

# Information Technology Impact on Learning Process and Academic Achievement of Student

Nor Hasan Noorlailie Soewarno Isnalita  
Faculty of Economics and Business, Airlangga University

**Profile and corresponding author :** Nor Hasan<sup>1</sup> is a student of Master of Accounting, Faculty of Economics and Business, Airlangga University. Noorlailie Soewarno<sup>2</sup> is a lecturer of Master of Accounting, Faculty of Economics and Business, Airlangga University. Isnalita<sup>3</sup> is a lecturer of Master of Accounting, Faculty of Economics and Business, Airlangga University.

## Abstract

This study aimed to obtain empirical evidence regarding the correlation of the use of information technology to the learning process (lectures) and its impact on student academic achievement. This study used path analysis or analysis that not only tested the direct influence of independent variable to the dependent variable, but also explained the presence or absence of indirect influence given by the independent variable through the intervening variable to the dependent variable. This study uses questionnaires media that are disseminated through electronic media. The statements contained in the questionnaire were measured using the Likert scale of 5 (five) points, then processed using Path Analysis, and interpreted. Total respondents in this study as many as 204 students of Master of Accounting who have been through the course of information technology management. The results of this study indicate that information technology influences student academic achievement and influences the learning process and has an impact on student academic achievement.

**Keywords :** Information Technology; Learning Process; Student Academic Achievement.

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## INTRODUCTION

The use of information technology becomes an integral part of the learning procedure at the university. Some teaching staff have enthusiastically applied technological innovation as part of the learning process in the classroom. Nevertheless, the influence of information technology on student academic performance becomes quite a matter of debate (Bawaneh, 2011; Zoraini dkk, 2009).

Research on student academic performance is an important topic in the world of education. Factors that affect student academic performance are very important. These factors will greatly affect the university's academic policies, lecturer performance appraisals and modification of the way lecturers teach (Guney, 2009).

Bawaneh (2011) mentioned that before the computer is familiar in the community, the learning process is done traditionally. But in recent years along with the technological advances, the use of computers in the community is increasing. Increased use of information technology has a positive impact on the world of education, especially in the way and the process of delivering learning materials. Even the majority of universities in the United States have been doing online accounting perkualiahan with berorientasi on the use of websites and social media.

With reference to research researchers tried to develop the research by not only testing the powerpoint aspect as a learning medium but testing the use of information technology in general to student achievement. The development of computer technology has influenced rapidly to various joints of community life including in the process of learning at the University. Bawaneh (2011) states that information technology today can not be separated from the learning process in education. Various educational institutions from elementary school up to the University have been competing to invest in information technology as an effort to improve the quality of education. (Khan, 2009) explains that a large development in the field of information technology has a major impact on the role of educational institutions. Educational institutions vying to spend their financial resources to update the information technology. The development of information technology is expected to give a positive impact on the procedures of students in learning.

Carrillo dkk. (2011) states that improving the quality of education is the main objective of most developing countries. The rapid development of information technology has a significant impact on education. In the process of education, the use of IT is expected to improve student performance through several ways: first, the existence of information technology in the classroom is expected to improve the quality of the learning process that affects the performance of students; second, the use of IT is expected to improve students' cognitive abilities expected to have a positive impact on student academic performance. (Khan, 2009) revealed that the use of information technology is expected to have a positive impact on student learning.

## LITERATURE REVIEW

Compeau dan Higgins (1995) explained that the capabilities and expertise of a person's computer to perform tasks related to information technology computer self efficacy needed in a person in using information technology to utilize it in facilitating the process of learning and achieving maximum academic achievement.

Computer technology, communication technology, any technology is a media that can provide added value to the organization (Mustakini, 2009; Rauniar dkk, 2014). The growth of computer use provides great potential in developing the learning process. Internet, wireless, tablet computers and other IT developments provide revolutions in the way the University is learning (Frey dkk, 2009).

Jabr, (2011) and Kadous dan Magro (2001) tries to give an explanation of the internet usage of student achievement. The Internet provides flexibility for students to find and download the required course materials. The development of websites, blogs, emails, and social media to expand the communication network both between faculty and students and with fellow students. Internet use can have a positive impact on student achievement if directed well.

The implementation of lecturing process is an interaction between lecturers and students who are quite dominant. The process of interaction between lecturers and students is not solely dependent on the method or method used, but also the other components also affect the success in the interaction of teaching and learning. These components, among others: lecturers, students, methods, tools or technology, facilities, and lecture objectives (Sardiman, 2004 : 173). (Slameto, 2010) and (Iskandaryah, 2012) states that academic achievement is influenced by lecturing process. Learning activities are an educational process both at school and on campus. This means that the success or failure of the achievement of educational goals depends a lot on how the achievement of the taxonomy of education experienced by students covering cognitive, affective, and psychomotor aspects. In an educational institution the success of teaching and learning process can also be seen from the achievement of learning achieved by learners.

Nugraha (2015) said in the context of learning there are some benchmarks that can be used to determine learning achievement. One of the benchmarks used is the achievement of learning that refers to the achievement of the education taxonomy that covers aspects of cognitive, affective, and psychomotor. One of the efforts that make someone achievement is to carry out continuous activities. That is, after someone realizes his potential in a field then he will continue to strive to develop it into the main ability.

Information technology is able to prove its role in increasing student involvement by integrating learning tasks to achieve achievement with high learning outcomes (Kanapathippillai dkk., 2012; Yaftian dkk., 2017). Based on the description, it can be hypothesized as follows:

H<sub>1</sub>: Information technology affects Student Achievement

Essentially an effective learning process occurs if the lecturer can change the ability and perception of students from difficult to learn something to be easy to learn. Effective learning and teaching processes depend largely on the selection and use of learning methods (Popham and Baker, 1992). (Pujasari and Nurdin, 2008) revealed that the competence of lecturers greatly determine student achievement. The higher the competence of educators, then the chances of learners get good learning outcomes.

Factors that can affect student's learning achievement include teaching style of lecturer, assistance to students, lecture structure, and teaching and learning facilities. Students will better understand the courses being pursued if at the time of teaching lecturers do not press, and in accordance with the syllabus / SAP has been agreed. Lecturers not only have academic ability in certain subjects, but also must have the ability to teach in the class well, such as the establishment of appropriate methods for teaching, maintaining a conducive atmosphere in the classroom, and willing to conduct two-way discussion in order to establish good communications between both parties . A good learning process will also be able to have a significant impact on the academic achievement of learners (Iskandaryah, 2012).

Some universities used professional accountants to teach Information Technology to students and try to integrate it with courses, while other universities use Information Technology or the Department of Computer Science to teach accountants of information technology principles (Noor and Wan, 2016; Wessels, 2004). Learning achievement is influenced by internal and external conditions in the learning process. Internal conditions include physical conditions, psychological conditions and social conditions while external conditions include the existing environment in the learning and learning process (Anni, 2004 : 14).

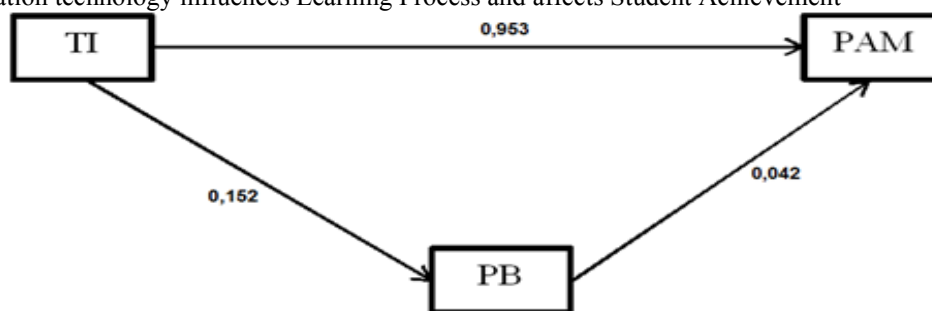
Learning environment in the learning process was a factor that from outside the student self that can not be ignored just because the campus environment is often viewed with one eye as a factor that also affects the learning achievement although the impact caused indirectly to improve learning achievement. Campus environment as a place of learning process has the same meaning as the educational environment. The educational environment is all external conditions and influences on educational activities which are also the setting of the place of education (teaching and learning process) (Ettinger dkk, 2006; Hadi, 1996; Tirtarahardja dan La Sulo, 1994).

Adjani dan Adam (2013) also concluded in his research that the factors of learning motivation and process

(experience) of learning have a significant influence on student academic achievement. Slameto (2010) and Nugraha (2015) states that academic achievement is influenced by learning habits and learning habits will affect learning itself. Sukmadinata (2005), Nugraha (2015), dan Turner dkk. (1998) reveals that learning achievement is the result of students' potential abilities that can be seen from the behaviors in the form of knowledge gained through learning, thinking skills, and motor skills. Thus, the mastery of students' knowledge of a particular subject can be seen from the achievement or learning outcomes through the test of learning achievement / exam semester.

Information technology is believed to give a significant influence on teaching and learning process as well as impact on student academic achievement, therefore can be hypothesized as follows:

H2: Information technology influences Learning Process and affects Student Achievement



Gambar 1. Desain Penelitian

## RESEARCH METHOD

This study examined the impact of the use of information technology on student academic achievement by raising the lecture or learning process as moderation. This study uses questionnaires media that were disseminated through electronic media. The statements contained in the questionnaire were measured using the Likert scale of 5 (five) points, then processed used Path Analysis, and interpreted and supported by previous studies that have been done by researchers. Total respondents in this study were 204 students.

The use of information technology (X) in this study was measured by 10 (ten) statements, namely: (1) I can well use microsoft word application; (2) I can well use microsoft excel application; (3) I can well use microsoft power point application; (4) I can use the internet well; (5) I can search for additional course material from internet; (6) The Internet helps me in learning; (7) The Internet makes it easy for me to share college information with friends; (8) Lecturer uses technology in lecturing process; (9) The use of IT in the perquest process makes me more aware of the material presented; and (10) IT use makes me more interested in learning.

The learning process (Y) in this study was measured by 9 (nine) statements, namely: (1) The lecturer convey the purpose (benefit) of the lecture; (2) The lecturer shall deliver the lecture contract at the beginning of the lecture; (3) The lecturer uses the latest reference book and literature (last 5 years); (4) Lecturer completes lectures with teaching materials / diktat / handout; (5) The lecturer starts and ends the lecture on time according to the schedule specified; (6) Conformity between material submitted by lecturer and planning in lecture contract; (7) Submission of lecture materials by lecturers; (8) The lecturer gives examples of real (illustrative) applications related to lecture material; and (9) Lecturer's ability to integrate the use of technology media in learning.

Winkel (1989) states that academic achievement is one proof that shows the ability or success of someone who did the learning process in accordance with the weight or value he achieved. Therefore, the academic achievement of students (Z) in this study is measured from the final score (the result of midterm examination plus the final exam result of the semester) students who have gone through the course of information technology management.

## RESULTS AND DISCUSSION

Path analysis or path analysis not only examines the direct influence of independent variables on the dependent variable, but also explained the presence or absence of indirect influence given the independent variable through the intervening variable to the dependent variable. The influence of independent variables on the intervening variable can be seen from the test result of regression t value as presented in table 1 below:

Table 1. Value of t Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	25,748	3,370	7,640	,000
	TIx	,169	,077	,152	,030

Source: Processed data

Based on table 1 it could be seen that the significance value of 0.03 is smaller than 0.05. This proves that there is significant influence of independent variable to intervening variable. While the direct influence of the independent variable to the dependent variable and indirect influence of independent variables through intervening variable to the dependent variable can be known from the test result of t regression as presented in table 2 below:

Table 2. Value of t Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	4,504	1,674		2,691	,008
	TIx	1,641	,034	,953	48,037	,000
	PBy	,065	,031	,042	2,097	,037

Source: Processed data

Based on table 2 it clearly showed that the significance value of 2 (two) variables, namely X = 0.00 and Y = 0.037 which are both smaller than 0.05. These results give the conclusion that the variables X and Y have a significant effect on the variable Z.

From both tables t regression value above could be seen that the direct effect given X against Z of 0.953. While the indirect effect of X through Y to Z is the result of multiplication between beta value X to Y with beta value Y to Z, that is:  $0,152 \times 0,042 = 0,006$ . Then the total effect given by X to Z is the direct influence coupled with the indirect influence that is:  $0.953 + 0.006 = 0.959$ . Based on the calculation results can be seen that the value of direct influence X to Z of 0.953 and the influence of X indirectly to Z of 0.959 which means that the value of indirect effect X to Z greater than the value of direct influence. These results indicate that indirectly X through Y has a significant influence on Z.

From the description above, then the second hypothesis, namely information technology influence on Learning Process and impact on Student Academic Achievement, could be accepted. The direct influence of the use of information technology on student academic achievement in accordance with research Ahadiat (2005), Kanapathippillai dkk. (2012) and Yaftian dkk. (2017) in a compact information technology able to prove its role in increasing the involvement of students by integrating learning tasks to achieve achievement with high learning outcomes. Information technology becomes a good media to improve student academic achievement. Information technology makes it easier for students to obtain the required information (Bowling, 2015; Vasarhelyi dan Romero, 2014). The use of information technology in the lecture process can have a positive impact on student achievement (Alves, 2010; Bawaneh, 2011; Beaubien, 2013; Svendsen and Mondahl, 2013; Horzum dkk., 2014;).

Technology had a good effect on the smoothness of the teaching and learning process, such as in shortening the time of completion of a job or task. By using technology, distance becomes not a barrier in communicating. The use of technology has an impact on the environment ie, reducing paperless use, thus maximizing the use of electronic files (softfile), especially in bookkeeping (Simarmata, 2015).

Academic achievement was influenced by lecturing process. Learning activities are an educational process both at school and on campus. This means that the success or failure of the achievement of educational goals depends a lot on how the achievement of the taxonomy of education experienced by students covering cognitive, affective, and psychomotor aspects. In an educational institution the success of teaching and learning process can also be seen from the achievement of learning achieved by learners (Slameto, 2010).

## CONCLUSION AND LIMITATIONS

This study aimed to obtain empirical evidence regarding the correlation of the use of information technology to the learning process (lectures) and its impact on student academic achievement. Based on the empirical results and discussion as mentioned above, this study yields two conclusions, namely: First. The use of information technology could give a significant influence on student achievement. The use of technology provides flexibility for students to search for data and information and to download the required lecture material. The development of websites, blogs, emails, and social media to expand the network of communication between lecturers and students with fellow students. The use of technology can have a positive impact on student achievement if directed properly and correctly (Lai dkk., 2008; Jabr, 2011; Fraser, 2013; Bakhsh dkk., 2017).

Second. Information technology affects the learning process and affects the students' academic achievement. The second conclusion gave a more significant value than the first conclusion. That is, technology will give a significant impact on student academic achievement if the technology is also used in the learning process or lectures. Factors of learning motivation and process (experience) of learning have a significant influence on student achievement. Academic achievement is influenced by learning habits and learning habits will affect learning itself (Adjani dan Adam, 2013; Slameto, 2010).

The amount of respondents as many as 204 students were only collected from one university, the University of Airlangga, which may limit the strength of research results. Airlangga University also has a uniqueness as a

State University of Legal Entity (PTN BH) which has a different system with other universities. Therefore, the results may not be generalizable to other Universities with different systems. Subsequent research is suggested to expand the study sample and test other variables that are suspected to have an effect on academic achievement.

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