

# The Use of Information Technology in Semi-Military Education Systems: Problems and Challenges

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**Abstract**—Information technology in education is designed to helping solve educational problems so that it can provide benefits in efforts to improve the quality of learning and print quality human resources. This study aims to find out what are the problems and challenges in the use of information technology in the semi-military education system. This study uses qualitative research using a survey research approach, in which this research model is the best method for obtaining and collecting original data to describe the state of the population. The sample of this study was the cadets of one of the Indonesian Aviation Polytechnics. Data collection is done by interviewing and participant observation, where the researcher is directly involved with the person being observed. This research is supported by documentation in the form of writing, photos, and videos related to research. The results of this study indicate that there are several problems and challenges in the use of information technology in the semi-military education system. Based on the results of these studies as educational institutions, especially those using the semi-military education system, can find out what needs to be evaluated in the education system.

**Keywords**—*educational technology, semi-military education system, technology for semi-military education*

## I. INTRODUCTION

According to the results of a three-year survey released by the Programme for International Student Assessment (PISA) in 2018 about the quality of education in the world, Indonesia was ranked 72 out of 77 countries and ranked 13 out of 15 countries in Asia that took the test [1]. Evaluation and innovation need to be done to improve the quality of education in Indonesia so that it can produce human resources who are ready to work and able to compete on a national and international scale.

Global demands require the world of education to always adapt technological developments to efforts in improving the quality of education, especially adjusting

its use for the world of education, especially in the learning process [2], [3]. Facing the current development of science and technology, educational institutions must be able to continue to innovate because the progress of education is based on the merits of educational institutions. Innovations that can be done by educational institutions are through the use of information technology [4], [5].

Effective learning activities require a media that supports the absorption of information. Along with the times, information technology plays an important role as a means to obtain as many sources of information as possible related to the subject matter being taught [6]. Learning media through the internet such as digital libraries, audio learning, video learning, webinars, and digital learning platforms are the result of technological innovation in the 4.0 revolution era that can be used to explore the knowledge gained from teachers and seek additional knowledge outside the field studied.

The use of technological developments is a major challenge that must be faced in the semi-military education system [7]. Cadet, which is the name of students in the semi-military education system, has various obligations in their educational environment. The cadets are required to have excellent physique and good academic performance in the middle of their various activities. Environmental conditions that require very high discipline, can trigger stress on cadets which affects their motivation to develop themselves.

Every activity in the semi-military education system already has rules and schedules that every cadet must obey. One of them is regular exercise that is done every day. Research conducted by Permono and Kusristanti [8] states that there were interviews conducted with a number of cadets from semi military educational institution, some subjects said that they did not feel any significant differences related to emotional conditions when they did sports or not, and at first, they also felt more tired with the activity. The results of the interview

showed that some of the cadets felt that the sports they were doing became a burden that made them feel tired. Based on the background, it can be concluded that there is a need for evaluation in the semi-military education system.

Many activities, various tasks that must be completed, lack of free time and the need to comply with the rules that apply while living in the dormitory make cadets feel physically and psychologically tired so that it affects motivation in developing themselves [9]. In addition, regulations that restrict the self-development of students such as not allowed to carry mobile phones should be reviewed. Cadets need strong motivation in carrying out their duties that are full of demands [10]. Educational institutions should play an active role in evaluating the semi-military education system by eliminating less effective educational traditions and replacing them by focusing on self-development of cadets so that good quality education can be realized by producing competent graduates who are ready to compete in the era of globalization.

Nugroho argues that being a qualified worker, able to speak foreign languages, computer and internet skills are the three main criteria as a requirement to enter the workforce in Indonesia and around the world [11]. Information technology has an important role as a learning medium for cadets to develop themselves in mastering these three criteria and also in accordance with their respective fields. Another benefit of information technology is that cadets can develop an attitude of initiative and independent learning ability to get information, ideas, and experiences [12]. But in reality, the use of information technology in the semi-military education system have many problems and challenges that must be faced. Based on the background of the problem above, the purpose of this study is to find out what are the problems and challenges in the use of information technology in the semi-military education system in Indonesia.

**II. METHOD**

The research uses descriptive qualitative research which will describe the problem based on the data obtained from the research. In this study, the authors obtained data sources through reference books, national and international research journals were used as data sources in this study, as evidence that in research, researchers used research principles, without plagiarism from the work of others. Observations were used in this study to obtain clarity of data about field conditions. Interviews are used in this study to obtain valid data from sources.

The type of data obtained is descriptive data where the researcher conducts research on public perceptions, thus, a qualitative research model with a description is deemed more appropriate to describe the state of a community or area. To obtain precise and correct

research results, the right method is needed to analyze the data.

Data obtained from the field by conducting field surveys, interviews, and documentation. The quality of the data is determined by the quality of the data retrieval tool or measuring device. If the data collection tool is reliable and valid, then the data is also quite reliable and valid [13]. The data obtained from the field is quite large. Therefore it should be noted carefully and in detail. Reducing data means summarizing, choosing the main things, focusing on the important things, looking for themes and patterns. Thus the data that has been reduced will provide a clearer picture and make it easier for researchers to conduct further data collection and look for it if needed.

Presentation of data can be done in the form of brief descriptions, charts, and the like. But the most frequently used are narrative texts. By displaying the data, it will be easier to understand what is happening, plan the next work based on what is understood. Data that has been patterned, focused, and arranged systematically through data reduction and presentation which is then concluded so that the meaning of the data can be found.

**III. RESULT AND DISCUSSION**

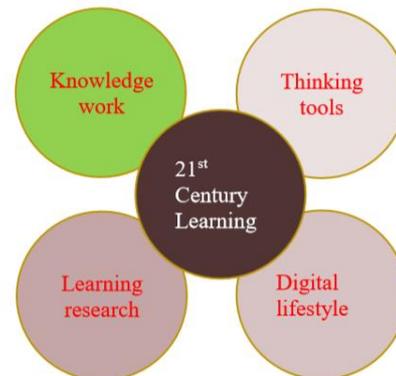


Figure 1. 21<sup>st</sup> Century Learning [14]

According to Trilling and Fadel, learning in the 21st century is oriented towards digital lifestyle, thinking tools, learning research, and knowledge work (Figure 1)[14]. Knowledge work is the ability to collaborate in teams with different locations and with different tools, learning research is an effort to develop knowledge to achieve certain goals, thinking tools is the ability to use technology, digital tools, and services, and digital lifestyle is the ability to use and adapt to the digital era [14]. Based on the research above, it can be concluded that in order to survive and continue to develop in the 21st century, all parties who have an interest in learning must be sensitive and able to use information technology as a necessity in the learning process.

The wealth of information now available on the internet has far exceeded the expectations and even the

imagination of the inventors of the system. Through the internet, people can access unlimited and actual sources of information very quickly. The existence of the internet allows someone in Indonesia to access libraries in the United States in the form of a Digital Library. Indirectly the internet encourages the world of education to adapt to the flow of globalization information, directly the internet can be used as a source and learning media for students in developing knowledge [15].

However, the benefits of the internet in learning are not only as a learning tool for students, but also useful for teachers to improve their knowledge towards professionalism. It is hoped that the use of this media can stimulate the thoughts, feelings, interests, and attention of students in such a way that the learning process can occur. In addition, the learning process will be more effective because the use of internet media such as digital libraries, audio learning, video learning, webinars and digital learning platforms enables the overcoming of obstacles in the teacher-student communication process such as physiological, psychological, cultural, and environmental barriers. Table 1 describes the differences in learning with Information Technology and without Information Technology.

TABLE 1. DIFFERENCES IN LEARNING WITH THE USE OF INFORMATION TECHNOLOGY AND LEARNING WITHOUT THE USE OF INFORMATION TECHNOLOGY

Aspect	The Use of Information Technology	Without The Use of Information Technology
Location	Learning can take place anywhere.	Learning takes place in the classroom.
Class Discussion	Speaks as much or more than educators.	Educators talk more than students
Role of Educator	Educators direct students to search independently for the information needed.	Educators are the main source of learning activities.
The Subject	Participate in determining the subject matter; based on various sources of information.	In accordance with the existing curriculum; limited to the knowledge of educators.
Learning Process	Learning can be done individually or study groups. The learning process combines finding solutions and collecting information from the web or related parties.	Learning is carried out with the participation of the whole class. Educators are busy completing the required quota of learning materials.
Motivation	High motivation due to direct involvement of students in learning by using technology.	Low motivation if the learning material is not understood by students and lack of direct involvement.

#### A. *Semi-military Education System in Indonesia*

The semi-military education system is a system that uses basic military education as the initial foundation of an academic process that aims to create professionals with strong character and mentality. Unlike the true Military Academy, which does educate prospective soldiers to be ready to fight to defend the country. Setyani in the historical education journal he wrote stated that the semi-military education system initially adopted more of the Dutch colonial heritage [16]. Discipline in semi-military education adopts the discipline of the military system., such as drill commands, morning and evening roll call, the use of uniform attributes that show a hierarchical relationship (rank marks), even in dormitory life using lots of rules [17]. That's all various mandatory rules that are usually applied in the military world. In the Dutch colonial era, cadets were prepared to maintain the resilience of the government but nowadays graduate from a school with a semi-military education system is not to maintain the government so there are some rules that must be changed.

The implementation of semi-military-based education prioritizes mental and moral development which is realized by boarding the students [17], [18]. The purpose of mental and moral development in this dormitory life is to become a person of character, have a sense of responsibility, mature ways of thinking, have self-discipline, and have excellent physical condition [19]. Life in the dormitory requires the students to always be disciplined and obedient to the applicable rules with a lot of activities. In addition to the many activities, there is pressure from seniors that sometimes burdens students. Table 2 is described the various activities that distinguish a semi-military education system from a non-semi-military higher education system.

Based on the results of interviews with several students at one of the Indonesian Aviation Polytechnics as well as the author's participation as part of the object of research, it is known that the semi-military education system has succeeded in fostering the mental and moral of students to However, too many student activities cause the cadets' physical and psychological burden to be quite high every day, as well as pressure from seniors which causes many students to be tired when attending lessons or studying independently in the dormitory become disciplined and characterized individuals.

This perception is in line with the opinion of Doni Koesoema [20] a character education expert who stated that the semi-military education system is only suitable for the military and the police. According to him, there are other ways to train prospective public servants mentally and physically, not by adopting the military education system. Seeing the case of the death of a Makassar ATKP cadet because of senior violence, he believes that educational institutions should see the extent to which they need a healthy body and discipline,

not necessarily with a semi-military education system but with special training according to their portions.

TABLE 2. STUDENT ACTIVITIES IN THE SEMI-MILITARY EDUCATION SYSTEM

Activity	Information
Mandatory Exercise	Each student is required to take part in mandatory sports in the morning every day and in the afternoon are required to take extracurricular activities according to their interests or just run in the afternoon.
Morning Roll Call and Evening Roll Call	Each student is required to do morning and evening apples which aim to check student attendance in the dormitory and be given direction from the caregiver.
Drill Commands	Each student is required to use the basic rules of marching adopted from the military system, namely, they must walk in groups by forming lines throughout the school environment led by a platoon commander.
Uniform Attribute	Each student is required to use a strict and neat uniform and the use of attributes that must always be clean along with a rank mark to distinguish each generation.
Mandatory Extracurricular	Every student is required to join the marching band or paskibra extracurricular as a successor to the previous members because these extracurriculars are the hallmark of schools with semi-military and military systems.
Eating Activities	Each student is required to have breakfast, lunch, and dinner together and under the guidance.
Etc	Additional activities are in the form of punishments or sanctions given to cadets for making mistakes or not according to the rules. Performed individually or in groups supervised by caregivers or seniors above.

### *B. Problems and Challenges in Using IT in Semi-Military Education System in Indonesia*

The rapid development of information technology in the era of the industrial revolution 4.0 is currently very influential in the world of education [21]. It is time for educational institutions to use information technology as a means of self-development for their students. Educational institutions are required to present themselves, whether they can educate and produce students who have high competitiveness (qualified) or are experiencing setbacks due to the rapid development of information technology. According to the author, there are several problems and challenges faced by educational institutions in the use of information technology in the rapid flow of globalization based on the results of literacy in the book "Introduction to Education" written by Tirtaraharja [22].

1. Challenges in increasing national work productivity as well as economic growth and equity to improve sustainable development.
2. The challenge is in conducting comprehensive research on the era of reform and transformation of the structure of society, from a traditional-agrarian society to a modern-industrial society and

information-communication, as well as the development of human resources.

3. The challenge is facing increasingly fierce global competition, namely in producing human resources who can produce creative works from the results of thought, invention, and mastery of technology.
4. Challenges against the emergence of invasions in the field of science and technology.

These challenges require the existence of qualified and globally competitive human resources who are broad-minded, possess professional skills and expertise, are visionary and have high self-confidence. To overcome the challenges above, it is necessary to start by addressing the problems in educational institutions first so that they can produce graduates who are in accordance with the demands of the current era of the industrial revolution 4.0 [23].

The era of the industrial revolution 4.0 is an era where technological developments have developed very rapidly. Educational institutions are required to be sensitive in the use of technology that has been shown to have a positive impact in developed countries in producing quality human resources. However, in reality, in educational institutions that adhere to a semi-military system, there are still some problems and challenges in the use of technology, especially information technology.

The results of interviews from several students of the Indonesian Aviation Polytechnic (PPI) can be summarized that the problems and challenges faced in the use of information technology in the semi-military education system are:

1. Activities are very dense so that it makes students tired and reduces their motivation in learning.
2. Lack of free time to develop themselves, such as using the internet to learn new skills or just looking for learning references.
3. Pressure from seniors causes students not to be free to develop themselves.
4. Educational institutions are too focused on mental and moral development and pay less attention to coaching in the academic field.
5. Prohibition of using mobile phones during education.

This problem is in line with research from Murdiyanto [24] which states that discipline development is very influential on cadets' achievement. If discipline development increases, there will be a decrease in learning achievement and statistically has a significant effect. The portion of discipline development such as physical coaching and daily activities with excessive portions has a very large influence on students' motivation to excel. If this pattern of education continues, students' interest in

developing themselves in the academic field will not be realized. Even just using the internet as a learning medium will be very difficult to do.

The prohibition of using mobile phones while carrying out education in semi-military-based educational institutions is not a strange thing to hear. The reason is so that students can focus during their education. Such regulations should have been eliminated in the era of globalization where the flow of information moves very quickly. The use of mobile phones as the most practical learning media should be used for student self-development. The existence of mobile phone services that can be connected to the internet can be used for browsing, so that you can get information easily and quickly and can be done anytime and anywhere. In addition, it can be used to share knowledge so that they can exchange ideas by utilizing these electronic devices.

Another constraint that needs to be resolved is the unpreparedness of resource people to use information technology in the learning process. This unpreparedness is due to the pattern of learning habits that still do not consider the important role of technology in improving the quality of learning. They tend to be satisfied with the material that has been given by the teacher directly, thus causing them to be unwilling or lazy to look for additional information on the internet. Sometimes this obstacle is much more difficult to solve than the absence of infrastructure that supports information technology, this is because it is usually more difficult to change a person's behavior patterns or habits. Therefore, there is a need for awareness from each individual learner to utilize and apply technology in their learning methods [15].

#### IV. CONCLUSION

There are many positive impacts that can be obtained from the use of information technology in the current era of the industrial revolution 4.0. Especially the use of information technology through internet media which is the largest virtual library in the world. We can find all information easily through the internet so that this can be used by educational institutions in Indonesia in producing quality graduates who are globally competitive. However, in reality, the use of information technology, especially in the semi-military education system, is still faced with problems and challenges created by the education system itself.

As a rule, it is not allowed to use mobile phones during education so that it inhibits students from using information technology. Students who should be able to develop their potential are also hampered by the lack of free time and physical and psychological conditions that are exhausted as a result of the semi-military education system which demands various mandatory activities that must be obeyed by every student. Evaluation of the semi-military education system needs

to be done so that the use of information technology can be more effective as a means for students' self-development.

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