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The Influence of Computer Use and Information Technology Literacy on Enhancing the Abilities of College Students at the Nahdlatul Ulama Institute of Technology and Science Lampung

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ABSTRACT

This study aims to determine the effect of computer use and understanding of information technology on improving the abilities of students in the Information Technology Study Program at the Nahdlatul Ulama Lampung Institute of Technology and Science. The main problem identified is the still low utilization of practical computer technology in the learning process, even though universities have made large investments in providing facilities. This study uses a qualitative approach with a data collection method through a questionnaire distributed to 102 students from the 2021 to 2024 intake. The results showed that most students preferred practice-based learning methods to theory, and more than half of respondents used computers or laptops in their daily activities. In addition, most students already had basic knowledge of technology, information, hardware, software, and networks before entering college. The conclusion of this study is that educational background, experience using computers, and practice-based learning methods significantly affect the improvement of students' abilities in the field of information technology. These findings reinforce the importance of implementing practice-based learning methods and optimizing computer laboratory facilities in order to produce graduates who are ready to compete in the digital era.

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1. Introduction

The development of the era at this time makes the application of technology in all fields increasingly developing, humans are required to be able to master technology in facilitating work in their fields. With the aim of work being completed faster and the time used in working more efficiently[1], [2], [3]. The presence of technology in all aspects of the world will be able to replace the role of humans as workers[4], [5]. Many companies in the world are competing to invest their resources to implement technology. One technology that is widely used and easy to implement is the use of computers in work. Computers are one way to accelerate data needs both internally and externally, so that human resources in 2025 are expected to be able to operate computers in daily activities[5], [6]. Therefore, universities as

company partners in producing qualified human resources must be able to read the direction of the company's desired needs.

The purpose of implementing technology in the use of computers is to accelerate the performance of human resources so as to achieve company goals. Technology in computers cannot be separated from today's life, where it can be said that all aspects of life are connected to technology according to the development of the times. Technology in computers develops along with the times that require it to be able to utilize it optimally in order to benefit the place where he works. One way is by utilizing learning media in educational institutions during the learning process[7]. The campus as a partner in the world of word must be able to absord the opportunities available to help increase the human resources needed by the company.

Utilization of data sources for learning will be able to improve the soft skills of every human being. The goal is to utilize technology in computers during the learning process to improve the quality of learning, because by using technology and computers so that students feel more enthusiastic and increase their curiosity. Motivation and interest will increase their abilities because it is known that competition at this time about technology and computers is getting tighter [8]. To increase students interest in learning technology on computers, using appropriate methods and media is one solution that must be used so that learning objectives can be achieved.

One of the institutions that must be able to optimize technology and computers in learning is higher education. In Indonesia, the application of technology and computers in the world of education cannot be separated, because the application of digitalization is a demand in carrying out learning, therefore higher education competes to invest finances to apply technology in computerization in learning methods. At this time the practice of using computers is more expected than learning in theory [9]. So it will be a mandatory requirement that must be accepted by students when they graduate to be able to operate using technology in computers. The positive impacts obtained by implementing technology on computers in learning include facilitating access to information for lecturers and students, accelerating offline and online learning time, accelerating student understanding in learning if done practically, increasing students' motivation and enthusiasm for attending lectures, and improving soft skills in the application of computer-based technology for college graduates[10].

With the many positive impacts, universities should slowly switch to implementing learning using technology on computers, even though accompanied by positive impacts there must be negative impacts that always loom[11]. Negative impacts always arise when positive impacts are expressed, the more positive impacts, the more negative impacts. Negative impacts cannot be avoided because they occur because of positive impacts[2]. According to researchers, the negative impacts of implementing technology on computers include the use of technology on computers will increase the investment value because its implementation requires a lot of money, universities need and dare to spend high costs for their investment, in addition to equipment that requires high costs, equipment is needed as a supporting tool in learning. Apart from that, maintenance costs and increasing capacity are increasingly expensive, the solution is to use it according to campus needs and capabilities.

Lecturers are an investment that must be considered by universities, because in Indonesia there are not many who have a master's degree in technology or computers[12]. The higher the investment, the higher the risk. The challenges of the positive and negative impacts obtained when implementing technology in computers trigger universities to always innovate and develop because the application of technology is developing very rapidly, therefore there needs to be seriousness for universities to formulate appropriate learning methods to create the best graduate human resources[13]. Apart from that, students who study have high learning abilities so they are able to maximize the knowledge provided by lecturers.

There needs to be a strategy applied to universities to achieve the desired targets, such as students who study when they graduate are able to master at least several applications that are commonly used in companies. Because universities invest heavily in technology and computers, it is mandatory to require students to be able to bring out their maximum abilities during their studies[14]. So that the knowledge absorbed in universities will be utilized optimally when they graduate and enter society. However, the current reality is that there are still many student who do not understand how to use computers, and do not even use computers in their daily live [15]. One way to overcome this is for students to do computer practice more often in the laboratory.

This is understandable because not all jobs use computers as a medium in completing their tasks and responsibilities[16]. In addition, the reality faced by many courses on technology and computers still conduct theoretical learning, even though students should practice to be able to apply the material in learning. If universities have invested in equipment and supplies, the priority of learning using computers should not only be theory or one-way presentations carried out by lecturers. In addition to learning must be practical, the need for a computer laboratory can improve students' abilities, because they are trained as early as possible to

get used to working in front of a computer[17]. The availability of computer capacity will support student activities in learning, because not all applications can be used by computers.

For companies that use computerization in their work, using a computer is a must for employees to complete their responsibilities[6]. To avoid the negative impacts of college graduates who have not mastered technology, when learning takes place in lectures, universities are required to require students to maximize their knowledge. The purpose of this is so that the campus does not get negative news from its graduate students[18]. If the student is a technology or computer graduate, then the knowledge must be tested so that in finding a job they will be able to practice the knowledge they have gained during their studies. Therefore, college graduates must be skilled in using technology, apart from increasingly fierce competition, the use of technology will facilitate company efficiency.

To find out more about the influence of computer use and understanding of information technology, this research conducted on students in the information or computer study programs[15]. This study focuses on assessing the extent to which students in information or computer-related fields are able to optimize the use of technology and computers in their daily lives. The primary objective is to evaluate how significantly technological proficiency influences students' skills and readiness, particularly in relation to their future careers. By understanding this impact, the research aims to reveal how technological and computer literacy can enhance students' competencies, making them more competitive in the job market after graduation. Moreover, the study provides valuable insights into the level of students' understanding regarding computer usage and their grasp of information technology concepts. These findings are expected to serve as a reference for improving educational approaches, ensuring that students gain practical and applicable skills aligned with industry demands.

2. Research Method

In this study, the solutions offered by the researcher include 1) the study distributed questionnaires to students containing, among others, whether they had used computers before, whether educational institutions before using computers in learning, whether they were more interested in learning in theory or practice, whether in everyday life using computer devices, whether they had ever learned about technology, information, hardware software, and networks, 2) providing an overview based on the results of the questionnaire on learning methods about technology in computers, 3) providing suggestions based on the results of the questionnaire on learning materials to students in technology and computer study programs. In this study, a qualitative approach was used, because according to the researcher it provides a deep and flexible understanding in data collection[4][19][20][21]. The data used in this study were collected directly from students without the involvement of any third parties or intermediaries. Questionnaires were distributed and completed by the students themselves, ensuring that the responses reflect their personal perspectives and experiences. This direct approach was intended to maintain the authenticity and reliability of the data gathered.

In a qualitative approach, the data collection method uses a questionnaire for students[4].The description of the work procedures carried out in this study includes 1) searching for a phenomenon or identifying problems that occur in students, 2) literature study or review based on previous research, 3) formulation of research objectives in the formulation of the problem, 4) research design as an approach to be used, 5) data collection where this study uses a questionnaire, 6) data processing and interpretation of results based on the questionnaires distributed, 7) expressing in research writing[15][9][22][21][23]. The aim of the series of procedures above is to simplify and clarify the research flow so that it can answer research questions and phenomena that are currently developing. The answer obstained from the research flow are original findings from researchers that can be accounted for.

This research was conducted from April to May 2025, on students from the 2021 to 2024 intake of the Information Technology Study Program, Faculty of Engineering, Nahdlatul Ulama Lampung Institute of Technology and Science. Based on pddikti, the number of students registered was 320, with a research sample of 102 registered students, so that the amount of participation in filling out the questionnaire was 32%. The distribution of questionnaires was carried out through the WhatsApp communication media of all classes of the information technology study program, and the class leader of each class of students in the information technology study program[16][24][25]. The research findings may vary if the participation rate exceeds the current 32%, as a larger and more diverse sample could provide broader insights and increase the generalizability of the results. However, the researchers affirm their commitment to maintaining integrity throughout the study; all data were processed transparently and without manipulation. The data collected genuinely reflect students' real experiences during their academic journey on campus, capturing their perceptions, challenges, and interactions as they occurred in the learning environment.

3. Result and Discussion

In the results of this study, the researcher will reveal the data obtained through the questionnaire distributed 1) a table regarding the distribution of questionnaires to students, can be seen in the table below;

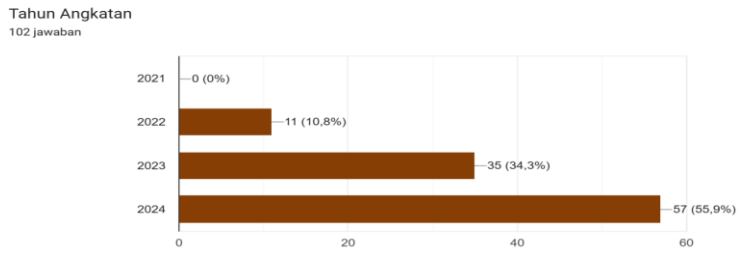

Figure 1. Resource Persons Based on Generation

Based on the table above, it explains that there are 0 people from the 2021 batch, 11 people from the 2022 batch, 35 people from the 2023 batch, and 57 people from the 2024 batch. The participation rate is getting lower, the higher the batch. In the second stage of the study, students asked about the lecture methods preferred by students. Based on the explanation, the researcher will reveal a fact in table 2 about the lecture method;

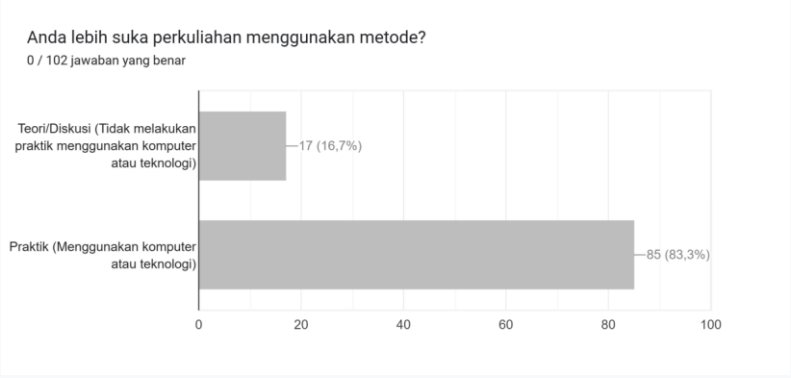

Figure 2. Learning Methods

Figure 3. Information Practices on Computers in the Computer Laboratory

The results of the questionnaire in this study indicate that students prefer learning methods carried out through practice in the laboratory or on campus computers compared to theory or discussion, as evidenced by Figure 1 which shows students' enthusiasm in learning. Of the 102 respondents, 85 people or 83.3% liked practical learning, while only 17 people agreed to use theory/discussion in learning from all

respondents who filled in. The third stage explains whether the respondents use computer devices or laptops in their activities. The facts are evident in the results of the questionnaire contained in Table 3 regarding the use of computers, namely.

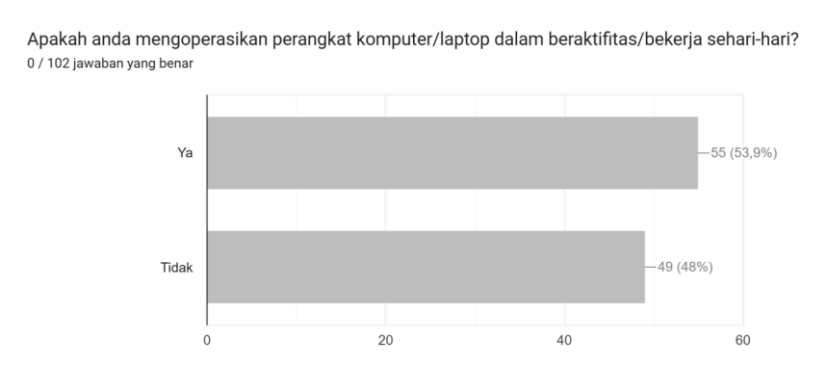

Figure 4. Use of Computers/Laptops in Activities

The findings from the questionnaire reveal that the majority of students show a strong preference for hands-on learning conducted in laboratories or using campus computers, rather than relying solely on theoretical or discussion-based methods. This trend is clearly illustrated in Figure 1, which reflects the high level of student engagement and enthusiasm for practical learning approaches. Out of a total of 102 respondents, 85 students—or approximately 83.3%—expressed a preference for practical sessions, while only 17 students favored theoretical or discussion-based learning. Furthermore, the third part of the study explores the extent to which respondents utilize computers or laptops in their daily academic activities. This aspect is supported by the data presented in Table 3, which provides a detailed overview of students' usage of computing devices as part of their learning experience. The results underscore the integral role of technology in supporting students' academic routines and skill development

Figure 5. Use of Computers/Laptops in Activities

Table 3 and Figure 2 explain that out of 102 questionnaire respondents, 55 people or 53.9% use it in their daily activities and 49 people or 48% do not use a computer/laptop in their daily activities. This shows

evidence that the more accustomed they are to using a computer, the more their abilities will increase. In previous studies, it was shown that someone who is accustomed to being in front of a computer or is used to using it will have higher abilities than those who are rarely in front of a computer/laptop, this is because they are used to doing something with technology in computers to make their work easier or work requires the use of technology in computers so that they are used to the technology. In the fourth stage, the results of the questionnaire showed that on average, students who answered the questionnaire stated that they had studied technology, information, hardware, software, and networks, this shows that from the beginning they already had provisions in learning technology in computers. This can be seen in diagrams 1,2,3,4, and 5 below;

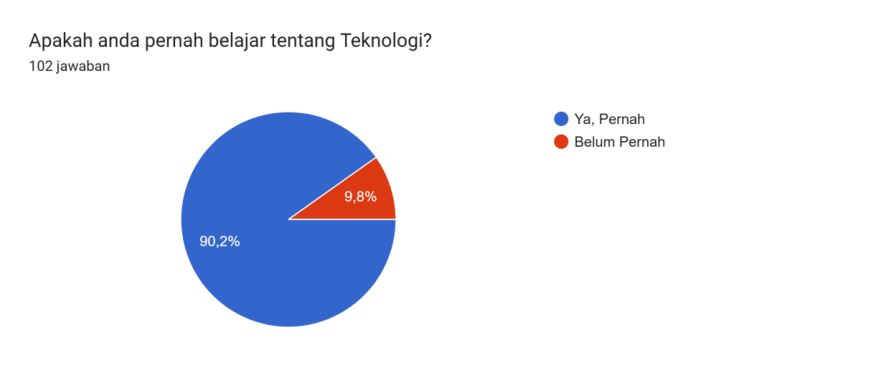

Figure 6. Technology Learning

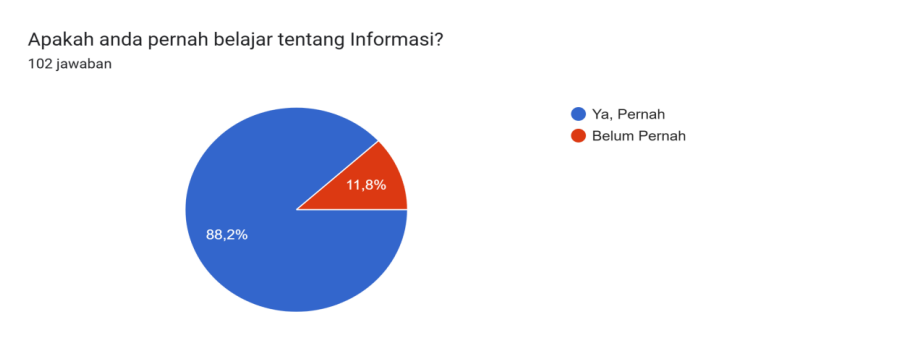

Figure 7. Information Learning

Figure 8. Hardware Learning

From the results of data processing on 102 respondents of the questionnaire of students of the information technology study program, it shows that more than 80% have studied about learning technology, information and software, only in diagram 3 70% have studied hardware, and diagram 5 68.6% have studied networks. This shows evidence that the selection of study programs is relatively based on the knowledge gained so that it can improve abilities. Diagrams 1 to 5 and figure 3 show that information technology

students need scientific development to improve their abilities. In this study, students participated in filling out the questionnaire to help researchers find out whether the influence of the use of computers and information technology can improve students' abilities, from the results of the study showed that because they had previously studied about technology education in computers, students took technology study programs to improve their abilities at the college level. This is evidence that 38% of students who participated chose information technology study programs based on the educational background they had taken.

The desired output in this study is to show that improving students' abilities is influenced by their educational background, who have previously studied technology in computers, have used computers, and daily activities using computers[2]. In addition, another reason expressed is that students prefer practical learning in the laboratory compared to theory/discussion. The enthusiasm for learning can be involved from the results of Figure 1 as evidence that they want to improve their abilities in computer technology [8][10], [26]. Diagram 6 shows that the research results were 51 student each from men and women, while 10 people involved in the class of 2022, 35 people in the class of 2023, and 57 people in the class of 2024.

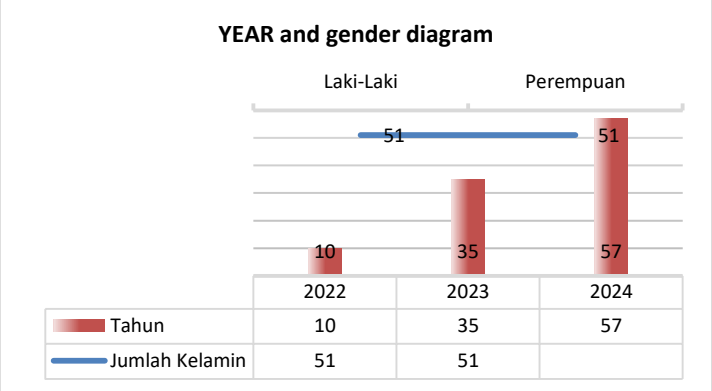

Figure 8. Year and gender diagram

The follow-up to this researcher is a learning method that uses more practice than theory, in addition, the impact that will be felt is that students will become more accustomed to being in front of laptops or computers which will make them realize that current activities are inseparable from the use of technology, learning that is expected to be able to improve students' abilities with the development of the latest applications that are commonly used in companies. So that when they graduate, they already have the provisions to compete in the digital era.

The results of this research show that computer technology is very helpful in daily activities and will help in work, therefore campuses as partners in improving human resources must continue to grow and develop to continuously innovate in learning methods, as well as equipment and tools. In this research, it was found that technology learning must be done practically and must be done continuously to improve learning abilities. The use of technology in computers can improve the abilities of each individual.

4. Conclusion

A. The conclusion in this research include;
   1. Educational background influences interest in choosing a study program at a university related to technology and computers.
   2. Background of having practiced or studied technology and computers influences interest in choosing a study program at a university related to technology and computers.
   3. Using computers every day/often or having used computers influences interest in choosing a study program at a university.
   4. Practical learning methods are more preferred than theoretical learning methods.
   5. Knowledge of technology, computers, hardware, software, and networks will influence interest in improving the abilities of students in information technology study programs.
   6. Use of Computers and Understanding of Information Technology can improve students' abilities in learning that uses practice.

B. Suggestions for further research are;

1. Measuring what programs information technology students should master when they graduate.
2. Measuring the performance of lecturers towards information technology students. Measuring factors that influence technology and computer learning methods.
3. Future research is expected to search for student objects between departments and faculties, so that results may vary.

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