

# Do Learning Activities Outside of School Hours Affect Learning Outcomes? (A Study on Learning Style)

M. Rudi Irwansyah<sup>1,\*</sup> Kadek Rai Suwena<sup>1</sup> I Putu Arya Dharmayasa<sup>1</sup>

<sup>1</sup>Department of Economic and Accounting, Universitas Pendidikan Ganesha, Singaraja, Indonesia

\*Corresponding author. Email: rudi.irwansyah@undiksha.ac.id

## ABSTRACT

This study was carried out in order to test and determine the effect of using student learning time out of study hours Economic Education Study Program, Universitas Pendidikan Ganesha if grouped by learning style. This study is a comparative causal study with a population visited by 240 students of Economic Education Study Program, Universitas Pendidikan Ganesha. The independent variable in this study is the use of learning time out of study hours, and learning outcomes are the dependent variable, while learning style is a categorical variable that includes 4 groups. The data in this study were obtained from the distribution of questionnaires and documentation which were then analyzed by Ordinal regression and Chow test. The results showed that there was an effect of the use of student learning time out of study hours on the economic learning outcomes of students Economic Education Study Program, Universitas Pendidikan Ganesha. The results of the study also showed that there were differences in the effect of the use of study time out of study hours on the economic learning outcomes of students Economic Education Study Program, Universitas Pendidikan Ganesha if grouped based on their learning style.

**Keywords:** Learning Outcome, Learning Style, Thinking.

## 1. INTRODUCTION

Education is one of the critical aspects that each human being must own and implement. Through education, humans are expected to be able to master, develop, and strengthen human character with good dignity, faith, and devotion toward God Almighty in order to create a progressive society and educate the nation's life (Law No. 20 of 2003, Article 3). As defined in Article 1 paragraph 1 of the Law on the National Education System No. 20 of 2003, education is a deliberate and planned effort performed by an individual to obtain a learning and learning process in order to develop all his potential actively required by other people and himself. Education is a socially regulated and regulated process that involves the ongoing transmission of socially significant experiences from past generations to future generations [1]. According to this definition, education encompasses all processes associated with learning and learning activities geared toward the

development of one's potential. As a result, education in this circumstance cannot be dissociated from the learning activities undertaken by students. Without learning, educational goals cannot be reached; thus, learning is a concrete activity toward achieving the national education goals [2].

Learning is a critical process that all individuals must go through in order to change their behavior. Typically, learning outcomes are attained when students participate actively, independently, and competently in the learning process. Individualized learning outcomes represent a student's educational success, abilities, and stage of development during the learning process [3]. Reference [4] defines learning outcomes as the culmination of learning activities that result in a continuous and dynamic change in knowledge, attitudes, and behavior that can be evaluated and observed. Meanwhile, [5] reveal in their research that learning outcomes are the accumulation of knowledge acquired by students during the learning process that enables students to know, understand, and

apply their acquired knowledge. This is in contrast to [6] definition of learning outcomes, which is more straightforward; according to him, learning outcomes are a change in students' behavior following a learning process, which can be observed through several dimensions, including cognitive, affective, and psychomotor. Students will obtain learning outcomes if the teaching and learning process is maintained [5].

The results of this study can be in the form of changes in attitudes, behavior and abilities experienced by students on an ongoing basis after going through their learning experiences. Learning outcomes are the end of learning activities carried out by someone, so that if someone wants to obtain a learning outcome, then it is certain that he has gone through a process or learning activity [4]. Good or bad learning outcomes obtained by students can be used as a basis for decision making to overcome problems that occur in the learning and learning process. Based on this explanation, learning outcomes can simply be interpreted as changes in a person's behavior, both knowledge, skills and attitudes from learning activities that have been carried out on an ongoing basis. Measurement of learning outcomes for students is a benchmark for the development of their abilities within a certain period of time, especially for teachers in providing an assessment of their performance during the learning process [2]. The teacher interprets and assesses student learning success through empirical observations such as observing student behavior, observing student performance, listening to student opinions, and observing the use of students' senses such as seeing, hearing, touching, smelling and feeling. Meanwhile, according to Sugihartono in [2] defines measurement as an attempt to find out something according to reality through a collection of data about something. According to [7] there are several tests that can be used to measure the ability and development of students, namely diagnostic tests, formative tests and summative tests.

Students' learning outcomes can be influenced by a variety of factors, both in terms of the supporting environment and those from within themselves. In general, two significant elements influence student learning outcomes: internal and external factors affecting pupils [8]. Internal factors are those that originate within individuals, such as health, disability, intelligence, attention, interests, abilities, maturity, motivations, and student preparation. While extrinsic influences such as the family environment, school environment, and community environment all affect students [9]. There is also an opinion that the elements affecting learning outcomes are internal to students, such as psychological and physiological factors [10]. Alongside that are external aspects affect students, such as the school environment, social environment, and home environment.

According to the Circular Letter of the Minister of Education and Culture No. 4 of 2020, the current teaching and learning process is conducted online. The circular's enactment resulted in various adaptations to students' learning activities, such as changes to their time and study habits. Thus, one of the primary factors affecting student accomplishment of learning outcomes in this scenario is an external element, namely students' utilization of study time. The application of this study time is related to students' habits or strategies for managing and dividing their free time effectively, so that the time they have is not wasted but may be used for more productive learning activities. Additionally, some studies have demonstrated that study time is a factor that can influence a person's learning success, implying that the effective and proper use of study time can raise the likelihood of achieving optimal learning results [11], [12]. By successfully utilizing study time outside of class hours, students will be able to investigate and comprehend the learning material that will be discussed, hence increasing the likelihood of achieving the maximum learning outcomes. According to [12], students that possess effective and efficient leisure time management abilities will perform better in their educational pursuits, particularly when completing assigned tasks. Making study schedules, reading books and taking notes, repeating lecture content, focus, ability to complete assignments, visiting the library, and forming study groups are all indicators of how students are spending their learning time outside of class hours.

This condition is also related to the pattern or learning style used by students; each student's approach to learning is unique. This distinction is demonstrated by the fact that students employ a variety of learning styles when studying or comprehending lecture content, depending on how the student receives, organizes, and controls the information he obtains. At home, students' learning styles are solely focused on their responsibilities to complete the teacher's assigned assignment. However, there are numerous learning styles that students employ in real-world situations, such as last-minute deadline rush.

According to some experts, a person's learning style can be classified into numerous categories. Gregorc in [8], [13] defined Concrete Sequential, Abstract Concrete, Abstract Random, and Concrete Random as four distinct learning styles. This indicates that students do not complete learning activities in stages, but rather take a brief moment to complete all learning activities or assignments at once, as well as during specified times, such as daily quizzes or semester exams, when the student begins to study seriously. According to some experts, an individual's learning style can be classified into numerous categories. Additionally, some individuals develop a consistent learning pattern by gradually studying in their spare time. Additionally, there is someone who use the repetition of lecture material

learning technique in order to achieve a more complete knowledge.

As stated previously, it is required to undertake a study on how students use their study time outside of class hours and how this affects their learning results in the Economic Education Study Program at Universitas Pendidikan Ganesha, which are classified according to their Learning Styles. The findings of this study are expected to contribute in the management of students' time outside of class. Additionally, the findings of this study can be used to guide students in both academic and non-academic domains.

## 2. METHOD

This study is categorized as quantitative research using a correlational methodology. The purpose of this study is to verify that the independent variable's value has a significant effect on the dependent variable. Thus, this study attempts to analyze the effect of the independent variable, namely the use of study time outside of class hours (X1), on the dependent variable, namely the learning outcomes (Y) of students enrolled in the Economic Education Study Program at the University of Education who are classified according to their learning style (categorical variable). In this study, categorical variables are variables whose values and measurement scales correspond to a certain category [14].

The research will be conducted at the Economic Education Study Program at Universitas Pendidikan Ganesha. The research subjects were 420 enrolled students in semesters 2, 4, 6, and 8. Additionally, the Slovin formula was used to calculate the research sample of 240 students, with a standard error of 5%. The sample is determined using the proportionate random sampling method based on the class year of the students. From the overall population of students, a representative sample of each class is generated using the total number of students as a comparison. The sample count is detailed in Table 1.

The variables in this study include learning outcomes, which are individual conditions that are reflected in the Grade Point Average at the semester's end. Meanwhile, the variable "study time outside of class hours" is defined as the allotment of time for learning activities outside of the campus's regularly scheduled class hours.

The variable of learning time consumption was assessed using a questionnaire with a four-point Likert scale ranging from 1 to 4, with 1 indicating strong disagreement and 4 indicating strong agreement. The questionnaire was prepared in agreement with [12] recommended indicators of study time utilization [12]. The variable of learning style refers to the students' tendency for learning patterns. The learning styles used in this study are based on Gregorc's [8] four learning styles based on the Thinking Learning Style [13].

**Table 1.** Research Sample Calculation

No	Semester	Number	(%)	Sample
1	2	98	23,33	56
2	4	120	28,57	69
3	6	105	25	60
4	8	97	23,095	55
Total		420	100	240

The researchers collected data for this study by administering a questionnaire and documenting student data in the administrative area of the Faculty of Economics. The data was then analyzed using ordinal regression, a type of regression analysis that is used to determine the effect of output variables on an ordinal scale. The study employs ordinal regression since the independent variable, the usage of study time outside of scheduled study hours, contains data on an ordinal scale. This is because data on these variables are collected using a four-way scale or Likert scale, which includes strongly agree, agree, uncertain, disagree, and strongly disagree. The decision-making process in this test is visible in the SPSS output's Parameter Estimates table. If each of the tested independent variables has a Wald statistic with a significance level less than 0.05, then the tested independent variable has an effect on the tested dependent variable. Along with studying the effect of student learning time spent outside of classwork on learning results, this study attempts to determine whether there are disparities in student learning outcomes when students are classified according to their individual learning style. To elucidate the subject of this problem, the author employs the Chow Test in conjunction with the statistical tool Iviews 10 version. The Chow test was utilized in this study because it is commonly used to identify differences between two or more regression models and to determine the optimal regression model between the Fixed Effect and Common Effect models [15].

## 3. RESULT & DISCUSSION

The first hypothesis is to determine whether there is an effect of employing student learning time outside of class hours on the Economics Education Study Program's student learning outcomes. Table 2 summarizes the examination of the first hypothesis. The significant level for the whole data on the variable usage of student learning time outside of class hours is 0.000 0.05, as shown in Table 2. Based on the findings of the analysis, it is determined that  $H_0$  is rejected, implying that the utilization of student learning time outside of learning hours has an effect on the economic learning outcomes of students enrolled in the Economics Education Study Program.

**Table 2.** Results of Ordinal Regression Analysis

Input Variable	N	Sig. of Wald value	Description
Student learning time outside of class hours	240	0.000	< 0,05
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**Table 3.** Contribution Results between Variables

No	Parameter	Value
1	Cox and Snell	0,591
2	Negelkerke	0,595
3	McFadden	0,178

(source: Data Processed, 2021)

The Nagelkerke value in the Pseudo R-Square table can be used to estimate the magnitude of the relationship between student learning time spent outside of class hours and student learning outcomes for the Economic Education Study Program. The value attributed to Nagelkerke is shown in table 3.

According to table 2, the Nagelkerke value of 0.595 suggests that 59.5 percent of the variation in the variable of learning outcomes can be described by the variable of student learning time outside of class hours, whereas 41.5 percent is explained by factors that were not in the model being tested.

The second hypothesis is to establish whether there is a difference in the effect of student learning outcomes in the Economic Education Study Program when students are classified according to their preferred learning style. The analysis of this hypothesis is carried out through several stages. First, a regression analysis on each type of learning styles to determine the regression equation and the Residual Sum of Squares (RSS) value were conducted. Second, regression analysis on two distinct kinds of learning styles, resulting in a combined RSS (RSSgab) were performed. Third, the RSS scores for each category of learning was summed. Finally, the F-test for each of the two combined categories of learning styles were calculated. Table 4 summarizes the findings of the Chow test computations.

As illustrated in the table above, there are differences in the regression equations describing the effect of using student learning time outside of class hours on student learning outcomes in the Economic Education Study Program when students are classified according to their learning style. This difference can be expressed as follows:

$$Y_{AS} = Y_{CR} \neq Y_{AR} \neq Y_{AS} \neq Y_{CS} \neq Y_{CR} \& Y_{AR}$$

**Table 4.** Results of Chow-test Analysis

No	Equality Regression	F Count	F Table 5% (k, n1 + n2 - k)	Conclusion
1	$Y_{CSAS}$	16,984	4,12	$H_0$ rejected
2	$Y_{CSCR}$	20,995	4,16	$H_0$ rejected
3	$Y_{CSAR}$	22,694	4,05	$H_0$ rejected
4	$Y_{ASCR}$	3,029	7,71	$H_0$ accepted
5	$Y_{ASAR}$	8,522	4,38	$H_0$ rejected
6	$Y_{CRAR}$	8,649	4,54	$H_0$ rejected

As a result, it can be inferred that the effect of using student learning time outside of class hours on the student learning outcomes of the Economic Education Study Program is different for the Abstract Sequential and Abstract Random categories.

According to the reasoning given earlier, the first hypothesis indicates that the utilization of student learning time outside of class hours has an effect on the student learning outcomes of the Economics Education Study Program. As a result, it can be stated that utilizing student learning time outside of class hours improves economic learning results for students enrolled in the Economic Education Study Program. This shows that if students enrolled in the Economic Education Study Program can utilize their spare time to engage in relevant learning activities, their economic learning results will improve.

The analysis of the first hypothesis reinforces the claim given by [11], [16] that students' utilization of study time outside of class hours successfully contributes to their accomplishment of learning outcomes. This study also corroborates the findings of [12], who concluded that the usage of student study time outside of class hours has a significant effect on academic achievement or learning outcomes. Additionally, his research demonstrated that students who are adept at managing their free time effectively and efficiently achieve greater success in their learning activities, particularly when it comes to completing teacher-assigned homework, than students who are unable to manage their free time effectively.

The second hypothesis in this study is that there is a difference in the effect of using student learning time outside of study hours on student learning results in the category of Abstract Sequential and Concrete Random learning styles in the Economic Education Study Program. As previously stated, the four categories evaluated have a variety of traits in common, yet all are examples of effective learning styles. Thus, the study of the second hypothesis supports Gregorc's in [8] argument

that each learning style has unique characteristics, implying that there would be some disparities in the influence of the four categories of learning styles on the variables tested.

The discrepancies observed in this study were partly a result of some students' failure to take their learning styles seriously. This means that students are capable of identifying the characteristics and tendencies of their learning styles, but their ability to execute their learning styles optimally is limited by their lack of perseverance and seriousness of learning. This also relates to how students spend their time for studying. If students are able to organize their study time well and have the appropriate learning style, their chances of achieving optimal learning outcomes are increased. On the other hand, if a student possesses the appropriate and effective learning style but lacks effective and efficient time management, as well as a lack of perseverance and seriousness in learning, this will result in difficulties absorbing and managing information during learning activities, thereby affecting the results. This is consistent with the finding stated by Lizzio and Simons in [8] that while students' learning styles do contribute to the accomplishment of student learning outcomes, it would be preferable if students were able to identify and optimize their implementation.

Not only are learning styles critical for students, but they are also critical for educators, particularly teachers. Learning objectives will be met if the teacher, as an educator, can fully perform his or her duties and tasks during the learning process. There are numerous approaches or alternative learning methods that an educator can employ in order to accomplish learning objectives, but they must always take into account the students' talents and characteristics. This is because each student's qualities and abilities for comprehending and managing acquired knowledge vary, necessitating the development of unique talents in giving a stimulus to students. By understanding the characteristics or learning styles of students, the teacher can provide the appropriate stimulus to students, resulting in a more conducive and effective learning environment, and the teacher can assist students in learning activities that align with their own learning style, thereby making learning objectives easier to achieve. This is consistent with [17] claim that teachers must be able to identify alternate or alternative learning approaches that are more compatible with students' characteristics and talents in order to create a conducive learning environment. This opinion is also consistent with [18], who states that a teacher can provide optimal learning assistance to students if the previous teacher is aware of the students' characteristics and learning styles, ensuring that the learning outcomes obtained are consistent with their own characteristics.

## 4. CONCLUSION

Following the preceding argument and discussion, it can be stated that the utilization of study time outside of class hours has an effect on the learning results of students enrolled in the Economics Education Study Program. A significance value less than 0.05 demonstrates this statement. Additionally, the findings indicate that there are variances in the effect of student learning outcomes in the Economics Education Study Program when students are classified according to their preferred learning styles. The discrepancies in the regression equations for the four groups of learning styles attest to this.

Several recommendations can be made to various parties based on the findings of the research presented above. The initial recommendation for the school. To ensure that students achieve the best economic learning outcomes possible, educators or the school should understand the needs and characteristics of student learning in advance. With a better understanding of students, teachers can provide more effective and efficient delivery to students, allowing students to accept and manage well-communicated information. The following recommendation is for researchers interested in conducting research on this subject. It is hoped that this research will serve as a starting point for further research on the topic. Because this research examines only students as subjects and some student problems as objects, subsequent researchers can look for or develop problems in this research and connect them to educators involved in the learning process.

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