details can be seen in Table 3 below.

Table 3

Step	Gain score	Criteria
Cycle 1- Cycle 2	0, 18	low
Cycle 2- Cycle 3	0, 31	Currently
Cycle 3 – Cyle 1	0, 46	Currently

At the planning process stage in each cycle, it has been designed in such a way that the learning design carried out also contains elements that support the improvement of HOTS. In general, the implementation stage went smoothly and well. the process of playing videos in class also did not experience significant disturbances. At the time of observation, the teacher pays attention and makes observations. While in the final stage, teachers and students evaluate the deficiencies in the media and learning used in the cycle. The media that are still experiencing shortages are increased in number so that students' understanding increases (Manivong, Cramb, and Newby 2014)(Juckes et al. 2021)

The process of improving students' HOTS is influenced by the use of case-based learning videos. These learning videos can affect students' HOTS because the learning media stimulates students' curiosity about the learning science of the environment (Fornasari 2017). Students who watch a program about the facts presented around their environment will make them more critical. This is the cause.

In addition, students should be asked to directly engage in practices related to the environment so that their learning is more meaningful (Ulfa and Rozalina 2019)(Sekolah et al. 2020). Learning is the result of interaction Between stimulus and response. A person is considered to have learned something if he or she can show a change in their behavior. According to this theory in learning what is important is the input in the form of a stimulus and the output in the form of a response. Therefore, Learning can be concluded as a conscious effort made by individuals in changing their behavior both through practice and good experience concerning cognitive, affective, and psychomotor aspects to obtain certain goals.

The HOTS method approach for elementary school students can be improved with various learning media, such as learning videos, e-books, websites, and other learning media. The rapid development of technology encourages more and more available information. This information can be accessed by students anywhere and anytime (Ballatore & Natale, 2016; Reyna, Hanham, & Meier, 2018). This makes learning in the modern era not only limited to the classroom. Learning can be done anywhere. Even learning can be done remotely(Abu Bakar et al. 2021). The use of case-based learning videos is also a form of effort in using modern learning media in the classroom(Xodabande 2018).

As for creative solutions, it is created to solve problems that occur. In the learning planning process prepared by the teacher in each KD, problems have been prepared related to the material that was studied to require students to have sensitivity to solve problems surrounding them. The research data shows creative solutions are good too, it shows HOTS learning using environment-based videos can foster student creativity in solving problems with pour creative ideas and growing concern for environmental problems. Should make posters such as anti-smoking campaigns or the impact of littering is creativity that gives separate experience for students to solve problems that occur.

The HOTS approach learning skills that must be possessed by students including analyzing, evaluating, and creating can be grown from an early age. In the ability to analyze, for example, teachers can use learning models or learning media that stimulate students' analytical power. Especially for environmental problems, it is relatively easy because a damaged environment can be criticized. The direction of learning in the 21st century is not only asking students to understand the content of the material but more importantly encouraging students' critical and analytical skills. This can be improved by applying scientific approach-based learning (Tal and Kedmi 2006) (Setiawan, Mujianto, and Asihono 2020)

The ability to evaluate is also a component of the HOTS approach that must be trained from an early age. After students can analyze environmental problems assisted by case-based video learning media by adding poster-making media, students are expected to be able to provide assessments and make statements to comment on a particular case about environmental pollution. Students at the elementary level are considered ready to learn to give critical statements, at least for the environment around where they live. This is because the environmental theme is one of the topics that are easy to criticize because the environment is currently experiencing a decline in quality (Dahle and Archbold 2015) (Tafahomi and Nadi 2021)

At the highest ability of HOTS, namely creating, elementary school students were asked to make a simple tool design to solve the problem of environmental pollution. In addition, they were asked to make a picture containing an invitation to protect the environment. The images they make don't have to be good, as long as they look neat and attractive. The stimulus to make something starting from the design first can help increase HOTS. By using media that is liked by students, it will increase students' memory of the material message conveyed. (Elligan 2000) (Vourliotis, Grimshaw, and Harris 2021).

CONCLUSION

Based on the results of the study, it can be concluded that the use of environmental case-based learning videos has not been able to increase the HOTS of elementary school students on environmental pollution material. This increase was obtained because the video helped stimulate students' critical thinking by adding poster-making media. In addition, the environmental problems raised also make it easier for students to analyze because they see these problems around their environment. So it is recommended for SDN teachers in Teluk Teluk Subdistrict, Jambi City to use problem-based videos in learning by applying poster-making media.

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