Students' Perceptions of a Computer Learning Management Process: An Evaluation in Indonesia

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The management of a computer-based learning process has been implemented at the Indonesian Naval Technology College for the last three years in several courses, including both undergraduate, and post-graduate programs. The management of the learning process has shifted from traditional learning. The role of computers in the learning process by lecturers will change the students' perceptions of the learning process upon the components of the lecturer, equipment, and methods applied. The aim of this study is to evaluate students' perceptions of the implementation of learning process management in a computer-based classroom. The research was conducted by an explorative descriptive method, which involved 50 undergraduate, and postgraduate students. The data was obtained through questionnaires, and descriptive analysis of the responses received from students. The results show that most of the students have particularly good attention, and enthusiasm in joining the program. At the time of the scholarship process, there was only a modest number of students who performed the activities with computers in a manner which was not in accordance with the program objectives. They communicated using social media, and playing games, and several were undertaking college assignments, which were not related to the courses that were being taught.

Key words: *Evaluation, Computer learning management process, Students' perception.*

Introduction

Students are highly potential assets in a campus, and a country's social, and economic developments relate to students' academic ability. Students' academic achievement will result in the best graduates, who will become leaders, and resources that are responsible for economic, and societal growth. Inquiry into the measurement of student performance has

been exercised often, including that the facial expressions of student performance are influenced by the societal, psychological, economic, environmental, and personal elements of pupils. These factors strongly influence the performance of students, but vary greatly, depending on each individual, and even the context of each country.

Learning is a student effort to study the lecture material given by the lecturer. The learning process is not possible without the treatment of lecturers. Behar and Seabert (2005) argue that the decision-making, and choice of instructional models should be returned for the benefit of learners or students. There are three principles in this kind of learning process. Firstly, the learning process is the creation of the environment that shapes or changes the cognitive structure of students. The second touches on the types of knowledge to be examined, such as physical, social, and logical knowledge. The third contends that the learning process must consider the character of the social environment.

Literature Reviews

The growth experienced in the world of education is substantially influenced by rapid technological developments. One perceived influence is the adaptation of learning technology which follows the evolution of engineering science. Conforming to the growth of engineering, many learning models are made to ameliorate the calibre of learning. One of the learning models that emerged, was the computer-based learning model. The computer-based learning model is expected to improve students' reasoning by combining the contextual academic content with the technological developments.

Computer technology can be a medium that can virtually display responses quickly, and accurately to student learning outcomes. The interaction between students, and computers can vary with the power of computers to store, and control data. Students can use computer technology according to their needs. Technological developments, including the growth of computers, make it possible to load, and display various media. Heinich et al. (1996) state that computers deliver the power to coordinate, and unify various media, such as photographs, graphics, and telecasting. The computer can also record, examine, and react to student actions which are typed on a keyboard or using a mouse.

Learning Process

Learning is an activity or process to achieve knowledge, improve skills, behaviour, and attitude, and strengthen personality. Learning always has a specific purpose, so in the implementation of learning, there are always two activities of learning, and teaching. In the learning process, activities are designed to achieve certain goals. The students are encouraged to develop behavioural changes in the cognitive, psychomotor, and affective domains. In

other words, learning can be defined as the procedure of seeking knowledge that happens within a person through practise, and memorising, so that there is a change in him or her.

The process of learning is the integration between the concepts of studying, and teaching. In learning activities, the concepts of studying, and teaching cannot be separated. There is the interaction, and influence between the educator (lecturer), and the learner (students). The educator gives the material that influence the students, while the learners receive the lesson, the material or the influence (Nata, 2003). The ability of educators to supervise the learning process is a capability or accomplishment in establishing an educational atmosphere.

In general, a lecturer must meet two categories. That is, to have the capability, and loyalty, the lecturer must have the ability in the study of the science taught, and the theoretical ability about good teaching, which includes planning, implementation, and evaluation. Moreover, they must possess loyalty to the profession, be loyal to the tasks, and not only while in the class, but also at the time before, and after the process of learning in the classroom. In carrying out the learning procedure, the activities undertaken by lecturers can be split into various phases. Each of these stages is interrelated and inseparable. The stages in the learning process can generally be divided into: planning stage, implementation stage, and evaluation phase.

Computer-Based Learning

Computer-based learning is a learning process that uses computers as a tool (Maheran et al., 2019). The teaching materials are presented through computer media, so that the learning process activities become more interesting for students. By using this method, students will interact, and deal directly with the computer individually. This can result in the experience of each student varying according to the ability of the student interaction with the computer. Computer-based learning can improve a student's motivation to learn. By utilising technological advances, lecturers can interact with students through computers as aids. Lecturers can deliver learning materials in the hope that students become more interested and motivated in following the learning activities in the classroom.

In computer-based learning, the teaching materials are stored in the software, installed on the computer. Some computer technology applications in education are known as 'computer assist instruction' (CAI) or 'computer based instruction' (CBI). The application of computer use can help more students in every learning process. Lecturers are also greatly facilitated by the existence of computer technology in the learning process. In computer-based learning, there are four models that can be implemented, namely:

Drill and practice

The drill and practice learning model is widely used in the classroom. Drill and practice programs require adjustments between the level of the students' ability, and the learning needs. In this model, it requires both visual, and additive reinforcement to keep students' interests, and concerns maintained during the learning program. If there are students who answer incorrectly, they subsequently will need to be afforded assistance in accordance with the sequence of learning.

Tutorial

The tutorial program aims to bring out new subject matter to students, then proceed with practise. In this program, conducted preliminary tests, and final tests are used to determine how many students can take in learning materials. Likewise, this program can be utilised if there are students who are not present in any particular subject, and want a recap. In addition, the tutorial program can be used as a follow up of the lessons previously given.

Simulation

The simulation program is utilised to present students to real-life situations. The students outline the interrelated conditions, then make decisions, and determine the consequences for the decisions they make. As a learning material, it can pose situations related to political, social, economic, and other issues.

Computer management instruction

This program provides cross-referencing with other programs to extend the exercise. It can also be used by assistant lecturers to perform increased administrative functions, such as student achievement data recapitulation, database of books or e-libraries, recording of payments, receipts, and more. Furthermore, computerised learning programs can be acquired during the course of study.

Management is the process of coaching and providing facilities for the study of organised people in formal groups to reach a desired goal (Millet, 1954). A lecturer conducts the mentoring process to the students by utilising the facilities available in the learning process. Terry (2005) states that management is the achievement of goals that have been established through or together with others. Management has four basic functions: planning, organising, actuating, and controlling. In computer-based learning management, the supervisory function aims to enable students to pursue the procedure correctly. Students do not perform activities

that are not in accordance with the purpose of the learning process which utilises computer technology.

Technology in gadgets is a very powerful contributor that involves students in the learning process. Understanding the gadgets outline is an instrument of technology that has certain functions, such as information processing systems, laptops, smartphones, and others. Technology is a tool that can be chosen by which students will best be utilised in learning. The use of gadget technology can be implemented effectively from the lowest level of education to higher education. Children in elementary school may start to be accustomed to using technology as part of an academic course of study. Instructors should be able to progress to learning models which use technology, in an effort to resolve any apprehension in children. The hope is that youngsters can use technology properly, and take advantage of technology, and its applications (De Pasquale et al., 2003). This practice should occur through to the college level.

Miller (2011) conducted a research at the Van Meter Community School, which was comprised of implementing learning by utilising laptops for grade 6–12 students. Since the program was established in 2009, a school report indicates the presence of a positive atmosphere associated with respect, creativity, cooperation, and communication between the students. They also stated that independent thinking, and learning emerged in their schools. Students in the Van Meter Community School use their laptops for activities, such as creating reality show programs, exposure, YouTube videos, and blog writing. They utilise technology to interact, exchange ideas, carry out research, and learn independently.

The usage of gadgets in the process of student learning on campus has become an inescapable necessity. Even, in some cases, gadget technology is used in the classroom as a means of learning. In everyday life, the student cannot release himself from the gadget. In the end, gadget manufacturers are always trying to make the latest innovations, in order to satisfy the wants, and needs of students. Saputri and Pranata (2014) stated that students consider the gadget brand at the time of purchase. Specifically, there is more value that they feel when using gadgets with a particular brand. In addition to being a means to ease the work, gadgets have become a lifestyle, where there is a sense of fanaticism towards one of the brands of the gadgets that they employ.

Some research indicates that the use of technology in the learning process in the classroom has several advantages. Applied science can be employed as a tool for the growth of a project which requires problem solving, and critical thinking. Kurt (2010) states that technology can be used for restructuring, and redesigning class concepts to create environments that promote the growth of thinking skills. Meanwhile, Keser et al. (2011) stated that technology can also

improve student collaboration. Students work together cooperatively to create a project, or they can learn together by reading each of their works.

With the growth of technology, the learning process in the lecture room is instantly prepared by applying technology. One that is developed, is the use of gadgets in the process of student learning in the classroom. The usage of gadgets in the learning process can cause an impingement on the continuity of the process, with both positive, and negative impacts. Rambitan (2015) conducted research on smartphone usage in the learning process at SMA 5 Samarinda. In the research, Rambitan provides an assessment of the classroom by allowing students to use the smartphone in the learning process, and subsequently compares the findings to other classes that do not use smartphones. The conclusion of his research highlighted that student learning using smartphones has an influence upon students' critical thinking skills, specifically related to conceptual thinking.

Aside from the positive advantages of using technology in the process of learning in the classroom, there are also emerging negative impacts. This includes unpreparedness in receiving technology, with all its consequences, can have a negative impact. Strasburger et al. (2010) found that modern technology can have a negative impact on students, such as affecting their behaviour, including downloading videos with violence, and sexual elements, and posting to social media. It is with noting that increasingly, students enjoy communication with their friends via social media, rather than face-to-face (Roois et al., 2011).

The adverse impact of the role of technology in the learning process should be explored. The real impact can be seen from several aspects, such as: the attention of students to the learning process, the extent of the participation of students in the class, and how students pay attention to the material presented by the lecturer. The use of technology in the classroom learning process changes the way students view or perceive the learning process. The learning process in the classroom is identical with the ability of the lecturer in managing the class, such as what material is taught, the teaching method, and how to manage the class. The attention of all students is directed to the lecturer, who provides the material. With the utilisation of technology in the learning process, in this case, the role of gadgets other than students should pay attention to lecturers, they can also do actions related to gadgets owned. It is here that the potential arises to produce a negative impact.

Perception

Perception can be understood as the cognitive operation of knowing or recognising objects, and outcomes with the help of the senses. Perception in the universal sense is one's view of something that will cause a response to how, and with what, one will act. Bhattacharya et al. (2009) describe perception as the process by which a person selects, organises, and interprets

information inputs to make a meaningful whole picture. The perceptual experience is the process of giving meaning or substance to the surroundings. In this case, the perception is related to the interpretation of the object, the acceptance of the stimulus (input), the organising of the stimulus, and the interpretation of the organised stimulus. Eventually, perceptions affect behaviour, and attitudes. A perceptual experience is determined as the procedure by which individuals organise and understand patterns of stimulant in their surroundings. Another definition says that perception is the ability to discriminate, focus or group against an object of excitement. In the procedure of grouping, and differentiating, this perception takes a process of interpretation that is based on the experience of an object and/or event.

Perception can also be as a result of one's analysis of the things around them, with impressions or concepts that already exist, and subsequently, based on the results of this analysis, he or she recognises these things. Perception requires the existence of an object or stimulus that is sensed by the sense device, with the mediation of the sensory nerve, and is subsequently forwarded to the brain, as the centre of consciousness. Then, in the brain, there is a psychological process, which means that the individual can finally experience a perception. Therefore, psychologically, perception is defined as one psychological device that marks a person's ability to recognise and interpret something that is in the object.

One's perception can be wrong, and even vastly different from the perceptions of others. These errors or perceptions of difference can lead to various implications in human relationships. Likewise, computer-based learning attempts to unify the contents, materials, tasks given, and teaching methods of lecturers. However, because each lecturer has an individual character, and uniqueness, and the students who receive learning also come from a variety of social backgrounds, different cultures, and environments, then their perceptions in accepting the lessons, and in the way they respond to the lecturers, is also different.

The Indonesian Naval Technology College (STTAL) has entered its third year of diligence in learning procedures by utilising technology facilities, and in the form of a common support laboratory. The learning procedure in this laboratory requires that every student occupies a table fitted with a computer set. The computers at each table are connected in a Local Area Network (LAN), as well as the Internet network. There are two rooms which are designed as a class space for giving materials, and a class space for discussion. This work is based on the question of how the perception changes experienced by students with the role of technology in learning in the classroom? What do they behave with such a change of perceptual experience? What to do to minimize the negative impact due to changes in sensing.

Methods

The research was conducted by using an explorative descriptive method, which involved 25 postgraduate students, and 25 undergraduate students of the Naval Technology College. The students involved in this research have performed a learning process in the classroom by utilising computers in the common support laboratory. The data was obtained through questionnaires, and in-depth interviews with several students. The statements in the questionnaire illustrate the indicators of the student perceptions of the learning process. There are five statements for student attention, five statements for student enthusiasm, and four statements for student activities. The choice of students is summarised in each statement and is displayed in the percentage table.

Results and Discussion

The process of perception is a cognitive process that is influenced by experience, insight, and individual knowledge. The experience, and the learning process will provide the shape, structure, and format which will be the object captured by the senses. Meanwhile, the knowledge, and insight will provide meaning to the objects received by the individuals, who in turn, will play a role in determining the responses, and answers in the form of the attitudes, and behaviours of individuals against an object. The occurrence of perception consists of four stages, as follows (Walgito, 2003):

1. *The first stage:* is known as the faulty process or physical process, which is a process of the arrest of a stimulus by means of the human senses.
2. *The second stage:* is known as the physiological process, which is a process of continuing the stimulus received by the receptors (sensory organs) through sensory nerves.
3. *The third stage:* is known as the psychological process, which is a process of awareness growing about the stimulus, and as received by individual receptors.
4. *The fourth stage:* is the result obtained from the process of perception, in the form of responses, and behaviour.

Thus, every process of perception is always linked with the selective attention to each individual when receiving stimuli from the environment. Not all stimuli are responding to or responded by individuals. Each person tends to concentrate on specific stimuli, to the exclusion of other stimuli, and will not be responded to. Each individual captures different stimuli. The ability of the senses of each individual also varies. These differences, and capabilities of each individual result in different experiences, thus resulting in perception being subjective. The perceptions of each student are different, although faced by the lecturer, and computer equipment, they are alike.

The evaluation in the management of the learning process is linked to the process of gathering information to decide the stage of determining the progress, and achievement of the learning targets. In the learning process, students will receive an ability, which includes the three aspects of knowledge, attitude, and skills. Perception is part of the attitude, and skills that must be built, so that students have the right perception in the learning process. In the field of psychology, 'perception' is defined as the process wherein a person becomes aware of everything in the environment through the senses-senses owned or is environmental knowledge obtained through the interpretation of sensory data (Kartono & Gulo, 1987). The perceptions of learning process management include student attention, and enthusiasm to engage, as well as the activities undertaken during the procedure.

Student Attention to Learning Process

Table 1 shows how students pay attention to the material presented by lecturers in the learning process. It shows students' responses, and attitudes during the learning process.

Table 1: Questionnaire of student's attention to the learning process

No	Statement	Agree	Disagree
1	It is better to open social media while listening to the explanation of the lecturer delivering the material.	16%	84%
2	It is better to turn off the computer when the lecturer issues the course material.	26%	74%
3	I usually look for reference material on the Internet rather than listening to the lecturers' explanations.	40%	60%
4	I can focus more on class materials while reading references from the Internet.	44%	56%
5	Listening to college lecturers is more boring than browsing on the Internet.	62%	38%

As many as 84 per cent of students did not agree with opening and communicating via social media at the time when lecturers issue lecture material. However, 74 per cent of students did not agree that the computer must be turned off when the lecturer provides the course material. There are several reasons for students to keep using the computer when they receive course materials. As many as 60 per cent said that concurrently, while listening to lectures, they search for additional references on the Internet. Moreover, 56 per cent of students stated that feel they can focus more on receiving the course materials while reading other references, which they obtain from the Internet. Meanwhile, 62 per cent of students stated that listening to lecturers was more boring than browsing on the Internet.

Student Enthusiasm

Table 2 shows how students are interested in engaging in learning activities by using technology tools.

Table 2: Student enthusiasm

No	Statement	Agree	Disagree
1	It would be more fun if the lecturer asked me to look for course material on the Internet.	64%	36%
2	I was more excited at the time of college using computers for each student.	70%	30%
3	I would prefer if all courses allowed students to access the Internet.	48%	52%
4	I am sure that by using the computer, I will be more active in class discussions.	78%	22%
5	I feel that without a computer in a lesson, class would be unattractive.	62%	38%

As many as 64 per cent of students are more satisfied if the reference source used by lecturers can be searched on the Internet. Once confirmed, it was determined that the problem of 'free charge' to download from the Internet is more enjoyable for students, rather than having to buy a print book at a bookstore. Furthermore, as many as 70 per cent of students expressed that they were more excited at the time following the lectures, which allowed them to access the Internet. However, they are also of the view that not all courses can be implemented in the classroom with Internet access, such as courses related to practise in the field. Therefore, those who expressed that they would be happy if all courses could be implemented with Internet access, was only 48 per cent of students. The passion of attending computer lectures is demonstrated by 78 per cent of students believing that they will be more actively involved in classroom discussions if they have access to a computer. They feel with internet access, the facility will enable them to enrich themselves with references to fuel debate. In the fifth point, 62 per cent of students felt that the classes which do not use computers in the learning process, are not considered interesting.

Student Activity

Table 3 shows the student activities related to computer equipment on each table during the learning process.

Table 3: Student activities

No	Statement	Agree	Not Agree
1	I prefer to communicate with my friends through social media during college.	24%	76%
2	I can do other lecture's work when the lecturer issues the materials.	54%	46%
3	I play games on the computer to eliminate boredom during college.	10%	90%
4	I never use a computer in the classroom, I prefer to use my own gadget.	26%	74%
5	I like searching for references on the Internet which are related to the lessons while the lecturers explain the materials.	72%	28%

In the learning process which uses computer facilities, sometimes the activities undertaken by students are not in accordance with the course expectations. The questionnaire results highlighted that 24 per cent of students agree that they communicate through social media during college. While associated with the obligation to do the task, more than half or about 54 per cent agree that when lecturers give lectures, they can do other tasks. Only ten per cent of students use their college time to play games on the computer. This is according to their confirmation that they feel bored with the lecture. In addition, there are about 26 per cent of students who do not want to use computers in the classroom. This is based on the reasoning that they possess more sophisticated gadgets, and prefers to use their own gadget. Overall, a majority of 72 per cent of students use computers in accordance with the expected search for other references that are related to the material being presented during lectures.

Conclusion

The student perceptions of the learning process in a computer-based classroom can be seen from the aspects of attention, enthusiasm, and the activities undertaken by students during the process. A majority of the students agree that the ease of Internet access during the lesson will be highly helpful in understanding the material given by the lecturer. The ease of finding reference sources, is an added value in a computer-based classroom learning environment. The student enthusiasm is reflected in the optimism to be involved in every classroom discussion, and this makes the lecture atmosphere interesting and appealing to them. In addition to the positive outcomes, as the goal of organising lectures in computer-based classes, there also appears to be negative impacts pertaining to student computer use that does not fit the purpose of the lectures. These activities include the interaction with social media, playing games, and completing unrelated lesson tasks that are not being taught in the current lecture.

The student activities that are not in line with the purpose of the learning process, require special attention from the lecturer to ensure that they do not occur. The ability of lecturers to organise the learning process is highly necessary, and they must be able to monitor the activities undertaken by students during lectures. A persuasive approach can be used to raise awareness on the importance of following the process of learning correctly.

The learning methods used in the learning process should vary to avoid boredom among students. Just as in clothing, food, motorcycles, cars, and so on, the variations applied to something will make it better or more interesting, and it will motivate students in the learning process. Motivation is the desire, and the driving force that arrives from within a human being to do something. Motivation is a physiological, and psychological condition that lives inside the human being, and that governs its actions, in a certain way. The difference between highly motivated, and lowly motivated students, will be seen from the way they conduct lectures, and approach problems. Highly motivated students will fill in their lectures better than lowly motivated students.

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