

## COMPUTER LABORATORY MANAGEMENT AS A LEARNING RESOURCE

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### Abstract:

The purpose of this study is to describe the state of laboratory management in the areas of planning, work programs, organizing, implementing work programs, and monitoring as a source of learning at MAN 1 Lumajang. The evaluation of the subjects of this study was the principal, teachers, laboratory managers, technicians and students. The research method used qualitative descriptive. The data collection technique for this study used interview, observation, and documentation techniques. Data collection used interviews, observations, and documentation, and was analyzed by means of data reduction, data presentation, and drawing conclusions. The results of the study indicate that the management of the computer laboratory at MAN 1 Lumajang Address: Jl. Citandui no.75 Lumajang, Lumajang Regency. has been implemented well so far but still needs to be improved, especially in the field of management of facilities and infrastructure, and human resources.

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## INTRODUCTION

Government Regulation No. 19 of 2005 in Chapter VII Article 42 paragraph 2 states that (PP No. 19, 2005): "Every educational unit is required to have infrastructure that includes classroom space, educational unit leadership room, educator room, administration room, library room, laboratory room, sports workshop room, place of worship, playground, creative place and other rooms/places needed to support a regular and sustainable learning process."

One of the learning resources that can be used in the learning process is a computer laboratory, in terms of utilizing computer media to support the learning process in schools (Myori et al., 2019), Koesnandar (2008) argues in his writing "How to Utilize the Schoolnet Program", there are at least six aspects that need to be considered in utilizing a computer laboratory as a learning resource, namely: (1). Infrastructure; (2). HR Readiness; (3). Policy Support; (4). Instructional System Development; (5). Content Utilization; (6). Share information and telecollaboration. A laboratory is a work unit that



has human resources (HR) of at least a laboratory head or laboratory coordinator, laboratory technicians and laboratory assistants, a special room or place, and other supporting learning media (Hilmiati, 2021). In this case, the laboratory is expected to be able to increase the interest and enthusiasm of teachers in teaching and students' learning (Mukaromah, 2020). However, currently the computer laboratories in schools are quite optimally utilized, it's just that there are a lack of users in utilizing the resources in the computer laboratory. To utilize the laboratory as a supporting facility for the teaching and learning process in schools, it should be managed properly (Khafid & Fahmi, 2022).

With good management, good service will be created for the ongoing teaching and learning process, indirectly it will produce good quality teaching and learning processes and good learning quality (Putri & Marlina, 2019). Management of computer laboratory services is generally the responsibility of the principal as a leader at the educational unit/school level, therefore in an organization there is a task structure that is directly responsible for management, so one part of the management is that practical equipment must be stored properly to maintain the condition of the equipment and easy to find when it will be used for practice (Black & Kohser, 2019). Laboratory management will run more effectively if the laboratory organizational structure is supported by a Board of Management which functions as a director and advisor. The Board of Management consists of seniors/professors who have competence with the laboratory activities concerned, in this case including the principal and head of the computer laboratory (Tone, 2017).

## **RESEARCH METHOD**

Research method is a general strategy used in data collection, data analysis and drawing conclusions in order to answer the problems formulated in the research (Shofiyani & Amrini, 2024). The research method used is a qualitative descriptive research method, namely research that produces descriptive data about phenomenal studies and is expressed descriptively in critical analysis, focusing on collecting information about conditions or realities, describing the nature of the conditions when the research is conducted, and examining certain symptoms naturally. The data sources used are in the form of information, places of events and documents

Data collection techniques use observation, interviews and documents. Meanwhile, qualitative methods emphasize more on observing phenomena and examine the substance of the meaning of the phenomenon. The analysis and sharpness of qualitative researchers are greatly influenced by the power of the words and sentences used (Raco, 2018). Therefore, Basri (2014) concluded that the focus of qualitative research is the process and the meaning of the results. Qualitative research focuses more on human elements, objects, and institutions, as well as the relationships or interactions between these elements, in an effort to understand an event, behavior, or phenomenon (Setyawan, 2017). Qualitative methods have several distinctive characteristics, namely an emphasis on the natural environment (naturalistic setting), inductive, flexible, direct experience, depth, process, capturing meaning (Verstehen), wholeness, active participation of participants and interpretation (interpretation)

(Moleong, 2018). Through this research model, researchers will explore an object. Like people looking for oil sources, gold mines, and so on (Khafid & Fahmi, 2022) To understand the meaning behind the data that appears (Raco, 2018). Based on this opinion, this observation is included in the category of qualitative research. Meanwhile, the problem that is the focus of attention in this research is the management of the computer laboratory as a means of improving student learning at MAN 1 Lumajang.

## RESULT AND DISCUSSION

### Management of Computer Laboratory at MAN 1 Lumajang

According to (Khafid & Fahmi, 2022) Management of lab space infrastructure includes; lab space planning, lab space infrastructure organization, lab space infrastructure coordination, implementation of lab space infrastructure and control of lab space infrastructure. Meanwhile, management in general consists of four aspects, namely: planning, organizing, implementing, and supervising. In this case, the laboratory at MAN 1 Lumajang also applies this (Putro & Triyono, 2016).

Researchers can describe how the laboratory is managed through the results of interviews and observations with the head of the computer laboratory. In the planning, several parties are involved, including the principal, vice principal, vice principal for facilities and infrastructure, school treasurer, head of the computer laboratory and teachers. Each party contributes to the realization of good planning. The aspects included in the planning are planning for the procurement of computer laboratory equipment and materials, planning for the computer laboratory work program, planning the layout of the computer laboratory and planning for the effective use of the laboratory as a means of student learning. This planning is made in accordance with the curriculum currently used at MAN 1 Lumajang.

Thus, the facts seen during the observation are indeed true. The organization of the computer laboratory at MAN 1 Lumajang has been made and determined. With the aim of making computer management more effective and accountable. With the following organizational structure:

**Table 1.** Laboratory Management

<b>Name</b>	<b>Position</b>
Edi Nanang Sofyan Hadi,S.Ag.M.Pd	Head of Madrasah
Abdur Rohman, S.Pd.I	Head of Computer Lab
Arif Awaludin S.Pd	Laboratory
Triono	Technician
Umar Basri S.Pd.I	ICT Teacher

In the daily learning process in the computer laboratory, only the head of the laboratory supervises assisted by TU staff who are considered to be proficient in computerization. This can be seen when researchers observe the process of learning the Qur'an and Hadith carried out in the computer laboratory.

The actualization that has been planned in the planning section has been carried out. After approximately 4 years ago the computer laboratory at MAN 1 Lumajang lacked units, at the beginning of the 2022 academic year, computer rejuvenation and

procurement of several computer units were carried out, although some were repaired because they could still be used. Currently, there are approximately 36 computer units that can be operated by students for learning, especially ICT subjects. Evaluation is carried out by the principal to review the effectiveness of laboratory use and control the lack of facilities and infrastructure.

### **Constraints in Managing Computer Laboratories as a Means of Improving Student Learning at MAN 1 Lumajang**

The definition of constraints according to KBBI, constraints are factors that limit, hinder the achievement of targets. Factors that are obstacles in managing computer laboratories as a means of improving student learning include budget funds that are not disbursed so that they hinder the improvement of quality in computer laboratories. In the planning, it has been budgeted for infrastructure, but due to lack of funds, this has been delayed and can only be budgeted and realized at the beginning of the 2022 school year. In the computer itself, there are no fatal obstacles, some mice or keyboards sometimes error and cannot be used, but this can be immediately fixed by the head of the laboratory. The last obstacle is from the students themselves, especially class X students who are known to be less familiar with ICT and computers when they were in junior high school and finally the current ICT teacher has to really start from scratch. Therefore, for now, the ICT teacher and head of the laboratory are more focused on class X to get to know the basics of using computers and get used to being invited to the typing master game so that students can select letters on the keyboard quickly. And it succeeded in making children feel challenged and started to get used to it.

However, on the other hand, a student named Linda Alfina, grade XII, said that the supervisors in the laboratory were lacking in terms of quantity. When compared, one supervisor supervises 36 students who are practicing or learning. This causes learning to be less effective because many students misuse computers for things unrelated to learning. Thus, the facts seen by researchers during observations are indeed true. When learning for grade X was carried out in the computer laboratory, many students did not understand how to operate the computer and there was only one supervisor plus the subject teacher. Meanwhile, the completeness of the computer unit is quite adequate because in the 2022 academic year the budget has been disbursed and the computer unit has been rejuvenated.

### **The Important Role of Laboratory Management in Improving Student Learning at MAN 1 Lumajang**

The facilities and infrastructure in every educational institution certainly greatly support the student learning process (Afandi, 2015). One of them is a computer laboratory which is currently very much needed in improving student learning in the digital era. Both in the implementation of daily learning and in certain activities. MAN 1 Lumajang has been equipped with a computer laboratory for a long time. This is supported by the program held at MAN 1 Lumajang, namely the robotics extracurricular which is of interest to outstanding students. The management and use of laboratories to improve student learning is very important.

By being equipped with computer laboratory facilities which are a supporting facility for the program, the school continues to improve its management. In addition

to being used for robotics extracurricular activities, for the new 2022 academic year, MAN 1 Lumajang will become a skills-based school which includes graphic design, fashion, and robotics skills. The computer laboratory plays a very important role in supporting the implementation of the program.

With the statement above, the computer laboratory is indeed very important in the process of improving student learning. Some of these skills programs are specifically for several classes and some are free. As with robotics and fashion, it is not specific. While graphic design is specific to class XII IPS 1 and 2. However, the use of computer laboratories is not only for students who take the three programs. Students are allowed to use the computer laboratory to help complete assignments or students who want to deepen their expertise in the field of computerization. This is allowed if they have received permission from the head of the computer laboratory or the teacher concerned and of course supervised and must not exceed the KBM limit at school.

In addition to ICT subjects and computer-based skills, the Al-Quran Hadith subject at MAN 1 Lumajang has also started using computers in its learning. The Quran Hadith teacher teaches students to practice writing Arabic on Ms. Word. This is done with the aim of improving student learning and keeping up with the times. The activity is also assisted by the ICT teacher who also serves as the head of the Labkom.

Another activity that uses computer laboratory facilities is computer-based assessment. Not only internal, but there are also several schools that do not have labkom facilities such as MI Cigugur and MI Cilembu. Then the computer laboratory is also used for computer-based KSM (Madrasah Science Competency) activities and exams carried out at level XII.

### **Computer Laboratory Management at MAN 1 Lumajang**

With good management, good service will be created for the ongoing teaching and learning process, which will indirectly produce good quality teaching and learning processes (Hilmiati, 2021). The management of the computer laboratory as a means of improving student learning has been going quite well, because the management function in managing the laboratory has been implemented.

Planning in the management of the computer laboratory at MAN 1 Lumajang has been implemented and involves several elements including the principal, school treasurer, curriculum vice principal, infrastructure vice principal, computer laboratory head, and ICT teacher. All prepare plans according to their fields and discuss them for their realization. Some of the things discussed are what curriculum will be implemented at the beginning of the school year and what is needed for the use of the computer laboratory, management of the computer laboratory, fulfillment of computer laboratory facilities and infrastructure, and the effectiveness of the use of the computer laboratory as a means of improving student learning (Putro & Triyono, 2016).

According to Wursanto (1989: 99), organizing is "a process of activities carried out by a person in an organization and moving the available organizational components and dividing tasks in an effort to achieve predetermined goals". The laboratory management of MAN 1 Lumajang is well organized. Starting from the principal, head of the laboratory, laboratory assistants, technicians and ICT teachers. All are responsible for the realization of the goals that have been set (Hastuti, 2018).

Actualization is a movement or moving people to work according to their respective fields (Nugroho, 2015). realizing the planning that has been made. One of the plans in the management of the computer lab is the budget for the fulfillment of infrastructure, although it can only be realized in the academic year, but computer rejuvenation has been carried out. The effectiveness of the use of the computer lab was also realized with the implementation of the independent curriculum and the change of MAN 1 Lumajang into a skills-based school which includes graphic design skills, fashion, and robotics. Other subject teachers who have started using computers in learning support the effectiveness of the use of the computer lab.

According to George R Terry in (venkatesh, 2015) supervision can be defined as follows: Control can be defined as "the process of determining what is to be achieved, which is the standard of what is being done, to assess the implementation and if necessary carry out repairs in accordance with the plan so that implementation is consistent with the standard. This means; Supervision can be defined as "the process of determining what must be achieved, namely what standards are being carried out, assessing the implementation and if necessary carrying out improvements so that the implementation is in accordance with the plan, namely in line with the standard". Evaluation aims to see the level of success of activity management, through a study of the management and output of its implementation and the problems faced, to then become material for evaluating the performance of the program and subsequent activities. In this case, the evaluation of the management of the computer lab is carried out by the principal in an evaluation meeting while the head of the computer lab and the ICT teacher carry out the evaluation by giving tasks related to the use of the computer lab (Shunhaji et al., 2020).

### **Obstacles in Managing Computer Laboratories as a Means of Improving Student Learning at MAN 1 Lumajang**

In the success of an education or an organization, besides supporting factors, there are certainly also factors that hinder an activity. Deni Darmawan (2012: 10) mentions the obstacles that cause technology not to be used optimally, including the lack of availability of human resources, the process of technological transformation, and telecommunications infrastructure. In this study, there are several obstacles in managing computer laboratories. The definition of obstacles according to KBBI, obstacles are factors that limit, hinder the achievement of targets (Nurulita Normawati, 2016).

Several factors that are obstacles in the management and utilization of computer laboratories as a means of student learning include:

#### **Funding Limitations**

Procurement of facilities and implementation of programs in computer laboratories are highly dependent on the availability of funds. At MAN 1 Lumajang, one of the main problems is that the funds that have been budgeted for facilities and infrastructure have not been realized by the government. This condition has an impact on the student learning process, especially in the use of computer laboratories, because computers require periodic rejuvenation to maintain their performance. Unfortunately, this requires a lot of money. Without adequate funding support, efforts to improve the

quality of education through technology are hampered.

### **Lack of Human Resources (Supervisors)**

When teaching and learning activities take place in the computer laboratory, each student has direct access to their respective computers. However, the lack of supervision allows some students to not focus on the lesson and instead access irrelevant sites or applications. Because supervisors are unable to monitor all students individually, this causes learning to be less effective. In this case, it is important to improve the quality and number of supervisors so that learning is more optimal.

### **Facility Maintenance Problems**

Although the number of computers available is sufficient for use by one class, some devices often experience damage, such as computers, mice, or keyboards that do not work. Based on observations, there is only one supervisor in the computer laboratory, and device maintenance is only carried out by the head of the laboratory. Sometimes, the head of the laboratory is assisted by administrative staff or students who are members of the robotics team. The lack of attention to the maintenance of these facilities has an impact on the limitations of maximum use of the laboratory.

### **Lack of Understanding of Technology in Students**

Technological advances require students to have adequate digital literacy. However, in reality, there are still many students, especially in grade X, who do not understand the use of computers. This is due to the lack of mastery of computerization at the previous level, namely junior high school. As a result, teachers at the high school level have to start learning from the basics, which not only takes time but also slows down the learning process of other students who are more prepared.

## **The Important Role of Laboratory Management in Improving Student Learning at MAN 1 Lumajang**

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After MAN 1 Lumajang was transformed into a skills-based school which includes graphic design, fashion, and robotics skills. The use of the laboratory became more effective because it became a supporting facility for the program. Not only that, the computer lab is also used for students who want to study computerization or do assignments. Computer-based ASN activities, KSM, and level XII exams are also carried out in the computer laboratory. Several subjects have also used computers, including the Quran and Hadith subjects which began to introduce students to writing Arabic letters or verses of the Quran in the Ms. Word application on the computer.

After the researcher conducted an observation, the computer laboratory at MAN 1 Lumajang really supports the student learning process. It can be seen when the Quran and Hadith teacher is conducting KBM in the computer lab.

## CONCLUSION

Based on the results of the research and discussion, it can be concluded that the management of the computer laboratory at MAN 1 Lumajang has been carried out quite well, referring to management functions such as planning, organizing, implementing, and controlling. Although there are still some obstacles, such as funding, human resources, and facility maintenance, all of them can be handled with the right efforts. The strategic role of the computer laboratory in supporting student learning, especially with the status of a skills-based school, further strengthens the importance of utilizing technology as an integral part of education.

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