



Analysis of Student Interpersonal Intelligence in Mathematics Learning: Case Study Junior High School State (SMP N) in Sukoharjo

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Abstract

Interpersonal intelligence is one of 8 Gardner's intelligences. This intelligence is the ability to assess and understand the needs of others, and act according to their ways of managing interactions with someone. The purpose of this qualitative descriptive study was to analyze the eighth graders' interpersonal intelligence in mathematics learning. Research subjects were 49 students from SMP N 2 Sukoharjo and SMP N 2 Baki. In this study, data were obtained through an interpersonal intelligence questionnaire based on three aspects namely social sensitivity, social insight and social communication skills. The results of this study revealed that in SMP N 2 Sukoharjo 31% had interpersonal intelligence in the "high" category, 38% had interpersonal intelligence in the "moderate" category, and 31% had interpersonal intelligence in the "low" category. Furthermore, in SMP N 2 Baki 26% had interpersonal intelligence in the "high" category, 39% had interpersonal intelligence in the "moderate" category, and 35% had interpersonal intelligence in the "low" category. Therefore, it can be concluded that the average interpersonal intelligence of eighth grade students of SMP N 2 Baki and SMP N 2 Sukoharjo in mathematics learning has almost equal intelligence. To improve students' interpersonal intelligence, teachers should update learning models that are more interactive so that students are accustomed to interacting with the teacher and their friends.

Keywords: *Interpersonal Intelligence; Intelligence; Geographical Location*

Introduction

The success of students in achieving a maximum learning process is closely related to several factors. Wati stated that the factors that influence the process of learning outcomes are divided into two categories, namely internal factors and external factors (Wati, 2010). These two factors influence each other in the individual process so as to determine the quality of mathematics learning outcomes. According to Siregar student success is influenced by two factors, namely learning models and multiple intelligences (Siregar, et al, 2019). Correspondingly, individual success is not only commissioned by knowledge and technical abilities but also carried out by skills consisting of intrapersonal intelligence and interpersonal intelligence (Dien & Wustqa, 2018). According to (Klaus, 2010), which revealed that 75% of long-term success in the workplace depends on the skills of people, while only 25% depends on

technical knowledge, so the skills of intelligent people with high levels of interpersonal intelligence (Contreras, 2013) (Amstrong, 2014) occupy a part the biggest of one's fertility.

Interpersonal and Intrapersonal are various types of Gardner intelligence. Pishghadam (Pishghadam, 2009) explains that interpersonal and intrapersonal intelligence and argues that the main difference between the two is that intrapersonal intelligence considers one's feelings and emotions, whereas interpersonal intelligence allows one to know the desires, feelings, and intentions of others. Gardner (Gardner, 2006) states that there are nine types of intelligence, namely verbal, logical, visual, kinesthetic, musical, intra-personal, interpersonal, naturalist, and x-tentialist. Gardner's theory (Gardner, 1999) about multiple intelligences assumes intelligence has special abilities or talents in one of these aspects. The theory of multiple intelligences shows a pluralistic view of the human mind that everyone has different cognitive potentials (Yerizon, et al, 2018). According to him, all individuals have this ability to a different extent, and they can develop it over time. He claims that applying this intelligence depends on personal preferences and also on certain situations (Mantzaris, 1999). Many of these types of intelligence are widely applied by students (Denevers, 2014). One of the skills needed in social life is the ability to socialize well (Safitri & Sriyamto, 2019). This ability is one part of interpersonal intelligence. Interpersonal intelligence refers to the ability of individuals to communicate cooperatively in groups, whether verbal or non-verbal. In addition, people who have effective interpersonal intelligence tend to be sensitive to the feelings and emotions of others around them (Macnamara & Rupani, 2017).

Interpersonal intelligence (Azwar, 1996) is the ability used in communication, the ability to understand and interact with others. Theory put forward by May Lwin et.al. (Lwin, et al, 2008) that interpersonal intelligence is the ability to understand and predict feelings, temperaments, moods, intentions and desires of others and respond appropriately. This explanation is also reinforced by Chatib (Chatib, 2012) who explains that interpersonal intelligence is the ability to understand and interact effectively with others. According to (Gardner, 2006) interpersonal intelligence is defined as a skill to increase the will, motivation, and intentions of others. Interpersonal intelligence depends on social intelligence and one's skills in creating relationships, building relationships and maintaining social relationships so that both parties are in a situation of mutual understanding or mutual benefit (Safaria, 2005).

Interpersonal intelligence is very important in everyday life. It is important to connect with family members at home, with classmates and teachers at school, and with others in one's career (Mohabashshernia & Aghazadeh, 2018). Individuals who have good interpersonal intelligence will later have the capacity to manage relationships with others with the main activity of communicating, working together, and undergoing social relationships with others. This is reinforced by Schmidt's theory that children with this intelligence are usually good at getting along and have many friends (Safitri & Sriyamto, 2019). It takes the ability to get along with others and communicate effectively with them, inside and outside of school. Interpersonal intelligence is a life skill, and many educators specifically teach this skill to their students (Mohabashshernia & Aghazadeh, 2018). In the classroom, the teacher can increase students' interpersonal intelligence through problem-based learning (Mohabashshernia & Aghazadeh, 2018). Helping students to develop interpersonal intelligence can occur through the use of games, debates, small and whole class discussions, or, videos with small groups. In my opinion (Yaumi, 2013) To be able to develop and build interpersonal intelligence possessed by students, various appropriate learning activities can be seen as follows: 1) Jigsaw, 2) teaching peers, 3) teamwork, 4) identifying group and team work, 5) type of cooperation, 6) group discussion, 7) empathy practice, 8) giving feedback, 9) simulations, 10) making and conducting interviews, 11) making and doing, 12) guessing other people's characters. These are just a few ways to incorporate other elements of interpersonal intelligence in the classroom.

In the student's perspective, independent students will adjust their goals and choices in response to changes in interpersonal conditions (Sungur & Tekkaya, 2006). In the process of learning mathematics is not just counting with mathematical formulas or the use of logic, but more than that. Not all material in mathematics can be solved by individuals personally, sometimes we need other people to explain related material. One of them is our teacher or friend.

Students with high interpersonal intelligence will easily socialize with friends, so they can solve any problem by collecting lots of ideas (Kuncorowati, 2017). A student with high interpersonal intelligence enjoys cooperative activities; he has interpersonal interactions; he likes to teach peers; he attended extracurricular activities; he attended group brainstorming sessions, and considered social gatherings as a context for language learning (Behjat, 2012).

But many students have not optimized their interpersonal intelligence. This can be seen by the large number of students who are still embarrassed to ask the teacher or to their friends when they do not know or do not understand the mathematics lesson delivered by the teacher. They prefer silence and when asked by teachers already understand or not students will often answer already understand because they are embarrassed to ask. There are still many more signs of a lack of interpersonal intelligence in students that is when meeting with teachers or other friends are afraid to say hello, never want to be invited to study groups by friends, indifferent to friends who are in distress, lack of empathy and sympathy towards friends and others etc. relating to social relationships with others. Therefore, interpersonal intelligence is very helpful for children to adjust and form social relationships. Vice versa, without interpersonal intelligence students will have difficulty in establishing relationships with others. As said by (Safaria, 2005) that "interpersonal intelligence becomes important because basically humans cannot live alone". Humans basically in any activity is required to relate to other people.

Research Method

The subjects of the study were 26 students of SMP N 2 Sukoharjo and 23 students of SMP N 2 Baki with an age range of 13 to 15 years. Students are chosen by purpose sampling. This research is a qualitative descriptive method that aims to analyze the eighth graders' interpersonal intelligence in mathematics learning, based on aspects of social sensitivity, social insight and social communication skills. Data were collected from participants with a questionnaire, then they were asked to show responses on the five-point Likert scale as follows: never, rarely, sometimes, often, and always. The criteria for evaluating the questionnaire refer to Table 1.

Table 1. Assessment Criteria Interpersonal Intelligence Questionnaire

Type of Statement	Response Score				
	Never	Rarely	Sometimes	Often	Always
Positive Statement	1	2	3	4	5
Negative Statement	5	4	3	2	1

Questionnaire data analysis was performed by calculating questionnaire scores, determining measurement results categories, and classifying students into several categories (Dien & Wustqa, 2018). Table 2 is used to determine the categories of students' interpersonal intelligence.

Table 2. Measurement Scale of Student Interpersonal Intelligence Categories

No	Score Interval	Category
1.	$X > M_i + 0.5 S_i$	High
2.	$M_i - 0.5 S_i \leq X \leq M_i + 0.5 S_i$	Moderate
3.	$X < M_i - 0.5 S_i$	Low

Labels:

X : Interpersonal intelligence scores of students in each respondent

M_i : average score

S_i : standard deviation

Result and Discussion

According to the calculation results, the average score of eighth grade interpersonal intelligence indicators based on each aspect, namely social sensitivity, social insight and social communication skills is presented from Table 3 to Table 5.

Table 3. Average Indicators of Student Interpersonal Intelligence Based on Aspects of Social Sensitivity

Indicator aspects of social sensitivity	Indicator average	
	SMP N 2 Sukoharjo	SMP N 2 Baki
Having sensitivity to the thoughts, feelings and intentions of others	3.7	3.7
Able to show empathy attitude	3.5	3.38

From Table 3 it can be seen that indicators of social sensitivity aspects for each school have higher average scores in the indicators of sensitivity to the thoughts, feelings and intentions of others than are able to show empathy. In SMP N 2 Sukoharjo and SMP N 2 Baki for indicators have sensitivity to the thoughts, feelings and intentions of others in the aspect of social sensitivity have the same average value of 3.7, which indicates that students have feelings that are quite sensitive to the conditions faced by her friend. For example, students can feel the sadness of their friends when they do not pass the exam and do not show the results of higher exam scores.

The indicator is able to show empathy attitude, SMP N 2 Sukoharjo has an average value of 3.7 and for SMP N 2 Baki school has an average score of 3.38, which shows that students can share how their friends feel. For example, when a friend experiences difficulties in understanding mathematical material, students who already understand tend to help other friends who are still experiencing difficulties in understanding mathematical material. From Table 3 it can be seen that all indicators in the aspect of social sensitivity, SMP N 2 Sukoharjo have an average value that is higher than SMP N 2 Baki.

Table 4. Average Indicators of Interpersonal Intelligence of Students Based on Aspects of Social Insight

Indicator aspects of social insight	Indicator average	
	SMP N 2 Sukoharjo	SMP N 2 Baki
Able to do social interaction	3.8	3.49
Able to work together	4.5	4.06
Able to participate in groups	3.9	3.68
Able to solve problems effectively	3.8	3.47

From Table 4 it can be seen that the indicators of being able to work together have the highest average for both schools, 4.5 and 4.06, this indicates that most students are able to work well together in a discussion group. Then for indicators of social interaction, N Sukoharjo Junior High School got a pretty good average of 3.8 and Naki Baki Middle School got an average of 3.49, which showed that students were already good in interacting with friends and teachers at school. For example, students are easy to adapt to new friends, new teachers, or new classroom environments, students also do not look at social status and family background in choosing friends, students are also careful in speaking so as not to hurt the feelings of the interlocutors.

Indicators able to participate in groups, SMP N 2 Sukoharjo get an average value of 3.9 and SMP N 2 Baki get an average of 3.68. In this case when students in a group will actively discuss with friends in the group, take part in solving problems in group assignments, and focus and be active when discussing with the group. Furthermore, the indicators were able to solve problems effectively, for the SMN 2 Sukoharjo schools getting an average of 3.8 while the SMP N 2 Baki had an average of 3.47. In this case students can work on the questions given by their teacher quickly and precisely, then want to listen to the explanation of a friend whose method of solving the problem is different from himself, and try to give an explanation that is easily accepted when there is a friend who uses the formula incorrectly in a solution. From Table 4 it can be seen that all indicators in the aspect of social insight, SMP N 2 Sukoharjo have an average value that is higher than SMP N 2 Baki.

Table 5. Average Indicators of Student Interpersonal Intelligence Based on Aspects of Social Communication Skills

Indicator aspects of social communication	Indicator average	
	SMP N 2 Sukoharjo	SMP N 2 Baki
Able to listen effectively	3.75	3.71
The skill of talking with others	3.5	3.09

From Table 5 it can be seen that the indicator is able to listen effectively the highest in the aspect of social communication, for SMP N 2 Sukoharjo getting an average of 3.75 and SMP N 2 Baki getting an average of 3.71, it shows that students listen when someone speaks. For example, students do not chat or do anything else when the teacher gives an explanation and does not ignore it. Students are also able to understand well the explanations conveyed by their friends in a group discussion.

Indicator of speaking skills with others SMP N 2 Sukoharjo get an average of 3.5 which indicates that students have good conversational skills with others. Furthermore, for SMP N 2 Baki, they received an average of 3.09, which indicates that students still lack the skills to talk with others. For example, students speak in a language that is unclear so that makes the teacher / other friends do not understand, students are not polite so that hurt the other person. Students may also still have difficulty expressing their thoughts when asked by the teacher, or difficulty arguing when discussing / presenting in class. From

Table 5 it can be seen that all indicators in the aspect of social communication, SMP N 2 Sukoharjo have an average value that is higher than SMP N 2 Baki.

Furthermore, the results of research showing the frequency and percentage of students' interpersonal intelligence will be shown in Table 6 and Table 7 below.

Table 6. Categories of Interpersonal Intelligence of Students at SMP N 2 Sukoharjo

No	Score interval	Category	Frequency	Percentage
1	$X > 120.01$	High	8	31 %
2	$107.99 \leq X \leq 120.01$	Moderate	10	38 %
3	$X < 107.99$	Low	8	31 %

From Table 6 shows that the results of interpersonal intelligence of 26 students of SMP N 2 Sukoharjo, as many as 8 students were categorized high with a percentage of 31%, as many as 10 students with a percentage of 38% included in the moderate category, and for the low category with a percentage of 31% as many as 8 students.

Table 7. Categories of Interpersonal Intelligence of Students at SMP N 2 Baki

No	Score interval	Category	Frequency	Percentage
1	$X > 113.3$	High	6	26 %
2	$100.2 \leq X \leq 113.3$	Moderate	9	39 %
3	$X < 100.2$	Low	8	35 %

From Table 7 shows that the results of interpersonal intelligence of 23 students, as many as 6 students are categorized high with a percentage of 26%, as many as 9 students with a percentage of 39% included in the moderate category, and for the low category with a percentage of 35% as many as 8 students.

According to the explanation above, Table 3 to Table 5 shows that the indicators on all aspects of interpersonal intelligence, students in SMP N 2 Sukoharjo school have an average value that is higher than the average value of SMP N 2 Baki students. Furthermore, from Table 6 and Table 7 it can be seen that both schools have an almost flat interpersonal intelligence category in each school, none of which stands out in any of the categories. But for the high category, SMP N 2 Sukoharjo which has a percentage of 31% is higher than the 2 Baki SMP which has a percentage of 26%. Furthermore, for the lower category, SMP N 2 Baki which has a percentage of 35% is higher than SMP N 2 Sukoharjo which has a percentage of 31%.

From the above results it can be concluded that the students of SMP N 2 Sukoharjo are superior to their interpersonal intelligence than the students of SMP N 2 Baki. SMP N 2 Sukoharjo is located in an urban area close to Sukoharjo district itself, the area is close to the Sukoharjo square, and government agencies. Furthermore, for SMP N 2 Baki, it is located in the countryside, which is only in rice fields. In this case the geographical location of the school is one of the factors in influencing students' interpersonal intelligence. Geographical location there are differences in terms of teachers, support facilities and the influence of the surrounding environment which consequently affects the quality of school (Hidayat, 2014).

Conclusion

Based on the results and discussion, it can be concluded that the average interpersonal intelligence grade 8 junior high school students in Sukoharjo have a nearly flat category of interpersonal intelligence, none of which stand out in any of the categories. Of the three aspects of interpersonal intelligence, the highest average is in the aspect of social insight with indicators of being able to work together. However, of the two schools used as research sites, schools with a higher geographical location in urban areas have higher grades than schools in rural areas, in terms of students' interpersonal intelligence categories and in every aspect of their interpersonal intelligence. The results and findings of this study may be useful in providing insight to teachers, education practitioners, and researchers in the field of mathematics education. The implication of this study is that teachers should update learning models that are more interactive so that students are accustomed to interacting with the teacher and their friends.

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