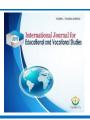


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Relationship between emotional intelligence and self-regulated learning of students in Biology subjects

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ABSTRACT

This study aims to determine the relationship between emotional intelligence and self-regulated learning of students in biology subjects in class XI MIPA SMA Negeri 1 Tasikmalaya. The research method used is a correlation. The population in this study was the entire class XI MIPA SMA Negeri 1 Tasikmalaya, amounting to 272 students. The research sample was taken using a purposive sampling technique as many as two classes, namely class XI MIPA 6 and XI MIPA 7 with 39 students who filled out the questionnaire. The data analysis technique used is a simple correlation test. The results of the study showed that there was a relationship between emotional intelligence and students' self-regulated learning. For the relationship between emotional intelligence and self-regulated learning, R is 0.568, which means it has a moderate level of relationship. The coefficient of determination of the emotional intelligence variable on the self-regulated learning variable is R2, which is 0.322, which means that the emotional intelligence variable contributes 32.3% to the self-regulated learning of students. Method, one of them by counseling approach of Cognitive Behaviour Therapy (CBT) using guided imagery technique.

INTRODUCTION

The old paradigm in the learning process that only concerned with cognitive aspects such as the level of intellectual intelligence must be changed (Blackmore et al., 2021; Higgins et al., 2021; Hong et al., 2021; Lim & Yeo, 2021; Solichin et al., 2021). This is because not all students who have good academic scores are said to be successful in the learning process (Ho et al., 2022; Yen, Tu, et al., 2021; Zhou et al., 2021). Every student in him has three kinds of intelligence that can be used properly if managed optimally (Labola, 2018; Al Mulhim, 2020; Cui, 2021; Yen, Ozkeskin, et al., 2021). The intelligence in question is Intelligence Quotient (IQ), Emotional Quotient (EQ), and Spiritual Quotient (SQ). According to Labola (2018:42) states that emotional intelligence (EQ) plays a very important role in managing students' thinking. Emotional intelligence is also related to spiritual intelligence (SQ) which is an important component for humans as the basis for human behavior. Likewise, intellectual intelligence (IQ) has always been the main factor to regulate students in their reasoning abilities. Intellectual intelligence possessed by a teenager is predicted to make him successful in the academic world,

but not necessarily the teenager can control himself and regulate his emotions in optimizing all the potential that exists within him (Labola, 2018; Blackmore et al., 2021; Higgins et al. al., 2021; Lim & Yeo, 2021; Manganello et al., 2021; Solichin et al., 2021; Yen, Tu, et al., 2021). Based on this, it means that this intellectual intelligence cannot stand alone and must be accompanied by other intelligences.

The contributor to individual success is not only intellectual intelligence, most of which comes from other factors, one of which is emotional intelligence (Al Mulhim, 2020; Cui, 2021a; Higgins et al., 2021). Along with the development of various studies, at this time many researchers reveal that intellectual intelligence (IQ) plays a very small role in one's learning achievement. In line with what Goleman (2020:42) said, the highest IQ contributes approximately 20% to the factors that determine success, the other 80% are other factors that determine success in life. One of the strengths of other factors is emotional intelligence or Emotional Quotient (EQ).

The term emotional intelligence was first used by Salovey and Mayer in 1990 (Schutte et al., 1998; Higgins et

al., 2021; Hong et al., 2021; Manganello et al., 2021; Solichin et al., 2021; Yen, Tu, et al., 2021). Emotional intelligence is part of social intelligence in the form of the ability to manage emotions that exist in oneself and others, and also in the form of the ability to be able to use the information obtained to guide someone to think and act (Salovey & Mayer (in Nabiila & Faisal Mustofa, 2020: 11)). Students who have emotional intelligence in themselves can know their strengths and weaknesses so that they can optimize their strengths and minimize their weaknesses through independent learning or self-regulated learning (Cui, 2021a; Ho et al., 2022; Manganello et al., 2021; Tran, 2021).

Self-regulated learning is a person's ability to be able to plan, monitor, control, and evaluate oneself in a learning process that is oriented towards achieving the expected learning goals (Sari et al., 2017: 28). A student can plan their learning according to them to achieve the learning objectives that have been set previously. Learners are described as individuals who can regulate themselves actively in terms of metacognitive, motivation, and behavior in the learning process (Zimmerman, 1989:329; Cheng, 2011:2). While Pintrich & Groot (1990:33) state that self-regulated learning is a way of actively learning students as individuals to achieve academic goals by controlling behavior, motivating themselves, and using their cognitive abilities in learning. In the process of independent learning, students must set the goals of their learning. According to (Mustofa et al., 2019:647) selfregulated learning is a person's ability to be able to monitor, control, evaluate, and re-implement the plans that have been made to achieve success in the learning process. Based on this description, it can be concluded that selfregulated learning is a process in which students actively regulate their learning by involving aspects of cognition, motivation, and controlling their behavior such as planning, monitoring, controlling, and evaluating themselves to achieve the expected learning objectives. These goals can be academic goals or socio-emotional goals.

Based on the results of observations from October to November 2020 in class XI MIPA at SMA Negeri 1 Tasikmalaya that learning activities in class are not optimal. When learning takes place online, especially during biology subjects, according to observations, most of the students do not follow the lesson well. Students never prepare themselves like reading the material to be studied. So that when the learning process takes place students do not have the provisions to take part in biology learning. If the teacher does not remind to study the material first, the students will not learn it. In addition, there are not a few students who are often late in collecting assignments, and it is not uncommon for some students to not collect assignments at all. There are also those who pile up their tasks so that they will run out at the end. This is not in line with the self-regulated learning component, namely selfregulation which includes student management and efforts to control and regulate academic tasks. So it can be estimated that these problems occur because of the lack of contribution of self-regulated learning in the learning process of students.

The problems related to self-regulated learning above are thought to occur because the level of emotional intelligence of these students is low. Where this relates to all indicators of emotional intelligence, namely appraisal & expression of emotion (emotional assessment and expression), regulation of emotion, and utilization of emotion. Based on the description above, it is suspected that there is a relationship between emotional intelligence and self-regulated learning, the authors formulate the problem as follows: "Is there a relationship between emotional intelligence and self-regulated learning in biology subjects in class XI MIPA SMA Negeri 1 Tasikmalaya for the academic year 2020/2021?". This study aims to determine the relationship between emotional intelligence and self-regulated learning of students in biology subjects in class XI MIPA SMA Negeri 1 Tasikmalaya.

METHODS

This study was conducted at SMA Negeri 1 Tasikmalaya from November 2020 to September 2021. The type of research used in this study was correlational quantitative research. The variables in this study consisted of the dependent variable, namely self-regulated learning, and the independent variable, namely emotional intelligence. The population in this study was all class XI MIPA SMA Negeri 1 Tasikmalaya with a total of 272 students. The sample in this study was taken by purposive sampling technique, namely class XI MIPA 6 and XI MIPA 7.

The data collection technique used in this research is non-test in the form of a questionnaire. The instrument used in this study consisted of two validated instruments. The first instrument is an emotional intelligence questionnaire using The Schutte Self Report Emotional Intelligence (SSEIT) which consists of 27 statements. The second instrument is self-regulated learning questionnaire using a validated instrument from Pitrinch & Groot (1990) which consists of two sub-chapters, namely cognitive strategy used and self-regulation, and consists of 20 statements. Each statement is filled out using a Likert scale of one to four with details strongly agree (4), agree (3), disagree (2), and strongly disagree (1). The data analysis technique used is a bivariate correlation regression test. Before the data was tested with the bivariate correlation regression test, the analysis prerequisites were tested, namely the normality test and linearity test.

RESULTS AND DISCUSSIONS

Hypothesis testing was conducted to determine whether there was a relationship between emotional intelligence and self-regulated learning by using a bivariate correlation regression test using SPSS version 26 for window.

Table 1. Summary of Regression Results of Emotional Intelligence Bivariate Correlation with Self-Regulated Learning

				Model Summa	ary					
					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	
1 a. Predictors:	0,568a (Constant)	0,322 , Emotional in	0,304 telligence	3,266	0,322	17,600	1	37	0,0001	

Table 2. Summary of Emotional Intelligence t Test with Self-Regulated Learning

			Coeffici	ents		
Model		Unstandardi	zed Coefficients	Standardized Coefficients	_	Sig.
		В	Std. Error	Beta	ι	
1	(Constant)	22,751	8,607		2,643	0,012
	Emotional	0,383	0,091	0,568	4,195	0,0001
	intelligence					

Based on (table 1), a significance value of 0.0001 means that there is a relationship between emotional intelligence and self-regulated learning. In addition, the correlation coefficient R is 0.568, which means that the strength of the relationship is in the medium category. The coefficient of determination R2 is 0.322 or 32.2%. This shows that the emotional intelligence variable contributes 32.2% to students' self-regulated learning, while the remaining 67.8% is another variable not examined in this study.

Based on (table 2), it can be seen that the regression equation $\hat{Y} = a+bx$. The value of a is 22,751 the value of b is 0,383. So, that the regression equation obtained is $\hat{Y} = 22,751 + 0,383x$. In addition to the regression equation, table 2 also shows that the relationship between emotional intelligence and self-regulated learning is positive as shown (in Figure 1).

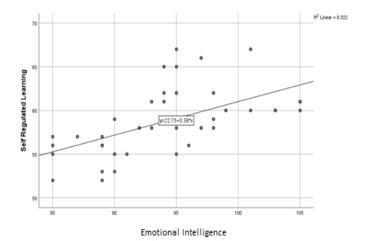


Figure 1. Emotional Intelligence Scatterplot Graph with Self-Regulated Learning

Based on the scatterplot graph in Figure 1, it can be seen that there is a linearity line pattern between emotional intelligence and self-regulated learning. The scatter plot graph shows the error value or deviation from a linear relationship. The straight-line pattern that occurs is from the bottom left to the top right, this shows a positive linear relationship between emotional intelligence variables (X) and self-regulated learning (Y).

Based on research that has been conducted in class XI MIPA 6 and XI MIPA 7 SMA Negeri 1 Tasikmalaya, data on emotional intelligence was obtained with self-regulated learning. The data was tested by the Pearson bivariate correlation test with the help of SPSS version 26 software for windows. Based on the results of the regression analysis of the correlation between emotional intelligence and self-regulated learning, a significance value of 0.0001 means that there is a relationship between emotional intelligence and self-regulated learning.

Based on the results of the simple correlation test, it is known that the value of the coefficient/relationship R is 0.568 which indicates that emotional intelligence and self-regulated learning of students have a moderate relationship. Based on the results of the regression test, the coefficient of determination R2 was 0.322 or 32.2%. This shows that the emotional intelligence variable contributes 32.2% to students' self-regulated learning, while the remaining 67.8% is another variable not examined in this study. Meanwhile, to know the results of each indicator of each variable can be seen in (Figures 2 and 3).

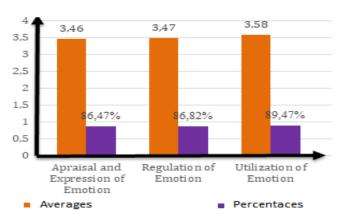


Figure 2. Average and Percentage of Students' Emotional Intelligence Questionnaire Scores on Each SSEIT Indicator Class XI MIPA 6 and 7 SMA Negeri 1 Tasikmalaya

Based on the (**Figure 2**) presents a list of total scores per indicator on emotional intelligence. Based on the figure, it can be seen that the highest score of emotional intelligence is found in the third indicator, namely utilization of emotion with an average score of 3.58 and a percentage score of 89.47% based on the overall average per indicator. While the lowest score is found in the first indicator, namely appraisal and expression of emotion (assessment and expression of emotions) with an average score of 3.46 and a percentage score of 86.47% based on the overall average per indicator.

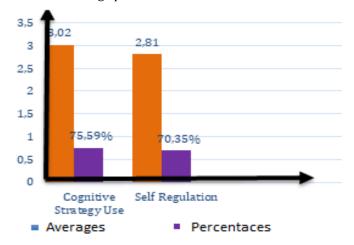


Figure 3. Average and Percentage Scores of Students' Self-Regulated Learning Questionnaires on Each SRL Indicator Class XI MIPA 6 and 7 SMA Negeri 1 Tasikmalaya

Based on the **(Figure 3)** presents a list of the total scores per part in self-regulated learning. Based on the figure, it can be seen that the highest score for self-regulated learning is in the cognitive strategy use section with an average score of 3.02 and a percentage score of 75.59%. While the lowest score is in the self-regulation section with an average score of 2.81 and a percentage score of 70.35%.

In this study, the coefficient value/R relationship was 0.568 which indicated that emotional intelligence with selfregulated learning of students had a moderate relationship. This is in line with the research conducted by Sari et al. (2017) where the results of the partial correlation test between emotional intelligence and self-regulated learning state that there is a relationship with the correlation coefficient in the medium category. Furthermore, research conducted by Ramdaniar & Rosiana (2018) states that there is a positive relationship between emotional intelligence and self-regulated learning with an R correlation value of 0.764 which is included in the category of strong correlation. Meanwhile, in the research conducted by Nabiila & Romy Faisal Mustofa (2020), there is a relationship between emotional intelligence and selfregulated learning but with a correlation coefficient or Rvalue which is in the low category.

Emotional intelligence plays an important role in increasing self-regulated learning. Emotional intelligence, of which is marked by positive emotions in him which can help increase self-regulated learning (Drigas et al., 2021; Pérez-Fernández et al., 2021; Shafait, Khan, Bilan, et al., 2021; Shafait, Khan, Sahibzada, et al., 2021; Sukenti et al., 2021). Researchers assume that positive emotions will increase students' self-regulated learning while negative emotions facilitate dependence on external guidance (Cui, 2021b; Goh & Kim, 2021; Gunasekera et al., 2021; Ozer et al., 2008; Warrier et al., 2021). Students' emotions can affect self-regulated learning and will subsequently affect the final achievement of the student's learning process. In particular, positive emotions of students affect academic study timings and personal summary of subject matter, positive emotions also have positive effects on the evaluation of students' learning and performance and strategic preparation for exams (Mega et al., 2014; Gomes da Costa et al.,2021; Supramaniam & Singaravelloo, 2021).

Based on the explanation above, it can be concluded that there is a relationship between emotional intelligence and self-regulated learning of students with the direction of the relationship being positive. This positive relationship means that students who have good emotional intelligence will have good self-regulated learning as well. The correlation coefficient obtained in this study is 0.568 which indicates the level of the relationship is in the medium category. Furthermore, there is a contribution of 32.2% of emotional intelligence to self-regulated learning while the remaining 67.8% are other variables not examined in this study such as social support, learning motivation, individual, behavior, and environment.

CONCLUSIONS

Based on the research and data processing that has been done, it can be concluded that there is a relationship

between emotional intelligence and self-regulated learning in class XI MIPA at SMA Negeri 1 Tasikmalaya. The correlation coefficient value obtained (R) is 0.568 and is included in the category of moderate correlation. The coefficient of determination of the emotional intelligence variable on the self-regulated learning variable is R2, which is 0.322, which means that the emotional intelligence variable contributes 32.2% to the students' self-regulated learning. It is recommended that further research on other unexamined variables that can contribute to self-regulated learning such as social support, learning motivation, individual, behavior, and environmental variables for selfregulated learning and it is recommended that further research on the contribution of emotional intelligence to self-esteem is recommended. regulated learning of students in learning biology.

Author's Contributions

All team members contributed equally in the writing of this article. They carry out collaborative activities according to the tasks and functions that have been mutually agreed upon, from research planning to writing articles for journals.

Conflict of Interest

All authors in this manuscript have no conflict of interest. All team members work professionally according to their expertise.

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