



**ANALYSIS OF STUDENT LEARNING OUTCOMES OF
GRADE X SMK ON THE EXPONENTIAL MATERIAL
BASED ON EMOTIONAL INTELLIGENCE**

Nur Rabiatul Adawiyah, Yenita Roza, Maimunah

Mathematics Education Postgraduate, University of Riau

Email: nurrabiatul2504@gmail.com

DOI: 10.26418/jpmipa.v12i1.43178

Abstract

The level of emotional intelligence in students is different, and the learning outcomes obtained from the material are also different. This study was aimed to describe SMK Negeri 1 Mandau students' learning outcomes on the exponential material based on emotional intelligence. The analysis technique used was descriptive qualitative. The subjects analyzed in this study were class X APPS, with 34 students. The data collection's instruments used were questions in the form of essays related to the exponential material and emotional intelligence questionnaires. The study results were obtained from the questionnaires to show the three types of emotional intelligence categories in students; low, medium, and high categories. In varied learning outcomes, some students had a high level of emotional intelligence with satisfactory learning outcomes; some students with moderate emotional intelligence also had satisfactory learning outcomes; other students with moderate emotional intelligence acquired unsatisfactory learning outcomes.

Keywords: Emotional Intelligence, Learning Outcomes, Exponent..

INTRODUCTION

In formal education, learning will produce a positive change. The final stage of learning is to produce skills, talents, and new knowledge. These results will be expressed in learning achievement. Education emphasizes the learners as human beings who can learn and grow, where students must be active in the search and development of knowledge. In the process of development,

it requires stages of learning tools.

Learning always involves changes in individuals, such as maturity of thought and behavior or maturity in determining decisions and choices (Mutakin & Teti, 2011). Other opinions about learning stated that learning is a series of activities of the body and soul to generate a good attitude change due to the individual experience in the interaction



Received : 14/11/2020

Revised : 16/11/2020

Accepted : 20/11/2020

of environment-related to cognitive, affective, and psychomotor. (Djamarah & Syaiful, 2011). Furthermore, the learning outcome is a final achievement of experience and process repeatedly done and restored in a long time to change the way of thinking and generate the right attitude (Games, 2012).

One of the implementations in which learners' success is gained from the study experience becomes a criterion or probe to achieve a learning objective in education (Sukrorini, 2014). Students are considered with a good learning outcome if they can think and behave appropriately, including providing the right attitude.

From the theory presented, it can be concluded that the learning outcomes are the results obtained from a series of performed activities and involve changes in either behavior or mindset of a person, which concerns the cognitive, affective, and psychomotor.

The learning process in school is complex and thorough. Many people stated that to reach the highest achievement in learning, a person must have a high Intelligence Quotient (IQ) because intelligence is the provision of potential, facilitating learning and eventually resulting in optimal learning achievement.

However, it is not easy to achieve those good results. Many things can affect the results of the study, such as intelligence. Intelligence is a fundamental element owned by learners; yet, the difference is the level of system amongst them.

Intelligence is the psychological ability to present some responses or the self-adjustment ability against the environment properly. Intelligence has three groups: emotional intelligence, intellectual intelligence, and spiritual intelligence. According to Goleman (2015), it is only a 20% contribution to

intellectual intelligence (IQ) in determining the student learning outcomes. The rest is donated by other factors, such as emotional intelligence. It is inevitable where the low/high student learning outcome is influenced by many factors rather than the learning implementation alone. The factors are internal and external (Sandana et al., 2018).

High emotional intelligence is the intelligence that makes learners distinguish and understand emotions in themselves and others. Students who have high emotional intelligence will be more able to control themselves and have self-knowledge and to others. Whereas, low emotional intelligence is the intelligence which makes students have less ability to identify and understand emotions in both themselves and others. Learners who have low emotional intelligence are less able to control themselves and others, less able to use other skills possessed, and an unsharpened intellectual person (Supriadi, 2013).

According to Jhon in Thaib (2013), a better emotional intelligence in a person will make one more capable of calming herself, capable of focusing, capable of socializing with surroundings, and capable of understanding the environment and academic. In line with the opinion of Jhon, according to David (2012), learners who can master self-emotions will become more optimistic, confident, and excited so that learners who easily adapt to will have better learning outcomes.

In fact, in the learning process, some students might have different learning outcomes irrelevant to their intelligence. Hence, the intelligence level is not the sole indicator of students' learning outcomes (Gusniwati, 2015). IQ and EQ are complementary objects, a

success key in learning by students (Sukriadi et al., 2016).

One of the schools located in Duri City, Riau, is SMK Negeri 1 Mandau. Based on the mathematics learning outcomes, the students had different IQ levels. From the observation results of each class, the learning outcome in SMK Negeri 1 Mandau's students was in the medium category as the low emotional intelligence. From the results, 70% of the students were less focused on the learning, even some of them were back and forth of the classes.

Other findings from the interview results, the maths subject is difficult enough for them to understand, resulting in low achievements in assignments given by their teachers. Another statement from students revealed that students with a low grade in math tended to have low confidence or less motivated; this was recorded from the students' confession, stating that they could not decide without others' assistance.

Mathematics learning is always difficult perceived by students. However, if the students have high emotional intelligence, they will keep thriving to resolve problems encountered in the math problems (Sulistianingsih, 2016). The same opinion stated that learners who have better emotional intelligence in certain subjects would be better able to focus on attention and calm themselves (Setyawan & Dumora, 2018).

When receiving a lesson in school activities, learners' behavior is affected by the emotions in students when they feel bored or angry, resulting in difficulty in understanding and receiving the lessons at school. Hence, it significantly influenced student learning outcomes (Pratitriani et al., 2019).

Students who cannot control their stable emotions tend to give up easily and despair. Those who cannot establish relationships with teachers and friends, when they meet the lesson's problems, tend to be awkward and shy to consult, downgrades their problem-solving and solution-searching skills (Leoh et al., 2019). In accordance with the learners' maturity level, the development of emotional intelligence is the crucial thing to take into account at the teenage age because emotional change can occur in this phase of life (Suharti et al., 2015).

The significant contribution of emotional intelligence on the student learning outcomes makes critical attention by educators to be conditioned.

The models of Emotional Intelligence, according to Goleman (2015), consisted of (1) recognizable self-emotions, (2) manageable emotions, (3) able to motivate self, (4) controllable the emotions of others.

In this study, the desired emotional intelligence is learners' ability to recognize emotions in themselves, manage emotions, motivate themselves, understand the emotions of people in the environment (empathy), and cooperate with others.

Supported by the results of Rahman et al. (2015), the emotional intelligence of learners with their learning outcomes has a positive relationship; the higher the category of emotional intelligence of learners, the better the learning outcomes; on the contrary, the lower the category of student emotional intelligence, the lower the learning outcomes.

From the reviews above, this study's purpose was to comprehend the forms of student learning outcomes in terms of the levels of their emotional intelligence, including the student

learning outcomes with different levels of emotional intelligence in high, medium, and low categories.

METHODS

The research technique in this research used descriptive qualitative techniques, intending to analyze and describe the whole reality of the student learning outcomes on the exponential material based on their emotional intelligence. This study's subjects were 34 students from the class X Analisis Pengujian Laboratorium (APL) in SMKN 1 Mandau. The methods to collect the data used in this study: 1) Test administration to measure the learning outcomes of students; in this case, the test was given in the form of a description or essay with 5 questions of the exponential material; and 2) Questionnaire administration to measure the level of student emotional intelligence.

The instruments used in this study were the essay forms; the authors quoted some questions from the National Exam (UN) from the last two years and used a questionnaire of emotional intelligence adopted from previous research by (Sukmantara & Rizal, 2014), which had

been tested for validity and reliability, so the repetitive tests for these components were no longer necessary.

For the analysis of qualitative data, the authors conducted three stages: 1) a process to reduce the data obtained; 2) data reduction; 3) conclusion (Winda, 2018). At the stage of reducing the data, the authors performed this to obtain precise data or information to justify a conclusion. At the stage of data presentation, authors analyzed the data or information obtained from the first stage to present them in a table or other presentation forms so that authors can narrate the obtained data or information accurately. The last stage was a conclusion to search for meaning and explanation.

In this study, the authors administered the test with a questionnaire to students to determine emotional intelligence levels. The numbers of questions on the questionnaire were 40. The scale used in the questionnaire was a Likert scale: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). The scores of the positive and negative statements on the questionnaire were listed in Table 1:

Table 1. Answer Categories of Emotional Intelligence Questionnaire

Alternative Answers	Statement Score	
	Positive	Negative
Strongly Agree (SS)	4	1
Agree (S)	3	2
Disagree (TS)	2	3
Strongly Disagree (STS)	1	4

In the positive statement in the questionnaire, students who chose an alternative answer with strongly agree (SS) received 3 scores; if they chose the disagree (TS), they received only 2 scores; if they selected strongly disagree (STS), then they received 1 score.

On the negative statement in the questionnaire, students who chose an alternative answer with strongly agree (SS) gained 1 score; if they selected agree (S), 2 scores granted; if they chose to disagree (TS), they received 3 scores; and if they selected strongly disagree (STS), then they pertained 4 scores.

To determine the category of student emotional intelligence at the levels of emotional intelligence in this study, authors used the assessment rules of emotional intelligence stated by Slameto (2001), where the authors put

the students in separate stratified groups according to a continuum based on the measured attributes, by the formula in Table 2.

Table 2. Assessment Rule of Emotional Intelligence

Category	Interval value
Very low	$< M - 1.5 SD$
Low	$(M - 1.5 SD) \text{ s.d } (M - 0.5 SD)$
Medium	$(M - 0.5 SD) \text{ s.d } (M + 0.5 SD)$
High	$(M + 0.5 SD) \text{ s.d } (M + 1.5 SD)$
Very high	$\geq M + 1.5 SD$

(Slameto, 2001)

Information:

M = Average

SD = Standard Deviation

Apart from the test administration in the form of a questionnaire to measure the category of student emotional intelligence in this study, the authors also gave a written test to measure student learning outcomes by providing 5 questions concerning exponential material on class X SMK; the students were asked to work on the questions provided in accordance with the knowledge they gained from the learning that had been done before.

That question contained 5 essays; the first question was about the

simplification of the quadrant form; the second and third questions were about logarithms; the fourth and fifth were powers of numbers; each question was 20 with the highest score 100.

RESULTS AND DISCUSSION

Referring to the categorization of the assessment rules of emotional intelligence in Table 2 from the calculated data, the interval value of the participant emotional intelligence was presented in Table 3.

Table 3. Interval Level of Emotional Intelligence

Category	Interval value
Very low	≤ 72
Low	73 – 99
Medium	100 – 127
High	128 – 154
Very high	≥ 155

From Table 3, students who obtained scores from the questionnaire of emotional intelligence with less than 72 were classified in the very low category; students who obtained a score between 73 and 99 were classified in the low category; students who obtained a score of 100-127 were classified in the medium category; students who obtained a score of 128-154 were

classified in the high category; students who obtained a score of more than or equal to 155 were classified in the very high category. If created a frequency distribution table to investigate the levels of student emotional intelligence obtained based on the interval levels of emotional intelligence, we could see them in Table 4.

Table 4. Frequency Distribution Levels of Student Emotional Intelligence

No.	Interval	Frequency	Category
1.	88 – 96	2	Low
2.	97 – 105	0	Medium
3.	106 – 114	17	Medium
4.	115 – 123	13	Medium
5.	124 – 132	0	High
6.	133 - 141	2	High
Total		34	

Table 4 showed that the low level of student emotional intelligence received a score of 88-96 from 2 pupils; 30 pupils with the medium category received a score of 97-123; while the

students with the high category received a score of 124-141 from 2 people. Data was presented in the bar diagram in Figure 1.

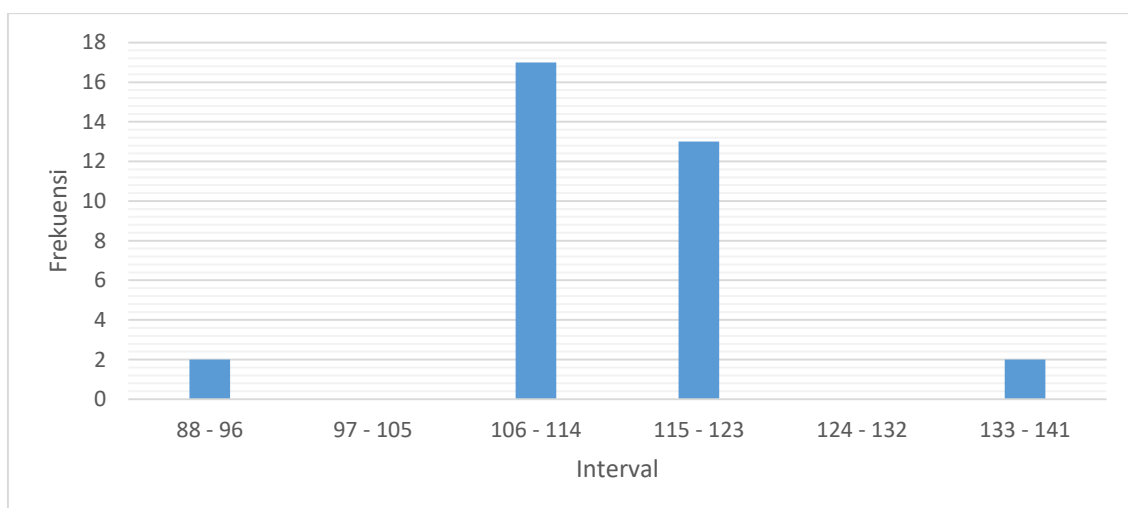


Figure 1. Chart of Student Emotional Intelligence Levels

While the test results were given in the form of a description or essay on the exponential material, the data was

presented in Table 5 after processing the overall results.

Table 5. Frequency Distribution of Student Learning Outcomes in Exponential Material

No.	Interval	Frequency
1.	10 – 24	9
2.	25 – 39	2
3.	40 – 54	13
4.	55 – 69	3
5.	70 – 84	2
6.	85 – 99	5
Total		34

From the distribution data in Table 5, it was found that students who obtained grades at intervals of 10-24 with 9 pupils; students who earned scores at the intervals of 25-39 with 2 pupils; students who acquired the scores at the intervals of 40-54 with 13 pupils;

students who had scores at the interval of 55-69 with 3 pupils; students who acquired scores at the interval of 70-84 with 2 pupils; and students acquired scores at the interval of 84-99 with 5 pupils.

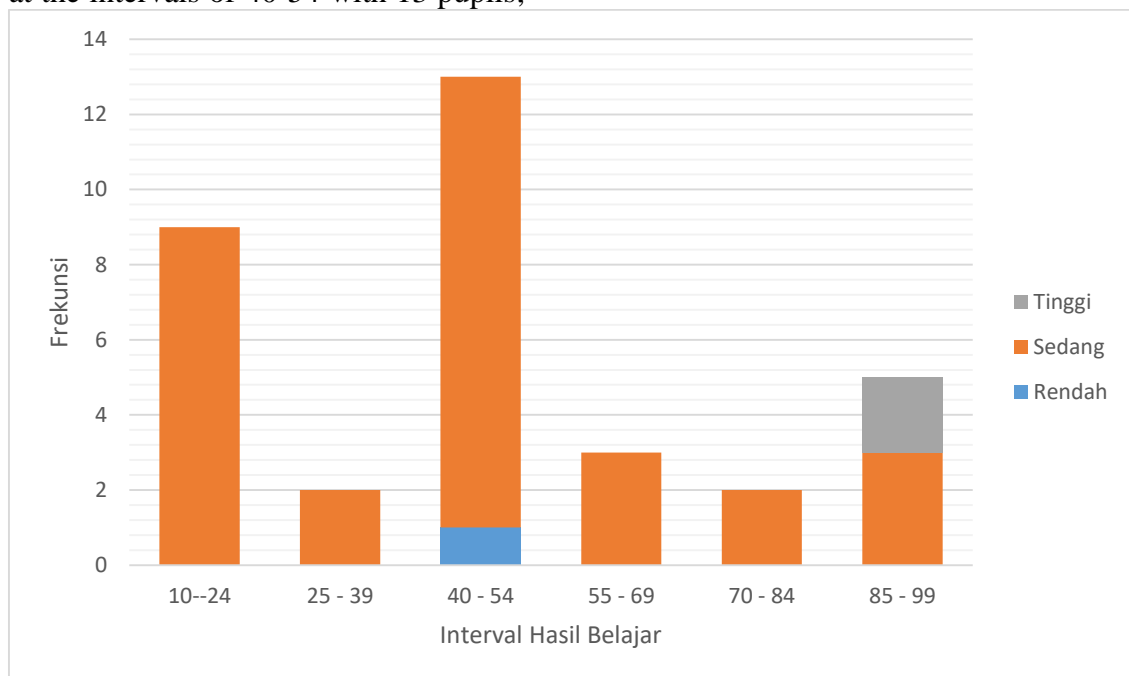


Figure 2. Interval Chart of The Learning Outcomes and The Category of Participant Emotional Intelligence

However, the studies' results demonstrated that students who had scores in those intervals have various categories of emotional intelligence. It can be seen from Figure 2, 9 pupils who had scores at the interval of 10-24 in the medium level of emotional intelligence.

Two pupils who had scores at the intervals of 25-39 were from the medium category of emotional

intelligence. 13 pupils acquired scores at the interval of 40-54; of 11 learners acquired the medium category of emotional intelligence and 2 pupils acquired the low category of emotional intelligence. 3 pupils who obtained scores at the intervals of 55-69 were from the medium category of emotional intelligence.

Two pupils who acquired scores at the interval of 70-84 were in the medium category of emotional intelligence. While 5 pupils obtained scores at the interval of 85-99; of 3 learners obtained the medium category of emotional intelligence, and 2 learners acquired the high category of emotional intelligence.

From the category based on the interval value, students' learning outcomes had a high intelligence level, as seen in Figure 2, with an interval of 85-99. This indicated that the learning outcome obtained by students with a

level of high emotional intelligence was good. At both intervals of 40 and 54, students had both the medium and low category of emotional intelligence; when compared with the details of the categories in Figure 2, students with the low category of emotional intelligence level had a lower grade than those who had the high category of emotional intelligence.

To find out more about grade X students' learning outcomes on the exponential material based on emotional intelligence.

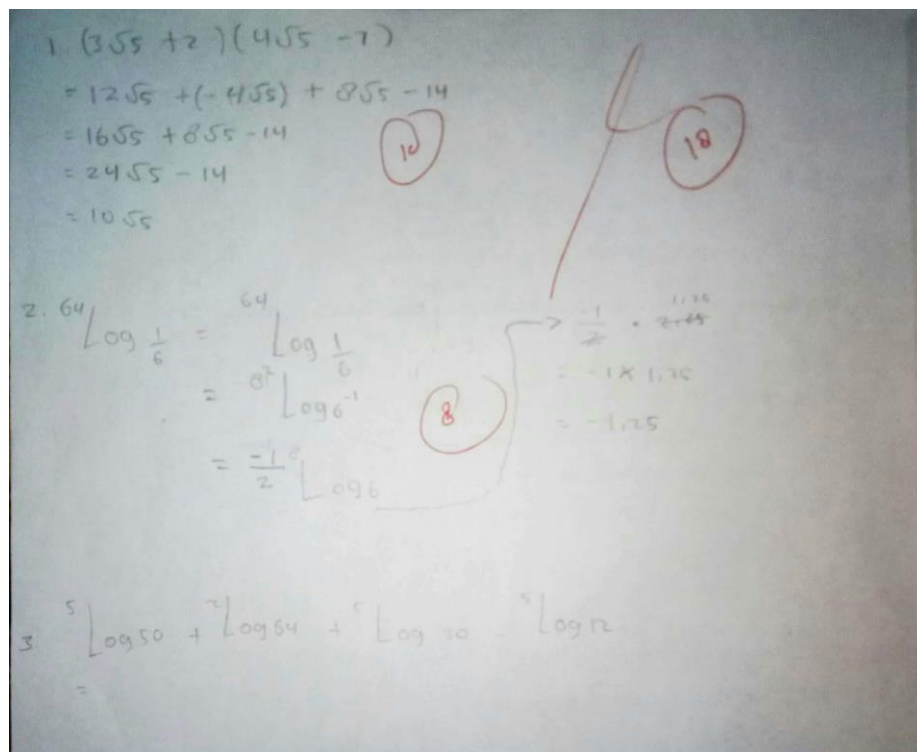


Figure 3. Witry Widyana's Answer (Low Category of Emotional Intelligence)

The picture above showed that students were only capable of completing 3 out of 5 questions given

and not resolving completely to obtain a score of 18; students had a low emotional intelligence category.

3) ${}^5\log 50 + {}^2\log 64 + {}^5\log 30 - {}^5\log 12 = {}^5\log \left(\frac{50 \cdot 64}{30}\right) = {}^5\log 5 = {}^5\log 2^2 = 3$

1) $(3\sqrt{5}+2)(4\sqrt{5}-7)$
 $= (3\sqrt{5}+2)(4\sqrt{5}-7) = (\sqrt{5}+2)(\sqrt{20}-7) = 15-7 = 8$

2) $4\log 3 = M, N, P, Q, 64\log \frac{1}{6} = 4\log 3^4 + 64\log \frac{1}{6} = 4 + 32 = 36$

4) $\left(\frac{a^3 b^{-4} c^{-7}}{a^6 b^{-4} c^{-7}}\right)^5 = \frac{a^3 b^{-4} c^{-7}}{a^6 b^{-4} c^{-7}} = \frac{a^3 b^{-4} c^{-7}}{a^6 b^{-4} c^{-7}} = \frac{a^3 b^{-4} c^{-7}}{3a^6 b^6} = \frac{a^9}{3a^6 b^6}$

5) $\left(\frac{1}{125}\right)^{-\frac{1}{3}} + \left(\frac{1}{5}\right)^{-\frac{2}{3}} + 8^{\frac{2}{3}} = 25^{-2} + 5^{-12} + 8^{\frac{2}{3}} = 3$

45

Figure 4. Anisa Wijayanti's Answer (Medium Category of Emotional Intelligence)

The picture above showed that students had been capable of resolving 5 questions given but not completing it entirely to obtain a score of 45; where

the score nearly approached the highest score, students had a medium category of emotional intelligence.

1) $(3\sqrt{5}+2)(4\sqrt{5}-7)$
 $= 12 \cdot 5 - 21\sqrt{5} + 8\sqrt{5} - 14$
 $= 60 - 13\sqrt{5} - 14$
 $= 46 - 13\sqrt{5}$

2) $64 \log \frac{1}{6}$
 $4^3 \log 6^{-1}$
 $\frac{1}{4^3} \log 6$

3) ${}^5\log 50 + {}^2\log 64 + {}^5\log 30 - {}^5\log 12$
 ${}^5\log 50 + {}^5\log 30 - {}^5\log 12 + {}^2\log 64$
 ${}^5\log \left(\frac{50 \cdot 30}{12}\right) + {}^2\log 64$
 ${}^5\log 1500 + {}^2\log 64$

4) $5 \log 125 + 2 \log 64$
 $= 5 \log 5^3 + 2 \log 2^6$
 $= 3 \cdot 5 \log 5 + 6 \cdot 2 \log 2$
 $= 3 \cdot 1 + 6 \cdot 1$
 $= 3 + 6$
 $= 9 //$

5) $\left(\frac{1}{125}\right)^{\frac{1}{3}} + \left(\frac{1}{81}\right)^{-\frac{3}{4}} + 8^{\frac{2}{3}}$
 $= (125^{-1})^{-\frac{1}{3}} + (81^{-1})^{-\frac{3}{4}} + 8^{\frac{2}{3}}$
 $= 125^{\frac{1}{3}} + 81^{\frac{3}{4}} + 8^{\frac{2}{3}}$
 $= \sqrt[3]{125} + \sqrt[4]{81^3} + \sqrt[3]{8^2}$
 $= 5 + 3^3 + 2^2$
 $= 5 + 9 + 4$
 $= 18 //$

Figure 5. Nur Atika's Answer (High Category of Emotional Intelligence)

The picture above demonstrated that the students had been capable of working correctly on 5 questions given but not nearly complete to obtain a score of 95,

CONCLUSION

From the studies results in the form of test execution and analysis described,

it was concluded that there were three categories of student emotional intelligence investigated in this study, i.e.,

high, medium, low, within the varied learning outcomes. Students with a high level of emotional intelligence received a satisfactory learning outcome; students with a medium level of emotional intelligence also had a satisfactory learning outcome; learners with a low level of emotional intelligence received a less satisfactory learning outcome.

REFERENCES

Daud, F. (2012). Pengaruh Kecerdasan Emosional (EQ) dan Motivasi

in which the score nearly approached the highest score. The students had a high category of emotional intelligence.

Belajar terhadap Hasil Belajar Biologi Siswa SMA 3 Negeri Kota Palopo. *Jurnal Pendidikan dan Pembelajaran*, 19(2), 243-255.

Djamarah, & Syaiful, B. (2011). *Psikologi Belajar*. Jakarta: Rineka Cipta.

Goleman, D. (2015). *Emotional Intelligence*. Penerjemah: T. Hermaya. Jakarta: PT. Gramedia Pustaka Utama.

Gusniwati, M. (2015). Pengaruh Kecerdasan Emosional Dan Minat Belajar Terhadap Penguasaan Konsep Matematika Siswa Sman Di Kecamatan Kebon Jeruk. *Jurnal Formatif*, 5(1), 26-41.

- Hastari, C. H. (2018). Analisis Kesulitan Penyelesaian Soal Matematika Ditinjau dari Kecerdasan Emosional Mahapeserta didik di Kabupaten Tulungagung. *JNPM (Jurnal Nasional Pendidikan Matematika)*, 2(2), 180-196.
- Leoh, R., Djong, K. D., & Lakapu, M. (2019). Pengaruh Kecerdasan Emosional Terhadap Prestasi Belajar Matematika Pada Siswa Smp Kelas VIII. *Jurnal Kependidikan Matematika*, 1(1), 13-17.
- Mutakin, T. Z., & Teti, S. (2011). Pengaruh Penggunaan Media Belajar Dan Minat Belajar Terhadap Hasil Belajar Matematika. *Jurnal Formatif*, 1(1), 70-81.
- Prafitriani, S., et al. (2019). Pengaruh Kecerdasan Emosional Terhadap Hasil Belajar Matematika Siswa Kelas Vii Smp Negeri 9 Buru. *Jurnal Ilmu Sosial dan Ilmu Politik*, 9(2), 567 -580.
- Rahman, U., Mardhiah., & Azmidar. (2015). Hubungan Antara Pola Asuh Permisif Orangtua Dan Kecerdasan Emosional Peserta didik Dengan Hasil Belajar Matematika Peserta Didik. *Auladuna Jurnal Pendidikan Dasar Islam*, 2(1), 116-130.
- Sandana, S., Suaedi., & Djadir. (2018). Kecerdasan Emosional, Perhatian Orang Tua, Kebiasaan Belajar, Dan Prestasi Belajar Matematika. *Jurnal Vidya Karya*, 33(1), 81-94.
- Setyawan, A. A., & Dumora, S. (2018). Pengaruh Kecerdasan Emosional Terhadap Hasil Belajar Matematika Siswa Smk Kansai Pekanbaru. *Jurnal Penelitian dan Pembelajaran Matematika*, 11(1), 12 – 18.
- Sjukur, S. B. (2012). Pengaruh Blended Learning Terhadap Motivasi Belajar Dan Hasil Belajar Siswa Tingkat Smk. *Jurnal Pendidikan Vokasi*, 2(3), 368 -378.
- Slameto. (2001) *Evaluasi Pendidikan*. Jakarta: Bumi Aksara.
- Suharti., Darwis, M., & Anas, S. (2015). Pengaruh Pola Asuh Demokratis, Interaksi Sosial Teman Sebaya, Kecerdasan Emosional Dan Efikasi Diri Terhadap Hasil Belajar Matematika Siswa Kelas Viii Smpn Se Kecamatan Manggala Di Kota Makassar. *Jurnal Daya Matematis*, 3(1), 10-19.
- Sukriadi., Basir, A., & Rusdiana (2016). Pengaruh Kecerdasan Emosional Terhadap Hasil Belajar Matematika Siswa Pada Materi Sudut Dan Garis Di Kelas VII MTs Normal Islam Samarinda. *Jurnal Pendidikan Matematika Indonesia*, 1(2), 65-73.
- Sukmantara, & Rizal, M. (2014). Hubungan Kecerdasan Emosional Dengan Hasil Belajar Pada Peserta Didik Kelas XI IPA SMA Negeri 1 Dringu, Probolinggo. *Undergraduate thesis, Universitas Islam Negeri Maulana Malik Ibrahim*. Retrieved Maret 2, 2020,

from <http://etheses.uin-malang.ac.id/1634/>

- Sukrorini, W. (2014). Peningkatan Hasil Belajar Matematika Dengan Menggunakan Model Direct Instruction. *Jurnal Pendidikan Matematika dan IPA*, 5(1), 27-36.
- Sulistianingsih, P. (2016). Pengaruh Kecerdasan Emosional Dan Motivasi Belajar Terhadap Kemampuan Berpikir Kritis Matematika. *Jurnal Kajian Pendidikan Matematika*, 2(1), 129–139.
- Supriadi, U. S. (2013). Hasil Belajar Matematika Siswa Ditinjau Dari Interaksi Tes Formatif Uraian Dan Kecerdasan Emosional. *Jurnal Formatif*, 3(2), 78-96.
- Thaib, E. N. (2013). Hubungan Antara Hasil belajar Dengan Kecerdasan Emosional. *Jurnal Ilmiah Didaktika*, 13(2), 385-399.