

The Influence of Learning Motivation on the Learning Outcomes of Vocational Students at Lampung University

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Abstract

Many factors greatly influence the learning outcomes for vocational students, but the learning process for non-vocational program students is different. Learning motivation, especially intrinsic motivation, is a determining factor for successful of learning outcomes. The purpose of this study was to analyze the effect of learning motivation on the learning outcomes of vocational students. The study used descriptive correlational methods. A sample comprising 40 students was selected by random sampling. Data on student motivation was collected using a questionnaire instrument containing 25 statements concerning four aspects of learning motivation: self-determination, curiosity, challenge, and effort. Reliability testing showed that all items in the questionnaire were reliable. The influence of the learning motivation (independent variable) on the learning outcomes (dependent variable) was analyzed using ANOVA. Intrinsic motivation improved the learning outcomes for vocational students. Curiosity was identified as the most important aspect of learning motivation as it had the greatest influence on improving learning outcomes. Therefore, intrinsic motivation should be integrated into learning activities to improve the learning outcomes of vocational students in tertiary institutions.

Keywords: learning motivation, learning outcomes, vocational students

1. Introduction

Motivation is a crucial factor in learning activities, as no one learns without motivation. Motivation is a driving force for learning activities (Nurmala, 2014; Effendi, 2020). A motivated person learns in the available time so that they can achieve their learning goals. Someone who is motivated to learn realizes and understands their goals and is stimulated to learn (Suciani, 2014; Manizar, 2015; Harmoko, 2020; Effendi, 2020).

Learning motivation involves both external/extrinsic motivation and internal/intrinsic motivation. A person with extrinsic motivation is driven to achieve goals by external incentives such as rewards and punishment. In contrast, intrinsic motivation is driven by internal rewards (Wuryaningrum, 2020; Riyanto, 2020; Ozhan, 2020). The role of educators is very important in increasing student motivation. The establishment of a conducive and comfortable environment for learning is crucial for students. By knowing the differences in student motivation, educators can teach according to each student's needs (Idzhar, 2016; Hargito, 2020).

Intrinsic motives tend to be more long-lasting than extrinsic motives (Santrock, 1999; Susila, 2019; Estrada, 2019). Four characteristics underly the development of intrinsic motivation: self-determination, curiosity, challenge, and effort. Self-determination is the ability to determine one's own goals. Curiosity is the tendency to want to know and master something. Challenge is the opportunity to achieve something according to one's abilities. Effort is the time and work expended to achieve something.

Self-determination is the ability to identify and achieve goals based on the knowledge of oneself (Hoffman, 2018; Field, Hoffman & Posch, 1997). Student self-determination is the ability of students to achieve

academic, personal, social, and career goals. Students, as social individuals, have a desire to achieve their goals. Student learning outcomes can be achieved through a high GPA. Therefore, the students' self-determination is related to their future. Student awareness of life's goals is a process in various aspects, which would lead to the goal achievements.

Curiosity is a strong desire to know or learn something. Curious people are those who always seek the truth based on cause and effect. Curiosity starts from the human mind, which demands to be satisfied by getting the correct answer to the observed object. Curiosity plays an important role in the achievement of learning outcomes and needs to be developed and encouraged. Curiosity is also an important feature of student motivation (Oudeyer, 2016; Haber, 2018). Learning motivation occurs when students have the opportunity to achieve learning outcomes in accordance with their abilities, expectations, and expertise.

Learning outcomes are determined by many factors, one of which is intrinsic motivation. In contrast, extrinsic motivation tends to be temporary. A person would lose learning motivation due to losing motivation (Santrock, 1999). It would then reduce perseverance in facing a challenge and unable to achieve all the learning goals.

Learning outcomes for vocational students are influenced by many factors but are especially affected by the learning process. Adesoji (2018) proposed that learning outcomes are behavioral (cognitive, affective and psychomotor) changes. Learning outcomes indicate the level of success achieved by students after participating in a learning activity. The level of success is determined through a scale of values in the form of letters, words or symbols (Fajri, 2016). Learning takes place throughout a person's lifetime, but the learning process is complex because many factors influence it. The learning outcomes can and cannot be observed or measured (Thang, 2019).

Vocational student learning takes place in classrooms, in face to face meetings with lecturers, and also in industry. Learning activities are different from non-vocational programs students. Therefore, this resulted in varied learning outcomes. Motivation helps to maintain and improve learning. Table 1 shows the learning outcomes for vocational students of the Mechanical Engineering Faculty, Lampung University during the odd semester.

Table 1. Cumulative Achievement Index (GPA) of Vocational Students in the Odd Semester Academic Year 2019/2010

No	IPK	Semester					
		I		III		V	
		Total	%	Total	%	Total	%
1.	≥ 3.5- 4.0	13	21.67	16	26.67	21	35
2.	3 - 3.4	41	68.33	33	55	35	58.33
3.	2.5 - 2.9	6	10	11	18.33	4	6.67
4.	2.0 - 2.4	-	-	-	-	-	-
	Total	60	100	60	100	60	100

Table 1 shows that the learning outcomes (measured by GPA) for vocational students at Lampung University in the first, third, and fifth semesters were in the range of 3–3.4. Therefore, it is necessary to determine the factors that influence students' learning outcomes, and in particular the role that motivational factors play.

2. Method

This study used descriptive correlational methods to investigate the effect of learning motivation on learning outcomes and to reveal non-deterministic causal relationships. It would determine probabilities effect or probability effect increase (Cook & Campbell, 1979; Shadish, 1995; Shadis et al., 2002). We investigated the influence of learning motivation on the learning outcomes of vocational students at the

Engineering Faculty, Lampung University and identified the dominant factors affecting learning motivation.

The sample was selected using random sampling. Samples were taken from the population at random, without regard to the strata of population members. Samples were obtained directly from the sampling unit, so each sampling unit had the same chance of being sampled (Roscoe, 1975). The number of samples was determined by the Isaac and Michael tables (Isaac, 1981) using an error rate of 5%. The total sample was 40 vocational students in semesters I, III and V of the Engineering Faculty of Lampung University. This study was conducted at the end of the odd semester.

Data on the intrinsic motivation of students were collected using a questionnaire instrument consisting of four aspects derived from the work of Santrock (1999): self-determination (seven statements, items 1–7), curiosity (five statements, items 8–12), challenge (eight statements, items 13–20), and effort (five statements, items 21–25), see Table 2. Learning Motivation was measured with a four-point Likert scale: strongly agree, agree, disagree, and strongly disagree. The items were scored from 1 to 4 for favorable statements and from 4 to 1 for unfavorable statements.

Table 2. Aspects of Intrinsic Motivation Measured by the Questionnaire and the Number of Items

Measurement Aspects	No. of items
Self-determination	7
Curiosity	5
Challenge	8
Effort	5
Total	25

Table 3 shows the results for the reliability of the questionnaire. All of the values for Cronbach's alpha were $> .5$, so all of the items contained in the questionnaire were reliable. All tests were internally consistent because they had strong reliability (Maier, U., Wolf, N., & Randler, C., 2016; Bonett, DG, & Wright, TA, 2015; Sebastian Rainsch, 2004).

Table 3. Reliability Values for Different Aspects of Learning Motivation

Measurement Aspect	Cronbach's Alpha
Self-determination	0.84
Curiosity	0.83
Challenge	0.89
Effort	0.92
Total	0.87

ANOVA was used to analyze the data and to determine whether the independent variable (learning motivation) influenced the dependent variable (learning outcomes).

3. Results and Discussion

We investigated the effect of four different aspects of learning motivation (self-determination, curiosity, challenge, and effort) on the learning outcomes for vocational students in the Engineering Faculty of Lampung University. The four variables were not removed, see Table 4.

Table 4. Entered or Removed Variables

Mode	Variables entered	Variables Removed	Method
1	Effort Curiosity Self-determination Challenge	-	Enter

Table 5 shows that the coefficient of determination or R-squared was 0.571 or 57.1%. This finding indicated that the learning motivation (comprising self-determination, curiosity, challenge, and effort) affected 57.1% of the learning outcomes, and other variables influenced the remaining 42.9%.

Table 5. Coefficient of Determination

Mode	R	R-squared	Adjusted R-squared	Std. Error of the Estimate
1	0.756 ^a	0.571	0.522	0.2104

Table 6 shows the results of the ANOVA analysis. This analysis showed that the influence of motivation (X) on the learning outcomes (Y) was statistically significant (significance = 0.000 < 0.05).

Table 6. ANOVA Analysis

Model	Sum of Squares	df	Mean Square	F	Sig
1 Regression	2.062	4	0.516	11.652	0.000 ^a
Residual	1.549	35	0.044		
Total	3.611	39			

Table 7 shows that the coefficients for self-determination (X1) and learning outcomes (Y), curiosity (X2) and learning outcomes (Y), challenge (X3) and learning outcomes (Y), and effort (X4) and learning outcomes (Y) were all statistically significant (significance < 0.05).

Table 7. Coefficients for Learning Motivation Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
1 (Constant)	1.148	0.794		1.445	0.157
Self-determination	0.301	0.103	0.350	2.908	0.006
Curiosity	0.434	0.107	0.468	4.045	0.000
Challenge	0.196	0.093	0.267	2.113	0.042
Effort	-0.375	0.132	-0.326	-2.848	0.007

Table 8 shows the influence of different aspects of learning motivation on the learning outcomes.

Table 8. The Influence of Learning Motivation on Learning Outcomes

Learning Motivation Aspects Variable	Regression Coefficient (Beta)	Correlation Coefficient (r)	R-squared
Self-determination	0.350	0.432	0.571
Curiosity	0.468	0.380	
Challenge	0.267	0.353	
Effort	0.326	0.453	

The influence of each independent variable on the learning outcomes was calculated as follows:

$$\text{Effective Influence X1} = 0.350 \times 0.432 \times 100 = 15.12\%$$

$$\text{Effective Influence X2} = 0.468 \times 0.380 \times 100 = 17.78\%$$

$$\text{Effective Influence X3} = 0.267 \times 0.353 \times 100 = 9.43\%$$

$$\text{Effective Influence X4} = 0.326 \times 0.453 \times 100 = 14.77\%$$

We concluded that these four variables influenced 57.1% of the learning outcomes, and curiosity (X2) had the largest influence.

The relative influence of each independent variable on the learning outcomes was calculated as follows:

$$\text{Relative Influence X1} = 15.12\% / 57.1\% = 26.48$$

$$\text{Relative Influence X2} = 17.78\% / 57.1\% = 31.14$$

$$\text{Relative Influence X3} = 9.43\% / 57.1\% = 16.51$$

$$\text{Relative Influence X4} = 14.77\% / 57.1\% = 25.87$$

We concluded that curiosity (X2) had the largest relative influence on the learning outcomes. It is clear from our analysis that learning motivation influenced the learning outcomes of vocational program students. Motivation, especially intrinsic motivation, influences behavior and conduct in performing activities. People have goals when carrying out an activity, which can be achieved when the activity is approached seriously and passionately. Internal motivation encourages people to achieve their goals.

Motivation involves intensity, direction, and perseverance in achieving goals. Motivation drives an individual's desire to carry out certain activities to achieve a goal. Learning requires motivation. It ensures the activity runs smoothly and maximum results are obtained. Obtaining low grades in a test may cause the student to lose the motivation to attend lectures.

Motivation is a change in energy in a person, which is marked by the appearance of "feeling" and preceded by a response to the existence of goals (Yuliyanti, 2016). Motivation begins with an energy change, characterized by feelings, and is stimulated by goals. For this reason, a person must have a certain goal. A person possessing strong motivation would spare no effort in achieving their goal.

Motivation has three main components: needs, encouragement, and goals (Yuliyanti, 2016; Khadijah, 2016). Needs occur when an individual experiences an imbalance between their expectations

and possession. Encouragement is the mental strength to carry out activities to meet expectations. Encouragement is a mental force oriented to goal achievement. Objectives are something an individual wants to achieve, and these goals direct behavior, in our case learning behavior.

Learning motivation is a crucial basis for learning activities. Maslow believes that human behavior is generated and directed by certain needs, such as physiological needs, security, love, appreciation, self-actualization, knowing and understanding, and aesthetic needs. These needs can motivate individual behavior (Andjarwati, 2015).

Intrinsic motivation is the most important aspect of motivation for achieving learning outcomes. Intrinsic motivation arises from oneself and is not influenced by external factors. Every individual possesses an urge to do something. People driven by intrinsic motivation would spare no effort to achieve their goals. In contrast, extrinsic motivation has less influence on people achieving their goals, as the individuals are driven by external influences (Emda, 2018; Maulana, 2015).

In this study, we found that learning motivation, and especially curiosity, had a large influence on learning outcomes. Curiosity has both positive and negative sides. The positive side encourages a person to treat things diligently. The negative side causes a person to examine the hidden, silent and trivial matter. Positive curiosity is expected to have beneficial effects on oneself and others, while negative curiosity causes suspicion or loss.

Curiosity can also affect people's feelings. People are compelled to do something that one does not understand. Curiosity allows a person to gain experience and knowledge and begins with a feeling of restlessness (Engel, 2015). Mustari (2011) proposed that curiosity was an emotion related to natural information-seeking behavior. It manifests itself in exploration and learning activities. Curiosity is driven by emotions, as it involves the desire to understand new things, and it is also a source of motivation in the learning process.

Strong curiosity increases knowledge. It is a natural emotion when encountering something new and encourages people to investigate and deepen their understanding.

Curiosity is a natural state for people. Pathak (2017) explained, "Curiosity as a psychological phenomenon is more recent than its historical usage. William James, one of the first to discuss curiosity in psychological terms, described it as an instinct-driven biological function along with eating, drinking, breathing, and procreating. In that context, the desire to know is a natural reaction to particular situations of not knowing. Children, constantly engaging in exploratory behavior and asking questions, are acting on that curiosity. Not surprisingly, most of the literature on curiosity deals with the cognitive development of children." Children possess a great sense of curiosity, and children learn faster and better compared with adults. From an early age, this natural curiosity makes children good students, and this curiosity can be trained and developed to improve the learning process by making it more efficient and effective.

Curiosity affects the learning process by making it easier to concentrate and focus on the learning material and motivates the student to learn more about a subject. Curiosity leads to a desire to learn, just as hunger drives someone to eat. Children actively find information about what they are learning. Individuals learn better when driven by curiosity. Curiosity is one of the supporting factors for child learning, be it in the classroom, community, or daily life. Curious students often ask or read about the subject more widely than the scope of set textbooks and discuss the subject frequently.

According to Engel (2015), curiosity occurs when someone sees an object, touches it, or carries out additional actions to gain knowledge. They then ask others questions, experiment, research related literature, and organize their thoughts to better understand the subject. Anwar (2009) proposed that curiosity involves: (1) enthusiastically seeking answers, asking questions, reading through related literature, or making observations, (2) observing an object in an attempt to gain additional knowledge (3) being enthusiastic about the scientific process, and (4) questioning each step of an activity. At each step, a curious person actively asks questions about the intent and purpose of the activity.

4. Conclusions

In this study, we found that learning motivation, especially intrinsic motivation, improved the learning outcomes for vocational students. Curiosity had the greatest influence, with greater curiosity leading to improved learning outcomes. This finding leads to the conclusion that as greater curiosity results in improved student learning outcomes, it is necessary to include in vocational programs learning activities that trigger student curiosity. This research could be utilized as a reference for future studies of learning motivation. A more standardized questionnaire instrument could be used to measure the learning motivation aspects for vocational students. It would encourage more comprehensive aspects of measuring learning motivation.

The discussion of this study has not been completed because learning outcomes are measured as a whole. However, it is possible to be measured as an independent variable. The causal relationship between the two separate variables requires further research.

Empirical data was unable to prove whether student learning outcomes influenced by curiosity variables change or remain. This study did not show how the four aspects of learning motivation are related to cognitive, affective, and psychomotor learning outcomes. The relationship between the three aspects of the learning outcomes described in this study needed to be identified to determine the influence of each aspect of learning motivation.

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