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Teacher Problem in Geographic Information System Material During Covid-19 Pandemic in Senoir High School

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ABSTRACT
The Covid-19 pandemic has changed conditions in various fields in the world, especially education. The Covid-19 pandemic has forced learning to be done online as an effort to break the chain of the spread of Covid-19. This became the background of research on teacher readiness in Geographic Information System materials during the Covid-19 pandemic at the high school level in Surakarta City. The purpose of this study was to analyze the problems of geography teachers in GIS material during the Covid-19 pandemic in Surakarta City. This research is a qualitative research with a phenomenological design. The subjects in this study were teachers who taught geography at the high school level in Surakarta City. The research locations are SMA Negeri 1 Surakarta, SMA Negeri 3 Surakarta, SMA Negeri 7 Surakarta, SMA Batik 1 Surakarta, and SMA MTA Surakarta. The results of this study indicate that the problems of high school geography teachers in the city of Surakarta in online GIS learning are in the use of technology and the age factor causes geography teachers to not understand the use of technology but they still try to follow and learn to use spatial-based technology.

Keywords: *Online Learning, GIS, Readiness, Covid-19 Pandemic, Geography Teacher.*

1. INTRODUCTION

Education is something that must be owned by every individual, in article 31 of the 1945 Constitution of the Republic of Indonesia, it is stated that every citizen has the right to education. Education is a basic thing that is very important for every human being, without education, humans will not have the knowledge, skills in life, and it will be difficult to keep up with the development of an increasingly advanced era. Along with the times, education is also developing rapidly, and is followed by increasingly rapid technological advances. Advances in information technology have a positive impact on human life, one of which is in the world of education [1]. The learning process is said to be successful if students are able to achieve the specified learning competencies. Teachers and students must be able to work together and support each other in achieving learning success. Teachers are required to be able to understand and master the material to be taught in class, so that teaching preparation needs to be done so that the teaching process goes well [2]

The implementation of learning is currently facing challenges due to the outbreak of Covid-19 in almost all countries in the world, one of which is in Indonesia. To prevent an increase in positive cases, the Ministry of Education and Culture issued a circular letter No. 4 of 2020 regarding the implementation of education policies in the emergency period of the spread of Covid-19. To face the challenges of online learning, teachers will of course find new problems because online learning is different from in-person learning. Online learning can be done using online learning applications, besides that the government also provides access to learning through national television broadcasts [3]. Online learning requires various facilities such as a mobile phone/laptop, internet quota, and an adequate network, however, some areas find it difficult to do online learning due to inadequate facilities. [4].

High school geography subjects have different characteristics, including supporting the formation of spatial thinking skills which have many benefits in academic disciplines and in everyday life. Geography subjects have use values that include three things, namely, subjectivism or its use for humans, logical or empirical objectivism through a trial, and ethical and aesthetic values related to human interaction with the environment. [5]. In geography subjects, spatial thinking is an important feature because the study of geographical phenomena not only explains the existence and process of the occurrence of these phenomena but also explains the shape, size, direction, pattern, and interrelationships with other phenomena. many problems related to the earth's surface, with the support

of information technology such as Geographic Information Systems (GIS) which will make work easier [6]. GIS is one of the important materials to understand because it can help sharpen students' understanding and views about spatial technology. In geography subjects, GIS is a geography material that studies technology that is able to describe, present, display space and geographic data on the earth's surface through a flat area called a map. [7]. The ability to think spatially is not an innate skill, so it is necessary to teach spatial thinking in schools through geography learning GIS material [8]. Through GIS subjects will help students to think spatially related to phenomena that exist on the surface of the earth. GIS is one of the important materials to understand because it can help sharpen students' understanding and views about spatial technology. Furthermore, research that examines GIS learning at the high school level is still small, this encourages researchers to raise the theme of research with GIS material.

Learning activities do not escape from a problem, both problems caused by students and problems from within the teacher. Teachers as facilitators in the world of education will often encounter problems in learning, especially in schools. 80.61% of learning problems are caused by students, such as student learning outcomes that do not match the minimum achievement, students tend to be passive, students are sleepy, students are noisy, and students are lazy in doing assignments. [9]. Problems in learning are usually caused by differences in the nature and characteristics of students, teachers must understand these differences. In addition, the problem that often occurs is that teachers are not placed in studies that match their expertise and there are also teachers who hold concurrent subjects, this makes the teacher's task more and more. Problems in learning can be mapped into three dimensions, namely problems regarding learning components, interaction problems between learning components, and environmental problems in the interaction of learning components. [11].

Problems regarding learning components are problems that occur because of learning components such as student problems, teachers, learning strategies, learning evaluations, and learning media. If one of the learning components is problematic, it will affect the process and quality of the learning implementation. The problem of interaction between components related to the problem of interaction includes the lack of clarity of the teacher delivering the material to the students, the lack of student participation in the learning process, the dialogue between the students and the teacher does not lead to learning or is out of sync, and the evaluation of the teacher in learning deviates from the material. Environmental problems in the interaction between learning components, problems related to the environment in learning can be caused by less comfortable places to study, poor road access to schools, noisy learning environments, school locations far from students' residences. These things affect the interaction between components in learning.

Learning problems arise as a result of online learning, namely the limited use of technology by teachers and students [4]. Based on the circular letter of the Surakarta City Education Office Number 444.26/531 of 2020 which states that educational activities in the Surakarta City area are carried out online. Based on this description, it is necessary to carry out this research to uncover problems related to teacher problems in learning GIS material during online learning in Surakarta City.

2. RESEARCH METHOD

This research is a qualitative research. Qualitative research is defined as research that does not involve counting numbers, but in its development qualitative research can contain numbers to help describe the phenomenon or phenomenon under study. [12]. The research design used in this study is a phenomenological design. Phenomenology is a research method that aims to explore, analyze, and explain the experience of an individual in detail, clearly, and deeply. [13].

Research must have clear variables to make it easier to get an overview of the data or information needed in solving problems [14]. The object or variable in this study is the problem of teachers in GIS learning during the Covid-19 pandemic. Subjects in research are informants who understand the problems to be studied [15]. The subjects in this study are geography teachers who have mastered geography subjects for at least four years, are undergoing the process of online learning at SMAN 1 Surakarta, SMAN 3 Surakarta, SMA N 7 Surakarta, SMAS Batik 1 Surakarta, and SMAS MTA Surakarta. The research location is determined based on the number of study groups and accreditation from the school, one high school with the best number of study groups and accreditation will represent one subdistrict in the city of Surakarta as the research location. So that there are five representative schools from five districts in the city of Surakarta. The primary data in this study is data on teacher problems in implementing online learning in GIS subjects. The secondary data used are school profiles, documentation of learning activities, profiles of teachers in geography subjects, and map data of research locations. The data collection technique used is done by interview, observation and documentation. The validity test of the data used are credibility test, dependability test, transferability test, and confirmability test. Internal validity used in this study is member check and use increased persistence.

3. RESEARCH RESULT

The results of the study relate to teacher problems in learning GIS material during the Covid-19 pandemic at the high school level in Surakarta City. In obtaining the research results, the researchers conducted interviews and asked questions about teacher problems

related to GIS teaching materials, teachers' abilities in using technology, teacher limitations in assessing and controlling students in GIS learning, and GIS learning media. After obtaining the data, the researcher processed the data and obtained the following results:

3.1. Problems in Teaching Materials

Teacher problems in GIS teaching materials can be identified by asking a number of questions regarding problems in finding teaching resources and problems in delivering teaching materials. The results of the study related to teacher problems in teaching materials on GIS material during the Covid-19 pandemic at the high school level in Surakarta City obtained the following results:

3.1.1. Problems Finding Teaching Result

Based on the results of interviews, all respondents had no difficulty in finding teaching resources for GIS material. The respondents joined the Indonesian geography MGMP whatsapp group where group members sent teaching materials to each other if anyone needed them, apart from the group respondents also received teaching resources from videos on YouTube and GoogleThe following is one of the answers from respondents in this study:

> "Finding teaching resources for geography is not difficult, for GIS material itself, it can be through stories or activities that are carried out every day when using applications that have a GIS system. Sometimes you can also ask for teaching resources in the Indonesian geography MGMP whatsapp group"

3.1.2. Problems Delivering Teaching Resources

In delivering GIS teaching materials online, all respondents did not experience difficulties. They deliver the material as when teaching face to face. The following is one of the answers from one of the respondents:

> "Submitting material online is not difficult, it is the same as delivering material during face-to-face learning, only that the difference is that you cannot deliver it directly"

3.2. Permasa Problems In Using Technology

To find out the problems of teachers in using GIS material learning technology during online learning, it is done by asking several questions regarding the use of technological devices for online learning and the use of virtual applications for online learning. The results of the study related to problems in using technology in GIS teaching materials during the Covid-19 pandemic at the high school level in Surakarta City obtained the following results:

3.2.1. Problems with Technology Device Facilities

The use of technology in online learning is one of the problems in the world of education. Especially related to the limitations of technological equipment facilities, in terms of technological equipment facilities respondents experienced problems regarding insufficient laptop capacity for online learning and laptops that were outdated and very slow when used. The following is one of the answers to the questions asked by the author:

> "The limitations of technology devices that I experience are limited storage on my laptop, the capacity of my laptop is small so it is not sufficient to install heavy applications for online learning"

3.2.2 Problems Installing Virtual Apps

In installing virtual applications, respondents did not experience difficulties, because they thought installing applications was easy. Here is one answer to the question asked:

> "Installing the application is not difficult at all, because it only needs to be clicked, for applications on a laptop that are difficult to install, you can ask for help from the closest person who can install it"

3.3. Problems in Student Assessment and Control

To find out the teacher's problems in providing assessment and control of students in learning GIS material during online learning, it is done by asking several questions about problems in assessing students' affective, cognitive, and psychomotor aspects as well as questions about problems controlling students during online learning of GIS material. The results of the study related to problems in student assessment and control in GIS teaching materials during the Covid-19 pandemic at the high school level in Surakarta City, the following results were obtained:

3.3.1. Afektif Affective Assessment Problem

In assessing when carrying out online learning, it is not much different from conducting an assessment during face-to-face learning. All respondents had no difficulty in conducting student affective assessments. The following is one of the answers to the questions asked by the author regarding the problem of difficulty in measuring students' affectiveness in online learning of GIS material:

> "Whether there are difficulties or not, it really depends on how we perceive them, I think that everything is normal, so there are no problems in the affective assessment of students, even though online learning is still carried out as much as possible and as good as possible"

3.3.2. Problems of Cognitive Assessment

All respondents did not experience difficulties in conducting cognitive assessments of students on GIS material during online learning. This is confirmed by the statement of one of the respondents as follows:

> *"*I have no difficulty in cognitive assessment, I can do an assessment by assessing the results of student assignments or exercises that are collected via email or the TIMS application"

Respondents have different considerations in making assessments, these considerations make it easier for respondents to assess students' cognitive.

3.3.3. Psychomotor Assessment Problems

All respondents did not experience difficulties in conducting student psychomotor assessments. The following is one of the answers to the questions asked regarding the problem of student psychomotor assessment:

> "Assessing students' psychomotor in an online state, I can't still assess it as much as possible according to the circumstances that occur. I think online learning is not a barrier in providing psychomotor assessments for students. I also already have my own guidelines for the assessment"

The respondents have different considerations in making assessments, these considerations make it easier for respondents to assess students' psychomotor.

3.3.4. Problem Controlling Students

In controlling students during online GIS learning, several difficulties were found, namely students were late in collecting assignments, while learning using the zoom camera application was turned off, late for class, student network constraints were not good, students' internet quota constraints made it difficult for respondents to control students. Here is one of the answers to the questions asked:

> "Difficulty controlling students is certain, because students are not within my reach. But I have the contact of the student's parents, so if I can't control the student then I will contact the parents"

3.4. Problems in Learning Media

To find out the teacher's problems in GIS learning media during online learning, it is done by asking some questions about the obstacles in making GIS learning media and the obstacles in the use of GIS learning media. The results of the study related to problems in student learning media in GIS teaching materials during the Covid-19 pandemic at the high school level in Surakarta City, the following results were obtained:

3.4.1. Media Creation Problem

GIS learning media in this online era is very important to support better student understanding. Constraints experienced by respondents related to GIS learning media are in making media, the age factor causes difficulties in making media such as learning videos, younger teachers are able to upload learning videos to their YouTube channel. Teachers only use the media they are looking for on the internet to support GIS learning in the classroom. Here is one of the answers to the questions asked:

> "Age limitations are not young anymore, so I can't make varied learning media like other young teachers"

3.4.2. Media Usage Problems

In using GIS learning media during online learning, the teacher does not experience difficulties. Using existing media is not as difficult as making the media. Here is one of the answers to the questions asked:

> "There is no problem in using the media, because all you have to do is use it"

Based on the results of interviews conducted by researchers with teachers, there is no problem in using the media, because they only need to use it regarding problems in learning GIS material online. It has answered questions about teacher problems related to GIS teaching materials, teacher's ability to use technology, teacher limitations in assessment and control. students in GIS learning, and GIS learning media. Problems that occur in dominant learning are influenced by the teacher's ability to use technology tools and the teacher's ability to create GIS learning media in online learning.

4. DISCUSSION

Since the case of the spread of the Covid-19 virus was first announced in Indonesia in early March 2020, the number of people exposed to this virus is increasing every day and the government has closed education centers and schools [16]. The sudden change in learning from offline learning to online learning makes teachers forced by circumstances with limited abilities and facilities to carry out effective and efficient online learning.

Teacher skills in using technology for online learning are still very minimal, only about 46% of teachers in Indonesia are fluent in using technology [18]. This explains that online learning in Indonesia which was carried out during the Covid-19 pandemic was carried out without any planning because it adjusted to the conditions that occurred. The ability of teachers to use technology, control students, and create online learning media for GIS material is a vulnerability in carrying out online learning. Some materials will be

difficult to understand through online learning, learning will tend to only be in one direction between teachers and students [17].

Based on the results of interviews conducted by researchers with respondents, it is known that there are age constraints that make teachers stutter in technology. Making learning media is done improvisedly because teachers have difficulty keeping up with the times by making interesting learning media. Online learning certainly makes it difficult for teachers to control students, whether controlling when collecting assignments or taking online classes on time. For students who are late in collecting assignments, the teacher will give sanctions in the form of reducing the value on the assignments collected, while to control students to be on time in attending class the teacher will ask for help from students' parents to help control students in terms of being punctual in attending class.

The results of the interviews that have been analyzed show that teachers prefer to carry out face-to-face learning rather than online learning. In online learning the teacher must be extra in explaining and looking for learning material so that it is easily absorbed by students. This is in accordance with research which in his research revealed that there were as many as 50% of teachers who did not like online learning because it was less effective and there were several challenges in its implementation. [17].

In distance learning the teacher cannot be intense in interacting with students and the lack of time needed to develop productivity so that distance learning is carried out with limited time. This causes the teacher to be unable to fulfill his teaching load [18].

5. CONCLUSION

In online learning for high school GIS material in Surakarta City, problems in learning cannot be avoided. Considering that online learning was carried out suddenly, it was difficult for teachers at first. Over time the teachers can carry out learning activities quite well. The problem that occurs in GIS subjects is the teacher's ability to use technology, such as making teaching media. Age limitations make teachers use improvised teaching media. Even though the teachers initially had problems in learning, they still tried their best to carry out effective learning.

AUTHORS' CONTRIBUTIONS

Author LS plays a role in the preparation of proposals, reports, and research articles. The RP author plays a role in helping to correct proposals, reports, and articles. The YES author assists in correcting the research proposal.

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