

# The Urgency of the Geographic Laboratory at the Senior High School

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## ABSTRACT

Geography learning can be done in the classroom, outside the classroom, or in the laboratory, but in senior high school, there are not many geography laboratories. The purpose of this study was to analyze the urgency of the geography laboratory according to geography teachers at the senior high school. This research uses the descriptive qualitative method. This study describes and analyzes the geography teacher's perception of the urgency of the geography laboratory. The data analysis technique in this study was carried out in three stages, including data reduction, data presentation, and drawing conclusions from the data obtained from the interview, observation, and documentation process. This research was conducted in the city of Surakarta because it is one of the cities that does not yet have a senior high school geography laboratory. The respondents of this study were geography teachers from senior high schools in Surakarta, which included SMAN 1 Surakarta, SMAN 3 Surakarta, SMAN 7 Surakarta, SMA Batik 1 Surakarta, and SMA MTA Surakarta. The school became the location of this research because it is the school with the highest number of students (rombel) at the senior high school level in the city of Surakarta. The results of the study indicate that all respondents stated that the school where they teach does not yet have a geography laboratory, but the existence of a geography laboratory is important as a learning tool for students to practice, experiment, and interact directly with the object being studied. In addition, the geography of a senior high school is important if it is in urban areas, because many objects and geographical phenomena are not found in urban areas. All the teachers stated that the geography laboratory was important to support the geography learning process. Furthermore, based on the results of the research, it is known that the role of the laboratory is to support learning geography and increase students' skills in the field of geography.

**Keywords:** *Urgency, Geography Laboratory, Perception, Teacher, Geography, Senior High School.*

## 1. INTRODUCTION

Education is one of the most important things in human life. Through the field of education, humans are fostered to maximize their potential to become quality, responsible, and noble human beings. The quality of education can be improved if educational needs are met to the greatest extent possible [1]. The needs that must be met within the scope of educational standards according to the Government Regulation of the Republic of Indonesia (PPRI) concerning National Education Standards No. 19 Article 2 Number 1 of 2005 include content standards, graduate competency standards, process standards, educational staff and educator standards, financing standards, management standards, educational assessment standards, and the existence of facilities and infrastructure. Based on these standards, it can be seen that in the implementation of education, one of the most important things is the availability of facilities and infrastructure.

The existence of facilities and infrastructure is needed to improve the quality of the learning process

[2]. Educational facilities are equipment and supplies that are used directly to improve processes in education, for example, books, libraries, laboratories and so on, while educational infrastructure are facilities in schools that are indirectly used to improve the process of learning in education, for example. The location or place of the school building, room, playing field, and so on [3]. Based on the Law of the Republic of Indonesia No. 20 of 2003 concerning the National Education System Article 45 paragraphs (1) and (2), it can be seen that at every level and type of education must prepare educational facilities and infrastructure to support a quality teaching and learning process using organized, controlled, and organized management, in accordance with the duties of the responsible parties, so that the function of education becomes effective.

Each level of education requires complete facilities and infrastructure so that it can encourage the effectiveness of the learning process. One of the facilities and infrastructure needed in schools is a laboratory [4]. The laboratory is one of the supporting facilities for the implementation of teaching and

learning activities in schools [5]. In the scope of the school, the laboratory is a place to support the learning process using practicum methods in order to create a learning experience and student skills by interacting with various tools and materials in studying certain objects and phenomena [6]. Based on this statement, it can be seen that the existence of a laboratory is something that is substantially needed by various subjects in schools.

One of the subjects that requires a laboratory for the learning and teaching process is geography [7]. Geography is taught separately in SMA (senior high school), whereas geography is taught as part of the Social Sciences (Social Sciences) subject in SMP [8]. According to the 2013 curriculum, geography learning is studied in grades 10, 11, and 12 of the Social Sciences major and has become the choice of specialization in the Science major in several high schools [9]. Geography lessons in schools that have been running so far are mostly only done in the classroom using the textbook method, memorizing/remembering, writing, and drawing, whereas geography learning should be research-based [9]. Research conducted in the geography laboratory can be built indoors or outdoors [4]. In cases that are often encountered, why is geography learning not carried out in the laboratory? It is due to the limited existing infrastructure, and the school has not provided a geography laboratory [6]. As a result, the teaching and learning process of geography is only carried out in the classroom.

The existence of a geography laboratory is not often found because the facilities and infrastructure do not require a laboratory in social studies cluster learning, including geography, as a minimum requirement for conducting learning in schools [10]. In fact, if you look at the clusters of science subjects at school, each subject has a laboratory, namely a physics laboratory, a chemistry laboratory, and a biology laboratory [6]. Although there are not many geography laboratories found at the high school level, several schools have tried to develop their own creative and innovative geography laboratories [7]. On the other hand, more and more teachers are aware of the benefits and importance of having a laboratory in geography learning that will be able to support students in understanding learning material [11]. Geography teachers are people who understand the needs of learning geography and who teach it to students in the teaching and learning process. The development of this geography laboratory is, of course, based on various considerations and approvals from the teacher and the school.

Perception is a person's response to an object they see [11]. According to the Big Indonesian Dictionary (KBBI) (2021), the notion of perception is a response that is received directly from something. Perception is a process by which a person comes to know something

through his five senses. Perception is the process of discussing the entry of various messages and information into the human brain, which is carried out through the five senses, namely hearing, taste, sight, touch, and smell [12]. Based on this understanding, it can be defined that perception is all the processes that occur in responding to, assessing, or giving an opinion on something by using all the senses it has.

Perception is based on the relationship that occurs between a person and the state of the surrounding environment, as he can understand something and interpret stimuli in the surrounding environment by using the knowledge he has [13]. Perception can be done to find out a person's response to whatever he encounters, so it can also be used to find out someone's response in terms of education. The perception of each person will be different because it depends on the way that person perceives and understands something. The perception of the teacher responding to something will also differ depending on the acceptance, application, and understanding of the teacher, depending on the level of each perception [14].

Perception is a response based on a person's evaluation, which is then addressed to a definite object and can be expressed verbally. There are various perceptions, which are views based on an assessment of a particular object, anytime and anywhere, if the stimulus can affect it [15]. According to Walgito (2013) there are two perceptions, namely positive and negative ones [16]. Positive perception is a person's view of a particular object, so that in a particular situation, the subject perceives a tendency to accept the object that has been captured. A negative perception is a person's view of an object and is related to a situation where the subject itself perceives and tends to reject the object if it is not appropriate.

The teacher is the spearhead of educational success and is responsible for students' learning success [17]. In the teaching and learning process, a teacher plays a role in helping students develop their potential [18]. Teachers are one of the important factors in achieving educational goals [19]. Based on article 29 paragraph 2 of Law Number 23 of 2003, educators or teachers are professional experts who have the task of planning and implementing a learning process, assessing learning outcomes, carrying out training and mentoring, carrying out research and community service, especially for professors (lecturers) in college. Simply put, the notion of a teacher is someone who is dedicated to his knowledge of students. The teacher's role as an educator has the function of shaping students into complete and full human beings, as well as assisting students in developing intellectual, emotional, social, religious, morality, and soft skills [20]. From the above understanding, it can be concluded that a teacher becomes an important figure in the education process

because a teacher is a teacher who sincerely provides knowledge to students, guides them in various aspects of their potential, and shapes students into quality and dignified human beings. Teachers must have the ability to interpret, convey, and teach according to the applicable curriculum [21].

Learning is a process that involves teachers and students. This learning process is very important for interaction, so an educator must be able to optimize his role [22]. Teachers must develop learning strategies to support effective geography learning among student [23]. Learning geography is naturalistic; that is, students must open up knowledge by combining classroom learning with learning in the field or nature [24]. Based on this statement, geography learning is a naturalistic learning method, meaning that geography learning methods must be carried out on a nature-based basis or study natural phenomena directly.

Learning geography is one of the lessons that has both appeal and challenge to learning because in geography learning it is necessary to have a spatial analysis and description of the earth, which has become a human activity [25]. Geography is a discipline that supports continuing education [26]. The purpose of learning geography is to realize every student has the expertise, skills, and attitudes to be able to develop the ability to think analytically and understand the symptoms of the geosphere, foster a sense of love for the homeland, appreciate the existence of other countries, and be able to deal with problems that arise due to the existence of interactions [27]. Through geography, students are encouraged to explore and develop knowledge and understanding, skills, as well as attitudes and values [27]. In terms of knowledge and understanding, one of the most relevant issues is the diversity of nations and peoples on Earth. This enables us to appreciate the cultural richness of mankind. In terms of skills, students develop the ability to use communication, thinking, practical, and social competencies to explore geographic topics on various scales, from local to international. Learning geography involves various aspects and theories, so to prove the theory, experiments are needed [28]. To carry out these experiments, facilities and infrastructure are needed to support experiments, such as laboratories.

The laboratory is one of the support facilities in learning activities at school [5]. A laboratory is a place used by students to practice their skills in carrying out experiments, research, demonstrations, and scientific development [13]. According to the Big Indonesian Dictionary (KBBI) (2021), the term "laboratory" refers to a certain place that is equipped with various equipment for conducting experiments (investigations and so on).

The laboratory consists of various forms, namely indoor, outdoor, and virtual laboratories. Using a

geography laboratory will help students understand physical geography, environmental damage, and how to improve it [29]. A geography laboratory is needed so that students can understand the concept of geography in real terms by using tools in geography [30]. Indoor laboratory-based Learning about geography is carried out using supportive and effective media for student learning. The laboratory must be equipped with various infrastructure facilities for experimental needs [31]. Space, or indoor geography laboratory, contains tools that support student learning materials.

Geography laboratories in the form of natural or field laboratories studying natural, social, and cultural phenomena that exist in an area can be used as laboratory objects considering that these phenomena are the result or process of environmental and social interactions [25]. In learning geography, it is necessary to have a description and spatial analysis, so we need a tool that can help learning, especially learning outside the classroom in the form of a natural laboratory. The natural laboratory is an important place in geography learning, which is to distribute the knowledge gained in the room so that it can be applied in the field.

A virtual laboratory (Geography Virtual Laboratory) was created by containing material content related to the geography laboratory. Many studies have revealed positive impact of virtual learning to students [32]. The existence of a Geography Virtual Laboratory can be easily realized and more cost-effectively supported. A virtual geography laboratory is very important to be realized to support the object of geography study if real laboratories such as space laboratories or natural laboratories are difficult to realize in the school [33].

Based on the description above, it can be seen that the existence of a geography laboratory is important and useful in the geography learning process, but many schools do not yet have a geography laboratory. The existence of a geography laboratory can be a special concern that can be investigated because its existence is not evenly distributed throughout every high school. Based on the results of observations, one of the areas in Indonesia where there is no geography laboratory at the high school level is Surakarta City, so it is necessary to know the urgency of the geography laboratory at the high school level in Surakarta City according to the geography teacher's perception.

## **2. METHOD**

This type of research is qualitative research. The qualitative method was used in this study because it analyzed the geography teacher's perception of the urgency of the geography laboratory. The design of this research was done descriptively. The object of this research is the perception of the geography teacher. The perception here is to see the urgency of the geography

laboratory according to the high school geography teacher. The subjects used in this study were geography teachers at SMAN 1 Surakarta, SMAN 3 Surakarta, SMA Batik 1 Surakarta, SMA MTA Surakarta, and SMAN 7 Surakarta. Of the five schools that were selected as research sites, one teacher each with the criteria of a geography teacher who is currently teaching geography and has taught geography in grades 10, 11, or 12. This research was conducted in the city of Surakarta because it is one of the cities that does not yet have a high school geography laboratory. The respondents of this study were geography teachers from SMA in Surakarta, which included SMAN 1 Surakarta, SMAN 3 Surakarta, SMAN 7 Surakarta, SMA Batik 1 Surakarta, and SMA MTA Surakarta. The school became the location of this research because it is the school with the highest number of students (rombel) at the high school level in the city of Surakarta. The primary data for this research can be obtained by researchers through interviews, observation, and documentation. Secondary data is data that acts as support for primary data obtained from library materials, documents, and others. Secondary data in this study was in the form of library materials (journals and books), school web data, school profiles, profiles of geography teachers, maps of research locations, and other notes related to this research. In this study, the credibility of the data was tested using the triangulation method and discussed with experts. This study uses the triangulation method, which is a way of testing the validity of the data through different methods or techniques. The triangulation methods used are interviews, observation, and documentation.

### 3. RESULT AND DISCUSSION

#### 3.1. Result

##### 3.1.1. Geography Teacher Knowledge About Geography Learning

The geography teacher's knowledge of geography learning in this study was obtained by conducting interviews on matters relating to the development of geography learning, how to teach geography, training of geography teachers, the existence of a geography laboratory, teacher visits to the geography laboratory and teacher's knowledge of the geography laboratory. The results of the study regarding the knowledge of geography teachers are as follows:

Geography learning has developed from time to time, based on the results of interviews with high school geography teachers in the city of Surakarta, all teacher interviewees agreed that high school geography learning experienced various developments. The development of geography learning can be seen from changes and additions to geography material as well as changes in

the way of teaching geography. The development of the material follows changes in the curriculum and the progress of the times. One of the respondents' opinions is as follows:

“Geografi merupakan pelajaran yang dinamis karena harus mengikuti perkembangan zaman, tapi tidak bisa dilepas dari ciri khas geografi, yaitu peta. Beberapa penambahan materi geografi yaitu Ketahanan Pangan dan energi, dan Indonesia sebagai poros maritim. Pembelajaran geografi juga mengalami perubahan yaitu menggunakan teknologi seperti google earth.”(Pernyataan responden 1).

*“Geography is a dynamic lesson because it has to keep up with the times, but it cannot be separated from the characteristics of geography, namely maps. Some additions to the geography material are food and energy security and Indonesia as a maritime axis. Learning geography is also changing, namely using technology such as Google Earth.”(Respondent's statement 1)*

Based on the above statement, it can be seen that the development of geography learning occurs due to changes in the curriculum, the times, and changes that occur in terms of learning materials that have changed and teaching methods that must follow the progress of information technology systems. The development of geography learning must be adjusted to the development of facilities and infrastructure, such as laboratories.

##### *How to Teach a Geography Teacher*

To respond to the development of learning geography, teaching geography must use the right strategy. Based on the results of interviews, it is known how to teach geography at the senior high school level in the city of Surakarta. So far, this has been done in various ways, namely by using technological media, such as Google Earth, to make it easier for students to understand the location and position. The learning strategies used by Surakarta teachers in teaching include using problem-based learning strategies, project-based learning, and discovery learning. Then the material is presented with a combination depending on the circumstances. Teachers also use lectures, discussions, and experiments. Strategies are chosen flexibly depending on conditions. The following are the statements of respondents in this study:

“Cara mengajar selama ini di bantu alat teknologi, seperti google earth untuk mempermudah anak memahami lokasi dan posisi.” (Pernyataan responden 1)

*“The way of teaching so far has been assisted by technological tools, such as Google Earth to make it easier for*

*children to understand their location and position." (Respondent's statement 1)*

“Strategi yang digunakan yaitu yang mudah dipahami siswa, biasanya menggunakan ceramah dan diskusi.” (Pernyataan responden 4).

*"The strategy used is one that is easy for students to understand, usually using lectures and discussions." (Respondent's statement 4).*

Based on the statement above, it is known that how to teach geography must use the right strategy and technology. The teaching strategies used by the geography teachers of SMA Surakarta in teaching are problem-based learning strategies, project based learning, discovery learning, discussion, and experimentation. One of the technologies used by geography teachers in teaching geography is Google Earth. Based on the results of interviews with the respondents, it is known that geography learning can be done indoors (in the classroom), in the laboratory, outdoors, or in nature, and can be done virtually with the help of advances in information technology. Based on the results of interviews, it is known that whiteboards, laptops, Google Classroom, PowerPoint, video, LCD, and some teaching aids such as rock types have been used by geography teachers at SMA Surakarta to teach so far. There are no geography teachers in Surakarta who teach using a geography laboratory.

#### *Geography Teacher Training for Geography Lab*

Based on the results of interviews, it is known that to support expertise in learning geography, all high school geography teachers in the city of Surakarta stated that they had participated in geography learning training. But there has never been an exercise in the geography laboratory. One of the respondents' opinions is as follows:

“Sering juga jika dapat undangan dari universitas di Kota Surakarta dan pelatihan dari Dinas Pendidikan. Pelatihannya seperti workshop penggunaan alat geografi seperti SIG, dan lain-lain. Akan tetapi belum pernah mengikuti pelatihan khusus laboratorium geografi” (Pernyataan responden 1).

*"Often also if you get invitations from universities in Surakarta City and training from the Education Office. The training is like a workshop on the use of geographic tools such as GIS, and others. However, they have never participated in special training in the geography laboratory" (Respondent 1)*

To support the expertise of teachers in teaching geography, training is needed so that teachers can

improve their teaching abilities. Based on the research results, it is known that all geography teachers have participated in geography learning training organized by the university, the MGMP (Subject Teacher Conference), and the Department of Education. However, for training in geography laboratories, high school teachers in Surakarta have never participated.

#### *The existence of a Geography Laboratory in a senior high school*

The existence of a geography laboratory at SMA Surakarta Based on the results of observations and interviews, all respondents stated that the school where they teach does not yet have a geography laboratory. Based on the experiences of some respondents, it can be seen that the school where they taught used to have a social studies laboratory, which was also used to teach geography, but the social studies laboratory no longer exists. One respondent's opinion is as follows:

“Tidak ada laboratorium geografi di sekolah ini, dulu di sekolah ini pernah memiliki laboratorium IPS, tetapi karena keterbatasan ruang, maka laboratorium IPS itu di alihkan untuk ruangan lain.” (Pernyataan responden 4).

*"There is no geography laboratory in this school, this school used to have a social studies laboratory, but due to space limitations, the social studies laboratory was transferred to another room." (Respondent's statement 4).*

Based on the respondent's information, it is known that the IPS laboratory, which once existed, has now been converted into another room. This happens because the school requires additional space for other activities.

#### *A Teacher's Visit to the Geography Laboratory*

Based on the results of interviews, all geography teachers at SMA Surakarta stated that they had visited the geography laboratory, namely the Geography laboratory belonging to certain universities and natural laboratories such as Karangsembung. However, no one had ever been to the high school geography laboratory. One respondent's opinion is as follows:

“Pernah berkunjung ke Laboratorium geografi milik beberapa universitas di Surakarta dan Yogyakarta (Pernyataan responden 2).

*"I have been to the geography laboratories of several universities in Surakarta and Yogyakarta (Respondent 2).*

#### *Teacher's Knowledge of Geography Laboratory*

The things that the geography teacher of SMA Surakarta knows about the geography laboratory are that the geography laboratory is a learning tool for students

to practice, experiment, and a place to interact directly with the object or phenomenon being studied. The high school geography laboratory is important if it is in a city area. One respondent's opinion is as follows:

"Laboratorium geografi dapat dijadikan sebagai sarana untuk pembelajaran, sehingga siswa dapat mengetahui objek atau fenomena secara langsung seperti jenis batuan, SIG, dan materi lainnya." (Pernyataan responden 3).

*"Geography laboratories can be used as a means for learning, so students can find out objects or phenomena directly, such as rock types, GIS, and other materials." (Respondent statement 3).*

Based on the teacher's statement regarding the geography laboratory, it can be said that the geography laboratory is a means for learning geography directly by interacting with objects and phenomena in learning materials. An important geography laboratory is held in high schools in urban areas because many objects and geographical phenomena are not found in urban areas. Students can study geographic objects and phenomena that they rarely encounter in their environment by using a geography laboratory.

### *3.1.2. Teacher's Perception of the Role of the Geography Laboratory*

The teacher's perception of the role of the geography laboratory in this study was obtained from interviews by asking questions related to laboratories owned by high schools, the urgency of the existence of a geography laboratory, the role of the laboratory in geography learning, the role of geography teachers in the geography laboratory, and geography learning activities based on lesson plans and curriculum, as well as subject matter that can be studied in the geography laboratory. The results of the research on teacher perceptions of the role of the geography laboratory are as follows:

#### *High School Owned Laboratory*

From the results of observations and interviews, it is known that SMA in Surakarta has various laboratories as a means of supporting learning in certain subjects. One respondent's opinion is as follows:

"Laboratorium yang ada di sekolah ini yaitu laboratorium di pelajaran MIPA (Mtk, Fisika, Biologi, Kimia), Komputer, dan Bahasa." (Pernyataan responden 4).

*"The laboratories in this school are laboratories for Mathematics and Natural Sciences (Mtk, Physics, Biology, Chemistry), Computers, and*

*Languages." (Respondent's statement 4).*

Based on the respondent's statement, it is known that the laboratories owned by SMA in Surakarta are the

physics laboratory, chemistry laboratory, biology laboratory, computer laboratory, language laboratory, and mathematics laboratory. All schools in this study did not have a geography laboratory or a social studies laboratory.

#### *The Urgency of the Existence of a Geography Laboratory*

The urgency of the existence of a geography laboratory is seen from how important the laboratory is. Based on the results of interviews, respondents stated that the existence of a geography laboratory is very important. One of the respondents' opinions is as follows:

"Keberadaan laboratorium geografi sangat penting untuk menambah pengalaman dan ketrampilan di bidang geografi." (Pernyataan responden 1).

*"The existence of a geography laboratory is very important to increase experience and skills in the field of geography." (Respondent's statement 1).*

Based on the respondent's opinion about the urgency of the existence of a geography laboratory, it is known that the geography laboratory is very important because it can increase the experience and skills of students in the field of geography. The geography laboratory is important because it can help students understand the lesson because there are media, objects, and phenomena learning materials in the laboratory. SMA in Surakarta does not yet have a geography laboratory because there is no school policy that stipulates the need for such a geography laboratory.

#### *The Role of Laboratories in Learning Geography*

Respondents stated that the role of the geography laboratory was needed to support student learning and skills. One respondent's opinion is as follows:

"Laboratorium geografi dibutuhkan untuk menambah pengalaman dan ketrampilan di bidang geografi dan untuk belajar secara langsung dengan fenomenanya serta belajar praktikum." (Pernyataan responden 1).

*"Geography laboratories are needed to increase experience and skills in the field of geography and to learn directly with the phenomenon and learn practical work." (Respondent's statement 1).*

Based on the statement about the role of the geography laboratory, it is known that the laboratory's role is to support geography learning and increase students' skills in the field of geography. Through the laboratory, students can learn about objects and geographical phenomena directly.

### *Teacher's Response and Role in Geography Laboratory*

Based on the results of the interview, it is known that all respondents agreed if there was a geography laboratory at school. The teacher's role in the geography laboratory is that the teacher can act as a teacher, facilitator, and motivator. Furthermore, respondents also stated that teachers and laboratory assistants must be distinguished. For laboratories, they should have their own laboratory assistants, because teachers will be overwhelmed if they take care of learning and laboratory equipment. Some of the respondents' opinions are as follows:

“Peran guru yaitu sebagai fasilitator dan motivator.” (Pernyataan responden 1).

*“The role of the teacher is as a facilitator and motivator.” (Respondent's statement 1).*

“Guru dan laboran harus dibedakan. Untuk laboratorium seharusnya memiliki laboran sendiri.” (Pernyataan responden 2).

*“Teachers and laboratory assistants must be distinguished. For laboratories, they should have their own laboratory.” (Respondent statement 2).*

Based on the teacher's response statement, it is known that all respondents agree that a geography laboratory is provided in high school. In the geography laboratory, it is necessary to provide a laboratory assistant to manage the laboratory. The role of the geography teacher in the laboratory is as a teacher, facilitator and motivator.

### *Subjects That Can Be Learned in the Geography Laboratory*

The subject matter that can be studied in the geography laboratory is material about rocks, soil, clouds, the process of earth formation, types of layers of the earth, atmosphere, solar system, and natural phenomena. Furthermore, respondents stated that all geography material can be done in the laboratory. One respondent's opinion is as follows:

“Hampir semua materi geografi dapat dilakukan di laboratorium.” (Pernyataan responden 5).

*“Almost any geography material can be done in the laboratory.” (Respondent's statement 5).*

Based on the statements of the respondents, it is known that almost all materials for grades 10, 11, and 12 can be studied in the geography laboratory.

### *Geography Learning Activities Based on RPP and Curriculum,*

Based on the results of the interview, it is known that the teacher will teach the learning material in accordance with the applicable curriculum. Based on the observations, it is known that the curriculum used by Surakarta High School teachers in teaching today is the 2013 curriculum and the driving curriculum. However, according to the curriculum, there is no obligatory use of a geography laboratory in learning. One respondent's opinion is as follows::

“Menerapkan sesuai dengan kurikulum yang berlaku, mengikuti perkembangan zaman, dan harus bisa menggunakan teknologi.” (Pernyataan responden 1).

*Apply in accordance with the applicable curriculum, keep up with the times, and must be able to use technology.” (Respondent's statement 1).*

High school geography teachers in Surakarta teach learning according to the applicable curriculum. Geography teachers also have lesson plans and a syllabus in preparation for lesson planning. Teachers also follow technological developments in supporting geography learning. There is no geography curriculum in high school that provides a policy on geography laboratories.

### **3.2. Discussion**

Learning geography from time to time has developed. both in terms of learning materials and teaching methods. To be able to keep pace with these developments, teaching geography materials requires adequate learning facilities and infrastructure so that students can understand directly what is being studied. Facilities and infrastructure are an integral part of the learning process that takes place in the education unit [34]. One of the infrastructures that plays an important role in the learning process is a laboratory [35].

Teaching geography material to students requires special strategies so that students can understand what is being taught. The material given to students will be more easily accepted if they know the real form or picture of the material. This is in accordance with the statement that in carrying out learning, preparation is needed relating to all forms of planning that have been designed related to the activities to be carried out by educators and students, the use of methods, learning resources, and media used in assisting the learning process, and setting learning objectives [36].

Learning geography requires special means to provide students with a direct understanding of what they are learning. To support students in maximizing their geography learning, namely by providing a geography laboratory. Learning about geography can be done indoors, outdoors, or virtually. This is in accordance with the theory that teaching methods that

can be applied in geography learning are grouped into 2 major groups, including indoor learning and outdoor study [37]. Indoor study methods include the lecture method, question and answer, discussion, and group work. Meanwhile, the outdoor methods include the method of learning assignments and field trips. The learning method is used in accordance with the objectives of the teacher's learning to be achieved. Indoor study geography learning is not only limited to classrooms as a means of learning, you can use the geography laboratory space, while outdoor geography learning can be done by utilizing natural laboratories [38].

The geography laboratory is an important facility if it is found in schools. Based on the results of the research, it is known that the geography laboratory is a learning tool for students to practice, experiment, and a place to interact directly with the object or phenomenon being studied. This is in accordance with existing research, which states that the laboratory is a place to carry out various kinds of research activities (research), observation, training, and scientific testing as an approach between theory and practice from various disciplines [36]. The urgency of the geography laboratory, according to the high school geography teacher in Surakarta, is very important because students can study objects and geographical phenomena directly so that it will increase students' understanding, experience, and skills.

According to high school teachers in Surakarta, learning geography using a laboratory will make it easier for students to understand the lesson. This is because students can interact with objects and phenomena in the laboratory. The purpose of the geography laboratory is to be able to increase students' learning motivation, students' skills in using practical tools, and satisfactory learning outcomes [2]. The teacher's role in the geography laboratory is to guide and supervise students in conducting learning and experimentation. Teachers or laboratory assistants in geography laboratories should attend training and have a geography laboratory training certificate [39].

Based on the research results, the role of the geography laboratory is known, namely that geography is needed to increase students' experience and skills in the field of geography and to learn directly with geography material objects and study practicum. The urgency of the existence of a geography laboratory is well known. It is known that the geography laboratory is very important because it can increase the experience and skills of students in the field of geography. The geography laboratory is important because it can help students understand the lesson because there are media, objects, and phenomena learning materials in the laboratory. SMA in Surakarta does not yet have a geography laboratory because there is no school policy

that stipulates the need for such a geography laboratory. The existence of a laboratory in learning is very important because it provides an opportunity for students to find theories and prove the theories obtained in class directly, so that the accepted theory is in accordance with the reality in the field being carried out by the students themselves[40].

#### **4. CONCLUSION**

Learning geography from time to time is always developing, both in terms of material and teaching. To be able to support geography learning, which continues to grow, facilities and infrastructure are needed that can meet the needs of geography learning. One of the facilities and infrastructure that can be used is a geography laboratory. Although SMA in Surakarta does not yet have a geography laboratory, the geography teacher stated that the existence of a geography laboratory is important as a means and infrastructure for learning geography. The urgency of the existence of a geography laboratory is very important because it can add to the experience and skills of students in the field of geography. Through the geography laboratory, students can understand the subject matter and interact directly with the media, objects, and phenomena of learning materials in the laboratory.

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