

# Analysis of Learning Outcomes Viewed From Students Learning Styles

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## ABSTRACT

This study aims to determine the description of students' learning outcomes in visual, auditory, and kinesthetic learning styles. The type of this research is qualitative research using a descriptive approach. Instrument in this research were the researchers themselves as the main instrument supported by the instrument of learning style questionnaire. The data of learning outcomes were taken from the exam. This study indicated that subjects with visual learning styles were in the medium and high category in learning outcomes, the subjects with auditory learning styles were in the medium category in learning outcomes, and the subjects with kinesthetic learning styles were in low and high learning styles. In general, there were 42.86% students in visual learning style, 45.71 % students in auditory learning style, and 11.43% students in kinesthetic learning style. The average of students learning outcomes was 75.457.

**Keywords:** *Visual learning style, Auditory learning style, Kinesthetic learning style, Learning Outcomes.*

## 1. INTRODUCTION

Education is an important thing in human life. Education is a human effort to grow and develop the potentials that exist in humans. Through education, humans experience the process of training and guiding themselves to avoid or get out of ignorance and stupidity. In the educational process, learning occurs when educators and students have two-way communication. The occurrence of learning is a process where educators apply learning in the classroom, where the learning process is carried out, of course, has a goal to be achieved.

Mathematical one branch of science that plays an important role in human life. Mathematics has an important role in education because almost all science and technology use mathematics, such as accounting, chemistry, physics, economics, etc. However, the reality on the ground shows that student learning outcomes in mathematics are still not satisfactory. Based on student learning outcomes at SMAN 23 Bone, it can be seen that most of the students' test scores are below the Minimum Completeness Criteria (MCC) set by the school. Of the 35 students of grade XI MIA 3, there are only 8 students whose scores are above the MCC. Therefore, it can be said that the

mathematics learning outcomes of class XI MIA 3 students are still low.

Learning style is the way individuals have to absorb, organize, and process the information received. The appropriate learning style is the key to student success in learning. By realizing this, students can absorb and process information and make learning easier with their own learning style. The use of learning styles that are limited to only one form can undoubtedly lead to imbalances in students in absorbing information. Therefore, students need to be assisted and directed to identify their learning styles to achieve learning objectives effectively.

There are three types of learning styles, namely visual, auditory and kinesthetic. Students with visual learning styles learn through what they see, auditory learn by listening, and kinesthetic learning by moving, working, and touching. Every student has all three learning styles, and it's just that one learning style usually dominates.

Learning outcomes are still an indicator to assess the level of success of students in learning. Good learning outcomes reflect good learning styles. If students know and understand the best learning styles for themselves, they can learn better, which implies

maximal learning outcomes. Knowing the learning style is expected to positively contribute to student learning outcomes in schools, especially mathematics learning outcomes. Based on this description, the author is interested in studying student learning styles and whether there is a relationship between student learning styles and student learning outcomes in mathematics.

**2. METHODS**

In this study, the author applied a qualitative research method with a descriptive approach. The research was conducted at SMAN 23 Bone. The objects studied were 35 students of class XI MIA 3 SMAN 23 Bone. Data collection instruments are questionnaires, interviews, observation, and documentation. Questionnaires and interviews were applied to collect data on students' learning styles, while observation and documentation were carried out to obtain students' mathematics learning outcomes. Data of student learning outcomes were categorized into 3 levels, namely high, medium, and low. Students with 41 - 60 scores were in a low category, students with 61 - 80 scores were in the medium category, and students with 81-100 were in the high category. The data analysis technique used is data reduction, data presentation, and conclusion.

**3. RESULTS**

Based on the questionnaire used in this study, data of students' learning styles in grade XI MIA 3 SMAN 23 Bone is as follows.

**Table 1.** Students' learning style preference

No	Learners Initial	Learning Styles Score			Learning Styles (V-A-K)
		Visual (V)	Auditory (A)	Kinesthetic (K)	
1	DAA	32	27	27	V
2	ARR	33	39	29	A
3	ATF	29	30	30	A-K
4	ACM	32	32	32	V-A-K
5	MA	32	32	33	K
6	AR	30	33	32	A
7	DAN	34	33	32	V
8	FH	31	33	32	A
9	FA	29	30	23	A
10	HA	32	34	30	A
11	H	33	30	32	V
12	HU	36	37	28	A
13	HH	33	29	28	V
14	JN	30	35	34	A
15	MAZ	34	27	29	V
16	MTA	26	30	33	K

17	MAR	30	32	30	A
18	MI	28	26	23	V
19	MRH	30	26	24	V
20	MR	35	27	29	V
21	NF.	27	29	28	A
22	N	34	26	33	V
23	P	28	32	29	A
24	PAR	35	32	27	V
25	R	33	33	33	V-A-K
26	RN	32	26	32	V-K
27	RE	29	33	29	A
28	REM	34	32	32	V
29	RMA	34	34	34	V-A-K
30	SZ	34	31	35	K
31	S	33	31	29	V
32	SU	34	30	34	V-K
33	SUR	28	29	27	A
34	SA	28	30	29	A
35	W	34	35	32	A

Based on the table above, it can be seen that students had more than one learning style. The dominant learning style based on the questionnaire was the auditory learning style. The following is a presentation of the student learning style questionnaire results in grade XI MIA 3 SMAN 23 Bone.

- a. Visual :  $\frac{12}{35} \times 100\% = 34,29\%$
- b. Auditory :  $\frac{14}{35} \times 100\% = 40\%$
- c. Kinesthetic :  $\frac{3}{35} \times 100\% = 8,57\%$
- d. Visual- Kinesthetic :  $\frac{2}{35} \times 100\% = 5,71\%$
- e. Auditory- Kinesthetic :  $\frac{1}{35} \times 100\% = 2,86\%$
- f. Visual-Auditory-Kinesthetic:  $\frac{3}{35} \times 100\% = 8,57\%$

From the data obtained from the questionnaire, the majority of students in class XI MIA 3 SMAN 23 Bone had an Auditory learning style with a presentation of 40% or 14 students, a visual learning style with a presentation of 34.29% or 12 students, and learning styles kinesthetic and visual-auditorial-kinesthetic with a presentation of 8.57% or 3 students each, visual-kinesthetic learning style with presentation of 5.71% or 2 students and auditorial-kinesthetic learning style with presentation of 2.86% or 1 student.

From the results above, students having two or more learning styles were interviewed to obtain more information about their learning styles in the categories of visual, auditory, and kinesthetic learning

styles. The results from the interviews are given in the following table:

**Table 2.** Participants' learning style preference

No.	Learners Initial	Learning Style (VAK)
3	ATF	A
4	ACM	A
25	R	V
26	RN	V
29	RMA	K
32	SU	V

Based on table 2, it was found that 3 students who had visual learning styles as the participants, so that the number of students in the visual learning style category was 15 students. In the auditory learning style category, the number of students increased to 16, and the kinesthetic type increased to 4. Based on these results, the student presentations in each learning style category are as follows:

- a. Visual :  $\frac{15}{35} \times 100\% = 42,86\%$
- b. Auditory :  $\frac{16}{35} \times 100\% = 45,71\%$
- c. Kinesthetic :  $\frac{4}{35} \times 100\% = 11,43\%$

The learning outcomes of the students from the exam scores are as follows:

**Table 3.** The exam scores of the student

No	Learners Initial	Learners Scores
1	DAA	77
2	ARR	78
3	ATF	71
4	ACM	75
5	MA	85
6	AR	74
7	DAN	88
8	FH	70
9	FA	69
10	HA	72
11	H	63
12	HU	74
13	HH	78
14	JN	80
15	MAZ	89
16	MTA	59
17	MAR	73

18	MI	75
19	MRH	74
20	MR	84
21	NF	71
22	N	64
23	P	73
24	PAR	82
25	R	62
26	RN	75
27	RE	79
28	REM	64
29	RMA	91
30	SZ	59
31	S	77
32	SU	83
33	SUR	74
34	SA	73
35	W	71
Average		74,457

### 3.1 Learners with Visual learning styles

**Table 4.** The exam scores of the student with visual learning style

No	Learners Initial	Learners Scores
1	DAA	77
2	DAN	88
3	H	63
4	HH	78
5	MAZ	89
6	MI	75
7	MRH	74
8	MR	84
9	N	64
10	PAR	82
11	R	62
12	RN	75
13	REM	64
14	S	77
15	SU	83
Average		75,67

Based on the table above, it can be seen that the learning outcomes of class XI MIA 3 SMAN 23 Bone students on visual learning styles were in the medium

and high categories. There were ten students in the medium category and five students in the high category. Based on the observations during the learning process, students in this category preferred to be silent when the teacher explained the learning material in front of the class, did not talk to friends, and often asked questions if something was not understood.

### 3.2 Learners with Auditorial learning styles

**Table 5.** The exam scores of the student with auditorial learning style

No	Learners Initial	Learners Scores
1	ARR	78
2	ATF	71
3	ACM	75
4	AR	74
5	FH	70
6	FA	69
7	HA	72
8	HU	74
9	JN	80
10	MAR	73
11	NF.	71
12	P	73
13	RE	79
14	SUR	74
15	SA	73
16	W	71
Average		73,56

Based on the table above, it can be seen that the learning outcomes of students in class XI MIA 3 SMAN 23 Bone on auditory learning styles were in the medium category. Based on the observations during the learning process, students in this category liked to listen to the explanations from the teacher or friends, but they did not seem to listen to the teacher explaining in front. When teachers asked questions or gave assignments, they could answer the questions or assignments even though not all of the answers were correct.

### 3.3 Learners with kinesthetic learning styles

**Table 6.** The exam scores of the student with visual learning style

No	Learners Initial	Learners Scores
1	MA	85
2	MTA	59
3	RMA	91
4	SZ	59
Average		73,50

Based on the table above, it can be seen that the student learning outcomes of class XI MIA 3 SMAN 23 Bone on kinesthetic learning styles are in the low and high categories. There are 2 students in each category. Based on the observations during the learning process, students in this category can't be silent talking to friends before and after the class. Students with a kinesthetic learning style cannot sit still for a few minutes, often ask the teacher questions, go to the toilet during a class, change seats, and play with whatever is around them.

## 4. DISCUSSION

Based on the study results, it is known that a student does not only have one learning style in himself. They can have two or even three learning styles. However, one of them is a dominant learning style compared to other learning styles. This is in accordance with what was expressed by Deporter & Hernacki [1], which revealed that every student has all three learning styles, but only one learning style usually dominates.

From these results, it can be seen that most of the learners in grade XII MIA 3 SMAN 23 Bone have auditory learning styles with 16 students. In addition, the number of students with visual learning styles and kinesthetic learning styles is 15 and 4, respectively. The learning outcomes of students who have visual learning styles in grade XI MIA 3 SMAN 23 Bone have a higher average score of 75.67 compared to the other two learning styles. The average value of students with auditory learning styles is 73.56, and the average value of kinesthetic learning styles is 73.5. It can be seen that the difference between the average difference in student learning outcomes in grade XI MIA 3 SMAN 23 Bone, which has Visual, Auditorial, and Kinesthetic learning styles, is not too far away.

High levels of energy of the kinesthetic learners can be empowered to reach the goal of learning [2]. Furthermore, teachers need to prepare materials on the same topic and conduct their lesson in various ways to ensure all the students with different learning styles are assisted [3]. Moreover, students' attitudes toward mathematics need to consider in teaching and learning as affected mathematics performance [4],[5].

Suggestions for Auditory learners are the learners need to expose to videos as [6] states that it seemed to be more exciting and engaging for students to follow the instruction accurately. While for kinesthetic learners, a study in a comfortable position might be helpful. Visual Learners can be involved within the class discussions and group activities.

## 5. CONCLUSION

The research results show that the students of class XI MIA 3 SMAN 23 Bone mostly have an auditory learning style with a total of 16 learners. In addition, it can be seen that there is not much difference between student learning outcomes where the average for Visual learning style is 75.67, the average for auditory learning style is 73.56. The average for Kinesthetic learning style is 73,5. The average learning outcomes obtained by students in grade XI MIA 3 SMAN 23 Bone is 74.457.

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