

SOME CONSTRAINTS IN ACHIEVING SCIENCE PROCESS SKILLS (SPS) IN SECONDARY SCHOOL WATULIMO DURING THE COVID-19 PANDEMIC

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Abstract

This study aims to determine the constraints of the achievement of learning Science Process Skills (SPS) in the Covid-19 pandemic. This research used case study method with the research subject 5 science teacher and 15 students from 3 junior high school in Watulimo. The research instrument consisted of a questionnaire of teachers and students, with data collection techniques used were interviews, observation and documentation. The results of the research show that there are constraints derived from internal factors and external factors of the students. In addition there are also constraints that come from the teacher. Some of these constraints affect the low SPS students. Solution for the application of science process skills can be maximally implemented including, 1) the teacher should develop instruments such special student worksheet for assessing science process skills; 2) teachers need to familiarize the application of science process skills in science learning. The results of this study are used as input or solutions for junior high school science teacher against any problems that arise in SPS learning when the learning is online so that students are able to achieve the learning outcomes to the fullest.

Keywords: Science process skills, constraints learning, pandemic Covid-19, case study.

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INTRODUCTION

Pandemic COVID-19 (Corona Virus Disease) since December 2019, influential to various aspects of life, one field of education (Khusnah, 2020). Due to the pandemic, the government through the Ministry of Education and Culture issued a Circular Letter (CL) number 4 year 2020 on the implementation of education in the emergency Covid-19. In the CL mentioned that the implementation of learning from home is applied to suppress the spread of Covid-19. The CL is applicable to all levels of education and all schools throughout Indonesia, not least at secondary school in Watulimo, Trenggalek (Purwanto, et al., 2020)

Due to the conditions of the pandemic requires educators in this case the teacher, to innovate, to change the learning system face-to-face to be a learning system without face-to-face. According to Zhafira (2020), explains that there are other models that can be used by teachers as a medium to deliver science, namely online learning and mix learning (a combination of the two learning methods, is face-to-face and online learning). Methods of online learning does not demand students to

present in class. Students can access learning through the medium of the internet (Anugraha, 2020). Changes to this learning system, became the order of the teacher to be more innovative in carrying out the learning that results in the aspect of knowledge and skills reach a maximum (Syah, 2020). In improving both of these aspects, the majority teachers in junior high school Watulimo apply learning science process skills (SPS) online using the media platform for online learning such as *Google Classroom, WhatsApp Chat Group and Google Meet*.

After applying the learning in class VII during one semester, the results of the knowledge and skills students are not as expected. At first, it was expected there will be an increase, but the result showed a decrease students science process skills in junior high school Watulimo. The decline is most obvious elements of the integrated SPS to formulate hypotheses, perform experiments and interpret the data with 1 of the 5 respondents teacher who apply it in science learning.

Based on these facts, the learning of science process skills (SPS) indicates the presence of obstacle in its application that resulted in increased knowledge and skills of students are not in line with expectations. Therefore, it

is poured into a research topic with the title “Some Constraints in Achieving Science Process Skills (SPS) in Secondary School Watulimo During the Covid-19 Pandemic”. The purpose of this study is to determine the factors that cause constraints in the learning of science process skills (SPS) for online learning.

METHOD

The method used in this research is the method of case study. According to (Yin, 2017) the case study method is a inquiry empirical utilizing multi-source evidence as well as investigate the phenomenon in real life.

Participants this study is a science teacher in 3 secondary schools in Watulimo as many as 5 people and 15 students. The selection of this school is based on the category of accreditation, are SMP N 1 Watulimo with A accreditation, SMP N 2 Watulimo with accreditation, and in SMP N 3 Watulimo with accreditation B. In addition, based on the results of previous research on the learning of Science Process Skills (SPS) during the Covid-19 pandemic in the that schools, there are some constraints that pose a SPS learning for online learning is not running optimally.

Data collection techniques used were observation, interview and documentation. Implementation of this research includes the stages of the pre-field research, and data analysis. The stage of pre-field include taking care of the letter of permission to study and analysis of the basic source outline & student worksheet each school. The technique of the not structured interview is used in this research, where the researcher does not use the question-a question that has been prepared systematically (Sugiyono, 2015). Observation techniques through questionnaires of teachers and the response of the students is carried out indirectly presented in the form of a *Google Form*. The results at this stage, in the analysis of the researcher as the research data. The method of triangulation of sources was used to test the validity of the data obtained. This method is done by checking the data at the same sources with different techniques, such as interviews, observation and documentation. If the results of the respondents show different data and to ensure data is correct, then the researchers conducted further discussions on relevant data sources (Sayekti & Kinasih, 2018). Documentation technique in the form of photo-related objects and term learning material of research used as a recap of the whole research activity. The data in this study were processed using methods of descriptive data analysis. According to (Sugiyono, 2015) this method is the analysis according to the data obtained, then developed and described according to the pattern of a certain relationship.

RESULT AND DISCUSSIONS

Based on Figure 1, shows the internal factors that cause constrains in the science process skills (SPS) learning for online learning.

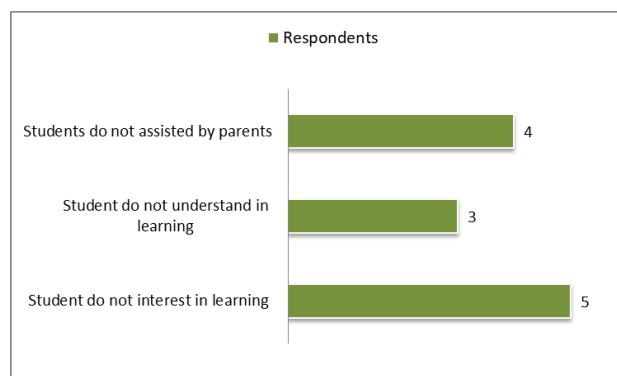


Figure 1 Internal Factors From Students

If you pay attention, there are three internal factors that affect the SPS online learning is not performing to the maximum. Internal factors are all factors that come from the students themselves (Mardianti, 2021). A total of 4 respondents said students are not accompanied by a parent while studying at home, 3 respondents said students do not understand the learning that is delivered by the teacher, and 4 respondents said students are not interested when science learning takes place. Based on the results of the respondent's analysis on the first factor, the student is not accompanied by a parent while studying. Most students learn at home independently because they parents have busy days each. Whereas the academic success of the child is largely determined by the involvement of parent in assisting and guiding smartphone use (Khusnah, 2020). Aligned with the research Prajana (2017), the involvement of parents in guiding and assisting his childrens study, determine the academic success of the child. In addition, if the child in online learning is not accompanied by parents, can inflict effects of excessive use of devices (Sadikin & Hamidah, 2020). It is feared can have a negative impact such as the inclusion of misleading information and the students are not focus of learning, but in addition to play the mobile phone (Siddiqui & Singh, 2016). In addition, students who are addicted with mobile phone have the problem of academic and social (Kwon, et al., 2013).

The second factor, some students do not understand the learning materials delivered by teachers. Students experiencing difficulty and confused to understand the material and perform tasks given by the teachers, because the material explanation by the teacher is not too deep. Some admitted students if the teacher too often give the task, while the delivery of learning materials is not too deep. In addition, when learning of the online content of the material presented in the form of e-book which is presented chapter by chapter, matter in the form of video learning materials and Powerpoint. Asmuni (2020) added, the learning materials is delivered online may not necessarily be understood by all students well. Here, the role of the teacher as a facilitator need to be developed. According Astuti (2018) the role of the teacher as the facilitator that provides the availability of facilities in order to provide ease of students in learning activities such as the availability of teaching materials. Malyana (2020) added, when the learning process is conducted

online, teachers are required to keep running its role as a facilitator, by providing learning facilities for online students such as providing learning videos which can be accessed through the online, provide questions for students to learn at home are propagated through the media platforms of online learning such as a *WhatsApp Chat Group*, *Google Classroom*, *Google Meet*, *Zoom* and so on. Some respondents also stated to have been using some of these platforms but never use the *Zoom*. *Zoom meeting* has the advantage of interacting directly between students and teachers, but have a weakness need a lot of quota and less effective if used more than 20 students (Naserly, 2020). The third factor, some students are not interested and feel bored when learning, so the learning interest of students is reduced. Based on the respondents analysis, many of the students who did not immediately respond to a teacher in the learning activities take place. In addition, lack of concern for students with literacy and collection tasks, such as tasks that should be collected within the period of one week is often delayed into two weeks. According to Mardianti (2021), the lack of interest of students result of the use of teaching materials or video learning provided by the teacher less interesting so that the students feel bored and not happy when science learning takes place. Whereas interest in learning that exists in students is a major and very important factor in achieving the effectiveness of the teaching and learning process (Susanto, 2016).

In addition to internal factors, external factors also influence the achievement of learning science process skills (SPS) for online learning based on Figure 2.

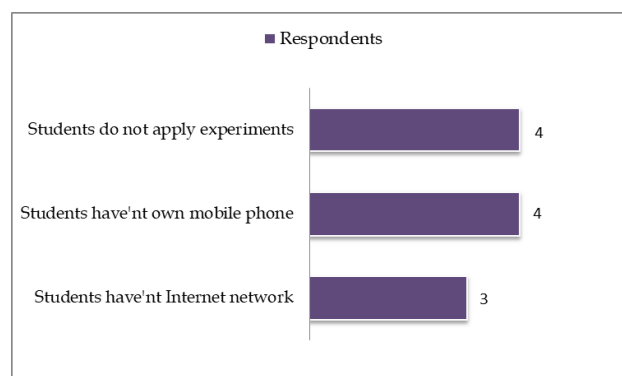


Figure 2 External Factors From Students

If you pay attention, there are three external factors that affect the SPS online learning is not performing to the maximum. External factors are all the factors that come from outside the student (Mardianti, 2021). A total of 4 respondents said students do not apply experiments, 4 respondents said most of the students do not have personal mobile phone and 3 respondents stated some of the students did not have the internet connection and internet quota adequate. Based on the results of the analysis of the respondents, the first factor students can carry out practical work in the house. The experiment is a method of learning that can be used to prove a theory. Methods experiment used in science learning, is not only carried out in the laboratory but can also be done in the nature

(Khusnah, 2020). Some respondents stated they can not provide the practical tasks to students as constrained by the tools and materials. Not all experiment tools and materials available at home. When the experiment tools and materials not available with complete, then the lab can not run optimally (Hasruddin & Rezeqi, 2017). This is consistent with research Khusnah (2020), science experiments during the Covid-19 pandemic can not be done because of the readiness of teachers and students is less, in addition experiment is an activity that requires direct assistance by the teachers. The second factor, some students do not have personal mobile phone. The ability of mobile phone and laptops to access the internet can help students to follow online learning (Gokfearslan, Mumcu, Haslamam, & Levik, 2016). Some of the respondents claimed, have no personal mobile phone or take turns using it with a parent. Students alternate mobile phone with the parents often too late to follow and do the tasks given by the teachers. In addition, there are some students who do not have personal mobile phone because of the economic conditions of the family were low.

Karmala (2021) add the economic condition of the family is one of the factors students do not have devices for online learning. Whereas, in online learning requires support devices-mobile devices such as smartphone, laptop, computer, tablet and iphone (Gikas & Grant, 2013). The use of digital technology greatly influence in the world of education one of which is the achievement of the achievement of the objectives of distance learning (Korucu & Alkan, 2011). Milman (2015) added that the use of digital technology can allow students and teachers to implement the learning process even though they were in different places. The third factor, some of the students did not have the internet network and internet quota adequate. Geographical conditions Watulimo is high plateau and mountains (Putri & Sardjito, 2016). Some respondents expressed having difficulty to get an internet connection. The existence of the student's residence resulted in the existence of the internet network dangat is limited, so with these conditions may hinder the success of the learning process (Nurmukhametov, N. et al, 2015). This is in line with research Dursun (2013) which states the existence of the internet network is limited due to the place of residence of students in rural or mountainous region.

Inhibiting factors to the achievement of learning science process skills (SPS) for online learning not only from the internal and external factors of students, but also from the teachers. According to the results of the study, some respondents teachers have not been able to make own science student worksheet that contains the SPS instrument. Jannah (2020) added the factor of teachers including; 1) the teacher has not fully implement the learning in accordance with the basic source outline; 2) the teacher has not been able to optimize the use devices-mobile devices; 3) teachers focus on the provision of learning materials; 4) teacher too dominating in learning.

Some of the constraints above is necessary a solution to resolve the problems of the achievement of learning science process skills (SPS) for online learning. Based on the results of the analysis of the respondents, there are

several solutions, including; 1) the teacher always online *WhatsApp Group* to monitor the students if there are difficulties; 2) teachers often call students to remind their duties; 3) call / video call to some of the students randomly to make sure students follow the online learning; 4) the teacher asks the help of a guardian class to remind parents accompany their children to learn; 5) the teacher approached the home of students who are constrained not have gadget for conveying tasks; 6) the teacher gives the experiment video as a student assignment. Asmuni (2020) added that teachers need to do the communication (via phone / *WhatsApp*) with parents, for taking the time soon come back to the home so that children can use mobile phone parents to follow online learning. For the application of science process skills can be implemented to the maximum, 1) the teacher should develop instruments such special student worksheet for assessing science process skills; 2) teachers need to familiarize the application of science process skills in science learning (Saleh, 2020).

CONCLUSION

Based on the description on the research results above, it can be concluded that there are a constraints of the achievement of learning science process skills (SPS) for online learning. These constraints are derived from the internal and external factors of the students. Based on the analysis of the results of the respondents, internal factors include, 1) the students are not accompanied by a parent while studying at home; 2) students do not understand the learning that is delivered by the teacher; 3) students are not interested when science learning takes place. External factors include; 1) the students are not able to carry out the experiments; 2) most of the students do not have personal mobile phone; 3) some students did not have the internet connection and internet quota adequate. In addition to the internal and external factors of students, there are also constraints that come from the teacher, such as 1) some respondents teachers have not been able to make own science students worksheet that contains the SPS instrument. 2) the teacher has not fully implement the learning in accordance with the basic source outline; 3) the teacher has not been able to optimize the use of devices-mobile devices; 4) teachers focus on the provision of learning materials; 5) the teacher too dominating in learning. Solution for the application of science process skills can be implemented to the maximum including, 1) the teacher should develop instruments such special student worksheet for assessing science process skills; 2) teachers need to familiarize the application of science process skills in science learning.

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