

Emotional Intelligence of Secondary Students Based On Mathematical Resilience And Domicile

Ayu Faradillah¹, Silvi Wulandari²

¹ Pendidikan Matematika, Universitas Muhammadiyah Prof.DR.Hamka

Email: ayufaradillah@uhamka.ac.id

² Pendidikan Matematika, Universitas Muhammadiyah Prof.DR.Hamka

Email: silvi.wulandari99@gmail.com

(Received: 23-03-2021; Reviewed: 5-04-2021; Revised: 29-05-2021; Accepted: 8-05-2021; Published: 1-07-2021)



©2021–Daya matematis: Jurnal inovasi pendidikan matematika. This article open acces by licenci CC BY-NC-4.0 (<https://creativecommons.org/licenses/by-nc/4.0/>)

Abstract

This study is a study of students' emotional intelligence based on mathematical resilience and domicile. The method used in this research is descriptive qualitative. The total population in this study was 814 students in 12 junior and senior high schools spread across three different provinces, namely DKI Jakarta, Banten and West Java. In this study the subjects were selected based on the MR questionnaire, namely high, medium and low. Subjects selected based on MR category were selected based on their domicile and then the subject was given the second research instrument, namely emotional intelligence. The results showed that there was an influence between MR and emotional intelligence, namely SD subjects who had high MR also had high emotional intelligence, SB subjects who had moderate MR also had moderate emotional intelligence, and SJ subjects who had low MR also have low emotional intelligence. However, there is something interesting about the subject even though they have low MR and emotional intelligence on one of the indicators of SJ, they actually have a high enough motivation to learn, it makes unpleasant experiences as an enthusiasm for learning. Research results can vary or differ from one another based on research instrument used by researchers

Keywords: mathematical resilience, emosional intelligence.

INTRODUCTION

Mathematics is a subject that is considered difficult by most students. Therefore, in mathematics lessons, Mathematical Resilience (MR) is needed by students. The low desire of students to learn mathematics is due to the lack of student interest in mathematics (Widyastuti et al., 2018). MR is the ability of students to face challenges, difficulties and obstacles in learning mathematics (Kookan et al., 2015). It is expected that each student has a good MR so that in facing every problem when learning mathematics the student can face it well because, students who have a low MR believe mathematics is a subject that is very difficult to understand so that in the learning process these students experience many failures (Joy, 2019; Muntazhimah & Ulfah, 2020).

The formal and informal environment in interpretation can influence students' MR (Johnston-Wilder & Brindley, 2015). Pessimism, low self-efficacy and negative thinking about mathematics are also factors that affect students' low MR (Lee & Johnston-Wilder, 2017). Based on some of these studies, one of the low MR factors is the low self-esteem of students and the fear of being wrong in learning mathematics so that it indicates a relationship with students' emotions.

In the process of achieving academic potential, students need to develop strong emotional or mental strength. Joy said that failure in mathematics is influenced by the mentality of teachers and students, student mentality is related to emotional intelligence (Joy, 2019). In developing mentally, students do not only need encouragement academically but also non-academically to be skilled socially and

emotionally (Montgomery et al., 2018). A person's success can be influenced by the environment, because a good environment for a person can grow and develop well too (Hadi & Faradillah, 2019). One of the factors that hinder a person's life success and reach their academic potential is fear and negative emotional responses. Emotional intelligence is a person's ability to control emotions in themselves and others (Preeti, 2013; Zeidner & Matthews, 2017). The issue in society says that someone with high emotional intelligence in mathematics is considered intelligent. However, if intellectual intelligence is not accompanied by emotional intelligence, the learning objectives will not be achieved (Firdaus Daud, 2012).

There are several research focuses of interest to researchers. First, Gusniwati's research on emotional intelligence and interest in learning. Second, Mutmainah's research on emotional intelligence on mathematical thinking skills. Third, Hendikawati's research on the factors that affect the grade point average (GPA) of students. The fourth is Sukriadi's research on emotional intelligence on learning outcomes.

Based on the results of these studies, Mutmainah's research states that the level of a person's emotional intelligence affects the ability to think mathematically (Mutmainah & Rosyidah, 2017). In addition, the results of other studies also reveal that emotional intelligence can affect mastery of mathematical concepts, affect GPA, and student learning outcomes (Gusniwati, 2015; Hendikawati, 2011; Sukriadi et al., 2016). Based on these four studies, there is a gap in the related research above, namely how students' emotional intelligence is based on mathematical resilience and domicile. Therefore, the update of this research lies in the emotional intelligence of students based on math resilience and domicile. The purpose of this study was to analyze and define students' emotional intelligence based on math resilience and domicile.

METHODS

In this study, researchers used a qualitative descriptive method. Qualitative descriptive is a research method that results in the form of a narrative from the researcher (Creswell, 2012). Selection of subjects in this study using the MR questionnaire where there are three categories, namely high, medium, and low. The MR instrument was validated by three validators, namely two lecturers and one teacher, of the three validators stated that the MR questionnaire was feasible to use with language improvement so that it could be more easily understood by students. In addition, the MR questionnaire was used by researchers to also select subjects based on their domicile. The population in this study were 814 students from 12 schools in three different provinces, namely Banten, DKI Jakarta and West Java. So that the selected subjects were as follows:

Table 1. The Research Subjects Based on MR

No	Category	Domicile	Code
1	High	DKI Jakarta	SD
2	Medium	Banten	SB
3	Low	Jawa Barat	SJ

From the total population in this study, the researcher chose subjects randomly from each category based on their domicile. That is, in the high category the researcher chose the subject from the domicile of Banten with the SB code, in the medium category the researcher chose the subject from the domicile of DKI Jakarta with the SD code and for the low category the researcher chose the subject from the domicile of West Java with the SJ code.

RESULTS AND DISCUSSION

Subjects that have been selected by the researcher based on MR and domicile categories are then given the second instrument, namely emotional intelligence. The emotional intelligence instrument contains 20 statements from five indicators which include Intrapersonal Skills, Interpersonal Skills, Stress Scale,

Adaptability Scale and Positive Impression Scale. The following table of indicators of emotional intelligence:

Table 2. Indicator of Emosional Intelligence

No	Indicators Emosional Intelligence	Statement Number	Item	Total
1	Intrapersonal Skills	1, 2, 3, 4		4
2	Interpersonal Skills	5, 6, 7, 8		4
3	Stress Scale	9, 10, 11, 12		4
4	Adaptability Scale	13, 14, 15,16		4
5	Positive Impression Scale	17,18,19,20		4

(Dacillo, 2018)

To strengthen the results of the analysis of the subject, the researcher conducted an interview. The interview used was an unstructured interview, because in the interview process the research subject did not use the interview guidelines that had been prepared beforehand, but the questions the researcher asked were only an outline of the problems to be asked. The following is an explanation of the results of the researchers' interviews with each subject based on the Emotional Intelligence indicator :

The results of the presentation of the SD interview with high MR categories domiciled in Banten on each indicator of emotional intelligence :

In the Intrapersonal Skills indicator there are four statements, the following interview excerpt is based on the statement When I have difficulty learning mathematics I easily ask others the following:

Researchers : If you have trouble learning math what do you do?

SD : I will motivate myself to be even more active in studying

Based on the results of the interview, when experiencing difficulties, elementary school chose to be more motivated to study harder. Students with high emotional intelligence tend to have high learning motivation too (Montgomery et al., 2018). Furthermore, in the Interpersonal Skills indicator there are four statements, the following interview excerpt is based on the statement I can understand mathematics easily as follows:

Researchers : do you think math is difficult?

SD : I find it difficult to learn math when I can't follow the teacher's method when teaching in class

Based on the results of the interview, SD had difficulty learning mathematics with the method the teacher gave when teaching in class. This is in accordance with previous research which states that the teacher's method when teaching in class also affects students' interest in learning (Purnama, 2016). Furthermore, on the Stress Scale indicator there are four statements, the following interview excerpt is based on the statement I find it difficult to control anger when my math score decreases as follows:

Researcher : If, for example, your math exam scores do not match your expectations, how would you feel?

SD : I will feel disappointed but from there it makes me more enthusiastic to study harder so that my exam scores will be better.

Based on the results of the interview, SD was able to manage their emotions even though their test scores were not as expected. This means that SD is able to manage their emotions well (S, 2015). Furthermore, on the Adaptability Scale indicator there are four statements, the following interview excerpt is based on the statement I try to persistently work on math problems until I get the following answers:

Researchers : what do you do if you are given a difficult math problem?

SD : I will work on it until I get the answer that I think is correct

Based on the results of the interview, SD tried harder in working on the questions even though the questions were difficult. It seems that SD has a high interest in learning so it tries harder to face obstacles (Purnama, 2016; S, 2015). Furthermore, on the Positive Impression Scale indicator there are four statements, the following interview excerpt is based on the statement I have positive ideas when studying mathematics as follows:

Researchers : why do you think we should study mathematics?

SD : because mathematics is very important and applied in everyday life

Based on the results of the interview, SD considers mathematics to be very important because it is applied in everyday life (Dacillo, 2018).

The results of the presentation of the SB interview with high MR categories domiciled in Banten on each indicator of emotional intelligence :

In the Intrapersonal Skills indicator there are four statements, the following interview excerpt is based on the statement When I have difficulty learning mathematics I easily ask others the following:

Researchers : If you have trouble learning math what do you do?

SB : I will relearn it

Based on the results of interviews when experiencing difficulties, SB chose to study it again. Students with good emotional intelligence tend to have good motivation to learn too (Gusniwati, 2015). Furthermore, in the Interpersonal Skills indicator there are four statements, the following interview excerpt is based on the statement I can understand mathematics easily as follows:

Researchers : do you think math is difficult?

SB : I think math is difficult in certain materials

Based on the results of the interview, SB had difficulty learning mathematics only on certain materials, this meant that SB had a fairly good interest in learning mathematics. Furthermore, on the Stress Scale indicator there are four statements, the following interview excerpt is based on the statement I find it difficult to control anger when my math score decreases as follows:

Researcher : If, for example, your math exam scores do not match your expectations, how would you feel?

SB : no problem, because I tried

Based on the results of the interview, SB does not matter. When he gets a value that is not as expected, SB tends to give up without action. because students who have emotional intelligence have moderate academic motivation (Montgomery et al., 2018). Furthermore, on the Adaptability Scale indicator there are four statements, the following interview excerpt is based on the statement I try to persistently work on math problems until I get the following answers:

Researchers : what do you do if you are given a difficult math problem?

SB : I will do my best

Based on the results of the interview, SB was only trying his best. It seems that SB has the ability to face difficulties (Mutmainah & Rosyidah, 2017). Furthermore, on the Positive Impression Scale indicator there are four statements, the following interview excerpt is based on the statement I have positive ideas when studying mathematics as follows:

Researchers : why do you think we should study mathematics?

SB : because math is useful for all subjects.

Based on the results of the interview, SB considered mathematics to be useful because it was applied in the life of every subject.

The results of the presentation of the SJ interview with high MR categories domiciled in Jawa Barat on each indicator of emotional intelligence :

In the Intrapersonal Skills indicator there are four statements, the following interview excerpt is based on the statement When I have difficulty learning mathematics I easily ask others the following:

Researchers : If you have trouble learning math what do you do?

SJ : I will ask a friend

Based on the results of the interview when having difficulties, SJ prefers to ask friends. This is because SJ is not able to solve problems alone (S, 2015). Furthermore, in the Interpersonal Skills indicator there are four statements, the following interview excerpt is based on the statement I can understand mathematics easily as follows:

Researchers : do you think math is difficult?

SJ : I find it difficult to learn math in the calculation process

Based on the results of the interview, SJ has difficulty learning mathematics in the calculation process, this means that SJ has low mathematical ability (Mutmainah & Rosyidah, 2017). Based on the results of the interview, SJ has difficulty learning mathematics in the calculation process, this means that SJ has low mathematical ability

Researcher : If, for example, your math exam scores do not match your expectations, how would you feel?

SJ : no problem, I made that value my reference to be more enthusiastic about learning
Based on the results of the interview, SJ does not matter when you get a value that is not as expected, but SJ makes it a reference to be more enthusiastic in learning. This means that even though SJ has low emotional intelligence, he has a high enough motivation to learn. Furthermore, on the Adaptability Scale indicator there are four statements, the following interview excerpt is based on the statement I try to persistently work on math problems until I get the following answers:

Researchers : what do you do if you are given a difficult math problem?

SJ : I will try according to my ability

Based on the results of the interview, SJ was only trying his best. It seems that SJ has the same ability as SB, which is facing difficulties (Mutmainah & Rosyidah, 2017). Furthermore, on the Positive Impression Scale indicator there are four statements, the following interview excerpt is based on the statement I have positive ideas when studying mathematics as follows:

Researchers : why do you think we should study mathematics?

SJ : because mathematics is useful for training in counting in everyday life.

Based on the results of the interview, SJ considers mathematics to be useful because it trains him to count in everyday life (Dacillo, 2018).

CONCLUSIONS AND SUGGESTIONS

From the results of the analysis, each subject appears according to the MR category, namely SD subjects with high MR have high emotional intelligence, SB who has moderate MR also has moderate emotional intelligence and SJ who has low MR has low emotional intelligence too. However, there is something interesting about SJ, because on the stress scale indicator SJ, which has a low MR, actually has a high enough motivation to learn, it makes unpleasant experiences as an enthusiasm for further learning. This means that a person's emotional intelligence cannot be measured depending on domicile alone, because to measure emotional intelligence can be through other aspects, for example based on age or education level. And it is necessary to know the results of research can change or differ from one another based on the research instrument used by the researcher. Emotional intelligence is not an innate trait, so everyone needs to train to be emotionally intelligent. Because if someone is emotionally trained in solving a problem, they can manage their emotions well.

REFERENCES

- Creswell. (2012). *Education Research : Planning, Conducting, Evaluating Quantitative, and Qualitative Research*.
- Dacillo, L. V. (2018). Emotional Intelligence and Academic Achievements of Elementary Pupils in Mathematics of Batangas State University ARASOF Nasugbu, Batangas: Input to a Proposed Development Plan. *KnE Social Sciences*, 3(6), 862. <https://doi.org/10.18502/kss.v3i6.2425>
- Firdaus Daud. (2012). Pengaruh Kecerdasan Emosional (EQ) Dan Motivasi Belajar Terhadap Hasil Belajar Biologi Siswa SMA 3 Negeri Kota Palopo. *Jurnal Pendidikan Dan Pengajaran*, 19(2), 243–255. <http://journal.um.ac.id/index.php/pendidikan-dan-pembelajaran/article/view/3475/626>
- Gusniwati, M. (2015). Pengaruh Kecerdasan Emosional dan Minat Belajar. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 5(1), 26–41.
- Hadi, W., & Faradillah, A. (2019). The Algebraic Thinking Process in Solving Hots Questions Reviewed from Student Achievement Motivation. *Al-Jabar : Jurnal Pendidikan Matematika*, 10(2), 327–337. <https://doi.org/10.24042/ajpm.v10i2.5331>
- Hendikawati, P. (2011). Analisis Faktor yang Mempengaruhi Indeks Prestasi Mahasiswa. *Kreano: Jurnal Matematika Kreatif-Inovatif*, 2(1), 27–35. <https://doi.org/10.15294/kreano.v2i1.1243>
- Johnston-Wilder, S., & Brindley, J. (2015). Developing Mathematical Resilience In School-Students Who Have Experienced Repeated Failure Developing Mathematical Resilience View project Game-based learning View project. April 2017. <https://www.researchgate.net/publication/315741077>
- Joy, U. C. (2019). Achievement Motivation And Emotional Intelligence As Predictors Of Mathematical

- Resilience Among Secondary School Students. *Advances in Social Sciences Research Journal*, 6(5), 191–200. <https://doi.org/10.14738/assrj.65.6385>
- Kooken, J., Welsh, M. E., McCoach, D. B., Johnston-Wilder, S., & Lee, C. (2015). Development and Validation of the Mathematical Resilience Scale. *Measurement and Evaluation in Counseling and Development*, 49(3), 217–242. <https://doi.org/10.1177/0748175615596782>
- Lee, C., & Johnston-Wilder, S. (2017). The Construct of Mathematical Resilience. In *Understanding Emotions in Mathematical Thinking and Learning*. Elsevier Inc. <https://doi.org/10.1016/B978-0-12-802218-4.00010-8>
- Montgomery, J., McCrinmon, A., Climie, E., & Ward, M. (2018). Emotional Intelligence in Atypical Populations : Research and School-Based Interventions. <https://doi.org/10.1007/978-3-319-90633-1>
- Muntazhimah, M., & Ulfah, S. (2020). Mathematics resilience of pre-service mathematics teacher. *International Journal of Scientific and Technology Research*, 9(1), 1442–1445.
- Mutmainah, S., & Rosyidah, U. (2017). Analisis Kemampuan Berpikir Matematis Tingkat Tinggi Ditinjau dari Kecerdasan Emosional. *JTAM | Jurnal Teori Dan Aplikasi Matematika*, 1(1), 70. <https://doi.org/10.31764/jtam.v1i1.385>
- Preeti, B. (2013). Role of Emotional Intelligence for Academic Achievement for Students. *Research Journal of Educational Sciences*, 1(2), 2321–2508.
- Purnama, I. M. (2016). Pengaruh Kecerdasan Emosional dan Minat Belajar Terhadap Prestasi Belajar Matematika di SMAN Jakarta Selatan. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 6(3), 233–245. <https://doi.org/10.30998/formatif.v6i3.995>
- S, S. U. (2015). Hasil belajar matematika siswa ditinjau dari interaksi tes formatif uraian dan kecerdasan emosional. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 3(2), 78–96. <http://journal.lppmunindra.ac.id/index.php/Formatif/article/view/115/112>
- Sukriadi, S., Basir, A., & Rusdiana, R. (2016). Pengaruh Kecerdasan Emosional Terhadap Hasil Belajar Matematika Siswa Pada Materi Sudut Dan Garis Di Kelas VII MTs Normal Islam Samarinda. *JPMI (Jurnal Pendidikan Matematika Indonesia)*, 1(2), 65. <https://doi.org/10.26737/jpmi.v1i2.85>
- Widyastuti, W., Wijaya, A. P., Rumite, W., & Marpaung, R. R. T. (2018). Minat Siswa Terhadap Matematika Dan Hubungannya Dengan Metode Pembelajaran Dan Efikasi Diri. *Jurnal Pendidikan Matematika*, 13(1), 83–100. <https://doi.org/10.22342/jpm.13.1.6750.83-100>
- Zeidner, M., & Matthews, G. (2017). Emotional intelligence in gifted students. <https://doi.org/10.1177/0261429417708879>