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THE RELATIONSHIP BETWEEN LEARNING ACTIVITIES AND INTIAL ABILITIES WITH STUDENT LEARNING OUTCOMES AT BUILDING ENGINEERING EDUCATION

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Abstract

This study aims to analyze: (1) the relationship between learning activities and learning outcomes of building engineering education students, (2) the relationship between initial abilities and learning outcomes of building engineering education students, and (3) the relationship between learning activities and initial abilities simultaneously with learning outcomes. The study by building engineering education students. The design of this study is quantitative research with a correlational research approach. From the results of the study: 1) there is a significant relationship between learning activities and learning outcomes, contributing 21.62%; 2) there is a significant relationship between initial ability and learning outcomes, giving a contribution of 37.09%; 3) there is a significant relationship between learning activities and initial abilities simultaneously with learning outcomes, giving a contribution of 46,20%. Thus that increased learning activities, and conducive initial abilities are expected to be able to provide maximum learning outcomes for students. In other words, with learning activities, high initial abilities will foster good and high student learning outcomes

Keywords*: Learning activities, Initial abilities, Learning outcomes*

A. PENDAHULUAN

The development of the world of education in science and technology as well as the demands of globalization have collectively resulted in increasingly fierce competition in the supply of superior human resources. The need for quality human resources (HR) is indispensable in order to compete in the free market era. To optimize and maximize the development of all human resources owned, it is carried out through education, both formal education and non-formal education (Noor, 2018). Education provides opportunities for everyone to be able to do better for themselves and the environment. Education also provides an opportunity to achieve a quality level of life and living, improve welfare, develop one's potential, and be able to provide encouragement in a direction that is more conducive to future enlightenment.

The various efforts made to improve the quality of education have not yielded results that meet the expectations of the wider community, and this continues to develop more and more dynamically. The success of a person in terms of education will be closely related to learning outcomes. According to Syah (2007) that there are several factors that affect the "learning

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outcomes" of students in learning, namely: (a) Internal factors are factors that are in the potential of the students themselves, such as physiological aspects and psychological aspects. The physiological aspect is the aspect that concerns the existence of the physical condition of students and the psychological aspect includes the level of intelligence, talent, interest, motivation, and cognitive abilities of students. (b). External factors are factors that are beyond the potential of students such as family, social, and natural environmental factors around them. Social environmental factors include teachers, administrative staff, and classmates, while non-social factors include school buildings, student residences, practicum tools, and others, and (c). Next Sudjana (2009), said that the learning outcomes of students' abilities were obtained when they had an experience or direct action when receiving learning.

The learning outcomes describe the quality of the achievement of the material being taught has a deep level of understanding and adequacy in knowing aspects of knowledge, attitudes, skills, attitudes, and assessment benchmarks that can be used as the end result of student potential. Changes occur with actions in the learning process activities that have a positive constructive value knowledge and character of students who are actively learning. The meaning in this positive is that students are able to personally receive learning well seen from the level of understanding, clarity of material and learning outcomes as expected at the final grade (Syah, 2007). Therefore that learning outcomes are efforts made by students to make changes to themselves, namely changes in attitudes, morals, and intellectual abilities. Student learning outcomes are very important to determine whether educational goals have been achieved optimally. If student learning outcomes which are one of the many indicators experience development and improvement, then it can be said to have been achieved. Based on observations, student learning outcomes in the building engineering education study program have not been maximized or have not been able to show outstanding learning outcomes.

According to Sadiman (2006), in learning activities, students must be active. Therefore, in learning activity is very necessary. Without activity, the learning process is not possible. In teaching-learning interactions found that the learning process that has been done by students is the key to successful learning. The learning process is a psychological activity related to learning materials. Learning activities are experienced by students as a process, namely the process of learning something (Dimyati, 2006).

Furthermore Hanafiah & Suhana (2009), learning activities are the involvement of psychophysical aspects of students, both physically and spiritually related to cognitive, affective, and psychomotor aspects. Then Sadiman (2006), learning activities, namely the relationship between physical (physical) and mental (spiritual) activities in learning activities.

Students' learning activities are activities related to physical activity and mental activity (Putri, Usman, & Cahyati, 2019). The principle of activity is to do, based on behavioristic theory of liveliness in the learning process is the will and ability of individuals to respond to stimuli that come from outside themselves. And based on cognitive theory, activeness in learning is mental awareness in processing information captured by the senses (Deni, 2014). The principle of activity is to do, based on behavioristic theory of liveliness in the learning process is the will and ability of individuals to respond to stimuli that come from outside themselves. And based on cognitive theory, activeness in learning is mental awareness in processing information captured by the senses. The principle of activity is to do, based on behavioristic theory of liveliness in the learning process is the will and ability of individuals to respond to stimuli that come from outside themselves. And based on cognitive theory, activeness in learning is mental awareness in processing information captured by the senses (Deni, 2014).

When someone is in the process of learning will not be able to escape from a situation. The situation determines what activity is done in relation to learning. The situation also influences and determines what learning is done next. Every situation wherever and whenever provides a learning opportunity for someone. According to Hamalik, (2011) and Putri et al. (2019), learning activities are: a) visual activities through vision in the form of media and working drawings, b) verbal activities such as lectures, c) listening, d) writing, e) drawing, f) motor activities, g) mental activities, and h) emotional activities. Then Nasution (2004), explains that there are several things that encourage student learning activities, including: a) the nature of curiosity and the desire to investigate the wider world, b) there is a creative nature in humans and the desire to always move forward, c) there is a desire to gain sympathy from parents, teachers and friends, d) there is a desire to correct past failures with new efforts, either by cooperation or competition, e) there is a desire to feel safe when mastering the lesson, and f) the existence of reward or punishment as a benchmark to determine the level of achievement of the final process in learning. Learning activities can be interpreted as a series of physical and mental activities that are carried out consciously by a person and result in changes in him.

Successful learning requires different activities, both physical and psychological. Learning activities are also called active learning, because during the class conditioning process using active learning so that it can make students more independent (Susilowati, Sri Iswari, & Sukaesih, 2013). Low learning activity often also causes the understanding and mastery of learning material to decrease. Activities in learning can provide added value (added value).

Another factor that can support student learning outcomes is the initial ability factor. Ability comes from the word able or can which means the ability to act actively to do something

quickly and with certainty while ability means ability, personal skills, strength within the individual Tim Pusat Bahasa (2008). individual capacity in carrying out various kinds of assignments given in a job thoroughly according to the expected target (Robbins & Judge, 2009). It is further stated that the individual's ability as a whole has two groups of factors, namely: a) The ability of knowledge in the form of, reasoning and intellectual is the ability to think of a person based on the analysis of problems that have been studied critically. through reasoning and problem solving), b) Physical ability (physical ability) is a person's ability to carry out psychomotor in the form of tasks given through skills that require dexterity, creativity, work (Robbins & Judge, 2009).

According to Sumantri (2015), that "the initial ability of students is the the abilities that have been obtained from these students before participating in the learning that will be given by the teacher in delivering material in class ". According to Winkel (2013) suggests that "initial ability is a bridge to get to the final ability. Every learning process has its starting point or stems from the initial abilities of certain students to develop new skills, each of which is the goal of learning. Then Hamalik (2011), suggests that initial ability is "a form of human growth or change that manifests itself in new behaviors through experience and practice." Later, he explained that the new behavior was, for example, from ignorance to knowledge, the emergence of new understandings, the formation of attitudes, habits, skills, the ability to appreciate social characteristics, emotional and physical growth. Ability as a person's potential in mastering a skill that has existed since birth is the result of training to do something that is manifested through actions in everyday life.

The initial ability of students is very important to facilitate learning activities. Therefore, students are expected to be able to hone their initial abilities because it is certain that each material that has been studied will be related to the material that will be studied later. These initial skills (entry behavior) describe students' curiosity in learning, accepting, and carrying out learning activities that have been taught by the teacher. However, so that the teacher knows the expected level of understanding and learning objectives, the teacher will conduct an initial evaluation of students before starting learning, because in this way it can be known: a) whether students already have the knowledge or prerequisites (prerequisites).) to take part in learning; b) the extent to which students understand what material will be delivered.

B. METODOLOGI PENELITIAN

The design of this research is quantitative research. The quantitative research design is an explicit and systematic description of research plans and stages (syntax) and can be replicated,

both by researchers themselves and other researchers (Mukhadis, 2016). Correlation research aims to reveal the correlative relationship between variables. The correlative relationship refers to the tendency that the variation of a dependent variable to be followed by an independent variable. Research is a representation of problem-solving that has been defined as an object of study by using a scientific mindset. The research design used is correlational research which means relationship research, using regression analysis techniques. The population in this study were all building engineering education students, totaling 110 students. The sample is 86 students. This study measures three variables consisting of two exogenous variables as independent variables (causes), namely learning activities (X1), and initial abilities (X2), while endogenous variables are dependent variables (caused), namely student learning outcomes (Y). The research instrument for load variables used a Likert Scale questionnaire consisting of four options (5, 4, 3, 2, 1). The questionnaire was developed by the researchers themselves based on the theories used. Questionnaires were distributed to students who were respondents to this study.

Then the instrument is tested for validity (accuracy) and reliability (consistent data). The data collection technique in this study was to use a questionnaire (questionnaire). The questionnaire is a data collection technique that is carried out by giving a set of questions or written statements to respondents to answer. Questionnaires are an efficient data collection technique, used when the number of respondents is large enough and spread over a large area. The data obtained will be analyzed using descriptive analysis and inferential analysis. Descriptive analysis is used in terms of data presentation, central measurement, and distribution size. Inferential analysis was used to test the hypothesis using the statistical method of regression analysis which was preceded by a normality test, and a significance test of the regression coefficient and linearity of the data with the help of the SPSS version 24 program. Then the influence of the independent variables and the dependent variable was calculated. The magnitude of the effect is reflected in the magnitude of the regression coefficient (using the “F” significance test analysis). In order to fulfill the requirements of the research instrument, the instrument must first check whether the instrument is in accordance with the indicators for each variable with the aspect to be measured.

C. HASIL PENELITIAN

The based on the acquisition of the data obtained, then the processing of student learning outcomes tests is carried out which is seen from the learning activities and initial abilities of students, it is necessary to do statistical analysis requirements testing. Normality testing is

carried out to find out whether or not a data distribution is normal. The following is the acquisition of normality test results to determine learning activities and students' initial abilities in table 1 below.

Table 1. Obtained Normality Test Data with One-Sample Kolmogorov-Smirnov Test

Normality Test Data		Learning activity	Initial Ability
N		86	86
Normal Parameters, b	Means	86.5814	85.6163
	std. Deviation	2.57346	3.11039
Most Extreme Differences	absolute	.142	.125
	Positive	092	092
	Negative	-.142	-.125
Kolmogorov-Smirnov Z		1,313	1.162
asymp. Sig. (2-tailed)		.064	.134

(source: processed data in spss)

Based on Table 1, shows that the value of each variable, namely the learning activity variable, has a value of Sig. = 0.064 > 0.05, the initial ability variable is Sig. = 0.134 > 0.05, indicating that the data is normally distributed, i.e. all significant values > 0.05. Furthermore, the following is the acquisition of linearity test results to determine learning activities and in table 2 below

Table 2. Data Acquisition for Significance and Linear Y over X1

Source of Variance	dk	JK	RJK	Fcount	Ftable α= 0.05
Total reduced	85	2108430			
Regression	1	445,759	445,759	22,520	3,940
Remainder	84	1662671	19,794		
Suitable tuna	8	99,803	12,475	0.607^{ns}	2,050
Error	76	1562,869	20,564		

(source: processed data in spss)

Based on Table 2, shows the results of the significance test Fcount by 22.52 > Ftable by 3.94, and shows Fcount by 0.607 < Ftable by 2.050, which means learning outcomes (Y) on learning activity (X1) is significant and the relationship between the two data is linear. As well as the acquisition of linearity test results between learning outcomes and students' initial abilities can be seen in table 3 below.

Table 3. Data Acquisition for Significance and Linear Y over X2

Source of Variance	dk	JK	RJK	Fcount	Ftable α = 0.05
Total reduced	85	85	2108430		
Regression	1	1	781,553	781,553	49,477
Remainder	84	84	1326,877	15,796	
Suitable tuna	8	10	104,545	10,455	0.633^{ns}
Error	76	74	1222331	16,518	

(source: processed data in spss)

Based on Table 3, shows the results of the significance test Fcount by 49.477 > Ftable by 3.940, and shows F count by 0.633 < F table by 1.950, which means learning outcomes (Y) on the initial ability (X2) is significant and the relationship between the two data is linear. Furnemore, The hypothesis proposed states that there is a relationship between learning activities (X1) and learning outcomes (Y). Statistical Hypothesis H0: ρy1 = 0 and H1: ρy1 □ 0. To find out the relationship, a simple regression analysis is used between X1 and Y or ryx1. The following is the acquisition of the results of learning activity data and learning outcomes in table 4 below

Table 4. Data Acquisition of Learning Activities and Learning Outcomes

Variable Relations	*Standardized Coefficients (Beta)*	*P*
Learning Activities and Learning Outcomes	*0.460*	*0.000*

(source: processed data in spss)

Based on Table 4, shows the value of learning activities in the significant column (ρ) and learning outcomes with a value of ρ is 0.000. From these results when compared with a probability value of 0.05 greater than the value of ρ = 0.000 or a value of 0.000 ≤ 0.05, then H0 is rejected and Ha is accepted, meaning it is significant. In other words, learning activities have a significant relationship with learning outcomes. In the standardized coefficients column it, shows a beta coefficient value of 0.460. This shows the understanding that the relationship between learning activities (X1) and learning outcomes (Y) is 0.460 (r2 = 0.2162 = 21.62%).

The relationship between learning activities and the final results of student learning outcomes shows that there is a significant relationship between the process of learning activities and student learning outcomes in the building engineering education study program. This means that learning activities contribute 21.62% to the learning outcomes of building engineering education students. Several studies stated that learning activities are very important to achieve success in learning activities. Student learning success in learning activities supports learning so that it will affect student learning outcomes. The better student learning activities, the more student learning outcomes in carrying out teaching and learning activities, conversely if student learning activities are not good, then of course it will affect student learning outcomes themselves.

In research Muchtadi, Hartono, & Oktaviana (2017), shows that there is a significant relationship between the learning activities of students and learning achievement, and makes a significant contribution of 41%. Furthermore, explains that learning activities that are part of the process certainly have a relationship or contribution to learning outcomes. Changing behavior through action is the principle of learning (Sardiman, 2020). Whether or not there is learning is reflected in the presence or absence of action. Learning is not possible without activity. So that in teaching and learning interactions and activity is an important principle. Then in research Nurfajrianti (2018), explained that explains that learning activities that are part of the process certainly have a relationship or contribution to learning outcomes. Changing behavior through action is the principle of learning. Whether or not there is learning is reflected in the presence or absence of action. Learning is not possible without action. So in the interaction of teaching and learning, action is an important principle. Then in explained that So that in teaching and learning interactions activity is an important principle. Then learning activities related to learning problems such as writing, taking notes, looking, reading, remembering, thinking, practicing, practicing and so on. The human soul can be seen as something dynamic, having its own potential and energy. Therefore, students will naturally become active, because they are motivated and driven by various needs. Students are used as potentials who have the ability to develop both in terms of knowledge, skills and attitudes during the learning process. The task of the teacher is to guide and provide conditions so that students can develop their talents and potential.

The hypothesis proposed states that there is a relationship between initial ability (X2) and learning outcomes (Y). Statistical Hypothesis H0: ρy2 = 0 and H1: ρy2 □ 0. To find out the relationship, a simple regression analysis is used between X2 and Y or ryx2. The following is the acquisition of the results of initial abilities data and learning outcomes in table 5 below.

Table 5. Data acquisition of initial abilities and student learning outcomes

Variable Relations	*Standardized Coefficients (Beta)*	*P*
Initial Ability and Learning Outcomes	*0.609*	*0.000*

(source: processed data in spss)

Based on table 5, shows the value of the initial ability in the significant column (ρ) and learning outcomes with a value of ρ is 0.000. From these results when compared with the

probability value of 0.05 is greater than the value of ρ = 0.000 or the value of 0.000 ≤ 0.05, then H0 is rejected and Ha is accepted, meaning it is significant. In other words, the initial ability has a significant relationship with learning outcomes. The standardized coefficients column shows a beta coefficient of 0.605. This shows the understanding that the relationship between initial ability (X2) and learning outcomes (Y) is 0.609 (r2 = 0.3709 = 37.09%).

The relationship between initial abilities and learning outcomes of building engineering education students, it shows that there is a significant relationship between initial abilities and student learning outcomes of building engineering education students. This means that the initial ability to contribute 37.09%, to the learning outcomes of building engineering education students. Several studies have stated that initial abilitiy has an important influence on student learning outcomes in learning. Lestari (2017), explained that in order to develop students' initial abilities, they must further increase the portion of exercises for learning and read a lot outside of school as a provision for initial knowledge. Teachers as the leading element in learning must pay attention to what strategies must be carried out so that students are able to learn well in subjects. Providing good learning in accordance with the wishes of students, it can awaken students' learning abilities which in turn affect their learning outcomes.

Furthermore, Astuti (2015) argues that initial ability is a learning result obtained before obtaining higher abilities. Initial ability is a prerequisite that must be possessed by students before entering the next higher learning subject matter. So a student who has good initial skills will be more responsive in understanding the material taught by the teacher compared to students who do not have full initial skills in the learning process. Then a student with good basic skills will understand the material faster than those students who do not have basic skills in the learning process. Then a student with good initial skills will understand the material faster than students who lack initial skills in the learning process.

Then Razak (2018) argues that initial ability of students is an ability that is acquired before learning and which is a prerequisite to follow the next learning process. Initial ability plays an important role in learning. Basic skills also describe students' willingness to take on new subjects, the ability to simplify and optimize learning, organizing and re-exposing new knowledge to achieve good learning outcomes for students.

The hypothesis proposed states that there is a relationship between learning activity (X1), initial ability (X2) simultaneously, and student learning outcomes (Y). Statistical

Hypothesis H0: ρy1 = 0 and H1: ρy2 □ 0. To find out the relationship, multiple regression analysis was used between X1, X2 Y or, ry1.2. The following data acquisition of learning activities, initial abilities, and learning outcomes in table 6 below.

Table 6. Data Acquisition of Learning Activities, Initial Ability, and Learning Outcomes

Variable Relations	*Significance*		*R Squ*
	Fcount	*P*	
Learning activities and initial abilities simultaneously with student learning outcomes	35,728	0.000	0.46

(source: processed data in spss)

Based on Table 6, shows the value of learning activities, and initial abilities with learning outcomes, in the Sig column (significant) the Fcount value is 35,728 and ρ is 0,000. From these results when compared with a probability value of 0.05 greater than the value of ρ = 0.000 or a value of 0.000 ≤ 0.05, then H0 is rejected and Ha is accepted, meaning it is significant. In other words, learning activities and initial abilities simultaneously have a significant relationship with learning outcomes. Table 6 shows the value of R = 0.680 and the coefficient of determination (RSquare) is 0.462. This shows the understanding that the relationship between learning activities and initial abilities simultaneously with learning outcomes has a value of 0.462. In other words, the variability of learning outcomes that can be explained by using learning activity variables, initial ability simultaneously with learning outcomes contributes 0.462 = 46.20%, while 0.538 = 53.80% is caused by other variables.

The relationship between the process of learning activities and basic skills of students simultaneously with the achievement of student learning outcomes in construction technology courses, so that there is a significant relationship between learning activities and basic skills simultaneously with student learning outcomes in construction technology courses. There is a significant influence of learning facilities and classroom climate overall contribution is 46.20% to student learning outcomes of building engineering education students. Learning activities and initial abilities are one of the supporting factors for building engineering education students learning outcomes. The obtained results suggest that the higher the learning activities and initial skills, the higher the learning results of the civil engineering students. This fact shows that learning activities and primary skills simultaneously create a significant relationship with the learning outcomes of civil engineering students.

However, learning activities and initial abilities are not the only factors that influence achievement of student learning outcomes building engineering education students, because there are other factors. From statement Sudjana (2009), said that the achievement of student learning outcomes on the abilities possessed by these students after getting learning experience in class. These learning outcomes reflect the breadth and depth as well as the complexity of the competencies formulated in knowledge, attitudes, skills, attitudes and values as measured by various assessment techniques. To obtain optimal learning outcomes is not easy and it is undeniable that in one's learning is influenced by many factors, The factors that affect learning outcomes can be divided into three kinds, one of which is internal factors are factors that come from within the learner himself, such as physiological aspects and psychological aspects (Syah, 2007). The physiological aspect is the aspect that concerns the existence of the physical condition of students and the psychological aspect includes the level of intelligence, talent, interest, motivation, and cognitive abilities of students.

The higher the learning activity and initial abilities, the better the learner is in learning so that it will tend to be higher the learning outcomes obtained by students, and vice versa if the learning activities and initial abilities of students are low, it will tend to be lower the learning outcomes obtained by students in learning. Learning activities and initial skills those who are competent will have in the form of visual activities; oral; listening; writing; draw; metric; mental; and emotional; knowledge; understanding; application; analysis; and synthesis, will improve deep learning outcomes changes in attitude, morals, intellectual abilities. With learning activities, conducive initial abilities are expected to be able to provide maximum learning outcomes for students. Referring to the explanation above, it can be concluded that with learning activities, high initial abilities will foster good and high student learning outcomes.

According to the synthesis of existing theories, learning activities are activities carried out by students both physical (physical) and psychological (spiritual) related to cognitive, affective, and psychomotor aspects in teaching-learning interactions. Initial ability is the ability or potential possessed by an individual to understand and master a skill field that has existed since birth or is the result of the creation of God Almighty and is used to do something that can be used as an individual's behavior or daily life activity (Hanafy, 2014). The learning outcomes of engineering mechanics are the abilities that students have after receiving learning experiences. These learning outcomes reflect the breadth and depth as well as the complexity of the competencies formulated in knowledge, attitudes, skills, attitudes, and values as measured by various assessment techniques. After carrying out the engineering mechanics

learning process which is recorded at the end of each semester in the form of a report. The higher the learning activity of students who can maximize the potential of their resources, in turn can produce better learning outcomes. Moreover, if it is followed by initial abilities before participating in further learning, the higher the learning outcomes that will be achieved (Lestari, 2017)

D. SIMPULAN DAN SARAN

Simpulan

The variable contribution of learning activities and learning outcomes of building engineering education students is 21.62%. There is a significant relationship between initial abilities and student learning outcomes of building engineering education students. The contribution of initial ability variables and student learning outcomes of building engineering education students amounted to 37.09%. There is a significant relationship between learning activities and initial abilities simultaneously with the learning outcomes of building engineering education students. The variable contribution between learning activities and initial abilities simultaneously with the learning outcomes of building engineering education students is 46.20%. The ability of learning activities needs to be maintained and improved in the implementation of learning to improve student learning outcomes and must comply with applicable regulations and consider education quality standards in the face of the globalization era. It is necessary to carry out further research using other variables so that various variables can be inventoried that can influence or have a relationship with student learning outcomes.

Saran

Based on the results of research that has been conducted in the building engineering education department related to initial ability with student learning outcomes at this time, it is suggested that the role of educators needs to monitor and evaluate learning at least once every 2 weeks to provide feedback to students regarding the material that has been studied in a form so that the results achieved both from the aspect of the initial abilities possessed by students can be done as a comparison by looking at the final abilities in the form of student learning outcomes so that they are more optimal. Furthermore, to improve students' initial abilities in learning, supporting references are needed for them to study before entering the next material with more emphasis on the level of student understanding in learning.

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