

The Effect of Learning Style Preferences on Student Learning Outcomes

Arda Purnama Putra ^{1,*}, Iqlima Pratiwi ²

¹ Primary Education and Preschool, Faculty of Education, Universitas Negeri Malang, Malang, Indonesia

² Faculty of Psychology, Universitas Airlangga, Surabaya, Indonesia

*Corresponding author. Email: arda.purnama.fip@um.ac.id

Abstract: The purpose of this study was to determine the effect of learning style preferences on learning outcomes students of primary teacher Education at State University of Malang. This research uses quantitative research with a survey method. Hypothesis testing is done using causality analysis. The number of respondents from class 2017 students was 35 respondents, the number of respondents from class 2016 students was 30 respondents. The total number of respondents was 65 students. The results showed that the learning style had little effect on the learning outcomes students of primary teacher Education, Faculty of Education, Universitas Negeri Malang.

Keywords: learning style preferences, learning outcomes, students of primary teacher education

1. INTRODUCTION

Learning outcomes are changes in behavior as a result of learning which includes affective, cognitive, and psychomotor fields [1]. Learning outcomes include cognitive, affective and psychomotor abilities [2]–[4]. Cognitive abilities consist of knowledge (knowledge, memory); comprehension (understanding, explaining, summarizing, examples); application (apply); analysis (describe, determine the relationship); synthesis (organizing, planning); and evaluating (judging). Affective ability consists of receiving (attitude); responding (giving response), valuing (value); organization (organization); characterization (characterization). Psychomotor abilities include initiatory, pre-routine, and routinized.

Learning outcomes are essentially a change in behavior after going through the teaching and learning process [5]. Learning outcomes can be seen through evaluation which aims to obtain data that will show the level of student ability in achieving learning objectives. Assessment and measurement of learning outcomes are carried out using learning outcomes tests, especially cognitive learning outcomes with regard to mastery of teaching materials in accordance with educational and teaching objectives.

In this study the learning outcomes referred to are the Grade Point Average (GPA) of the students. A student's GPA is a value that already reflects a student's cognitive, affective, and psychomotor abilities. This is because in the GPA assessment, the lecturer evaluates all aspects that are owned by students ranging from activeness, assignments, performance, products, and knowledge.

Research on learning style preferences has been conducted since 1981. Several studies have shown that

learning styles can affect learning outcomes. However, there are several studies which reveal that learning styles do not affect one's learning outcomes. This difference is interesting to discuss in more depth. This article also discusses the types of learning styles according to some experts. There are three kinds of learning styles, namely auditor, visual, and kinesthetic. When viewed from the perspective of sensory receptor capture. There are 3 kinds of learning styles, namely visual, auditory, and kinesthetic [6]. When viewed from the perspective of the way students learn.

Many things can affect student learning outcomes. The learning process will affect learning outcomes. Every student has their own way of learning. Differences in student learning methods will affect the acquisition of learning outcomes. Students must study according to their learning type in order to get maximum results.

Several studies have revealed that learning styles can affect learning outcomes obtained by individuals. Several other studies state that there is no influence between learning styles and individual learning outcomes. Baker, et. al., (1986) and Mc. Kee, et. Al., (1999) revealed that students with certain types of learning styles show better achievement because they are satisfied during their studies [7], [8]. Other results reveal that students with learning styles that are similar to those of undergraduate lecturers, tend to have better performance than other students who have learning styles that are not similar to teaching lecturers [9]. Meanwhile, Prastiti & Pujiningsih (2007) research reveals the opposite. There is no influence of learning style preferences on student learning outcomes in the accounting department of UM [10]. The Research Gap is what makes researchers want to research the effect of learning preferences on learning outcomes of PGSD students at State University of Malang.

The thing that supports this research is the tendency of learning styles in each department to be different. The learning style trends of accounting students with management students and business students found that accounting students tended to have different learning styles than management students and business students [11]. This study wanted to find out whether there was an effect of learning style preferences of PGSD students in the Faculty of Education, State University of Malang on their learning outcomes. It is hoped that the results of this study can be useful for other researchers who will research based on the Research Gap that occurs in these two variables.

2. METHOD

This research uses quantitative research with survey methods. The survey research method can not only describe facts, but also can test hypotheses using causality analysis. This research was conducted using a questionnaire as a research tool carried out on a population sample, so that the relationship between the learning style preference variables and student learning outcomes was found. The purpose of this study was to determine the effect of learning style preferences on student learning outcomes of Elementary School Teacher Education, State University of Malang. The data from the questionnaire is data about the learning preferences of Elementary School Teacher Education students, State University of Malang. The learning outcome data was obtained from the GPA of students of Elementary School Teacher Education, State University of Malang. The design of this study can be seen more clearly in Figure 1.

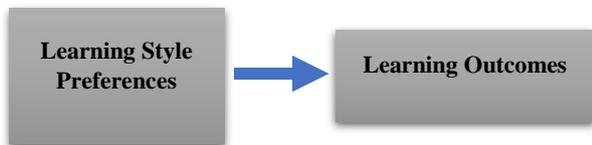


Figure 1 Research Design

In this study, there are two variables to be examined, namely: the independent variable and the dependent variable. In more detail, it will be explained below:

Independent Variable, this variable is a variable that affects or causes changes so that the dependent variable appears. The independent variable in this study is the learning style preferences of Elementary School Teacher Education students, State University of Malang.

Dependent Variable, this variable is an output or consequent variable because this variable is a variable that is influenced by the existence of the independent variable. The dependent variable in this study is student learning outcomes of Elementary School Teacher Education, State University of Malang.

The population in this study were all students of Elementary School Teacher Education, Faculty of Education, State University of Malang, both those on campus 1, campus 2, and campus 3. The sample selection in this study used a random sampling technique, thus enabling all students of Elementary School Teacher

Education at the Faculty. Education Science, State University of Malang had the same opportunity to be a sample in this study.

The data collection techniques used in this study were questionnaires, GPA scores and documentation. The questionnaire method was used to determine the learning style preferences of Elementary School Teacher Education students, State University of Malang, in the implementation of life-based learning. The GPA score of Elementary School Teacher Education students, Faculty of Education, State University of Malang is data on student learning outcomes that include affective, cognitive, and psychomotor aspects.

To answer the problem formulation in this study used descriptive analysis of learning style preferences and student learning outcomes of Elementary School Teacher Education, State University of Malang. To determine the effect of learning style preferences on student learning outcomes of Elementary School Teacher Education, State University of Malang, using the linear regression test. Prior to data analysis, a prerequisite test was carried out which indicated that the data did not have homogeneity and normality problems.

The steps in testing this hypothesis are started by establishing the null hypothesis (Ho) and the alternative hypothesis (Ha), selecting the statistical test and calculating the statistical value, and determining the level of significance. To find out more about the steps taken can be seen as follows.

The determination of the null hypothesis (Ho) and the alternative hypothesis (Ha) is used in order to determine whether there is an influence between the two variables above. The research hypothesis proposed is an alternative hypothesis (Ha), while for the purposes of statistical analysis the hypothesis is paired between the null hypothesis (Ho) and the alternative hypothesis (Ha) with the statistical hypothesis in this study:

(Ho) $\rho = 0$: There is no influence between learning style preferences on student learning outcomes of Elementary School Teacher Education, State University of Malang. (Ha) $\rho \neq 0$: There is an influence between learning style preferences on student learning outcomes of Elementary School Teacher Education, State University of Malang.

If the statistical test results show that Ha is accepted, then this means that the independent variable (X) has an influence on the dependent variable (Y), but if Ha is rejected, it means that the independent variable (X) has no influence on the dependent variable (Y).

To determine the direction of the influence between learning style preferences on student learning outcomes of Elementary School Teacher Education, State University of Malang, the test was carried out using simple linear regression analysis. The general equation for simple linear regression according to Sugiyono (2013) is shown in Equation (1).

$$Y = a + bX \tag{1}$$

Information:

Y = Subject in the predicted dependent variable.

a = Price Y, when price X = 0 (constant price).

b = Number of direction or regression coefficient, which shows the rate of increase or decrease in the dependent variable based on the independent variable. If b (+) increases, and if (-) then decreases.

X = Subject on the independent variable that has a certain value.

The level of significance chosen was 95%. This figure is a commonly used and appropriate level of significance for social science research and is considered to be strong enough to represent the relationship between the variables studied. This means that Ho is right, then the profitability of making an error rejecting the hypothesis is 0.05.

3. RESULTS

Student learning style data were obtained from a questionnaire given to students of class 2017 and batch 2016 of Elementary School Teacher Education study program, Faculty of Education, State University of Malang. The number of respondents from class 2017 students was 35 respondents, the number of respondents from class 2016 students was 30 respondents. The total number of respondents was 65 students.

Collecting data using a questionnaire consisting of 13 statements to explore the learning styles of Elementary School Teacher Education students, to determine student learning outcomes, the questionnaire was given an identity containing the student's GPA. The questionnaire consists of a statement with three answer choices that one of the students must choose. The following are the 13 statements contained in the research questionnaire (Table 1).

The questionnaire was randomly assigned to Elementary School Teacher Education students' class of 2017 and batch 2016. Students who prefer the answer option A have a tendency / learning preference of the Visual type. Students who prefer the choice of answer B have a tendency / preference to learn the Auditory type. Students who prefer the C answer choice have a tendency / preference to learn Kinesthetic type.

From the Figure 2, it can be seen that 39% of 2016 class students have a visual learning style, 29% have an auditor learning style, and 32% have a kinesthetic learning style. From the Figure 2, it can be seen that 57% of 2016 class students have a visual learning style, 26% have an auditor learning style, and 17% have a kinesthetic learning style.

Student learning outcomes are obtained from the student's Grade Point Average (GPA). Based on the Table 1, it can be seen that the average GPA for class 2016 is 3.71. Based on the Table 2, can be seen that the average GPA for class 2017 is 3.79.

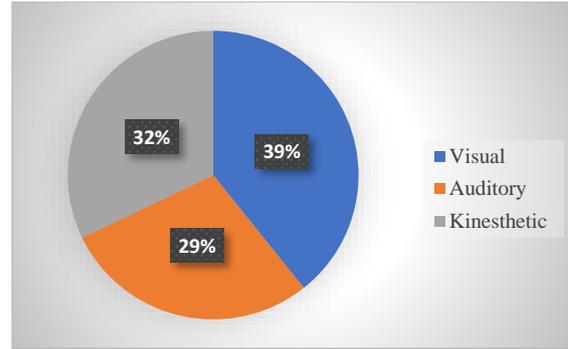


Figure 2 Student Learning Styles Batch 2016

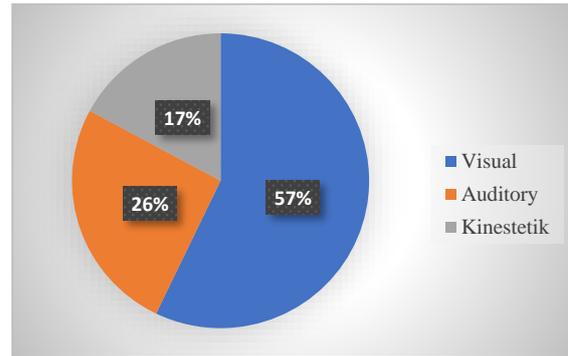


Figure 3 Student Learning Styles Batch 2017

Table 1 Student GPA Table Batch 2016

No	Initials Name	GPA
1	NI	3,67
2	GGEW	3,82
3	AR	3,74
4	AAR	3,81
5	TIK	3,60
6	YAP	3,73
7	MCI	3,72
8	HN	3,67
9	SMR	3,68
10	MR	3,67
11	SNL	3,68
12	DF	3,79
13	IYK	3,64
14	MRE	3,78
15	RA	3,60
16	VPA	3,82
17	En	3,72
18	TK	3,75
19	EM	3,67
20	NL	3,82
21	ACPN	3,67
22	Sf	3,73
23	YIK	3,63
24	WSS	3,75
25	ASP	3,67
26	NLR	3,63
27	Iq	3,74
28	AMU	3,61

Table 2 Student GPA Table Batch 2017

No	Initials Name	GPA
1	NFD	3,79
2	SM	3,84
3	AKS	3,92
4	RDN	3,51
5	SW	3,74
6	FI	3,62
7	FMS	3,84
8	AZZ	3,85
9	SAM	3,85
10	DZ	3,81
11	SRO	3,89
12	FRW	3,9
13	Ve	3,66
14	UN	3,76
15	AF	3,79
16	HA	3,97
17	MC	3,75
18	UMH	3,93
19	IYK	3,73
20	NY	3,87
21	WA	3,84
22	IP	3,82
23	EDS	3,89
24	VIA	3,75
25	CL	3,66
26	MPB	3,75
27	ACD	3,82
28	DDO	3,84
29	BA	3,93
30	ER	3,84
31	AFA	3,60
32	DRA	3,81
33	ADS	3,83
34	WW	3,60
35	SJ	3,75

4. DISCUSSION

The percentage of student learning styles of 2016, namely: 39% have a visual learning style, 29% have an auditor learning style, and 32% have a kinesthetic learning style. The percentage of student learning styles 2017, namely: 57% of 2016 class students have a visual learning style, 26% have an auditor learning style, and 17% have a kinesthetic learning style. The following shows the percentage of student learning styles of 2016 and 2017.

Based on the discussion in chapter 4, it can be seen that the average GPA for class 2016 is 3.71. Meanwhile, the average GPA for class 2017 was 3.79. This average includes a very high GPA. The effect of visual learning styles on learning outcomes can be analyzed using linear regression analysis. Here are the results of the linear regression analysis using SPSS (Table 3).

Visual learning styles affect learning outcomes if the R Square value approaches the value 1. Based on the above results it is known that the R Square value is 0.013, which means that the effect of visual learning styles on

learning outcomes is very small. This is in line with several studies which state that visual learning styles have little effect on learning outcomes [12]–[14]. The effect of auditory learning styles on learning outcomes can be analyzed using linear regression analysis. Here are the results of the linear regression analysis using SPSS (Table 4).

Table 3 The Effect of Visual Learning Styles on Learning Outcomes

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.112 ^a	.013	-.025	1.843
a. Predictors: (Constant), VAR00001				

Table 4 The Effect of Auditory Learning Styles on Learning Outcomes

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.095 ^a	.009	-.029	1.846
a. Predictors: (Constant), VAR00001				

Auditory learning style affects learning outcomes if the R Square value approaches the value 1. Based on the above results it is known that the R Square value is 0.009, which means that the effect of visual learning styles on learning outcomes is very small. This is in line with several studies which state that auditory learning style have little effect on learning outcomes [15], [16]. The effect of kinesthetic learning styles on learning outcomes can be analyzed using linear regression analysis. Here are the results of the linear regression analysis using SPSS (Table 5).

Table 5 The effect of Kinesthetic Learning Styles on Learning Outcomes

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.055 ^a	.003	-.035	1.852
a. Predictors: (Constant), VAR00001				

Kinesthetic learning styles affect learning outcomes if the R Square value approaches the value 1. Based on the above results it is known that the R Square value is 0.003, which means that the effect of visual learning styles on learning outcomes is very small. This is in line with several studies which state that Kinesthetic learning style have little effect on learning outcomes [8], [14], [17].

Based on this discussion, it can be seen that the effect of visual learning styles on learning outcomes is very small, namely the R Square value of 0.013. It is known that the effect of visual learning styles on learning outcomes is very small, namely the value of R Square is 0.003.

From this explanation, it can be concluded that the learning style has very little effect on the learning

outcomes of Elementary School Teacher Education students, Faculty of Education, State University of Malang. This is in accordance with Prastiti & Pujiningsih research which revealed that there was no influence of learning style preferences on student learning outcomes at the State University of Malang accounting department [10].

5. CONCLUSION

Learning styles are attitudes and thinking behaviors, how to remember, how to observe, how to solve problems when individuals are in the learning process. Learning styles are very important to know so that teachers can adapt to children's learning styles. The learning outcomes of Elementary School Teacher Education students are at a GPA of 3.7. This average includes a very high GPA. From the previous explanation it can be concluded that the learning style has little effect on the learning outcomes of Elementary School Teacher Education students, Faculty of Education, State University of Malang.

It is recommended for lecturers to know their students' learning styles so that learning can take place optimally. By knowing student learning styles, lecturers can determine suitable media for students. For other researchers, it is advisable to conduct research like this in their respective majors in order to know the learning trends of students in each department.

REFERENCES

- [1] N. Sudjana, "Metode Statistika Edisi keenam," Bandung PT. Tarsito, 2005.
- [2] J. Winterton, *Training, Development, and Competence*. Oxford University Press, 2009.
- [3] I. Purnamasari, B. Munthasofi, and H. Tanuatmodjo, "Increasing Learning Outcomes Using Contextual Teaching and Learning Model in Accounting Subject," *Proceedings of the 2nd International Conference on Economic Education and Entrepreneurship*. SCITEPRESS - Science and Technology Publications, 2017.
- [4] S. Suwartini, "The Use of Contextual Teaching And Learning (CTL) Method to Improve Learning Outcomes of the Theme of 'My Dreams' Class IV Elementary School," *JURNAL PAJAR (Pendidikan dan Pengajaran)*, vol. 3, no. 5. Program Studi PGSD FKIP Universitas Riau, 2019.
- [5] A. Marini, "Enhancement of Student Learning Outcomes Through the use of Contextual Teaching and Learning," *PONTE International Scientific Researchs Journal*, vol. 72, no. 11. Ponte Academic Journal, 2016.
- [6] P. Honey and A. Mumford, "Styles of learning," *Gower Handb. Manag. Dev.*, vol. 101, pp. 101–111, 1994.
- [7] M. A. Baker, "Service quality and emotional intelligence.," *Emotional intelligence in tourism and hospitality*. CABI, pp. 108–120, 2019.
- [8] S. M. Smith and P. C. Woody, "Interactive Effect of Multimedia Instruction and Learning Styles," *Teach. Psychol.*, vol. 27, no. 3, pp. 220–223, 2000.
- [9] P. Little, *Otitis media with effusion*. Oxford University Press, 2018.
- [10] S. D. Prastiti and S. Pujiningsih, "Pengaruh faktor preferensi gaya belajar terhadap prestasi belajar mahasiswa akuntansi," *J. Ekon. bisnis*, vol. 14, no. 3, pp. 224–231, 2009.
- [11] A. P. Putra, S. Sutansi, and A. Badawi, "Learning Style Preferences of College Student BT - 1st International Conference on Early Childhood and Primary Education (ECPE 2018)," 2018, pp. 12–15.
- [12] M. Rais, F. Aryani, and A. S. Ahmar, "The influence of the inquiry learning model and learning style on the drawing technique of students," *Global Journal of Engineering Education*, vol. 20, no. 1. Universitas Negeri Makassar, 2018.
- [13] A.- Thohir, "Indonesian Students' Learning Style in English Speaking Skill." Center for Open Science, 2018.
- [14] A. Y. Kolb and D. A. Kolb, "Learning styles and learning spaces: Enhancing experiential learning in higher education," *Acad. Manag. Learn. Educ.*, vol. 4, no. 2, pp. 193–212, 2005.
- [15] S. Hai-Jew, "Using an Evolving Electronic Stylebook as a Touchstone for Online Learning Project Management," *Project Management Approaches for Online Learning Design*. IGI Global, pp. 52–77, 2012.
- [16] A. Ghofur, I. N. S. Degeng, U. Widiati, and P. Setyosari, "The Effect Of Communicative Language Teaching And Audio-Lingual Method On English Speaking Skill Across Different Learning Styles," *KnE Social Sciences*, vol. 1, no. 3. Knowledge E, p. 1, 2017.
- [17] H. Pashler, M. McDaniel, D. Rohrer, and R. Bjork, "Learning styles: Concepts and evidence," *Psychol. Sci. public Interes.*, vol. 9, no. 3, pp. 105–119, 2008.