Relationships Between Students' Grade IX Natural Science Learning Outcomes and Naturalist, Linguistic, and Interpersonal Intelligence

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Abstract. Intelligence is one of the elements that affects how well students learn. In the field of education, intelligence is still primarily characterized in terms of IQ. Actually, there are more types of intelligence outside those that may be determined just by academic performance. Multiple Intelligences is the name given to this intelligence, which has nine degrees of intelligence (MI). The purpose of this study is to examine the connection between three bits of intelligence from nine bits of intelligence, specifically linguistic, interpersonal, and naturalist intelligence as regards to student learning results in science classes at class IX SMPN 22 Padang. In SMPN 22 Padang, this study is descriptive in nature. Simple random sampling is the sampling method. A MI questionnaire was employed as the study tool. With the use of the Pearson Product Moment correlation, the study's data were examined. The findings indicated a favorable correlation between naturalist, linguistic, and interpersonal intelligence and the learning outcomes for science in class IX at SMPN 22 Padang. Language intelligence predominates over other intelligences. Two bits of intelligence.

Keywords: Naturalist · Linguistic · Interpersonal · Learning Outcomes

1 Introduction

The idea of intelligence known as Multiple Intelligences (MI) was popularized by Dr. Howard Gardner, a psychologist and educator leader. According to Gardner [1] A person's IQ can now be determined by their habits toward two things rather than the outcomes of their performance on common psychological exams. The first is the tendency for someone to solve their own difficulties (problem-solving). The second is a person's propensity for inventing new things with cultural significance (creativity). How often, we as parents and teachers unknowingly kill the two sources of intelligence, namely creativity and problem-solving?

According to [2], there are several things that need to be considered in the multiple intelligences theory, namely: (1) everyone has all that intelligence, (2) many people can

Table 1. Average Biology Test Results for Class IX Students at SMPN Odd Semester Academic Year 2018/2019

Class	Number of Students	Average Value
IX 2	34	46.03
IX 3	33	45.07
IX 4	33	37.43
IX 5	34	36.18
IX 6	32	33.41
IX 7	32	42.21
IX 8	33	45.23

Source: Curriculum Representative at SMPN 22 Padang

develop their intelligence to the optimal level, (3) intelligence usually works together in unique ways, and (4) there are many ways to be smart. This is in accordance with [3] statement: it should be noted that although all of the intelligence exists in each individual, sometimes for certain people intelligence is more prominent than the other intelligence and this is what makes the difference in each individual. Therefore, teachers as educators need to use certain methods in the process of learning so that intelligence student body can develop optimally.

The Instead of being employed sequentially, intelligence can be used concurrently and in conjunction with one another. In order to maximize each student's intelligence potential, educators must pay close attention to each student's intellect. In general, there aren't any kids who are stupid; all people have all levels of intelligenceintelligence but, just a few bits of intelligence that stand out.

Knowing a student's MI level has many advantages for schools, teachers, and the students themselves.[4, 5], and [6] stated the benefits of MI for teachers are as follows: (1) The teacher has Special occasions and instructive techniques that might be gathered when creating lesson plans. (2) The instructor can track pupils' development and aid in their development. it. (3) The teacher can know the tendency of the student's intelligence so that it will create a pleasant learning atmosphere. For students themselves: can increase the level of confidence, besides that students can also measure the level of intelligence based on the potential of their MI which is continuously explored by the teacher, because the teacher acts as a motivator and facilitator.

Based on observations at SMPN 22 Padang, the Students' The results of learning have not yet met the school's minimum completeness standard, which is 80. This can be seen from the percentage of students who reached the Minimum Completeness Criteria in the Odd Semester Exams for the Table 1 shows the academic year 2018–19.

Based on an interview with Ms. Yuzerliza, S.Pd., on January 9, 2019 as a science teacher at SMPN 22 Padang, it is known that the teacher does not know and understand correctly what MI is and the teacher is difficult to determine the degree of MI in students. During the learning process, teachers often use learning media in the form of power points and assign students to note subject matter, However, some students do not do the

Table 2. The Class IX students' typical MI scores of SMPN 22 Padang

No.	Type of Intelligence	Average
1.	Linguistic Intelligence	2.80
2.	Naturalist Intelligence	2.91
3.	Interpersonal Intelligence	2.93

assignments and they are more focused on things that are outside of learning so that the learning outcomes of students under the Minimum Completeness Criteria.

This can be prevented if the teacher knows the MI level of students, because the teacher can know the A lesson plan's preparation and implementation during the teaching process can include special occasions and teaching techniques. Teachers can also assist pupils reach their full potential by keeping an eye on their progress. Such that learning outcomes are as anticipated and pupils gain more confidence. [7] states that students will more easily understand the lesson if the material is adjusted to the level of MI that stands out in students.

2 Research Method

Finding out how much MI pupils have is the goal of this descriptive study, especially the level of naturalist, linguistic, and interpersonal intelligence SMPN 22 Padang's class IX for the 2018–19 academic year. The participants in this study were Class IX at SMPN 22 Padang which consisted of 7 classes. Samples were taken using simple random sampling technique by drawing one of the classes in the population. Based on the draw, class IX 2 was obtained as a sample class with 34 students. Student MI levels were obtained using a modified MI questionnaire from [8] that was valid and correlated with using the Pearson product-moment correlation to measure learning outcomes.

3 Result and Discussion of the Research

3.1 Research Findings

3.1.1 Students' Multiple Intelligences

Table 2 details the distribution of students' average MI questionnaire scores.

3.1.2 Results of Student Learning

Learning outcomes are based on the value of Science Odd Semester Exams grade IX.2 2018/2019 Academic Year at SMPN 22 Padang with the highest value of 65, the lowest value of 27.5 and an average of 46.

3.1.3 Standard Test

The Liliefors test was used in this study to test for normalcy, with a significant level of 0.005 used.. Table 3 displays the results of the normality test.

Table 3. The Results of the Normality Test

Parameter	L_{count}	L_{table}	Explanation
Linguistic Intelligence	0.1210	0.1519	Normal
Naturalist Intelligence	0.1296		Normal
Interpersonal Intelligence	0.1422		Normal
Science Learning Outcomes	0.0128		Normal

Table 4. Multiple Intelligences and the Results of Science Learning

Correlation aspect		Correlation Coefficient	Correlation Criteria
Linguistic Intelligence	Science Learning Outcomes	0.67	Medium
Naturalist Intelligence		0.46	Medium
Interpersonal Intelligence		0.56	Medium

Table 5. Determinant Coefficient

Parameter		Determinant Coefficient (%)
Linguistic Intelligence	Science Learning Outcomes	45.13
Naturalist Intelligence		21.56
Interpersonal Intelligence		30.96

3.1.4 Correlation Analysis

The outcomes of the relationship analysis between MI and scientific education outcomes of The students are shown in Table 4.

3.1.5 Determinant Coefficient

The factors that influence learning outcomes and MI be seen in Table 5.
   Hypothesis test results as shown in Table. 6.

3.2 Discussion

[9] States that the knowledge of students MI helps to maximize student understanding so that teachers can optimize the dominant intelligence of students. Based on the results of the research that has been done, it is known that basically every child has their own dominance of intelligence. This dominance of intelligence will also affect them in

Tabel 6. The Recapitulation of t-test result

Parameter		t_{count}	t_{table}
Linguistic Intelligence	Science Learning Outcomes	5.13	2.04
Naturalist Intelligence		2.96	2.04
Interpersonal Intelligence		3.79	2.04

choosing majors at a higher level of education later. The research that has been conducted by [10] states that basically students have many bits of intelligence and each child has their own dominance of intelligence. This is also supported by the research of [11] that linguistic intelligence is the dominant intelligence in language majors students. However, other bits of intelligence still exist, although not as dominant as linguistic intelligence. [12] also conducted research on multiple Intelligences of Class X Students with Social Sciences and Languages with Biological Interests. The results of his research stated that even though the students were not from the science department, they still had naturalist intelligence, even though they were not dominant.

3.2.1 Relationship Between Linguistic Intelligence and Science Learning Outcomes

Based on the results of the questionnaire distribution, it is known that dominant linguistic intelligence is seen in 19 students and it has a medium correlation with science learning outcomes. Linguistic intelligence influences learning outcomes by 45.13% while the rest is influenced by other factors. The way teachers teach is almost the same, by assigning students to take notes from their presentations and occasionally use group discussion methods and lecture methods. The learning process that assigns students to take notes can hone students' linguistic intelligence, thus enabling them to have dominant linguistic intelligence. [13] stated that generally students who have linguistic intelligence learn more easily through hearing, reading material, writing and discussion or debate, but they have difficulty learning in a crowded atmosphere and many distractions from outside. This is in accordance with the statement of [6] that linguistic intelligence can be developed by stimulating students by reading, such as reading interesting science books.

3.2.2 The Relationship of Naturalist Intelligence with Learning Outcomes

Naturalist intelligence has a medium correlation with science learning outcomes. Naturalist intelligence influences learning outcomes by 21.56% while the rest is influenced by other factors. Some ways to optimize Students who learn outside or in direct contact with nature have naturalist intelligence. This is in line with studies [8] showing that pupils with naturalist intelligence prefer to study through extracurricular activities, outdoor excursions, and other non-traditional methods, physical activities, and being sensitive to the surrounding environment. [6] also agrees and states that the naturalist intelligence of students can be developed by often bringing students to learn directly to nature.

3.2.3   The Relationship of Interpersonal Intelligence with Learning Outcomes

Interpersonal intelligence has a medium correlation with science learning outcomes. Interpersonal intelligence influences learning outcomes by 30.96% while the rest is influenced by other factors. Based on observations, students enjoy learning when divided into groups, because they like to interact with their group members. This is in accordance with [14] that students with interpersonal intelligence prefer to interact with peers like to talk, enjoy working in groups, and have clear grammar. The learning process with the division of groups has been done by teachers on certain topics. [8] states that learning in groups can teach students to give and receive feedback and they can compare information between students.

4   Conclusion

Class IX students of SMPN 22 Padang have different MI levels. The dominant intelligence possessed by students is linguistic intelligence, therefore class IX students of SMPN 22 Padang who are research samples should be recommended to majors relating to linguistic intelligence.

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