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# COMPUTER LABORATORY MANAGEMENT IN IMPROVING THE QUALITY OF STUDENT LEARNING AT SMA AL-MINHAJ SHAHABAH TAMANSARI BOGOR

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***ABSTRACT***

*This research aimed to investigate the procurement, use, and maintenance of the computer laboratory equipment at SMA Al-Minhaj Shahabah. This study used a qualitative case study approach because it described the use of the computer laboratory in supporting the teaching and learning process at SMA Al-Minhaj Shahabah. The data were collected through observation, interviews, and document study. The data analysis techniques used were data reduction, presentation, and verification. The data validity techniques used credibility, transferability, dependability, and confirmability. The results showed, among others: (1) Laboratory use and maintenance system was quite good. The maintenance of computer laboratory equipment has been planned in the School Development Plan (RPS) in general regarding the planning, process, and results obtained from the maintenance, (2) The design and layout of the laboratory were quite effective. (3) There was a schedule for effective laboratory use, (4) There were still obstacles for teachers and students in teaching and learning in the laboratory. (5) Laboratory management was handled by educational expert staff, and there was support from the foundation.*

**Keywords:** *Management, Laboratory, SMA Al-Minhaj Shahabah*

**ABSTRAK**

Penelitian ini bertujuan untuk mengetahui aspek pengadaan, penggunaan, dan pemeliharaan peralatan laboratorium komputer di SMA Al-Minhaj Shahabah. Penelitian ini menggunakan pendekatan kualitatif studi kasus karena menggambarkan pemanfaatan laboratorium komputer dalam menunjang proses belajar mengajar di SMA Al-Minhaj Shahabah. Pengumpulan data dilakukan melalui observasi, wawancara, dan studi dokumen. Teknik analisis data yang digunakan adalah reduksi data, penyajian data, dan verifikasi data. Teknik validitas data menggunakan kredibilitas, transferabilitas, dependabilitas, dan konfirmabilitas. Hasil penelitian menunjukkan antara lain: (1) Sistem penggunaan dan pemeliharaan laboratorium cukup baik. Pemeliharaan peralatan laboratorium komputer telah direncanakan dalam Rencana Pengembangan Sekolah (RPS) secara umum mengenai perencanaan, proses, dan hasil yang diperoleh dari pemeliharaan tersebut, (2) Desain dan tata letak laboratorium cukup efektif. (3) Adanya jadwal penggunaan laboratorium yang efektif, (4) Masih terdapat kendala bagi guru dan siswa dalam proses belajar mengajar di laboratorium. (5) Pengelolaan laboratorium ditangani oleh tenaga ahli pendidikan, dan ada dukungan dari yayasan.

**Kata kunci:** Manajemen, Laboratorium, SMA Al-Minhaj Shahabah

## A. INTRODUCTION

Nowadays most educational institutions are equipped with computer labs to provide training students who qualify them for their professional life (Siham Gaber Farag, 2018). In addition, the computer laboratory must also be handled by experts and experienced. Based on the Regulation of the Minister of National Education of the Republic of Indonesia No. 26 of 2008 concerning Standards Laboratory personnel decide that school laboratory standards include the head of the laboratory, laboratory technicians, and laboratories (Muntholib, Hidayat, 2018). laboratory facilities are facilities that are used as intermediaries in the teaching and learning process, to further enhance the effectiveness and efficiency in achieving educational goals (Delli Sabudu, Deitje A Katuuk, Viktory N J Rotty, 2021).

The problem faced by Indonesia today is no longer just seeking accessible education for every citizen but also improving the quality of education (Gaol, 2018) because the quality of education determines the quality of human resources, which correlates with the civilization of the Indonesian people in the future (Arifa, 2019). The education system is a series of sub-systems or elements of education that are interrelated in realizing its success. Goals, curriculum, materials, methods, educators, students, facilities, and tools exist.

Thus, one element requires the presence of other factors: educational facilities and infrastructure. Related to this, Sanusi said that the existence of educational facilities is necessary for the educational process so that it is included in the components that must be fulfilled in the implementation of the educational process. Without educational facilities, the educational process will experience difficulties, and educational goals will not be achieved (Suranto, 2022).

The completeness of facilities and infrastructure is very influential for students' success in acquiring knowledge and skills to form students, so they are ready to work in the field. Likewise, in the Regulation of the Minister of National Education Number 40 of 2008 concerning Standards for Facilities and Infrastructure for Vocational High Schools, one of which explains laboratories. Computer laboratories, as stated in the Regulation of the Minister of National Education number 24 of 2007, function as a place to develop skills in information and technology. Besides, computer laboratories are also used to assist the learning process in various fields of science, not just information and communication technology.

Informatics and computers Technology for education has advanced quickly in this century and is backed by computers, which meet societal needs. The computer is one of the media that should not be forgotten as a tool in the teaching and learning process, as a data

processing tool, program maker, modern communication, and administrative tool that must exist now. This development has significantly impacted various aspects of life, especially in the educational element, including classroom learning activities, administration, school information, and laboratories.

The laboratory is a facility and place to support the learning process, which is related to the development, understanding, skills, and innovation in the field of science by the areas of work that exist in the competence of expertise, including work training used for training and research testing activities. Laboratory functions as stated in Government Regulation number 5 of 1990 article 27: The laboratory is a supporting facility for competency skills in learning specific science and technology according to the study program concerned (Nurohman, 2011).

As an essential and strategic component, the laboratory must be managed; the purpose of laboratory management is so that the function of the laboratory as a support for the learning process can provide competence, skills, and expertise to students. Besides that, developing this laboratory is to make it more optimal in empowering schools and the laboratory itself.

In general, there are many problems in laboratory management, and this is because the existence of school laboratories does not seem to get serious attention from school managers, school principals, laboratory heads, subject teachers, and other laboratory staff. Other problems are the lack of optimal planning and organization, incomplete laboratory equipment, lack of evaluating equipment, and the amount of equipment that is not proportional to the number of students. Laboratory benefits and, of course, create a compelling and conducive learning atmosphere.

The efforts to create a conducive atmosphere, educational facilities, and infrastructure play a significant role, so the excellent and inadequate management of educational facilities and infrastructure will affect the learning process (Ellong, 2017). A school is said to be of good quality if it has adequate facilities and infrastructure. Because the existence of sufficient facilities and infrastructure will support learning activities to obtain the desired results. Optimizing these facilities is expected to facilitate the achievement of practical learning to improve students' learning quality (Suranto, 2022).

Based on the observations of researchers at SMA Al-Minhaj Shahabah Tamansari Bogor, it has become a vital carrying capacity in improving its students' competence and learning outcomes. Laboratory management at SMA Al-Minhaj Shahabah Tamansari Bogor is one of the advantages in efforts to improve the quality of education at the school. With excellent and optimal laboratory management, the quality of student learning shows a

significant increase, and in the end, students' learning outcomes, skills, and learning experiences also increase. That is to the expectations of school administrators in producing quality graduates ready to compete in work and the industrial world.

Computer laboratories make a precious contribution to improving students' skills and improving the quality of computer skills competency learning at Al Minhaj Shahabah High School, namely as support in teaching and learning activities. Computer laboratories, together with other educational components, participate in increasing the success of the teaching and learning process and school development. The condition of the computer laboratory at Al-Minhaj Shahabah High School is excellent. Still, it lacks maintenance and lack of software on computers that can monitor other computers so that students cannot maximize their teaching and learning activities.

Based on these conditions, this study focuses on computer laboratories' management in improving students' learning quality at SMA Al-Minhaj Shahabah Tamansari Bogor. The sub-focus includes (1) Laboratory use and maintenance system, (2) Laboratory layout design, (3) Laboratory rules, (4) Distribution of Laboratory Use Time, and (5) Teacher constraints in learning in the laboratory.

## B. LITERATURE REVIEW

### 1. Management

Management is an art in the science and organizational processes such as planning, organizing, actuating, and controlling. Management is also a scientific discipline that teaches the process of achieving organizational goals in a joint effort with several people or resources belonging to the organization.

According to Sudjana (Sudjana, 2000), management is "special abilities and skills to carry out an activity, either with other people or through others, in achieving organizational goals". Bafadal explained that management is utilized through the process stages, including planning, organizing, directing, and monitoring (Bafadal, 2014). According to George R Terry (Terry, 2014) management has process stages: Planning, Organizing, Actuating, and Controlling.

The more widespread understanding of management is defined as "a process or method of managing or carrying out certain activities by mobilizing the energy of other people, a process that helps formulate organizational policies and goals, or a process that provides oversight of all matters involved in implementing policies and achieving goals," according to the complete Indonesian dictionary (Daryanto, 1997). Management is the substance of managing, while managing means an action starting from compiling data, planning,

organizing, implementing, monitoring, and evaluating. It was explained then that management produces something and that something can be a source of improvement and improvement in subsequent management (Arikunto, 2011).

**2. Laboratory Management**

Laboratory management is an attempt to manage the laboratory. A suitable laboratory requires skilled human resources, adequate equipment by laboratory infrastructure and facilities standards, and good laboratory management, while optimal laboratory management will improve the learning process. In general, management is a group of people who work together to achieve specific goals. Management is used as a process carried out to achieve organizational objectives through several series of activities.

According to Marham Sitorus and Ani Sutiani (Sutiani, 2013), laboratory management is "an attempt to manage a laboratory based on standard management concepts". Good laboratory management depends on several factors that are interrelated with one another. Meanwhile, Hani Handoko (Handoko, 2011) mentions several functions, including "planning, organizing, preparation of personnel/staffing, direction and leadership, and supervision (controlling)". Laboratory management is an effort to manage the laboratory so that the objectives of the laboratory can be adequately achieved. Based on the opinion, there are five functions in management, so there must be several of these functions in laboratory management. The laboratory's goals can be adequately achieved if the implementation of management runs optimally.

According to Marham Sitorus and Ani Sutiani state that good laboratory management must understand laboratory management tools, namely: (1) Spatial planning, (2) Good and calibrated equipment, (3) Infrastructure, (4) Laboratory administration, ( 5) Laboratory organization, (6) Funding facilities, (7) Inventory and security, (8) Laboratory security, (9) High discipline, (10) Skilled Human Resource Management (HR), (11) Basic regulations, and ( 12) Handling of general problems and types of work (Sutiani, 2013).

If these devices can be managed optimally, they will support the implementation of good laboratory management. Based on the description above, laboratory management can be understood as a management action that is complex and directed, starting from spatial planning to planning all other supporting devices.

**3. Computer Laboratory**

**a. Definition of laboratory**

The laboratory is equipped with equipment and materials based on specific scientific methods to conduct scientific experiments. Researcher Management is a substantive

of managing, while managing means an action starting from compiling data, planning, organizing, and implementing, up to supervision and assessment. It was explained then that management produces something and that something can be a source of improvement and improvement in subsequent management (Arikunto, 2011).

The laboratory is " where experiments and investigations are carried out". The narrow Definition of a laboratory is often interpreted as a room or place in the form of a building bounded by walls or a roof with several tools and practicum materials (Sutarman, 2005). A laboratory is a "room or building equipped with teaching aids to carry out scientific work such as conducting experiments, research, demonstrations, and others" (Mardjan, 1989). Likewise, Nyoman Kertiasa explains that a laboratory is "a place to work to conduct experiments or investigations in certain fields of science such as physics, biology, and so on" (Kartiasa, 1979).

So, the computer laboratory is where computer practicum activities take place as an approach to learning information and communication technology. The laboratory is academic equipment besides books and other media. That shows that the laboratory is not only a place where activities are carried out but also personnel with qualifications that include expertise, skills, broad insights to reach the future, and the ability to carry out high social transactions.

**b. Laboratory Management Objectives**

The laboratory is a place to carry out practical teaching and learning activities. Activities in this laboratory can increase student motivation, generate enthusiasm, and encourage active learning because teaching and learning activities emphasize activity and improve student knowledge and skills.

The benefit of the laboratory is providing facilities and a place for presentations, discussions, and practice, for students to develop their potential (cognitive, affective, and psychomotor), so they can enhance the quality and professionalism of graduates of the Office Administration Expertise Program. This conclusion can be drawn based on the various explanations of the purpose of the laboratory put forward by the experts above.

**c. Computer Laboratory Function**

The laboratory function is a source of learning and teaching, a method of observation and experimental approach, an educational infrastructure, or a vessel in the teaching and learning process.

According to Amin Soejitmo, quoted by Dientje Borman, the meaning and functions of the laboratory include: (1) The laboratory can be a container, namely a place, building, or room with all kinds of equipment needed for scientific activities. In this case, the laboratory is seen as hardware (hardware), (2) The laboratory can be a media facility where teaching and learning activities are carried out. In this sense, the laboratory is seen as software in scientific activities, (3) The laboratory can be interpreted as a centre for activities to find scientific truth and its application, and (4) The laboratory can be interpreted as an information centre. Scientific activities and experimentation can be carried out with the facilities and infrastructure owned by a laboratory. (5) In terms of "Cliantele", the laboratory is a place where lecturers, students, teachers, students, and other people carry out scientific work activities in teaching and learning activities, (6) Based on the scope of work, a laboratory is a place where work activities are carried out to produce something. In this case, in the field of engineering, the laboratory here can be interpreted as a workshop (7) based on the results obtained by the laboratory, as the facilities and infrastructure owned can constitute and function as a centre for learning resources. Is a place equipped with equipment to carry out activities or activities in the form of scientific experiments? So it can be seen that the laboratory has many functions, including a place and media for teaching and learning activities, an activity centre for finding scientific truth, an information centre, a workshop, and a centre for learning resources (Rumampuk, 1988).

## C. METHOD RESEARCH

The method used in this study uses a qualitative approach with a descriptive analysis approach, namely a study to examine an event that is being experienced by researchers, such as actions, motivations, perceptions, behaviour, and others (Moleong, 2018). Qualitative research is a strategy that emphasizes the search for meaning and understanding of concepts, symbols, symptoms, and descriptions of a phenomenon (Yusuf, 2017). The primary data sources in this study are a person and place with procedures and data collection techniques through interviews and observation. In contrast, the secondary data sources in this study are paper through document study activities. In Sugiyono's opinion, Without knowing data collection techniques, researchers will not obtain data that meets the established data standards (Sugiyono, 2013).

Researchers conducted interviews through question-and-answer conversations or discussions to obtain information from several informants. Observations are made through

direct and indirect observation using all five senses. A documentation study was conducted to collect documents and supporting data related to research at SMA Al-Minhaj Shahabah Tamansari Bogor starting from June 22 – August 23, 2022, which was carried out for approximately 30 days. A study was also conducted to obtain a profile document of the school's vision and mission. These documents are used to complement research data so that a comprehensive description of the object of research can be displayed. According to Arikunto, the documentation method is a data collection technique in which researchers investigate written things such as books, magazines, documents, regulations, meeting minutes, diaries, and so on (Arikunto, 2011). In addition, the documentation collected by researchers is in the form of writing or pictures. The data collected is objective data regarding the history of the establishment of the institution, the number of students, and the geographical location of the research area (Sujiono, 2017).

The primary source of research is the leadership, namely the school principal and deputy head of facilities and infrastructure, while teachers, laboratory assistants, students, and school employees as additional data sources to strengthen answers and test the truth.

## D. RESULTS AND DISCUSSION

### Laboratory Use and Maintenance

Based on research findings at SMA Al Minhaj Shahabah Tamansari Bogor, the use of computer laboratories for learning is adapted to the needs of teachers and students. The computer lab is used interchangeably by junior and senior high school students according to the schedule made by the person in charge of the computer laboratory. That is to prevent conflicts or clashes in computer laboratories between junior and senior high school students. In addition, the scheduling of computer use includes a computer maintenance schedule so that computer use can be done regularly and the computer is not easily damaged. The plan for computer use was to socialize in the madding and in the computer lab room (SH-Computer Lesson Teacher, interview on July 26, 2022).

Some of the findings above align with Hasibuan's opinion that control (controlling) must be planned as well as possible so that the implementation of control can be more effective. The control must be carried out as early as possible to avoid errors and take corrective action (Hasibuan, 2016). The use of laboratories for learning is adjusted to the needs of teachers and students, (2) there are rules for use that students must obey, (3) the maintenance of goods is handed over to the parties who are responsible for each program, department, and class (Darmastuti, 2014).

Maintenance of the computer laboratory at SMA Al-Minhaj Shahabah has been regulated in the school development plan (RPS), carried out three times a week, and carried out by the person in charge of the computer laboratory. Suppose there is known damage, such as broken software, network errors, computers not working, etc. In that case, the computer laboratory administrator will immediately resolve the problem so that students can carry out learning activities comfortably and safely. Suppose there are problems in the computer laboratory that interfere with student teaching and learning activities. In that case, the person in charge of the computer laboratory will immediately repair the damage or problem (SH-computer teacher, interview July 26, 2022).

The findings above align with Sujatmiko's opinion that maintaining a good computer laboratory is necessary because if the computer laboratory is well maintained, the computer equipment can run well, and ICT learning in the laboratory can run smoothly (Sujatmiko, 2013).

Computer laboratory maintenance is one of the activities in computer laboratory management. Maintenance is intended to care for and maintain so that all parts of the laboratory can run optimally in ICT teaching and learning activities. That means that maintaining a computer laboratory is the same as controlling activities so that the use of a computer laboratory is by the plan that has been decided. The schedule for using the computer laboratory at the Al-Minhaj school is as shown in the table below:

Picture 1

Schedule for the use of a computer laboratory at SMA Al-Minhaj Bogor

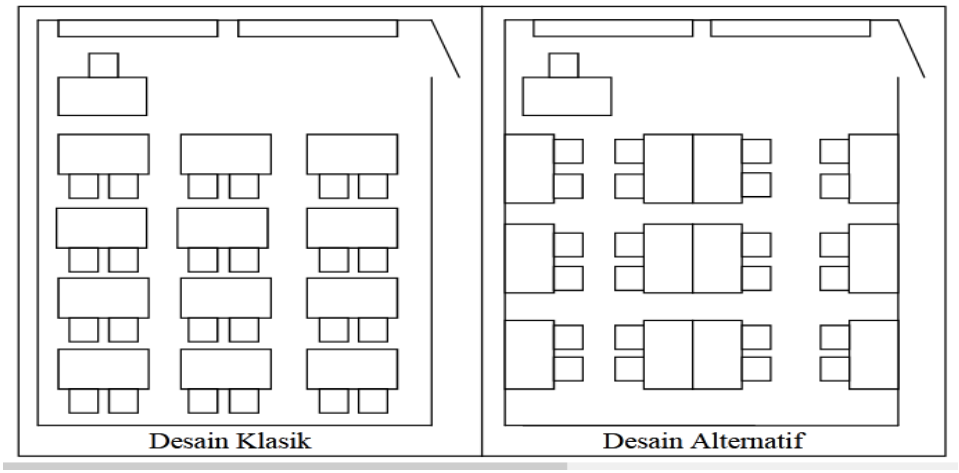

As for maintenance and checking problems in the hardware and software department at Al-Minhaj Shahabah High School, it is lacking, so student learning is less effective. Checking computer laboratory equipment, such as hardware and software, at SMA Al-Minhaj Shahabah is only done when there is damage to the computer, or other problems have occurred.

**Laboratory Layout Design**

**a. Laboratory Design**

In determining the size of the laboratory, according to Sabar Nurohman (Nurohman 2011), several things must be considered, including (1) the type of activity to be carried out, (2) the number of students who will practice, (3) the type of equipment and furniture to be used, (4) the minimum requirements are met and do not exceed the maximum room area so that the practice can run smoothly and efficiently, (5) consider work safety aspects, (6) consider occupational health aspects.

Based on research findings, the design of the computer laboratory at SMA Al Minhaj Shahabah consists of two designs, namely the classic design and the alternative design. As illustrated below:




Picture 2.
Design in the Computer Laboratory at Al-Minhaj Shahabah High School

1) Classic Design

Based on the research findings, the laboratory space design at SMA Al-Minhaj Shahabah is designed like most classroom layouts. The position of teacher/instructor is at the front, equipped with a computer unit, projector screen, and blackboard, where the student's computer desks are arranged in several rows facing the front. The advantages of this design include: (1) It is easier for students to follow each stage of learning because of the forward-looking direction, and (2) The teacher can become the centre of students' attention. The weaknesses of this design are: (1) The room seems cramped, and (2) It is difficult for the teacher to monitor student activities, especially for students who sit in the back (SH-Computer Lesson Teacher, interview on 20-7-2022).

The findings above are by the opinion of Ruliana Fajriati, who stated, "Quality learning is learning that can place the teacher in the right position so that the teacher can play a role according to the needs of students by involving components of the teaching and

learning process. The quality of learning can be determined from the results and the process" (Fajriati, 2022).

2) Alternatives Design

The design of second form is designed in such a way that it allows the teacher to "move" or monitor all student activities. The advantages of this design are: (1) Teachers can move freely throughout the computer laboratory room, and (2) The laboratory room seems more comprehensive. The weaknesses are: (1) Students get tired of their necks/heads more quickly because they have to divide the direction of view to the front of the class and the front of the computer, and (2) Students pay less attention to the teacher's instructions because the teacher's position is not directly in front of them. In addition, the design of the laboratory made by SMA Al-Minhaj Shahabah is different from the laboratories for men and women because the places are separate. So, the laboratory design for male students was made in an alternative form, while for girls, it was a classic form (SH-Computer Lesson Teacher, interview on 20-7-2022)

**b. The Condition of the Laboratory Room**

Permendiknas No. 24 of 2007 explains that standard computer laboratory rooms should accommodate a minimum of one study group working in groups of 2 people. The minimum ratio of computer laboratory space is two meters per square meter (2 m2/student). For study groups with less than 15 students, the minimum area of the computer laboratory room is 30 m2. The minimum width of the computer laboratory room is five meters.

Based on the results of observations, the computer laboratory at SMA Al-Minhaj can accommodate more than 60 people. The area of the laboratory for female students is 104.4 square meters, 7.2 meters wide, and 14.5 meters long. Meanwhile, the area of the laboratory for male students is 99.75 square meters, 9.5 m wide, and 10.5 m long (Observation, 30-06-2022).

Laboratory floors should not be slippery and should be easy to clean. The student circulation floor where students walk in the laboratory must not contain any protrusions that could cause students or teachers to trip over. Tools or objects mounted on the wall should not protrude into the space where students walk. Each laboratory room is equipped with two relatively large doors open to the outside, positioned near the ends of the room. Even better if the two doors across the room make it easier for many students in the laboratory to get out of the space in the event of a disaster. The need for a door to open out makes it easier for people in the laboratory room to break open the exit in an emergency. Every laboratory room requires good ventilation (air exchange system), especially laboratory activities that generate

heat from the monitor and CPU. Then it needs good ventilation by using an electric fan or an air-conditioned room.

**1. Laboratory Rules and Regulations**

Based on research findings, practicum, and learning in the computer laboratory at Al-Minhaj Shabah High School, regulations have been made that are determined by the school. The administrators and persons in charge of the computer laboratory carry out the rules and regulations in the computer laboratory, so every student or teacher who uses a computer is obliged to comply with these rules, namely: a) Rules of conduct for students, as follows: (1) Students are prohibited from bringing food and drink into the laboratory, (2) Prohibited from opening any sites or applications unless directed by the teacher, (3) Students must wear uniforms according to the day, (4) Prohibited from making noise and joking, and (5) Students/ i is prohibited from carrying a flash disk or external hard disk or any external memory. The rules for teachers include: (1) Teachers are prohibited from leaving students and students in the computer laboratory for a long time, (2) Turning on/using the electrical system as necessary, (3) Required to turn off the electrical system when the laboratory is finished using it (Fathan Al -Ghifary-Laboran, interview on August 12, 2022).

**2. The Schedule of Computer Laboratory Use**

Based on the research findings, the computer laboratory at Al-Minhaj school is open every day and according to the usage schedule, which is used by students alternately for junior and senior high school students. The administrator makes the schedule of the computer laboratory with the aim that the practicum is carried out in an orderly manner. So if it is not according to plan, students are prohibited from entering. The learning schedule is based on the ICT learning schedule made by the ICT subject teacher. Even so, the learning schedule must be well prepared by the computer laboratory manager so that it does not clash and can run well, and be optimally empowered by students (SH-Computer Lesson Teacher, interview, August 19, 2022)

As for during a pandemic, teachers who want to use computers to carry out teaching and learning activities that can optimally maximize all students' potential, both online and offline, however related to learning in the laboratory, must first obtain permission from the person in charge of the computer laboratory (SH-Computer Lesson Teacher, interview date August 12, 2022).

The findings above are Tampilen's opinion, which states that learning can maximize all human potential optimally both as individuals and as members of society. An educational

process must be passed, implemented in a strategy, and a continuous learning process To empower one's potential to become multiple competencies (Tampilen, 2021).

**3. Teacher Obstacles in Learning in the Computer Laboratory**

Based on the research findings, there are main obstacles in the implementation of learning in computer laboratories faced by teachers in schools, namely: (1) sometimes unstable electrical conditions cause the computer laboratory to turn off suddenly, so that students and teachers whose work is not yet the save will disappear due to the absence of a stabilizer that can prevent sudden power failure and also a lack of power supply, (2) no application or software has been installed that can monitor student computers such as monitoring NetSupport, ActivTrak, Osmonitor, etc. So that students are not maximal in the teaching and learning process, and students can be accessible on sites that are not useful and download mp4/mp3 that is not useful on the computer. That is due to the absence of direct supervision from the teacher's server, (3) damage to components on the computer such as headsets and computer monitor screens caused by the long vacation time of students so that the computer is not used for a long time, this is the cause of some damaged computers and headsets (SH-Teacher of Computer Lessons, interview on August 12, 2022).

Regarding these findings, it is considered necessary for laboratory managers to optimize specific maintenance. According to Darmastuti, maintenance starts from using goods, namely by being careful in using them. Officers must maintain a special nature with expertise in the type of goods in question. School facilities and infrastructure, such as furniture, office equipment, and learning facilities, are always available whenever needed. That way, all school personnel can carry out their duties smoothly (Darmastuti, 2014).

## E. CONCLUSION

Based on the results of research findings, analysis, and discussion, a conclusion can be drawn as follows:

The laboratory use system at SMA Al-Minhaj Shahabah is quite good. The maintenance program for computer laboratory equipment has been regulated in the School Development Plan, specifically regarding the planning, process, and results obtained from this maintenance.

There are two computer lab designs at SMA Al-Minhaj, namely the classic and alternative designs. The laboratory design for male students is made in an alternative form, while the design for female students is in a classical form.

The school leadership sets regulations regarding discipline in the computer laboratory for all students, and teachers who use computers must comply with these rules.

There is a schedule for the use of a computer laboratory that is quite effective. The computer laboratory used at SMA Al-Minhaj Shahabah is open daily and according to the schedule for junior and senior high school students. The implementation of the practicum runs in an orderly and effective manner.

There are obstacles for teachers and students in learning in the laboratory, namely: (1) unstable electrical conditions, no stabilizer, and lack of power supply, (2) application or software has not been installed that can monitor NetSupport, activity, and computer os (operating system), and (3) lack of maintenance, there is still damage to computer components, such as; headsets and computer screens.

## F. AKCNOWLEGMENT

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