

Analysis of Differences in Learning Achievement Reviewed From Learning Style (Study on Biology Students Batch 2021)

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Introduction

Learning is an effort to gain knowledge. Success or the learning process can be seen from several aspects, one of which is learning achievement. Learning achievement is an achievement or result achieved by a person (or student) after carrying out the learning process through various interactions both in the school environment, at home and in the community (Wiyono, et al, 2018). Formal educational institutions, such as schools or universities, usually measure students' learning achievements in the form of grades or numbers. At the university level, learning achievement is indicated by the achievement index (GPA) at the end of each semester. There are various learning achievements that can be reflected in a student's GPA. There are those who have very high, medium and low learning achievements. Different learning achievements are influenced by several factors. According to Slameto (2003), these factors are internal factors, which consist of physical (health and disability), psychological (intelligence, attention, interest, talent and motivation), apart from that there are also external factors. self (External), namely in the form of influences from the family environment, school environment and community environment. According to Harimurti et al (2017), learning achievement is basically influenced by 2 (two) factors, namely internal factors and external factors. Internal factors include intelligence factors, student interests and activities. Meanwhile, external factors can be in the form of teaching methods and curriculum used in the learning process. These two factors will have different influences on student learning achievement results. According to Rambe (2019), learning style is the easiest way or method for an individual to receive information and knowledge and then organize and manage the information received. According to Joko in Rahmawati and Gumiandari (2021), learning style is a tendency of each individual to learn a science in his own way, this process can be in the form of self-movement, absorption of material, or a way for students to receive and process information in their own way. according to himself. Furthermore, Rahmawati and Gumiandari (2021) revealed that in the process of learning something, each individual

Biology Teaching and Learning

p-ISSN 2621 – 5527
e-ISSN 2621 – 5535

Abstract. *Tracking learning style profiles is an important thing to do in an educational institution, including universities, to support the success and learning achievements of students. At the university level, learning achievement is indicated by the achievement index (GPA) at the end of each semester. This research aims to determine the profile of learning styles and learning achievements of students in the biology education study program and to see whether there are differences in student learning achievements in terms of their learning styles. This research is descriptive research with a quantitative approach. . The population in this study were students from the 2021 Biology Education Study Program with a total of 108 students. The research sample was 86 students from the Biology Education Study Program Class of 2021 out of 108 students who were determined using the Simple Random Sampling technique. The instrument used in this research is a non-test instrument in the form of a learning style questionnaire. The research results obtained include: the learning style tendencies of biology students in the Class of 2021 are varied, 45% of students tend to have a Kinesthetic learning style, 40% Visual and 15% Auditory. The average learning achievement of the 2021 batch of biology students is in the good category. Hypothesis testing shows that there is no significant difference in learning achievement when viewed from the learning styles of biology students.*
Keywords: *Learning style, learning achievement, differences of learning style, biology student*

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also has various variations in terms of learning styles, while learning styles are very influential, especially in the process of teaching and learning activities, especially to increase success in the knowledge transfer process.

Each student has a unique learning style tendency, and teachers are expected to teach according to students' individual characteristics so that learning becomes easier to understand. It is important to recognize that not all students have similar learning styles. Even though they are in the same school environment or in the same class, students' abilities to understand and absorb the material taught will vary, some are fast, some are moderate, and some take longer (Putri R.A et al, 2020).

Tracking learning style profiles is an important thing to do in an educational institution, including universities, to support student learning success. By looking at the tendencies of learning styles in a particular group, teachers or lecturers can choose the right environment and stimulus for teaching students. In this research, profiling of students' biology learning styles was carried out and further analysis was carried out regarding differences in learning achievement between each learning style. The results of this research can be a consideration in choosing the right learning model and method so that student learning achievement can increase effectively.

Problem of Research

The problem formulation in this research is: How does the profile of learning styles and learning achievements of students in the biology education study program describe? And is there a difference in student achievement based on their learning style?

Research Focus

The focus of this research is to find out the profile picture of learning styles and learning achievements of students in the biology education study program and to see whether there are differences in students' learning achievements based on their learning styles.

Research Methods

This research is descriptive research with a quantitative approach. The population in this study were students from the 2021 Biology Education Study Program with a total of 108 students. The sample was determined using the Simple Random Sampling technique by first calculating the sample proportion using the Slovin formula, so that the measured sample was 86 respondents from 108 students.

The variables in this research are student learning achievement and learning style. The learning achievement referred to in this research is the Cumulative Achievement Index obtained by students until the Even semester 2022/2023. Meanwhile, learning styles are categorized into 3 (three) types, namely kinesthetic, auditory and visual learning styles which are determined by looking at the highest score obtained in each aspect of learning style.

The instrument used in this research is a non-test instrument in the form of a learning style questionnaire. Data collection was carried out by collecting student GPA data and distributing questionnaires in the form of a Google form. The data obtained were analyzed descriptively to determine the profile of learning styles and learning achievement, and analyzed statistically infreentially with the ANOVA test to determine whether there were differences in learning achievement based on student learning styles.

Results of Research

The collected research data was analyzed in 2 (two) stages. Firstly, the data was analyzed descriptively, and secondly, the data was analyzed using inferential statistics for hypothesis testing. The results of data analysis are presented below.

Learning Style Profile

Learning style data is collected through a questionnaire and then analyzed and categorized based on the highest tendency value for each learning style. The profile of learning style tendencies is presented in table 1.

Table 1. Learning Style Profile Student Biology

Learning Style	Frequency	Percentage
Kinesthetic	39	45%
Auditory	13	15%
Visual	34	40%
Total	86	100%

Profiling of student learning style shows that percentage biggest is student with tendency style Study kinesthetic with 45% percentage though No Far different with percentage student with style Visual learning with percentage 40%. Whereas For Student with tendency style Study Auditory only by 15%. This thing show that style Study student Enough diverse.

Profile Performance Study

Performance Study student seen from Index Performance Cumulative until the even semester 2022/2023. GPA data obtained analyzed in a way descriptive and able seen in table 2.

Table 2. Analysis Descriptive Performance Study Student Biology

Descriptive	Value
Average	3,392
Minimum Value	2.43
Maximum Value	3.79
Std. Deviation	0.272

Based on the results of descriptive analysis, it was found that the average student GPA was 3.392 in the good category. The minimum GPA is in the poor category and the maximum GPA is in the very good category. The learning achievement profile can be seen in table 3.

Table 3. Profile Performance Study Student Biology

Criteria	Frequency	Percentage
Very good	32	37.2%
Good	50	58.2%
Enough	2	2.3%
Not enough	2	2.3%
Total	86	100%

In line with mark average whole respondents , achievement profiling data Study student with percentage biggest are in the category Good with percentage 58.2%. More from half

student becoming biology _ respondents own performance good learning , and less of the 3% who have performance Study less and enough . For see spread performance Study based on style Study can seen in table 4.

Table 4. Cross Tabulation of Learning Styles and Achievement Study

Learning Style – Achievement Study	Very good	Good	Enough	Not enough	Total
Kinesthetic	18	20	0	1	39
Auditory	5	6	1	1	13
Visual	9	24	1	0	34
Total	32	50	2	2	86

The data in the cross tabulation table shows that students with a kinesthetic learning style tend to have the most good and very good learning achievements. Students with a visual learning style tend to achieve the most good learning achievements, as well as auditory ones. For the three learning styles, only a few students were in the sufficient and poor categories. This data does not show any significant differences between the learning achievements of the three learning style tendencies. Next, an infrential statistical analysis is carried out to test the hypothesis.

Analysis Statistics Infrential

Infrential statistical analysis done For test hypothesis There is or not difference performance Study student reviewed from style learn . Testing hypothesis done with ANOVA test with a number of necessary assumptions fulfilled .

Normality test done with using the *Kolmogorov-Smirnov* Test with assisted by SPSS 24.0. Normality test results can seen in table 5 below this.

Table 5. Normality Test

	Learning Style	Significance Value	Information
Performance Study	Kinesthetic	0.146	Normal
	Auditory	0.131	Normal
	Visual	0.200 *	Normal

Based on table 5 can seen that mark significance obtained for performance data Study in each style Study more big from 0.05 so can concluded that the data is normally distributed and meets assumption normality for the ANOVA test. Homogeneity Test with using the *Levene-statistical* test with assisted by SPSS 24.0. The homogeneity test results can be seen in table 6 below.

Table 6. Homogeneity Test

Test	Significance Value	Information
<i>Levene Statistics</i>	0.51	Homogeneous

Based on table 6 can seen that mark significance obtained _ for performance data Study in each style Study more big from 0.05 so can concluded that the data has equal and satisfactory variance _ assumption homogeneity for ANOVA test.

Hypothesis Testing

Testing Hypothesis done with using the ANOVA test. Tested hypothesis _ including H₀: None difference performance Study reviewed from style Study students and H₁: There is a difference performance Study reviewed from style learn . H₀ is accepted If mark significance more big of 0.05, and otherwise H₁ is accepted If mark significance obtained _ more small from 0.05. The results of the ANOVA test can be seen in table 7 below this.

Table 7. Hypothesis Testing

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,398	2	,199	2,795	,067
Within Groups	5,905	83	.071		
Total	6,303	85			

Based on ANOVA test table (table 7) can seen that mark significance obtained _ is 0.67 and above big from mark The significance is 0.05 which shows that H₀ accepted and H₁ rejected. So that can concluded that No There is difference performance significant learning _ between third style learn.

Discussion

Learning achievement based on the results of research that has been carried out can be said to be equivalent for all types of learning style tendencies, although descriptive calculations show that students with very high learning achievement categories have the most kinesthetic learning style tendencies compared to other learning style tendencies. These results were obtained because from the results of learning style profiling it was found that the percentage of students with a kinesthetic learning style was greater. Students who tend to have a kinesthetic learning style find it easier to learn or receive and process information through physical movement or touch that involves the senses. It is possible for students to achieve effective learning achievements through direct movement or touch based on the characteristics of the kinesthetic learning style (Bire et al, 2014). Meanwhile, for individuals who have a visual learning preference, the sense of sight is a very sensitive tool for absorbing any stimuli during the learning process. Someone who tends to learn visually tends to enjoy observing pictures, following illustrations, watching events directly, reading instructions, and similar things (Mustafid et al, 2021)

The research results show that there is no significant difference in learning achievement in terms of student learning styles. This is in line with research conducted by Sari et al (2021), which shows that learning styles and cognitive learning outcomes only have a low correlation. This result is different from several other studies showing that there are differences in learning achievement based on learning style, such as in research conducted by Rahmawati (2018) which revealed that there is a relationship between learning style and students' GPA (Cumulative Achievement Index). The absence of differences in learning achievement in the three types of learning styles can occur because the teaching and learning process in the study program can facilitate all types of learning styles. The lecture process does not only focus on learning activities that support one particular learning style. Learning style can influence learning achievement if when selecting learning components such as models, methods, media and other stimuli, pay attention to suitability with the profiling of learning styles in a class. Sari et al (2021) suggest that learning style is not the only thing that influences learning outcomes. There are other factors that influence one of them is the environment. The environment has a

positive influence if it can provide encouragement or motivation and stimulation to children to increase their learning activities (Hamka, 2017).

If the learning process is planned taking into account the differentiation of learning styles, then all learning style tendencies can receive equal portions. For example, when preparing teaching materials, you can pay attention to the suitability of learning styles with the type of stimulus provided so that learning achievement is more effective. The results of this research can be a consideration for lecturers or other teaching staff in implementing differentiated learning, and choosing the right learning treatment according to differences in learning style tendencies. Apart from that, for future researchers, this research can be initial data in conducting research, especially regarding differences in learning styles and their relation to the effectiveness of the learning process.

Conclusions

Based on the results of data analysis, it can be concluded that: the learning style tendencies of biology students in the Class of 2021 are varied, 45% of students tend to have a Kinesthetic learning style, 40% Visual and 15% Auditory. The average learning achievement of the 2021 batch of biology students is in the good category. Hypothesis testing shows that there is no significant difference in learning achievement when viewed from the learning styles of biology students.

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