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Analysis of Learning Commitment and Interest in Learning with Learning Outcomes of Building Engineering Education Students

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ABSTRACT

This research aims to analyze: (1) the relationship between learning commitment and learning outcomes of Building Engineering Education students, Faculty of Engineering, Manado State University (PTB FT Unima), (2) the relationship between learning interest and learning outcomes of PTB FT Unima students, and (3) the relationship between commitment to learning, and interest in learning simultaneously with the learning outcomes of PTB FT Unima students. This research design is quantitative research with a survey approach. From the research results: 1) there is a relationship between learning commitment and learning outcomes of PTB FT Unima students, and contributes 23.62%; 2) there is a relationship between interest in learning and learning outcomes of PTB FT Unima students, and provides a contribution of 10.24%; 3) there is a relationship between commitment to learning and interest in learning simultaneously with the learning outcomes of PTB FT Unima students, and provides a contribution of 23.72%. Thus, increasing commitment to learning and interest in learning is one of the factors supporting the learning outcomes of PTB FT Unima students. The results imply that the higher the commitment to learning and interest in learning, the higher the learning outcomes of PTB FT Unima students. This fact proves that commitment to learning and interest in learning simultaneously provide a significant relationship with the learning outcomes of PTB FT Unima students.

Keywords: Informatics, Performance Measurement, PPG, Rasch Model, Students

INTRODUCTION

Education is the most important capital for a nation; therefore, the role of universities is very necessary in the process and dynamics of sustainable development. Manado State University commonly abbreviated as Unima is one of the state universities in North Sulawesi Province apart from Sam Ratulangi University Manado (Unsrat). One of Unima's missions is to create quality education in terms of input, process, and output, competitive and relevant to the needs of society. Efforts to realize this mission, something that is not easy to achieve, are reflected in student learning achievements which are still worrying. In an educational institution, learning outcomes are an important indicator for measuring the success of the teaching and learning process. However, it cannot be denied that the high and low student learning outcomes are influenced by internal and external factors. Many facts show that many of these students failed to complete their education within the minimum time limit that had been programmed, or even failed to complete their studies at all. One of the goals of the learning process is to achieve an outcome in learning. Hamdani (2011) stated that learning outcomes are results obtained in the form of impressions that result in changes in the individual as a result of learning activities. These learning outcomes show a picture of success in efforts to optimize their abilities in taking subjects. However, in reality, in general, students are still found who have not been able to fully develop their potential optimally as expected.

The reality is that based on data from the PTB Department regarding learning outcomes in engineering courses, the learning outcomes are still unsatisfactory or not yet optimal. The reality is that in the field there are still students getting scores below the KKM. Not every student is the same, it is these individual differences that cause differences in learning behavior among students, thus causing differences in learning outcomes. Learning outcomes are the result of a process in which several factors influence each other, the level of student learning outcomes depends on these factors. Low learning outcomes can be caused by various factors. These factors can come from internal factors and factors that come from external factors. The factors that cause low learning outcomes are classified into two groups, namely internal factors that originate from the student and external factors that originate from outside the student (Slameto, 2010). Internal factors are influenced by physical health and disabilities, as well as psychology in the form of intelligence, attention, interests, talents, motives, commitment, maturity, and readiness. Meanwhile, external factors are influenced by family factors, school factors, and community factors. Furthermore, it is explained that learning outcomes in cognitive skills have a hierarchy; (1) non-verbal information, (2) factual information and verbal knowledge, (3) concepts and principles, and (4) problem-solving and creativity. Non-verbal information is studied by sensing objects and events directly. Factual information and verbal knowledge are known/learned by listening to other people and by reading (Slameto, 1991). Therefore, learning is not just collecting knowledge, learning is a process of an individual trying to achieve learning goals or what is usually referred to as learning outcomes, namely a form of change that is relatively permanent (Abdurrahman, 1999). Howard Kingsley (in Sudjana, 2009:22) divides three types of learning outcomes, namely (a) skills and habits,

(b) knowledge and understanding, and (c) attitudes and ideals, each of these three things is filled with material. that have been stipulated in the curriculum.

Referring to the previous explanation of the meaning of learning outcomes, it can be concluded that learning outcomes are changes in behavior in the form of changes in knowledge, motor skills, attitudes, and values that can be measured actually as a result of the learning process. Learning outcomes achieved by students involve all the potential they have after the students carry out learning activities. Achievement of these learning outcomes can be determined by conducting a learning outcomes test assessment. Assessments are held to determine the extent to which students have succeeded in following the lessons given by the teacher. Besides that, teachers can find out the extent of success in the teaching and learning process.

Factors causing low engineering learning outcomes include commitment to learning which is considered to be still low. Commitment is an action taken to support a particular choice of action so that that choice of action can be carried out firmly and wholeheartedly. For example, an interest commitment to a need is an agreement to complete something because there is an interest in the need. Commitment exists when humans have the opportunity to determine what they will do. Commitment is a combination of persistence and consistency and must be based on high perseverance and precision of heart to continue doing this on an ongoing basis (Resa, 2010: 105). Furthermore, according to Gibson et al (2006), commitment is part of a sense of identification, showing loyalty, and a form of involvement of an employee towards the organization or organizational unit. In other words, the concept of commitment is something that shows the extent to which a person can identify themselves and their desire to remain in their organization.

Commitment to goals is the scope where an individual is personally committed to achieving a goal. In general, an individual is expected to be diligent in trying to achieve goals when they have to achieve those goals. (Nelson and James, 2006), that goal commitment is related to the difficulty of carrying out tasks and achieving achievement. It was further explained that difficult goals will lead individuals to achieve higher achievement only when someone is committed to their goals. Conversely, goals that are difficult to explain will lead to lower achievement when individuals are not attached to their goals (Nelson and James, 2006). This means, that if someone commits, he must determine the determination or desire to do diligently and continuously everything he wants to do according to his expertise without being influenced by other people or small things that become obstacles. Commitment is action, both in difficult and difficult times. Integrity and wisdom are the two pillars supporting commitment. Integrity and wisdom emerge from a person's stance which is formed through high and strong personal values, even though there is pressure, this stance is difficult to change and instead gets stronger.

Apart from commitment, interest in learning has a significant effect on student learning outcomes. The need for learning outcomes is a driving force as well as encouraging students' interest in learning and encouraging them to develop all the potential and energy they have to achieve optimal learning outcomes. Mulyasa (2009), stated, "Interest is a person's tendency to do something". Meanwhile, according to Yusuf (2002), "Interest is a predisposition or tendency or a feeling reaction that takes place continuously which patterns a person's attention so that he becomes selective towards the object of his interest". Furthermore, according to Guilford (in Munandir, 1999), interest is a

person's general behavioral tendency to be interested in a certain group of things. Then Dalyono (2015), interest is defined as a condition that occurs when someone sees the characteristics or temporary meaning of a situation that is connected to their desires or needs. Interest in learning is the general tendency of students to be interested in groups of people in carrying out learning activities in engineering learning, for example in learning building construction, estimates for calculating budget plans, reinforced concrete structures, and engineering mechanics. Someone who has an interest in learning something, of course, will try to achieve it in various ways. For students who are studying at PTB, the major they choose must be the major they are interested in. Because there is interest in this major, students will be more diligent in studying and practicing according to the skills they have chosen.

METHODS

This research is quantitative research with a survey method approach and using regression analysis. This research was conducted by Building Engineering Education students, Faculty of Engineering, Manado State University (PTB FT UNIMA) Tondano, carried out for approximately 5 months, starting around May 2023, and is expected to be completed in October 2023. The unit of analysis in this research is female students at PTB FT UNIMA Tondano. The population in this study was PTB FT Unima students totaling 125 students. Meanwhile, the sample size was 95 PTB FT UNIMA students. This research measures three variables consisting of two independent variables (causes), namely commitment to learning (X1), and interest in learning (X2), while the dependent variable (caused) is the student learning outcome variable (Y). The research instrument for the independent and dependent variables uses a Likert Scale questionnaire consisting of five options (5, 4, 3, 2, 1). The questionnaire was developed by the researcher himself based on the theories used. Questionnaires were distributed to students who were respondents to this research. Then the instrument is tested for Validity (accuracy) and Reliability (consistent data). For the student learning outcome variable (Y), the GPA value is taken. The data collection technique in this research is using a questionnaire. A questionnaire is a data collection technique that is carried out by giving respondents a set of questions or written statements to answer. Questionnaires are an efficient data collection technique, used when the number of respondents is large enough and spread over a wide area.

The data obtained will be analyzed using descriptive analysis and inferential analysis. Descriptive analysis is used in terms of data presentation, central size, and spread size. Data presentation is a distribution list and histogram. Central measures are the mean, median, and mode, measures of dispersion namely, variance and standard deviation. To fulfill the requirements for a research instrument, the instrument must first check whether the instrument is following the indicators for each variable with the aspect to be measured. Then the instrument was tested on 30 respondents who were not members of the sample.

Inferential analysis is used to test hypotheses using statistical methods of regression analysis which are preceded by normality tests, and significance tests for regression coefficients and linearity. Next, the magnitude of the relationship between the independent variable and the dependent variable is calculated. The magnitude of the relationship is reflected in the magnitude of the regression

coefficient (using "F" significance test analysis). For quantitative approach research, this data analysis technique allows calculations to answer problem formulation and hypothesis testing (Riduwan, 2011).

RESULTS AND DISCUSSION

Normality testing is carried out to determine whether a data distribution is normal or not. Data normality testing in this study used the SPSS 24 computer program with the normality output result being the value of each variable, as in Table 1.

Table 1. One-Sample Kolmogorov-Smirnov Test

		Learning Commitment	Interest to learn
N		95	95
Normal Parameters	Mean	84.0947	84.2947
	Std. Deviation	2.57679	1.82695
Most Extreme Differences	Absolute	.096	.134
	Positive	.096	.080
	Negative	-.079	-.134
Kolmogorov-Smirnov Z		**.937**	**1.311**
Asymp. Sig. (2-tailed)		**.344**	**.064**

Data is processed via SPSS

Table 1, shows the value of each variable, namely the learning commitment variable, and the value of Sig. = 0.344 > 0.05, variable interest in learning value Sig. = 0.064 > 0.05. Thus, testing can be continued for hypothesis testing.

The linearity test is to test whether the learning commitment variable (X1) has a linear pattern over Y, and the learning interest variable (X2) has a linear pattern over Y, using the SPSS version 24 program. As in Table 2, it shows the significance of the coefficient and the linearity pattern test.

Table 2. Data acquisition for significance and linearity of Y over X1

Sources of Variance	dk	JK	RJK	Fcount	F_{table} $\alpha = 0.05$
Total reduced	64	3875.385			
Regression	1	551.457	551.457	10.452	3,99
Remainder	63	3323.928	52.761		

Tuna well Galat	goes with	10 53	263.042 3060.886	26.304 57.753	0.455 ns	2,00

Data is processed via SPSS

Table 2, showing the results of significance testing shows Fh = 10.452 > F (0.01;1/63) = 3.99, and shows Fh = 0.455 < Ft (0.01;10/53) = 2.00, which means student learning outcomes (Y) on a commitment to learning (X1) is significant and the relationship between the two data has a linear pattern. The significance of the coefficient and the test for the linearity pattern of Y on X2, as in Table 3.

Table 3. Analysis of Variance for Significance and Linearity of Y over X2

Sources of Variance	dk	JK	RJK	Fcount	F_{table}
					$\alpha = 0.05$
Total reduced	94	468.421			
Regression	1	47.932	47.932	10.601	3.94
Remainder	93	420.489	4.521		
Tuna goes well with Galat	7 86	58.112 362.377	8.302 4.214	1.970	2.10

Source: Data processed via SPSS

In Table 3, significance testing shows Fh = 10.601 > F(0.05;1/93) = 3.94 and shows Fh = 1.970 < Ft (0.01;9/86) = 2.10, which means student learning outcomes (Y) on interest in learning (X1) is significant and the relationship between the two data has a linear pattern.
Thus, testing can be continued for hypothesis testing. Based on the requirements for statistical analysis as a condition for implementing hypothesis testing in this research, its significance can be tested, especially those related to regression techniques, with the help of the SPSS version 24 program.
The proposed output states that there is an influence between learning commitment (X1) and learning outcomes (Y). To determine this relationship, simple regression analysis is used between X1 and Y or ryx1. Table 4, shows the coefficients for learning commitment and learning outcomes.

Table 4. Coefficients of Learning Commitment and Learning Outcomes

Variable Relationships	*Standardized Coefficients* (Beta)	ρ
Learning Commitment and Learning Outcomes	0.4860	0.000

Source: Data processed via SPSS

Table 4, shows the learning commitment value in the significant column (ρ) and learning outcomes with a value of ρ of 0.000. From these results, when compared with the probability value of 0.05 which is greater than the value ρ = 0.000 or the value 0.000 ≤ 0.05, then H0 is rejected and Ha is accepted, meaning it is significant. In other words, commitment to learning has a significant relationship with learning outcomes. The standardized coefficients column shows a beta coefficient value of 0.4860. This shows the understanding that the relationship between learning commitment (X1) and learning outcomes (Y) is 0.4860 (23.62%).

The proposed output states that there is a relationship between learning interest (X2) and learning outcomes (Y). To determine this relationship, simple regression analysis is used between X2 and Y or ryx2. As in Table 5, it shows the coefficients of learning interest on learning outcomes.

Table 5. Coefficients of Learning Interest and Learning Outcomes

Variable Relationships	*Standardized Coefficients* (Beta)	*ρ*
Learning Interest and Learning Results	0.320	0.002

Source: Data processed via SPSS

In Table 5, the value of learning interest in the significant column (ρ) and learning outcomes with a value of ρ is 0.002. From these results, when compared with the probability value of 0.05 which is greater than the value ρ = 0.002 or the value 0.002 ≤ 0.05, then H0 is rejected and Ha is accepted, meaning it is significant. In other words, interest in learning has a significant relationship with learning outcomes. The standardized coefficients column shows a beta coefficient value of 0.320. This shows the understanding that the relationship between learning interest (X2) and learning outcomes (Y) is 0.320 (10.24%).

The proposed output states that there is a relationship between commitment to learning (X1), and interest in learning (X2) simultaneously with student learning outcomes (Y). To determine this relationship, multiple regression analysis is used between X1, X2, and Y or ry1.2. Table 6 shows the coefficients of Learning Commitment, Interest in Learning, and Learning Outcomes.

Table 6. Coefficients of Learning Commitment, Interest in Learning-on-Learning Outcomes

Variable Relationships	*Significance*	R	*R Square*
	Fhitung		
	ρ 000		

Commitment to learning and interest in learning simultaneously with student learning outcomes	14.278	0.	0.4870	0.2372

Source: Data processed via SPSS

In Table 6, showing the value of commitment to learning, and interest in learning with learning outcomes, in the Sig column (significant) the Fcount value is 14.278 and ρ is 0.000. From these results, when compared with the probability value of 0.05 which is greater than the value ρ = 0.000 or the value 0.000 ≤ 0.05, then H0 is rejected and Ha is accepted, meaning it is significant. In other words, commitment to learning and interest in learning simultaneously have a significant relationship with learning outcomes. Shows a value of R = 0.4870 and a coefficient of determination (RSquare) of 0.2372. This shows the understanding that the relationship between commitment to learning and interest in learning simultaneously with learning outcomes has a value of 0.2372. In other words, the variability of learning outcomes which can be explained using the learning commitment variable and learning interest simultaneously with learning outcomes contributes 0.2372 = 23.72%, while 0.7628 = 76.28% is caused by other variables.

The relationship between learning commitment and learning outcomes of PTB FT Unima students

Based on the test results, shows that there is a significant relationship between commitment to learning and the learning outcomes of PTB FT Unima students. This means that commitment to learning contributes 23.62% to the learning outcomes of PTB FT Unima students. According to the statement of Gibson et al (2006), commitment is part of the sense of identification, loyalty, and involvement expressed by a person towards an organization or organizational unit. Furthermore, goal commitment is related to the difficulty of carrying out tasks and achieving achievement, difficult goals will lead individuals to achieve higher achievements only when someone is committed to their goals. Conversely, difficult goals will lead to lower achievement when individuals are not committed to their goals (Nelson and James, 2006). In simple terms, students' commitment to learning can develop in-depth if students can apply understanding and knowledge about the choices and principles in doing something, including in the learning process (Affiandary, n.d.). The increase in building construction learning outcomes can be understood when predicted from commitment to the task because when someone is committed to the task, in this case in building construction lessons, they will tend to direct their energy to complete the task as best as possible. Commitment to tasks includes a strong desire to continue doing the task, a willingness to exert maximum effort, and a strong belief in achieving the goal (Setiowati, 2015).

Ghufron and Risnawita (in Setiowati, 2015), someone who commits will feel challenged to overcome difficult situations and always strive to achieve success. Kiesler, and Elias (in Setiowati, 2015) stated that task commitment is something that guarantees and binds individuals in carrying out tasks. Something that binds an action to oneself is equated with a feeling of responsibility for that action. In connection with the definition of commitment above, it shows pride, a sense of ownership, willingness, acceptance, and maintaining the values one adheres to. Commitment tends to emphasize the aspect of

persistence. This means that every individual can devote all their efforts and resources to remain productive efficiently and effectively. These efforts include the use of competence, integrity, and consistency in learning efforts. Commitment within a person will form a great desire to be consistent in acting, both in making one's own decisions and in dealing with other people, so that pressure, whether arising from within oneself or from others, does not make one change one's decisions and direction of action. The conclusion is that the concept of commitment is something that shows the extent to which students can identify themselves and their desire to persist in the learning process to achieve positive learning outcomes.

The relationship between learning interest and learning outcomes of PTB FT Unima students

Based on the test results, show that there is a significant relationship between interest in learning and learning outcomes of PTB FT Unima students. This means that interest in learning contributes 10.24% to the learning outcomes of PTB FT Unima students. This means that students' learning interest abilities make a significant contribution to the learning outcomes of PTB FT Unima students. Interest is a feeling of preference and interest in a thing or activity, without anyone telling you to. Interest is the acceptance of a relationship between oneself and something outside oneself. The stronger or closer the relationship, the greater the interest (Slameto, 2010). Meanwhile, according to Dalyono (2015), interest is defined as a condition that occurs when someone sees the characteristics or temporary meaning of a situation that is connected to their desires or needs. Interest in learning is a positive attitude that can sometimes occur in students. This condition must be suppressed as much as possible, meaning that students must strive to experience conditions that are comfortable, calm, and enjoyable in learning. So that students have a great interest in carrying out teaching and learning activities (Sirait, 2016). Mulyasa (2009:39), states that interest is a person's tendency to do something. Meanwhile, according to Yusuf (2002: 71), interest is a predisposition or tendency or a feeling reaction that takes place continuously which patterns a person's attention, so that he becomes selective towards the object of his interest. Furthermore, according to Guilford in Munandir, (1999), interest is a person's general behavioral tendency to be interested in a certain group of things. If students feel happy and at home, it is hoped that students will show interest or interest in the learning material so that they will easily accept the subject matter being taught (Marleni, 2018). According to Slameto (2010), interest is a feeling of preference and interest in a thing or activity, without anyone telling you to. Interest is the acceptance of a relationship between oneself and something outside oneself. The stronger or closer the relationship, the greater the interest. Then Syah (2010: 133), states that interest means a tendency and high enthusiasm or a great desire for something. Furthermore, Hillgard in Slameto (2010), provides the formulation that interest is a permanent tendency to pay attention to and remember several activities.

Student learning interest is the general tendency of students to be interested in groups of people carrying out learning activities, for example learning building construction, and scientific work or artistic work. According to Walgito (2004), interest contains the elements: a) Cognition (knowing). This interest is preceded by information and knowledge about the object being observed. If someone already has information and knowledge about a job they are interested in, that person will tend to try to prepare themselves thoroughly to achieve a job. b). Emotions (feelings). Interest contains an emotional element because participation or experience is accompanied by certain feelings (usually

feelings of happiness). c). Konasi (will). It is a continuation of the element of cognition which is manifested in the form of will towards the object of interest (work). Students with high interest in learning will not use obstacles as obstacles or obstacles in learning, students with high interest will not experience obstacles in learning. That's why to improve building construction learning outcomes, students will be more effective by increasing their interest in learning because high learning interest will make students enthusiastic about learning and not make obstacles a problem but instead create challenges, so that students' building construction learning outcomes will be better. good (Lestari, 2013).

The relationship between commitment to learning and interest in learning together with the learning outcomes of FT Unima students

The results of hypothesis testing show that there is a significant relationship between learning commitment and interest in learning together with the learning outcomes of FT Unima students. This means that commitment to learning and interest in learning together contribute 23.72% to learning outcomes. Commitment to learning and interest in learning is one of the factors supporting the learning outcomes of FT Unima students. The results imply that the higher the commitment to learning and interest in learning, the higher the learning outcomes of FT Unima students. This fact proves that commitment to learning and interest in learning have a significant joint relationship with the learning outcomes of FT Unima students. However, commitment to learning and interest in learning are not the only factors that influence the learning outcomes of PTB FT Unima students, because there are other factors. Commitment to learning and competent learning outcomes will result in continuous participation in learning activities; focusing on learning activities; contributing to learning activities; upholding learning activities; and supporting teaching and learning process activities; interest, pleasure, attention, will, concentration, and awareness, will improve learning outcomes in changes in attitudes, morals, intelligence abilities. In improving learning outcomes, you must pay attention to learning commitment and learning outcomes that make a significant contribution. Thus, commitment to learning and interest in learning will influence the learning outcomes of PTB FT Unima students. Referring to the previous explanation, it can be concluded that a commitment to learning and a high interest in learning will be able to follow the learning process well so that it will be able to produce better performance in learning, especially in building construction courses.

CONCLUSION

Based on the results of data analysis and hypothesis testing in this research, it can be concluded as follows: There is a significant relationship between commitment to study and learning outcomes of PTB FT Unima students. The contribution of the variable commitment to learning and learning outcomes of PTB FT Unima students is 23.62%. There is a significant relationship between interest in learning and learning outcomes of PTB FT Unima students. The contribution of the learning interest variable to the learning outcomes of PTB FT Unima students is 10.24%. There is a significant

relationship between commitment to learning and interest in learning simultaneously on the learning outcomes of PTB FT Unima students. The contribution of the variable's commitment to learning and interest in learning simultaneously to the learning outcomes of PTB FT Unima students is 23.72%.

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