Analysis of Concept Understanding Using Online Learning Based on WhatsApp Group

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Abstract: Understanding the concept is a very important aspect of learning science. However, elementary students' understanding of science concepts is still low. This study aims to analyze the problems of understanding the science concept of fifth-grade elementary school students regarding human motion systems using online learning based on WhatsApp groups through video media and teaching materials. This study used the descriptive qualitative method. The research subjects were 25 students of grade V SD for the 2020/2021 academic year. The research instrument used is a matter of understanding the concept of human organ systems. The results showed that the achievement of students' concept understanding with high categories amounted to 48%, 44% medium category, and 8% low category. The overall average score points to 77.09. Thus, it can be concluded that the results of the analysis of the understanding of the science concept of fifth-grade elementary school students regarding the motion system achieved good results using online learning based on WhatsApp groups through video media and teaching materials.

Keywords: Concept Understanding, Online Learning, Teaching Materials, Video, WhatsApp Group.

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INTRODUCTION

Science is a collection of knowledge arranged systematically, and its use is generally limited to natural phenomena (Depdiknas, 2006). The concepts presented in science are fundamental concepts about student life and the environment that is useful for students' daily lives. Science contains about the universe and everything in it along with the various changes that occur in that nature. Science is also said to be a systematic approach to studying the universe (Sujana, et al, 2014). Science learning in schools, especially at the elementary school level, is expected to be a vehicle for students to learn about themselves and the natural surroundings, as well as the prospect of further development in its application in further development in applying it in daily life (Aunurrahman, 2012). One of the objectives of learning science in elementary schools listed in the Primary Education Curriculum is for students to understand science concepts and their relation to student daily life, and be able to apply various science concepts to explain natural phenomena and solve them in daily life (Depdiknas, 2006). In this case, natural science learning in elementary schools' places great emphasis on the ability to understand concepts.

Concept understanding is the ability of students to master a concept or material in the cognitive realm (Widyastuti, et al, 2014). Understanding the concept is the most important aspect in science learning activities, this is to avoid misconceptions in students and is one of the requirements for achieving successful science learning. Therefore, students' understanding of science learning concepts needs to be emphasized in the learning process. Incorrect understanding of the concept will hurt subsequent scientific concepts (Dewi and Ibrahim, 2019). However, the results of observations show that Class V Elementary School students often complain about the difficulty of understanding science learning content. Students feel that science lessons contain too many abstract concepts and are not easy to visualize. Science lessons are often seen as complicated lessons because in science lessons there are many things to remember, and there are also some parts that require numeracy skills. The complexity of this science lesson makes students dislike science. This is because students are more emphasized to remember the material but

there is very little application because students do not understand the concepts that have been learned. Learning like this certainly does not provide meaning for students to be able to develop in terms of understanding the concept of science (Hutapea, 2020). These are the reasons for the weak understanding of the science concept at the elementary school level.

Furthermore, the data was strengthened by the Program for International Student Assessment (PISA) conducted by The Organization for Economic Co-operation and Development (OECD). In 2018, the science results of Indonesian students were still low. Based on the scientific assessment, Indonesia is ranked 70 out of 78 countries with a score of 396. There has been a decline in the results of science assessments, which previously reached a score of 403 in 2015. Based on these data, it is clear that the science or science skills of students in Indonesia are still low. Given the importance of the ability to understand concepts that will help them in everyday life, students' understanding of concepts needs to be emphasized and improved again so that learning is more meaningful. So far, learning in schools in Indonesia is carried out face-to-face in class. But other problems arise in 2020, namely the outbreak of the Covid-19 Virus pandemic (coronavirus disease) which limits the crowds, and the implementation of Social Distancing so that students studying at school are now learning from home to avoid crowds and being infected with the covid-19 virus. As a result, learning that is usually done face-to-face in class has now turned into online learning. Therefore, it is necessary to have a learning solution that can solve problems regarding the problem of understanding student concepts and learning that is carried out remotely. Therefore, researchers used WhatsApp Group based online learning with video media and teaching materials as a solution to these two problems. Online learning or distance learning is a learning process that is carried out in a different space between educators and students. The interaction between educators and students is carried out directly or indirectly, for example by conducting a teleconference (directly) or by sending an email to simply collect assignments (indirectly) (Rahmawati, 2016). Researchers in conducting distance learning use the help of the `WhatsApp application to be able to communicate with students and also parents of students so that the learning process can run well. WhatsApp is an instant messaging application between platforms commonly used on smartphones. WhatsApp uses internet data packages to help users communicate in their social networks in real-time. WhatsApp has facilities to send and receive pictures, videos, files/documents, audio messages, video calls, and group messages. So, using this application can quite helpful in the learning process because it has adequate facilities and also an application that is easy to use and is no stranger to students and parents. Nuraeni in his research to analyze the cognitive understanding of angular material using bold learning using WhatsApp group and video media for fourth-grade elementary school students showed that students' understanding of mathematical concepts was categorized as high on the indicator "the ability to classify objects according to certain characteristics "and also on the indicator" the ability to use, utilize, and choose certain operating procedures "It appears that bold learning with the help of the WhatsApp group and video application is quite successful in increasing students' understanding of mathematical concepts. understanding students' science concepts (Nuraeni, et al, 2020). In online learning based on the WhatsApp group with video media and teaching materials, teachers, and students with the help of their parents join the group in the WhatsApp application to communicate with each other. Then students access the videos and teaching materials that have been sent by the teacher in the groups that have been created. Students under the guidance of their parents learn from these videos and teaching materials. The use of video media in distance learning is expected to have a positive impact on student learning outcomes. Research conducted by Agustiningsih shows that video learning makes students more interested and makes

learning more effective when used as additional media in the 2013 Curriculum (Agustiningsih, 2015). Furthermore, the results of research conducted by Nugroho and Muhtadi stated that learning using video media was in the high category while learning that did not use video in the process was in the medium category (Muhtadi, 2019). Therefore, the use of video media as additional media is expected to provide good results in the problem of conceptual understanding. Based on the descriptions above, the researcher conducted this study aimed at understanding the analysis of the conceptual understanding of fifth-grade elementary school students with WhatsApp group-based learning with video media and teaching materials to answer the problem solutions that have been described.

METHOD

This research was conducted in grade V one of the State Elementary Schools in Cianjur with 25 students consisting of 14 boys and 11 girls. The research method used is descriptive qualitative research methods. The researcher used a concept comprehension test question instrument to obtain the required data. In this study, researchers carried out WhatsApp group-based learning with video media and teaching materials. The video used consists of three videos, namely videos about human bones, videos about muscles, and videos about muscle and bone disorders. Indicators of concept understanding analyzed are indicators according to Bloom, namely, 1) Remember, 2) Remember, 3) Applying, 4) Analyzing, 5) Evaluate, 6) Create (Widodo, 2006).

RESULTS AND DISCUSSION

Based on the results of the researcher's analysis of the results of the conceptual understanding test of human motion systems that have been done previously, the value category data is obtained as follows.

Table 1. Multiple Comparisons

Category	Score
The Highest Score	100
The Lowest Score	50
Average	77,09
High (80-100)	48 %
Medium (60-79)	44 %
Low (0-59)	8 %

In this data, it can be seen that the average value is quite good and classified as high, with a value of 77.09. Overall online learning based on the WhatsApp group application with video media and teaching materials gives good results in terms of understanding the scientific concept of motion systems in humans. This is evidenced by the results of the achievement of students' understanding of the concept of science, which achieved results in the high category of 48%, then the results of the students in the medium category were 44%, and in the low category only reached 8%. In addition to the overall data obtained above, there is also data on the results of the indicator value of conceptual understanding of students who have carried out online learning based on WhatsApp group using video media and teaching materials as follows.

Table 2. The indicator value of the concept

Indicator	Success Percentage	Predicate Category
Remember	90 %	Very Good
Understand	96 %	Very Good
Applying	69 %	Good
Analyzing	70 %	Very Good
Evaluate	64 %	Good
Create	58 %	Medium

In the first indicator, *Remember*, the level of success in achieving very high status, this is because in this indicator students only remember and repeat the information obtained. The questions on the questions and the information being asked are quite easy to remember because the information is in each video and also teaching materials so that online learning based on WhatsApp groups with video media and teaching materials is very effective for developing this indicator. This is reinforced by the data obtained, which reached 90% of students who successfully answered the questions correctly. In the second indicator, namely, *Understand*. On this indicator, students are asked to construct and use a causal model in a system. The video media used by researchers on "how to care for bones and muscles to stay healthy" allows students to explain what foods can strengthen the

human organs, including bones. The use of video and teaching materials is quite effective in increasing indicators by proving that 96% of students have successfully answered the questions correctly on this indicator. Then on the third indicator, *Applying*. In this indicator, students try to solve problems based on the concepts they understand. The third video media and teaching materials can provide sufficient understanding for students to solve a problem based on the concepts they have learned. This is evidenced by the high success of the students in answering the questions, reaching 69% with a high predicate. However, when compared with other indicators, the achievement of 69% is still below that of other indicators. This is because the video about the problems that occur in the human organ that is the subject of this discussion is only displayed in written form and not in an animated form like other videos. Some students cannot capture the information in the video well because it is not helped by interesting pictures or animations. Therefore, the role of video media used in learning is very dominant in influencing students' conceptual understanding. What if the video that is displayed is less attractive and cannot describe it will affect the achievement of understanding the concept? The role of video in the learning process can have a big and positive influence, therefore the quality of the video displayed will also affect the results of the achievement of students' conceptual understanding. The fourth indicator is *Analyzing*. In this indicator, students are asked to analyze a phenomenon or event and identify what causes it to occur based on the concepts they have understood. Using video learning media and teaching materials can provide provisions for students to analyze the causes of a phenomenon based on the knowledge that has been obtained. This is evidenced by the scores obtained by students with a success rate of 88% with a very high predicate. The fifth indicator is to *Evaluate*. On this indicator, students are required to assess a work both its strengths and weaknesses. With online learning based on WhatsApp groups through video media and teaching materials, it is sufficient to provide an understanding of concepts to judge which arguments are logical and illogical. This is evidenced by the 60% success rate of students who can answer questions with high predicates. Even though the predicate is high, this 60% figure is a small number among the achievements of other indicators. The causative factor for this is that students are less able to understand the material in the third video, which is about problems with human organs. The first reason is that the video that is displayed does not provide a good animated picture as in the first and second videos. In this third video, information is only explained through words and explanations from the video maker. Furthermore, this video is the last so that the concentration and interest of students have decreased. The sixth indicator is to *Create*. In this indicator, students are required to draw a series of human bone models. In this indicator, student achievement points to 58% with the moderate predicate. Therefore, the use of WhatsApp group-based online learning through video media and teaching materials has a pretty good impact considering this indicator is quite a difficult indicator.

CONCLUSION

Online learning based on the WhatsApp group application with video media and teaching materials gives good results in terms of understanding the scientific concept of motion systems in humans. This is evidenced by the results of the achievement of students' understanding of the concept of science, which achieved results in the good category of 48%, then the results of the students in the medium category were 44%, and in the low category only reached 8%. The average value of understanding the concept of science about the human movement system of students is at a value of 77.09.

REFERENCES

Agustiningsih. (2015). Video Sebagai Alternatif Media Pembelajaran Dalam Rangka Mendukung Keberhasilan

Penerapan Kurikulum 2013 di Sekolah Dasar. *PEDAGOGIA: Jurnal Pendidikan*, *4*(1), 50-58.

Aunurrahman. (2012). *Belajar dan Pembelajaran*. Bandung: Alfabeta.

Dewi, S. Z., & Ibrahim, H. T. (1907). Pentingnya Pemahaman Konsep Untuk Mengatasi Miskonsepsi Dalam Materi Belajar IPA di Sekolah Dasar. *Jurnal Pendidikan Universitas Garut 13*(1), 26–31.

Hutapea, T. (2020). Upaya Peningkatan Pemahaman Konsep Siswa Melalui Eksperimen pada Mata Pelajaran IPA. *Jurnal Kependidikan Betara 1*(3), 26-30.

Nugroho, D. D., & Muhtadi, A. (2020). Engaging Elementary Student in Learning Science Using Video to Improve Learning Outcome. *Education and Humanities Research*, 440(Icobl 2019), 162–165.

Nuraeni D, Uswatun D, Nurasiah I. (2020). Analisis Pemahaman Kognitif Matematika Materi Sudut Menggunakan Video Pembelajaran Matematika Sistem Daring di Kelas IV B SDN Pintukisi. Pendas: *Jurnal Ilmiah Pendidikan Dasar 5*(1). 61-75.

Organization for Economic Cooperation and Development (2018). *Program for International Student Assessment (PISA)*. USA: OECD-PISA.

Rahmawati, I. (2016). Pelatihan Dan Pengembangan Pendidikan Jarak Jauh Berbasis Digital Class Platform Edmodo. *Prosiding Temu Imiah Nasional Guru (TING) VIII*. Universitas Terbuka Convention Center, 26 November 2016. 411-419.

Sujana, A & Jayadinata, A.K. (2018). *Pembelajaran SAINS di Sekolah Dasar*. Sumedang: UPI Sumedang Press.

Sujana, A. dkk. (2014). Literasi Kimia Mahasiswa PGSD dan Guru IPA Sekolah Dasar. *Jurnal Pendidikan IPA Indonesia, 3*(1). 5-11.

Widodo, A. (2006). Revisi Taksonomi Bloom dan Pengembangan Butir Soal. *Buletin Puspendik, 3*(2), 18–26.

Widyastuti dan Pujiastuti. (2014). Pengaruh pendidikan matematika realistik indonesia (PMRI) terhadap pemahaman konsep dan berpikir logis siswa. *Jurnal Prima Edukasia*, *2*(2), 183-193.