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SELF-EFFICACY: A PREDICTOR IN ADOLESCENCE SELF-REGULATED LEARNING

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ABSTRACT

Self-regulated learning is an essential skill for students in higher education. One factor that determines self-regulated learning in students is self-efficacy. The researcher conducted the study from July 2021 to December 2021. The study aims to find if self-efficacy would be a predictor of self-regulated learning in adolescence. The research involves 123 participants aged 15 to 18 years old, taken from one international school in the Jakarta area, with most of the participants female (74.8%), grade 12 students (47.2%), have private tutors (61.8%), and have 1 sibling (45.5%). The method used is a correlational study through the use of an online questionnaire in Google Forms. Two questionnaires were used, Self-Efficacy Questionnaire for Children (SEQ-C) and Online Self-Regulated Learning Questionnaire (OSLQ). A linear regression method was used to calculate the data. Results found that self-efficacy significantly correlated with self-regulated learning and self-efficacy is a predictor for self-regulated learning ($R = 0.778$, $p < 0.05$). It can be concluded that for older students to possess good self-regulated learning skills, good self-efficacy is needed.

Keywords: *self-efficacy, self-regulated learning, high school, adolescence*

1. PREFACE

Self-regulated learning is the ability of students to become masters of their learning process (Zimmerman, 2015), is one of the key essential skills that older students are required to have as it will help students to faced academic difficulties (Lidiawati & Helsa, 2021). Especially older students are more demanding to show that level of independence in their learning. Various colleges also mentioned that successful students would have the following traits: self-discipline, self-motivation, time management, space to study, and asking for help (Grand Valley State University, 2020; Mount Hood Community College, 2021).

From a social cognitive side, the self-regulated learning model is a three-way interaction between personal, behavioral, and environmental factors that will affect the development of self-regulated learning skills (Schunk, 2001; Zimmerman, 1994 as cited in Barnard-Brak, 2010). In the previous studies (Bandura, 1986; Kanfer & Gaelick, 1986, as cited in Schunk, 2012), the self-regulation process was divided into three elements: self-observation or self-monitoring, self-judgment, and self-reaction. Building on this theory, Barry J. Zimmerman expanded the idea and writes that self-regulated learning can be broken down into three phases: forethought, performance control, and self-reflection (Schunk, 2012).

The COVID-19 pandemic happened from the beginning of 2020 to 2022, Rahadi (2020) mentioned that this event also forced students of all ages and levels to have self-regulated learning skills as students are learning from their homes without the teachers' supervision. On that account, the COVID-19 pandemic is a triggering factor that pushed students to start stretching their self-

regulatory learning skills. Similarly, Wood (2022) also mentioned that the COVID-19 pandemic almost doubled the number of worldwide online learners from 2019 to 2020 alone. Indonesia also showed 69% of the number of online learners growth since the COVID-19 pandemic, ranking 5th worldwide among countries that have the most learner growth. With this data in mind, it would be even more crucial for students to develop autonomy and self-regulation skills that are essential in this digital age.

Correspondingly, it might be also essential for high school students to start having this self-regulatory skill. Piaget, in his theory of cognitive development also mentioned that high school students in their adolescence period can design a plan to solve a problem and systemically test their design (Santrock, 2012).

However, Sinha (2021) stated that high school students often are feeling overwhelmed with the demands of university preparation and schoolwork while at the same time being pressured to have that level of authority and control over their learning. Santrock (2012) explained that one of the factors that might help students to be able to apply self-regulated learning is self-efficacy.

Self-efficacy can be defined as "the belief that one can master a situation and produce positive outcomes" (Santrock, 2012). There are four components of self-efficacy, which are performance accomplishments, vicarious experience, verbal persuasion, and physiological states (Kirschner & Hendrick, 2020). These four components will affect self-efficacy and further will affect the behavior produced, such as self-regulated learning. It is also believed that self-efficacy can help students to have better self-regulatory learning skills such as rehearsal, elaboration, organization, critical thinking, metacognitive self-regulation, and time management (Lee et al., 2020; Nugroho & Patria, 2019).

Lee et al. (2020) investigated the role of self-efficacy in self-regulated learning strategies of English language learners in college settings. They found that students with high self-efficacy significantly have a higher number in self-regulation strategy. Similarly, Nugroho and Patria (2019) explored the role of parental involvement and self-efficacy toward self-regulated learning in middle school students. They also found that self-efficacy predicts self-regulated learning skills in middle school students. Both of these studies suggested that it would be good to conduct further studies in different age populations like high school students. Barnard et al. (2009) also suggested that future studies should investigate self-regulated learning in fully online and blended learning environments as the numbers of online learning are increasing.

Therefore, the researcher wants to investigate the relationship between self-efficacy and self-regulated learning and wants to find out if self-efficacy can predict self-regulated learning in high school students. Through the information mentioned above, the researcher formalized two hypotheses, which are as follows.

H0: Self-efficacy will not predict the self-regulated learning skills of high school students.

H1: Self-efficacy will predict good self-regulated learning skills in high school students.

2. RESEARCH METHOD

Design

The design of this research is a non-experimental quantitative method through the use of a correlational study. Correlational study is a research method where the connections between two variables or more are investigated (Cozby & Bates, 2014). The researcher will use a statistical analysis program of IBM Statistical Product and Service Solutions (SPSS) to conduct a linear

regression test to analyze the correlation between two variables, self-efficacy, and self-regulated learning.

Participants

Participants were gathered using the purposive sampling method with the following characteristic: (a) the participants are at the appropriate stage to have the capability of doing self-regulated learning, (b) participants have undergone online learning for at least a year, (c) participants are grade 10 until grade 12 students from the 2021-2022 academic year, and (d) participants live in Jakarta. 123 participants were obtained with the following demography: female (74.8%), grade 12 students (47.2%), have a private tutor (61.8%), and have 1 sibling (45.5%).

Materials

Several items are required to conduct the research which are: (a) a laptop to create the questionnaire using Google Forms, (b) informed consent to obtain the agreement of the participants, and (c) Google Forms platform to make the online questionnaires. The researcher will also need two different scales to measure self-efficacy and self-regulated learning. Lastly, a statistical program named the Statistical Package for the Social Sciences (SPSS) software program is needed to perform statistical calculations and analysis.

Self-Efficacy Questionnaire for Children (SEQ-C)

The Self-Efficacy Questionnaire for Children (SEQ-C) is a questionnaire developed by Peter Muris in 2001. Muris (2001) mentioned that the questionnaire is intended for adolescents aged 12-19 years old, not children. The name children are due to Dutch to English language translation where the original word refers to youngsters and is translated to children in English.

The questionnaire consists of three different subscales, namely academic self-efficacy, social self-efficacy, and emotional self-efficacy. Each of these subscales includes eight favourable items. The questionnaire has 24 items measured on a 5-point Likert scale from 1 to 5, where 1 refers to not at all and 5 stands for very well.

Sample items include; “How well can you study when there are other interesting things to do?” and “How well do you succeed in passing a test?” Table 10 will explain the Self-Efficacy Questionnaire.

Online Self-Regulated Learning Questionnaire (OSLQ)

The Online Self-Regulated Learning Questionnaire (OSLQ) is a questionnaire developed by Lucy Barnard-Brak, William Y. Lan, and Valerie Osland Paton in 2010.

The questionnaire has six subscales that are as follows: (a) environment structuring with four items, (b) goal setting that has five items, (c) time management that has three items, (d) help seeking that has four items, (e) task strategies with four items, and (f) self-evaluation with four items.

The questionnaire has 24 items measured on a 5-point Likert scale from 1 to 5. 1 refers to strongly disagree, 2 stands for disagree, 3 stands for neither agree nor disagree, 4 is agree, and 5 stands for strongly agree.

Sample items include; “I choose a time with few distractions for studying for my online courses” and “I am persistent in getting help from the instructor through e-mail.” Table 11 will illustrate Online Self-Regulated Learning Questionnaire.

Validity and Reliability

To test the validity and reliability of the two questionnaires, a pilot test was carried out with 32 participants. There were two items in the Self-Efficacy Questionnaire (SEQ-C) were invalid with $p > 0.05$. The invalid items were item 20 and item 22. Similarly, one item, item 5 in the Online Self-Regulated Learning Questionnaire (OSLQ) was found invalid with $p < 0.05$.

Next, the reliability test concluded that all items in SEQ-C and OSLQ were reliable with no negative Cronbach's Alpha, thus, none of the items were deleted. Table 1 will give a more detailed explanation of the reliability of the two questionnaires.

Table 1

Reliability Testing

Questionnaire	Dimension	Cronbach's Alpha
SEQ-C		0.851
	Academic	0.851
	Emotional	0.758
	Social	0.779
OSLQ		0.892
	Goal setting	0.787
	Environment structuring	0.769
	Task strategy	0.637
	Time management	0.790
	Help seeking	0.627
	Self-evaluation	0.704

3. RESULT AND DISCUSSION

According to the used likert scale, self-efficacy was rated on a 5-point scale with a hypothetical mean of 3.00. Since the empirical mean is higher than 3.00, it suggests that most participants rated themselves between 3 to 5. Similarly, self-regulated learning was also rated on a 5-point scale with a hypothetical mean of 3.00. The empirical mean is also higher than 3.00, indicating that most participants chose a rating between 3 to 5. Table 2 will explain this further.

Table 2

Empirical Means

	N	Minimum	Maximum	Mean	Standard Deviation
Self-Efficacy	123	1.54	4.29	3.14	0.54
Self-Regulated Learning		1.25	4.71	3.26	0.69

To determine the correlation between self-efficacy and self-regulated learning, a necessary normality test using the One-Sample Kolmogorov-Smirnov test was conducted to determine if the data were normally distributed. It was found that both variables were normally distributed and the researcher used parametric statistics.

The correlation showed that self-efficacy and self-regulated learning have a strong correlation with a coefficient of 0.6. Table 3 will give better information about the correlation between the two variables.

Table 3.
Correlation between Variables

Variables	Mean	SD	Correlation Coefficient
Self-Efficacy (SE)	3.14	0.54	0.600**
Self-Regulated Learning (SRL)	3.26	0.69	

Correlation is significant at the 0.01 level (2-tailed) **

From this research, a positive correlation between students' self-efficacy and self-regulated learning ability can be inferred. This means, the better the students' self-efficacy is, the better their self-regulated learning skills.

A linear regression test was carried out to find the relationship between self-efficacy and self-regulated learning and found R = 0.778 ($p < 0.05$). This number showed that self-efficacy significantly affects self-regulated learning with an effect of 36.2%. Further information can be seen in Figure 1.

Figure 1

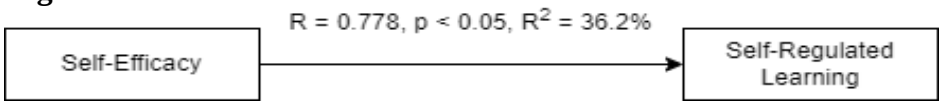

Figure SEQ Figure * ARABIC 1. Hypothesis Testing

The researcher also conducted differential tests on the demographic data variables and found that there is no significant difference in self-regulated learning skills between sex ($p = 0.239 > 0.05$), no significant difference between grade level ($p = 0.400 > 0.05$), no significant difference between private tutor's availability ($p = 0.729 > 0.05$), and no significant difference between the number of siblings that participants have ($p = 0.413 > 0.05$). Table 4 will illustrate further information of the mean differential test.

Table 4
Mean Differential Test

Category	F	p-score	Explanation
Sex	1.402	0.239	No difference
Grade Level	0.924	0.400	
Private Tutor	0.120	0.729	
No. of Siblings	0.995	0.413	

From the data above, it was found that there is a significant relationship between self-efficacy and self-regulated learning. This result is similar to the study by Lee et al. (2020) that mentioned self-efficacy significantly predicts self-regulated learning in university students. A similar study with younger participants still produced the same result and one possible explanation of this is due to

the close age differences between university students in the previous study and the use of high school students in this study.

Reviewing the above results, self-efficacy can predict self-regulatory skills in high school students, as self-efficacy is one of the predictor components in the self-regulation model proposed by Zimmerman (Panadero, 2017). Self-efficacy is an important factor of Bandura's social cognitive theory which mentioned that humans could learn behavior through the role of personal factors such as self-efficacy (Schunk, 2012). With the belief that one can master a certain task, it is a factor that could affect someone to execute self-regulated learning.

Jouhari et al. (2015) also mentioned that the role of teachers might affect students' having different self-regulatory skills. Students who have a positive relationship with their teachers might result in having more effective self-regulatory learning skills. Similarly, having a private tutor that can focus on students individually might result in better self-regulated learning. However, the results mentioned that there is no significant difference in self-regulatory skills between having a private tutor or none in high school students.

There is also no significant difference between male and female students in self-regulated learning, which implies that sex is not a contributor to self-regulatory skills in high school students (Ruminta et al., 2017).

The results also revealed that the number of siblings does not contribute to students having different self-regulatory learning skills. In the theory, Jouhari et al. (2015) mentioned that students' self-regulatory skills is dependent on the role of peers. Consequently, the role of siblings also increased during adolescence, and can be more influential than parents and peers (Dunn, 2007, as cited in Santrock, 2016). Since the research was conducted during the COVID-19 pandemic, investigating the role of siblings might be interesting and possibly siblings can affect the ability of self-regulated learning. However, the results mentioned otherwise.

However, some limitations might have affected the results of the study. First, the study only used high school students in one school in the Jakarta area, which cannot account for all high school students in Indonesia, let alone all high school students population. Second, the study was conducted online which results in a limited number of participants. Third, the study did not really explore the role of peers and friendship. Lastly, the use of a questionnaire is too restrictive, as the researcher could not get descriptive data on both variables.

4. CONCLUSIONS AND RECOMMENDATIONS

From the study, it can be concluded that there is a significant relationship between self-efficacy and self-regulated learning skills of adolescence in high school. Furthermore, self-regulated learning skills appear to be universal across different grades in high school and the role of teachers, sex, and grade level does not have any significant effect on Self-Regulated Learning in high school students.

For further research, the next researcher can investigate other factors beside self-efficacy that might affect self-regulated learning. Self-efficacy is just one factor that helps students to have better self-regulatory skills; there might be other predictors that might help students in self-regulated learning. Second, the next researcher can try to distribute the questionnaire nationwide to get a better map of Indonesian high school students' self-regulatory skills. Third, future study can explore the role of friendships in adolescence as their peers heavily influence young adults.

Lastly, the study was done during the COVID-19 pandemic and further research needs to be done, as there could be behavioral changes for high school students after the COVID-19 pandemic.

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