



**Management of Practical Learning Facilities and Infrastructure
in the Electrical Engineering Vocational Education Study Program
Universitas Sultan Ageng Tirtayasa**

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Abstract: Management of Practical Learning Facilities and Infrastructure in the Vocational Education Study Program of Electrical Engineering, Sultan Ageng Tirtayasa University.

The purpose of this study was to determine the planning, procurement, inventory, utilization of practical learning facilities and infrastructure in the electrical engineering vocational education study program, Sultan Ageng Tirtayasa University. The method in this study used a qualitative descriptive approach with data sources, namely the head of the PVTE department, the head of the laboratory and the assistant of the PVTE laboratory. Data collection techniques through observation, interviews, and documentation. Data analysis techniques in this study were data reduction, data presentation, and conclusion drawing. Checking the validity of the data in this study is the credibility test with observation persistence techniques and triangulation methods. The findings in this study state that the management of practical learning facilities and infrastructure carried out in the PVTE study program is quite good. This can be seen from: 1) planning of practical learning facilities and infrastructure through needs analysis, determining priority scales, budgeting, preparing proposals, (2) procuring practical learning facilities and infrastructure by first disbursing the budget according to the activity plan and the faculty budget, then procure by purchasing equipment directly to the shop or factory using operational assistance funds. (3) inventory procedures for practical learning facilities and infrastructure are carried out by recording, coding, and reporting quarterly and annually, (4) practical learning facilities and infrastructure according to the schedule of practical courses and to achieve effective and efficient practical learning. The operation of the equipment uses a manual in the form of a manual and follows instructions from the lecturer or aslab.

Keywords: Management, Facilities and Infrastructure, Planning, Procurement, Inventerization

Abstrak: Manajemen Sarana dan Prasarana Pembelajaran Praktik di Program Studi Pendidikan Vokasional Teknik Elektro Universitas Sultan Ageng Tirtayasa. Adapun tujuan dalam penelitian ini adalah untuk mengetahui perencanaan, pengadaan, inventarisasi, pemanfaatan sarana dan prasarana pembelajaran praktik di program studi pendidikan vokasional teknik elektro, Universitas Sultan Ageng Tirtayasa. Metode dalam penelitian ini menggunakan pendekatan deskriptif kualitatif dengan sumber data yaitu ketua jurusan PVTE, kepala

laboratorium dan asisten laboratorium PVTE. Teknik pengumpulan data melalui observasi, wawancara, dan dokumentasi. Teknik analisis data dalam penelitian ini adalah reduksi data, penyajian data, dan penarikan kesimpulan. Pengecekan keabsahan data dalam penelitian ini adalah uji credibility (derajat kepercayaan) dengan teknik ketekunan pengamatan dan triangulasi metode. Hasil temuan dalam penelitian ini menyatakan bahwa pengelolaan sarana dan prasarana pembelajaran praktik yang dilakukan di program studi PVTE sudah cukup baik. Hal ini dapat dilihat dari: 1) perencanaan sarana dan prasarana pembelajaran praktik melalui kegiatan analisis kebutuhan, penentuan skala prioritas, penganggaran, penyusunan proposal, (2) pengadaan sarana dan prasarana pembelajaran praktik dilakukan dengan mencairkan anggaran terlebih dahulu sesuai dengan rencana kegiatan dan anggaran fakultas, kemudian melakukan pengadaan dengan cara membeli peralatan langsung ke toko ataupun ke pabrik dengan menggunakan dana bantuan operasional. (3) prosedur inventarisasi sarana dan prasarana pembelajaran praktik dilakukan dengan pencatatan, pemberian kode, serta pelaporan secara triwulan dan tahunan, (4) sarana dan prasarana pembelajaran praktik sesuai dengan jadwal mata kuliah praktik dan untuk mencapai pembelajaran praktik yang efektif dan efisien, maka dalam pengoperasian peralatan menggunakan pedoman yang berupa buku panduan serta mengikuti instruksi dari dosen atau aslab.

Kata kunci: Manajemen, Sarana dan Prasarana, Perencanaan, Pengadaan, Inventerisasi

▪ INTRODUCTION

Education is an important investment and has a strategic role in the realization of quality human resources (HR) (Irwandani, Latifah, Asyhari, Muzannur, & Widayanti, 2017; Ayudia, 2014), and has a very central role in efforts to develop HR (Abidin, 2017). The education system must be able to guarantee an increase in the quality, relevance and efficiency of education management, especially vocational education (Setiawan, 2016). In implementing higher education programs, it is inseparable from the concept of educational management (Nur, Sari, Bafadal, Wiyono, & Malang, 2018) where higher education is an educational institution that organizes the teaching and learning process (Bafadal, 2018). Education has a broader scope than learning, and practical learning is part of education itself. Simply put, education is a conscious and deliberate effort to mature, through transformed values to students. While learning conscious and deliberate efforts to mature students through the transformation of knowledge. The success of an education is influenced by the success of the learning process in it, and the success of learning is determined by various components that are interrelated with one another.

Management and organization explain that the definition of management is so broad that there is no consistent definition that is used by everyone. According to Kompri (2015). Efforts to educate the nation's life, education development is directed at enhancing human dignity and the quality of Indonesia's human resources. Improving the quality of education must be fulfilled through improving the quality of education and other educational personnel. The availability of facilities and infrastructure is one of the requirements in order to present a quality learning, because learning activities cannot run optimally if they are not supported by the availability of such educational facilities and infrastructure.

The existence of facilities and infrastructure in the electrical engineering vocational education study program needs to be managed properly to help achieve predetermined educational goals. Many study programs have complete educational facilities and infrastructure that greatly support the education process on campus, but this condition does not last long. The level of quality and quantity of facilities and infrastructure cannot be maintained continuously. Meanwhile, facilities and infrastructure assistance did not come at any time, and in the end all of them became obstacles in improving the quality of learning, as well as having an impact on budget waste on campus. Therefore, efforts are needed to manage facilities and infrastructure properly so that the quality and quantity of facilities and infrastructure can be maintained in a relatively long time. Good management of facilities and infrastructure is expected to be a solution for efforts to manage facilities and infrastructure on campus. Management of educational facilities and infrastructure can be defined as the work process and utilization of all educational facilities and infrastructure effectively and efficiently. The management of educational facilities and infrastructure has the task of regulating and maintaining educational facilities and infrastructure so that they can contribute to the educational process in an optimal and meaningful manner.

Related to this are technical issues in the scope of the structure of the vocational education system, curriculum, teachers, educational facilities and infrastructure and so on. According to Kompri (2015). Although it tends to focus on a particular focus, experts still differ in the definition of management and therefore cannot be universally accepted. However, there is a consensus that management includes certain skill degrees. To understand the term management, the approach used here is based on the experience of managers. Although this approach has limitations, there is no improvement. Management here is seen as a system in which each component represents an attempt to meet needs. According to Nanang Fatah (2013). The more complete and adequate the learning facilities owned by a

study program will make it easier for lecturers to carry out their duties as educators. Likewise with the atmosphere during learning activities. Learning facilities must be developed in order to support the teaching and learning process. Such as the availability of sufficient classrooms for the number of students and in good condition, the availability of libraries, laboratories, workshops, supporting facilities for curriculum activities, infrastructure and facilities for extracurricular activities and local content (Andi Ikawati, 2018).

Given the importance of facilities and infrastructure in learning activities, students, lecturers, and the campus will be directly related. Students will be more assisted by the support of practical learning facilities and infrastructure. Not all students have a good level of intelligence, so the use of practical learning facilities and infrastructure is very helpful for students, especially those who have weaknesses in participating in practical learning activities. For lecturers who teach and aslab will be helped by the support of facilities and infrastructure. Practical learning activities will also be more varied, interesting and meaningful. Meanwhile, the campus is obliged to be the party most responsible for the management of all activities held. Apart from providing, the study program also maintains and maintains the facilities and infrastructure that are owned (Hartoni, Amirudin, & Subandi, 2018).

Means are media or tools for learning so that education can run effectively. The facilities for the PVTE study program are needed for a balanced physical development, in a healthy body there is a healthy mind and soul. According to Musfah Jejen (2014) states that "with adequate facilities the study program not only produces prospective scientists, but also candidates for scholars, sportsmen and artists". Because children are given the widest possible opportunity to be themselves. Lecturers read and direct and train students according to their respective talents. With adequate facilities and competent lecturers, the training will run well and smoothly. Equipment and supplies are directly used and support the educational process, especially teaching and learning such as blackboards, markers, erasers, writing instruments, books and teaching media. The number of practical learning activities carried out in the PVTE study program requires adequate facilities and infrastructure (Feronika, Sunandar, & Yovitha, 2017).

Fulfillment of the facilities and infrastructure needs for the two locations became more numerous and maintenance costs were high compared to one location. For higher education institutions, two locations are common with management in each section / department, in contrast to the PVTE study program which manages the facilities and infrastructure used as a whole for all sections. The PVTE study program received a large area of land from the government on the outskirts of the city, this made teaching and learning activities effective at Campus 2 in the Ciwaru area, Serang city, Banten. Good management of facilities and infrastructure is needed to make teaching and learning activities successful. Management of facilities and infrastructure is an activity that regulates the entire process of procurement and utilization of facilities and infrastructure that support the educational process to achieve educational goals effectively and efficiently. Planning, procurement, regulation, use and removal of facilities and infrastructure for the PVTE study program are functions in the management of facilities and infrastructure for the smooth learning process of practical teaching (Mellky, 2020).

Matters that need to be considered in the use of facilities and infrastructure (Barnawi and Arifin, 2016): (1) The arrangement of usage schedules must be avoided from clashes with other groups, (2) Main practice activities should be the first priority, (3) Time / Usage schedules should be submitted at the beginning of the school year, (4) Assignment / appointment of personnel according to expertise in their fields, for example laboratory staff,

libraries, operators, etc. (5) The scheduling of the use of facilities and infrastructure between intracurricular and extracurricular activities must be clear. Based on this description, it can be concluded that the use of facilities and infrastructure is in accordance with the principles of efficient and effective use. In the use of facilities and infrastructure, scheduling and prioritization are carried out, besides the use of tools involves students in the arrangement (Saleh, Wahyudi, & Syukri, 2019).

Educational facilities and educational infrastructure are two different things. The Ministry of National Education has distinguished between educational facilities and educational infrastructure. Educational facilities are all equipment, materials, and furniture that are directly used in the educational process on campus. In this regard, educational infrastructure is all basic equipment that indirectly supports the implementation of the education process on campus. The emphasis on this definition is on its nature, means are direct, and infrastructure is indirect in supporting the educational process. Examples of educational facilities are tables and chairs, teaching media tools, and so on. While examples of infrastructure are classrooms, campus yards, campus gardens or parks, fields, and so on.

The purpose of managing facilities and infrastructure in the world of education is to provide professional services related to educational facilities and infrastructure so that the learning process can take place effectively and efficiently. Basically, the management of educational facilities and infrastructure has the following objectives: (1) to create a campus that is clean, neat, beautiful, so that it is pleasant for campus residents. (2) availability of adequate facilities and infrastructure, both in quality and quantity and relevant to the interests and needs of education. Educational facilities can be classified into three types, namely based on their expiration, based on their movement, and based on the relationship with the practical learning process that is held in each semester.

When viewed from the end or not used, there are two kinds, namely educational facilities that are used up and educational facilities that are durable. When viewed from the movement or not during practical learning there are also two types, namely moving according to need and not moving or educational facilities that cannot be moved or are very difficult to move. In order for the education process to be achieved properly, there are several principles that must be considered in managing educational facilities and infrastructure on campus so that they can be maximally achieved. The principles referred to are as follows: (1) the principle of achieving the goal, namely that educational facilities and infrastructure must always be in a ready-to-use condition. (2) the principle of efficiency, namely that the provision of facilities and infrastructure for vocational education must be carried out through careful planning. (3) administrative principles, namely that the management of educational facilities and infrastructure must always observe the applicable laws, regulations, instructions and technical instructions. (4) the principle of responsibility clarity, namely that the management of educational facilities and infrastructure must be delegated to responsible personnel. (5) the principle of cohesiveness, namely that the management of vocational education facilities and infrastructure must be realized in the form of a very compact work process.

The quality of practical learning can be said to be a description of the good and bad results achieved by students in the learning process carried out. The campus is considered of high quality if it succeeds in achieving the goals formulated by the department itself. The quality of good practice learning can determine the good quality of education, therefore the quality of practical learning is the main thing that must be addressed in order to improve the quality of education. In relation to quality practical learning, Pudji Muljono stated that the concept of quality learning contains five references, namely: (1) suitability. (2) quality

learning must have a strong appeal. (3) the effectiveness of learning is often measured by the achievement of goals, or it can also be interpreted as accuracy in managing situations. (4) learning efficiency, can be interpreted as the equivalent of time, cost, and energy used with the results obtained, or it can be said to do something right. (5) productivity is basically a state or process that allows better and more results to be obtained.

The management of facilities and infrastructure in the PVTE study program and the results obtained from the practical learning process are generally used to help each other in each skill competency, which is essential to be researched. Practical learning facilities and infrastructure available in the PVTE study program must be managed as well as possible, because with good management of facilities and infrastructure, it will make it easier to achieve practical learning objectives, namely more effective and efficient practical learning. Therefore, this study tries to examine more deeply about the management of practical learning facilities and infrastructure in the PVTE study program.

▪ **METHOD**

This research is a qualitative research which is a descriptive type. This study aims to determine descriptively the management of practical learning facilities and infrastructure at PVTE UNTIRTA, Serang. This study uses a descriptive method with a qualitative approach (Bimantara, Handayani, & Dwiatmanto, 2017).

The research was conducted at the Electrical Engineering Vocational Education Study Program, UNTIRTA, Serang Banten. Research informants were based on the consideration that research informants could provide information that was as complete as possible and relevant to the research objectives (Rukayat, 2017). Qualitative research views objects as dynamic, the result of thought construction and interpretation of the observed phenomenon, and is holistic because every aspect of the object has an inseparable unity. According to Sugiyono (2019), the reason researchers use qualitative research is because in this study there are many things that have not been understood so that it requires in-depth study, and the problems that arise are very complex. The research is carried out in the Odd semester of the 2020-2021 Academic Year.

The data collection techniques used by researchers were: (1) the researcher conducted open and in-depth interviews with the intention of obtaining various information related to the management of practical learning facilities and infrastructure, (2) the researcher approached by acting as observers only (non-observational observation). participants), this approach was chosen so that researchers can make good observations in order to be able to dig deeper about the management of practical learning facilities and infrastructure at PVTE UNTIRTA. Qualitative data is obtained through data collection techniques, namely interviews, document analysis, focused discussion, or observations that have been outlined in field notes (Dady, Ilat, & Pontoh, 2017), and (3) documentation activities carried out in this study are to obtain data directly from the research location, namely data documented by the study program related to the management of practical learning facilities and infrastructure.

Data analysis in qualitative research, is carried out when data collection takes place, and after completing data collection within a certain period. At the time of the researcher interview. Has analyzed the answers to the interviewee. According to Sugiyono (2019) the data analysis techniques used are: (1) data collection, (2) data reduction, (3) data display, (4) conclusion drawing / verification.

▪ RESULT AND DISCUSSION

In the process of management of practical learning facilities and infrastructure carried out in the PVTE UNTIRTA study program, Serang, including planning, procurement, inventory and utilization. Planning for practical learning facilities and infrastructure in the PVTE UNTIRTA study program is held every year, to be precise at the beginning of each new school year in accordance with existing policies on the FKIP UNTIRTA campus through needs analysis, prioritization, budgeting and preparation of procurement proposals. The needs analysis is based on the results of the campus self-evaluation and the proposed practical needs for the courses that hold the practice. In determining the priority scale is based on urgent needs that are adjusted to the availability of the budget. Furthermore, the needs that have been determined are budgeted by preparing a PVTE lab activity plan and budget and making a proposal based on the plan.

In providing the facilities and infrastructure needed for practical learning in the PVTE study program, the budget is disbursed and determines the method that will be used in its procurement. Disbursement of the budget can be made after the second vice dean approves the proposed procurement. Meanwhile, practical learning facilities and infrastructure are obtained by buying directly at the shop or at the factory for the manufacture of the equipment needed. The process of inventorying practical learning facilities and infrastructure in the PVTE lab is recording, coding and making reports of all facilities and infrastructure used in practical learning routinely according to the rules and regulations that apply at the FKIP Untirta campus. Practical learning facilities and infrastructure at PVTE were recorded in the equipment list by the head of the study program and room inventory cards by the vice dean of the two facilities and infrastructure sectors.

Basically, the room inventory card is also used as an annual report. However, the practical learning facilities in the PVTE listed on the room inventory card are not compatible with the practical learning tools available in the practical learning room. In addition, every learning facility owned by campus 2 FKIP Ciwaru Untirta is coded according to the rules. The item code consists of ten digits indicating the class, field, group, sub group and sub-group. However, based on the results of observations, the practical learning facilities found in the practice room have been given an item code as stated in the room inventory card. The use of facilities and infrastructure is adjusted to the learning needs of each study program and based on the schedule of each course and if the number of available equipment is not proportional to the number of students, the lecturer will use the learning equipment alternately or by dividing groups. In addition, there is a guidebook used for the operation of practical equipment accompanied by directions from the lecturer concerned.

The results showed that the planning of practical learning facilities and infrastructure at the FKIP Untirta PVTE was carried out through needs analysis, prioritization, budgeting, and proposal preparation. The results showed that in planning the need for practical learning facilities and infrastructure at the PVTE FKIP Untirta based on the results of self-evaluation and suggestions from the head of the PVTE lab. This is in accordance with the opinion of Farikhah (2015) that needs analysis is to arrange all the facilities and infrastructure needed in learning. There is a need for practical learning facilities and infrastructure at the FKIP Untirta PVTE which are very many and varied, so it is necessary to determine a priority scale, where the facilities and infrastructure that will be followed up first are urgent facilities and infrastructure to be used in practical learning. This is in accordance with the opinion of Farikhah (2015) that determining the priority scale is to make a selection of the needs for facilities and infrastructure that are urgent for their procurement. However, due to the

available budget for the provision of facilities and infrastructure, the needs of each study program in the form of practical learning facilities and infrastructure have not been fully fulfilled, especially in the FKIP Untirta PVTE study program.

This is in accordance with the opinion of Farikhah (2015) that the provision of funds for procurement is borne by the APBN / APBD. Then, after budgeting is carried out, the vice deans of the two fields of facilities together with the head of the study program compile a proposal based on the school activity plan and budget. So, for an activity plan whose source of funds comes from operational assistance funds. In the inventory activity, coding the practical learning equipment is also very necessary to make it easier to record and to make the equipment easily recognized, both by students and lecturers. This is done because the equipment used for practical learning is diverse, so it needs to be coded according to the rules set by the campus. According to Bafadal (2018), an item code is a sign that shows the ownership of goods written on goods that are easy to see and read. Inventory item codes are usually numeric. The report is only in the form of a space inventory card prepared by the procurement department based on a list of equipment compiled by the head of the study program. This is in accordance with the opinion of Bafadal (2008) that all facilities to be removed must be inventoried starting from the type, quantity and year of manufacture.

In relation to the implementation of facilities and infrastructure, the availability of facilities and infrastructure is an important component that must be fulfilled in supporting the vocational education system. Management of educational facilities and infrastructure can be interpreted as the whole process of procurement and utilization of components directly or indirectly supporting the vocational education process to achieve educational goals effectively and efficiently. The existence of educational facilities and infrastructure in the FKIP Untirta PVTE study program did not just exist. Of course, the existing facilities and infrastructure also go through several long and complicated processes. In the PVTE study program, improving and developing facilities and infrastructure also goes through several difficult processes, including: Planning, Procurement, Procurement, Distributing, Maintenance and Maintenance, Inventory and Abolition. Procurement planning must be designed properly before procurement is carried out. If the plan is mature from the beginning, it will greatly affect the results obtained after procurement.

Planning at the FKIP Untirta PVTE was carried out by re-examining the existing equipment in the laboratory. Thus, it can only determine the equipment needed. Procurement of necessary facilities and infrastructure Planning for practical learning facilities and infrastructure is a process of designing efforts to purchase, rent, borrow, exchange, recycle, recondition / rehabilitate, distribute or manufacture equipment and equipment in accordance with the needs of the study program so that the needs of the department equipped. Planning for facilities and infrastructure at the FKIP Untirta PVTE includes compiling a list of needs based on input from the lecturers, then accommodated by the head of the laboratory to compile a list of needs then analyze the cost requirements. The cost estimation is done after the facilities and infrastructure division makes a priority scale by involving the Head of the laboratory and if the department is unable to meet these needs from government assistance. After determining the estimated cost, the procurement planning was submitted to a team formed by the campus. The planning activities for facilities and infrastructure at the FKIP Untirta PVTE have been carried out according to the stages even though at the time of conducting the planning meeting they were not properly notified. Maintenance of facilities and infrastructure at PVTE FKIP Untirta implements maintenance by adjusting the types and specifications of goods. Maintenance of facilities and infrastructure involves technicians / assistants, lecturers and students. Maintenance for technicians and lecturers is a form of

responsibility for the use of facilities and infrastructure, while for students, maintenance of facilities and infrastructure is a practical part of learning activities.

▪ CONCLUSION

Based on the results of the research and discussion that has been described in relation to the management of practical learning facilities and infrastructure to improve facilities and infrastructure, the following conclusions can be drawn: (1) Planning for practical learning facilities and infrastructure at the FKIP Untirta PVTE has been going well. The planning carried out by the FKIP Untirta PVTE has been made by the facilities and infrastructure division concerned to develop facilities for practical learning activities. (2) The use of facilities and infrastructure at the FKIP Untirta PVTE must be arranged so that the facilities and infrastructure are considered more effective and efficient, and (3) Supervision of facilities and infrastructure at PVTE FKIP Untirta has been carried out by the head of the laboratory directly.

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