# COMPUTER LABORATORY MANAGEMENT IN IMPROVING STUDENTS' HARD SKILLS IN THE FIELD OF MULTIMEDIA

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***Abstract****. The computer laboratory is a support for learning, skills and school infrastructure. Then required planning, organizing, implementation and evaluation. To make the computer laboratory directed and managerial so that the goal of procuring a computer laboratory is achieved effectively and efficiently. As for improving the hard skills themselves, it requires teaching that is repeated consistently and always evaluates so that the hard skills are even better. This research is included in qualitative research with a descriptive approach, the data collection methods used are interviews, observation and documentation. The key informant in this research is the head of the computer laboratory. While the supporting informants were the Head of School, Deputy Head of School for Facilities and Infrastructure, Deputy Head of School for Curriculum, and students. This research was conducted at MAN 1 Jombang. Based on the results of research on computer laboratory management including planning activities or goals for managing computer laboratories as well as organizing which includes the selection of good human resources and the preparation of organizational structures, the implementation of evaluation which is a managerial activity here also describes how to increase hard skills in the multimedia field. It also describes the supporting and inhibiting factors in managing computer laboratories in improving students' hard skills in the field of multimedia at MAN 1 Jombang.*
***Keywords****. computer laboratory management, hard skills in the field of multimedia*

**Abstrak.** Laboratorium komputer merupakan penunjang pembelajaran, keterampilan dan prasarana sekolah. Maka diperlukan perencanaan, pengorganisasian, pelaksanaan dan evaluasi. Menjadikan laboratorium komputer terarah dan manajerial sehingga tujuan pengadaan laboratorium komputer tercapai secara efektif dan efisien. Sedangkan untuk meningkatkan hardskillnya sendiri, diperlukan pengajaran yang diulang-ulang secara konsisten dan selalu melakukan evaluasi agar hardskillnya menjadi lebih baik lagi. Penelitian ini termasuk dalam penelitian kualitatif dengan pendekatan deskriptif, metode pengumpulan data yang digunakan adalah wawancara, observasi dan dokumentasi. Informan kunci dalam penelitian ini adalah kepala laboratorium komputer. Sedangkan informan pendukungnya adalah Kepala Sekolah, Wakil Kepala Sekolah Bidang Sarana dan Prasarana, Wakil Kepala Sekolah Bidang Kurikulum, dan siswa. Penelitian ini dilakukan di MAN 1 Jombang. Berdasarkan hasil penelitian mengenai manajemen laboratorium komputer meliputi perencanaan kegiatan atau tujuan pengelolaan laboratorium komputer serta pengorganisasiannya yang meliputi pemilihan sumber daya manusia yang baik dan penyusunan struktur organisasi, maka pelaksanaan evaluasi yang merupakan kegiatan manajerial disini juga menjelaskan cara meningkatkan hardskill di bidang multimedia. Diuraikan pula faktor pendukung dan penghambat pengelolaan laboratorium komputer dalam meningkatkan hard skill siswa bidang multimedia di MAN 1 Jombang.
**Kata kunci.** manajemen laboratorium komputer, hard skill di bidang multimedia

## A. INTRODUCTION

A school really needs a computer laboratory to support learning, skills and school infrastructure. To run a computer laboratory well requires good management which includes a series of management activities such as planning, organizing, implementing, and evaluating which can make the management of the computer laboratory run according to what is desired effectively and efficiently.

Education itself is a very important factor in improving the quality and role of human resources. In the era of globalization and the very rapid pace of development of science and technology (IPTEK), human resources are expected to be quality human resources, capable of using, developing and mastering science and technology.

In the school laboratory management book, Daryanto writes that a laboratory or commonly abbreviated as lab is a place where scientific research, experiments, measurements or scientific training are carried out (Daryanto 2018). Based on government regulation no. 32 of 2013 as a replacement for PP no. 19 of 2005 concerning National Education Standards, that laboratories are necessary infrastructure to support the learning process (Daryanto 2018). The laboratory itself is a place or room that is often used as a place for practice or for conducting investigations by a group of people (Puspita 2020). The computer laboratory is the main means of supporting increased student learning through computer media, and can be used as a tool in the teaching and learning process for both teachers and students. According to Ibrahim, a computer laboratory is a means used to carry out computer practicum as an approach to learning Information and Communication Technology. Ideally, not only computer practicums are carried out but also ICT learning in the form of other innovations from the development of the computer world in modern times (Husaeni, Fahmi 2018).

Computer laboratory management is very necessary because having good learning facilities will make learning run smoothly (Setiawan Saputro 2017). Laboratory management is a process of managing a laboratory so that the activities within it can take place smoothly and efficiently (Puspita 2020). In order for the laboratory to run as desired, it must be managed well. Management plays a very important role in determining the success or failure of the activities carried out. Therefore, there is a need for good computer management (Wikidi 2022).

Efforts to maximize computer laboratory management by paying attention to the completeness of facilities and infrastructure to support learning. In general, computer laboratory management steps include planning, organizing, implementing and monitoring activities. All these activities must be considered and carried out correctly so that the objectives of the laboratory can be achieved and its stability is maintained (Dwi Anato 2017). Meanwhile, according to Arikunto in Agus's journal, it is stated that the management of laboratory space infrastructure includes; lab space planning, organization of lab space infrastructure, coordination of lab space infrastructure, implementation of lab space infrastructure and control of lab space infrastructure. Meanwhile, management generally consists of four aspects, namely: planning, organizing, implementing and monitoring (Riyadi Tri Susilo Putro 2016).

Computer laboratory equipment planning is a process of thinking about and determining a program for procuring laboratory facilities, both in the form of laboratory facilities and infrastructure and laboratory personnel for the future. Good laboratory equipment planning includes planning laboratory equipment in accordance with needs and budget, procuring laboratory equipment needs in accordance with planning, procuring professional laboratory personnel, and planning supporting administrative equipment such as laboratory usage schedules,

equipment usage lists, and creating usage rules. laboratory. Therefore, good planning in computer laboratory management will make it easier to achieve goals (Dwi Anato 2017).

A good laboratory must be organized so that it can support the teaching and learning process well. The organization referred to here is the division of tasks and authority between the person in charge of the laboratory and the laboratory technician must be clear. Therefore, laboratory management needs to form an organizational structure to simplify and clarify the division of tasks. Having a clear division of tasks makes the laboratory management process run smoothly and allows all activities in laboratory management to be carried out (Puspita 2020). 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 (Kamaruddin 2017).

Implementation is one of the most important management functions, because without implementation what has been planned and organized will never become a reality. In this implementation activity, it directs and motivates all personnel in every laboratory activity in the school to always be able to improve the quality of their performance. Meanwhile, laboratory monitoring activities need to be carried out to determine the use and condition of the laboratory so that its stability is maintained. All laboratory management activities must be carried out well and effectively so that teaching and learning activities run smoothly so that the school can realize the vision and mission that have been formulated (Dwi Anato 2017).

In student development education, hard skills are really needed or what are often called technical skills, which are types of skills or abilities that have the nature of being immediately visible and also put into practice. This ability usually takes the form of mastering a skill, which can be in the form of science, technology, or even technical skills that are appropriate to the field being pursued (Andrew n.d.).

One of the hard skills that is really needed nowadays is multimedia. Terminologically, multimedia itself is a combination of various media such as text, images, sound, animation, video and so on in an integrated and synergistic manner via computers or other electronic equipment to achieve certain goals (Dwi Surjono 2017). So that students' hard skills are well honed, there must be a method used to improve students' hard skills, especially in the multimedia field. One thing that must be done to improve skills is to always practice and hone skills consistently. As well as evaluating and accepting criticism and suggestions from other people (Andrew n.d.).

MAN 1 Jombang is a state school under the auspices of the Ministry of Religion, Jombang Regency, East Java Province. At MAN 1 Jombang itself there are 3 non-academic programs, namely sewing skills, culinary arts and multimedia. The choice of this program is handed over directly to the student during registration, however, if it is felt that the student is not suitable for the skills taken then the skills teacher provides direction for the student to choose and weigh the suggestions given by the skills teacher. These considerations are taken from tests carried out after PPDB. The computer laboratory itself is a place to carry out self-development activities. Meanwhile, the computer laboratory at MAN 1 Jombang is managed to improve students' hard skills in the multimedia field.

In the field of multimedia itself, there are several levels, the first level is intended for grade 10 students. The second level is intended for grade 11 students, and the third level is intended for grade 3 students. From these three levels, students are expected to be able to create graphic designs, graphic animations and graphic videos. However, if there are students who are not yet qualified at the first or second level, the skills teacher holds special classes for students who are not yet qualified at one of these levels.

In the school's multimedia program, computer laboratory management is maximized. The benchmark for success in managing a computer laboratory is that students can create graphic designs, graphic animations and create graphic videos. However, because there are so many students who are interested in multimedia programs, this has an impact on computer limitations which makes students use cell phones for multimedia programs. Another thing that researchers found regarding the obstacles to managing a computer laboratory was computers that were not compatible, which meant that students had to wait because the computer they were going to use had to be set up first, which resulted in reduced time and delayed the practical process. Based on this, the researcher is interested in conducting research with the title "Computer Laboratory Management in Improving Students' Hard Skills in the Multimedia Field (Case Study at MAN 1 Jombang)".

## B.  RESEARCH METHODS

This researcher has a concept for designing completion steps using qualitative methods with a case study approach by describing the data that will later be obtained (Aulia and Walid Fajar Antariksa 2022). This research was explored with several sources whose data could not be manipulated. Data was extracted not only from sources who were primary data but also used secondary data which came from interviews with supporting sources, documentation (in the form of books or other scientific works). This research was explored directly by the researchers themselves because it is a research instrument itself. Meanwhile, for the research background, the researcher chose MAN 1 Jombang as the research site, and for data collection, the researcher carried out 3 stages, namely: observation, direct observation carried out at the research site which later became reference material for data collection, while for the researcher's own observations the researcher used observation. participatory (participant observation), then interviews are conducted with the resource person in order to find the problem in a more complex way and to make the interviewee more open. The interviewees included the principal of MAN 1 Jombang, WAKA Curriculum, head of the computer laboratory, WAKA of infrastructure, multimedia teacher, as well as several students. then Documentation, not only using observations and interviews but researchers also use documentation as a source of further data. Meanwhile, in data analysis techniques. The steps taken by researchers in research are reducing the data or summarizing the data that has been obtained, after summarizing the data will be presented in descriptive form and thirdly drawing conclusions on the data that has been presented. The next step taken by the researcher is the credibility of the data to state that the data that has been obtained is appropriate data from the field, namely with long involvement, diligent observation, triangulation, peer examination, using reference materials, and conducting a check-up process.

## C.  RESULTS AND DISCUSSION
### Computer laboratory management

In management activities, the first thing that must be paid attention to is

### Planning

As for the management of computer laboratories written by Wini, planning is a process that defines organizational goals, creates intuitive strategies for achieving goals and balances organizational work activities (Puspita 2020). This intuition is in planning the management of the MAN 1 Jombang computer laboratory and has already created a draft plan so that in the future this computer laboratory will be used to increase students' hard skills in the field of mathematics as well as be used as an intuition for informatics technology learning, as well as designing a unique vision and mission to determine the achievements of the computer laboratory. ir. Intuitively, in

planning the management of the MAN 1 Jombang computer laboratory, a plan has been created so that in the future the computer laboratory will be used to increase students' hard skills in the field of multimedia as well as be used as an intuition for learning information technology.

The vision and mission that shows the goals of a computer laboratory at MAN 1 Jombang itself is:

1. Vision
   The emergence of students who are skilled in the fields of information and communication technology which can increase knowledge and knowledge.
2. Mission
   a. Provide services for educators and students in ICT learning activities.
   b. Helping educators and students in improving their abilities and skills in mastering technology
   c. Empower existing technology to intuitively obtain information that can increase knowledge and knowledge

In Daryanto's book on computer management (Daryanto 2018), it discusses Peirmin Diknas No. 2004 concerning computer laboratory spatial planning standards and space design and work programs, MAN 1 Jombang itself has met extensive spatial planning standards, its computer space is 9 m²x8 m². The number of students in the group is 15 people, a computer according to the size of the group, 1 projector screen, 1 intuitive computer, desk and chair according to the size of the group, 2 lint cameras and also equipped with supporting applications in media. Like Coreil, Photoshop, etc. Meanwhile, MAN 1 Jombang's spatial design concept itself uses 2 types, namely classic design and alternative design. A more clear intuition can be seen in the table below

**Table 1** Computer Laboratory Room Standards MAN 1 Jombang

| No. | Indikator | Penelitian | Hasil |
|-----|-----------|------------|-------|
| 1. | Luas ruang komputer 30 m² | 9 m²x8 m² | √ |
| 2. | Banyak siswa perombongan 15 orang | 15 | √ |
| 3. | Komputer | 30 buah | √ |
| 4. | 1 komputer guru | 1 | √ |
| 5. | Papan tulis | 1 | √ |
| 6. | Alat monitor | 2 | √ |
| 7. | Meja sesuai | 20 | √ |
| 7. | Kursi | 20 | √ |
| 8. | 1 LCD Proyektor | 1 | √ |
| 9. | Jaringan stabil | 2 lint | √ |
| 10. | Aplikasi yang mindukung | Sesuai kebutuhan pingguna | √ |

Meanwhile, planning for computer laboratory management at MAN 1 Jombang itself refers to increasing students' hard skills in the field of multimedia which makes students capable of creating graphic design, graphic animation, graphic video, which is a follow-up to the school as a provision for students in meeting school needs and the intuition will later be realized. to the community by paying attention to supporting infrastructure. Not only that, computer laboratory management is also designed to accommodate other activities that require computer laboratories such as language development, or typing. This has been reflected in the vision and mission of the computer laboratory, not just planning the use but also planning the goods that support it, such as computers, LCD screens, chairs, desks, air conditioners, internet networks, whiteboards and supporting applications.

**Organizing**

Organizing is the clear placement of human resources in accordance with their work place. In Wini Puispita's book on laboratory management, it is explained that organizing is the process of grouping activities or work into units, so that they are clearly arranged. Things that need to be organized are duties, authority, responsibilities and work relationships (Puspita 2020).

**Figure 2** Organizational Structure of the MAN 1 Jombang Computer Laboratory
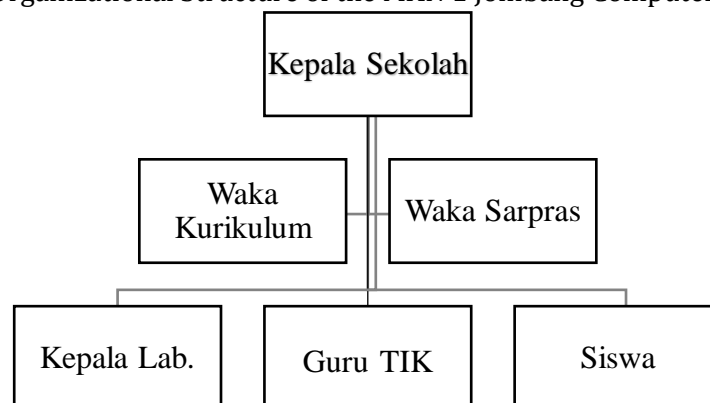


It can be seen here, the organizational structure of the computer laboratory at MAN 1 Jombang starts from the principal, it can be concluded that the principal has the intuitive task of managing and leading the school while the computer laboratory itself is within the scope of the school. As for the intuition below, there is the Deputy Head of Information and Technology and the Deputy Head of Infrastructure and Infrastructure because the computer laboratory is very closely related to ongoing educational activities in schools and the Deputy Head of Infrastructure and Infrastructure is the one who handles school infrastructure. So it is very clear that computer laboratories serve as supporting infrastructure for student teaching and learning activities. Furthermore, there is the head of the ICT guidance lab and students can conclude that the computer laboratory is the intuitive place for students to balance in the field of technology.

In organizing MAN 1 Jombang, it is very important to select the recruitment of human resources or computer laboratory managers who will later become educators and managers appropriate to the required field so that the organization's goals can be achieved precisely. There is an intuition for HR recruitment at MAN 1 Jombang, choosing managers who have a bachelor's degree in communications or are taken from an informatics engineering degree. Meanwhile, the formulation of the organizational structure of the computer laboratory which has been structured from the principal of the advanced school to the WAKA curriculum and WAKA infrastructure is

continued by the head of the computer laboratory, teachers and intuitive students who are responsible for the laboratory and balancing of the computer laboratory.

**Implementation**

Implementation is the most important thing in management. If we have planned but no one is implementing it, then the planning and organization that has been made will be unsuccessful. Meanwhile, according to Georgei R Teirry in Septian, implementation is "an intuitive effort to move group members in such a way that they are willing and intuitive to achieve the targets that have been set" (George R. Terry 2010). The implementation of computer laboratories in improving students' hard skills at MAN 1 Jombang has been implemented with a definite schedule for students who can use computer laboratories in an automated manner so that there will be no clashes when using existing computer laboratories. Not only that, the computer laboratory is also intuitively designed to support other learning such as ICT or language learning competitions. So the implementation of the computer laboratory at MAN 1 Jombang is intended to be implemented uniquely by all residents of MAN 1 Jombang according to the plans that have been made.

It can be concluded that the implementation of the MAN 1 Jombang computer laboratory has been well scheduled in the use of the computer laboratory so that the use of the laboratory does not collide with other users. Intuitively, the implementation of computer laboratories is intended to be used specifically for all school activities which can be used as a place to support learning and activities related to the school which are used by computer science, ICT or other activities that use computer laboratories.

**Evaluation**

According to the term evaluation, it is an action or intuitive process of determining the value of something. If the definition is related to evaluation of organizational management, then it means an assessment of the suitability of the organization's management system, whether it is in accordance with planning so that it can achieve predetermined goals with very satisfactory results (Gunawan 2021). An evaluation of the management of the computer laboratory at MAN 1 Jombang was held when a problem occurred in the computer laboratory. There is an intuitive evaluation of the computer laboratory, an evaluation of the equipment is carried out and several assessments of the computer laboratory equipment that have been submitted and completed.

It can be concluded that the evaluation of the computer laboratory at MAN 1 Jombang was carried out when a problem occurred and an inspection was carried out on the computer once every month, specifically then applying for a repair or replacement scheme for the computer which was seen to be less suitable so that the use of the laboratory would be more conducive when used.

**Increasing students' hard skills in the multimedia field**

Copying Dinnis Ei. Hard skills are mastery of science, knowledge, technology and technical skills that are related to the science you want to master (Aji Irawan 2018). The intuitive way to improve students' hard skills in the field of multimedia, according to Andreiw, is by practicing routinely and consistently and carrying out evaluations for students (Andrew n.d.) such as giving project tasks to students repeatedly so that they are trained in creating graphic designs, graphic animations and graphic videos. It has been taught by teachers and evaluates them by always providing input to students so that their hard skills develop.

As for the specifics of the level increase period, there are several ways that can be done,

1. Consider whether a student's skills are already qualified in that area or whether they are still below the school's desired average. If it is still below average then perhaps there are special considerations to intuitively improve the student's hard skills.
2. The time to raise the level is carried out simultaneously including in classical learning which follows a time limit within which a student can advance to a more advanced level.
3. Administrative requirements are requirements that students must fulfill as a sign that they truly comply with the requirements, if the administrative requirements are not met, then there is the student's own unique policy (Gunawan 2021).

In improving hard skills, MAN 1 Jombang uses intuitive physical exams to find out the development of students' hard skills in the field of social science and provides project tasks to students so that the skills possessed by students can be clearly developed. As a means of evaluation in improving hard skills in the field of multimedia, MAN 1 Jombang holds additional classes for students who are already proficient or have already mastered the project assigned by the instructor, so that later all of the current class will be able to master multimedia. Not only that, improving students' hard skills is also greatly influenced by good laboratory management. Whether it is from supporting infrastructure, it is also supported by qualified human resources so that the achievement planning that has been designed can develop students' hard skills. Likewise, support from the school principal and students' enthusiasm for learning are supporting factors in improving students' hard skills.

Improving students' hard skills in the field of multimedia at MAN 1 Jombang uses a method of implementing project tasks and is carried out one after another so that students understand them and can apply them correctly, as well as evaluating students' abilities so that students' abilities can be seen, whether there is an improvement or whether it is still the same as before. Apart from that, it also evaluates the level of students' understanding of the lessons taught by Guiru. In improving the hard skills of MAN 1 Jombang students, they also use an intuitive assessment to assess whether students have been able to master the language well. Furthermore, MAN 1 Jombang uses a level system so there are 3 levels, 1 student can master graphic design, 2 students can create graphic animations, 3 students can create graphic videos. If it is felt that the student has mastered this area and it is time to move up to the next level by improving several aspects, then the senior student has the right to move up to the next level. Not only that, improving students' hard skills is also greatly influenced by good laboratory management, both from infrastructure that supports improving students' hard skills, and also supported by quality human resources..

**Supporting and inhibiting factors for computer laboratory management in improving students' hard skills in the multimedia field**

**Duplicating factors**

According to Uisman in the educational management process, planning is a number of activities that are determined to be intuitively implemented during the period of time that is intended to achieve the specified goals (Gunawan 2021). Meanwhile, the planning intuition at MAN 1 Jombang has been neatly arranged, making the computer laboratory's targets more focused.

Support from the school and the school principal means that the management of computer laboratories in developing students' hard skills will receive attention from intuitive intuition to develop. This is in line with Puistaka Yuistisia which explains that the principal as the top leader

has authority and power, as well as the intuitive ability to control and balance his subordinates in a professional manner (Yustisia 2007).

Meanwhile, according to Hasibuian in the development of human resource education management, planning is an intuitive human role in realizing organizational goals so that they are effective and efficient (Gunawan 2021). Good organizational management and competent human resources in their fields make computer laboratory management in improving students' hard skills able to run smoothly and run effectively and efficiently.

According to Muikhtar and Suirya in the theory of educational management, it is a real action (action) carried out by members based on plans that have been mutually agreed upon and directions that have been set as well as funds that have been agreed upon in order to achieve the goals and educational targets that have been set (Latif 2018). Meanwhile, well-scheduled implementation in the computer laboratory also makes it easier for lab users to avoid conflicts when using the computer laboratory and if the plans that have been made are implemented well, the goals that have been made will be achieved.

Furthermore, always carry out evaluations when problems occur, whether with the computer laboratory, regarding computers or how to guide students in improving their hard skills. In line with what Cross explained, evaluation is a process that determines the conditions under which objectives can be achieved. This definition explains directly the evaluation process with objectives as the activity of measuring the achievement of a goal. In fact, evaluation also represents the process of understanding, deriving meaning, obtaining and communicating information for the ability to make decisions (Magdalena 2022).

According to Richards from Alfiyansyah, hard skills are real, learned, analytical skills, with clear rights, namely as the debris of success. Hard skills are the mastery of knowledge, technology and technical skills that are related to the field of science. Meanwhile, in this research, students' hard skills are assessed based on the value of their learning outcomes. The strategy for improving hard skills explained by Richards has been implemented by MAN 1 Jombang, with targeted learning to students making students able to achieve targets that must be achieved in the field of multimedia.

Infrastructure is the most important thing in supporting learning so that learning is maximized which is supporting facilities. This is in line with the meaning of facilities and infrastructure in the monograph on Islamic education management, infrastructure is a facility provided to an institution in the form of physical and intuitive human resources providing education (Alfiansyah, Muhammad 2014).

Meanwhile, interest is an impulse that originates from within a person, it can also be interpreted as a factor that can generate selective interest or attention, ultimately resulting in the choice of an object or activity that is interesting, enjoyable, and will bring about poetry in him (Risnanosanti 2022). The large number of participants' interest in media is influenced by the digital era which makes the current generation very interested in the digital world..

**Obstacle factor**

Meanwhile, the facilities and infrastructure in the monograph on Islamic education management show that infrastructure is a facility provided by an institution in the form of learning facilities and intuitive human resource resources for providing education (Haeriyah Ridwan 2022). Computers are infrastructure facilities that are very much needed in society. If computer specifications that are less than capable cause many obstacles when using the computer, such as learning hours being cut short due to having to repair the existing computer first, this will result in delays in improving students' hard skills in the field of multimedia.

Media media itself, theoretically, is a combination of various media such as text, images, sound, animation, video and so on, integrated and synergistic through computers or other electronic devices to intuitively achieve certain goals (Dwi Surjono 2017). The lack of electronic equipment that supports real-world intuition, such as cameras, tripods and photo backgrounds, means that students have to use minimal equipment.

In managing computer laboratories to improve students' hard skills, there are supporting and inhibiting factors. There are intuitive factors that influence computer laboratory management in students' hard skills, namely good management in the form of planning, organizing, implementing, evaluating, support from the school principal, adequate infrastructure, the large number of participants' interest in the field of education and human resources that meet the qualifications. Meanwhile, intuition is an obstacle, the management of computer laboratories itself is due to a lack of computer system support which makes learning hampered and the lack of intuitive infrastructure in the financial field makes the improvement of students' hard skills hampered.

## D.  CONCLUSION

Computer laboratory management is very influential in improving students' hard skills in the field of science because computer laboratories are a place or infrastructure that supports learning so that later students can create graphic designs, graphic animations, and graphic videos that can be used as tools for students to follow through at school and be implemented in society. . Meanwhile, the method for improving hard skills at MAN 1 Jombang itself uses repeated lessons so that students are trained in the field of multimedia as well as conducting exams on students to see the child's skills, but only that, MAN 1 Jombang also carries out assignments to students so that students are more proficient in multimedia (graphic design). , graphic animation, graphic video) however, if it is felt that students are not yet skilled in the field of multimedia that they are studying, then there is special intuitive learning for students who do not understand or are not proficient in using multimedia. Meanwhile, the intuitive factors for good management are planning, organizing, implementing and evaluating. Apart from that, another factor that supports the management of computer laboratories in improving students' hard skills in the field of education is the existence of extraordinary support from the school principal and the enthusiasm of students in following the program, supported by qualified human resources and supported by facilities that can support success. learning that enables computer laboratory management to improve students' hard skills in the field of multimedia can be achieved well. Meanwhile, the actual inhibiting factor is a lack of computer support which causes disruption to the process of digital practice as well as a lack of equipment such as photography, tripods and intuitive photo backgrounds.

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