

School Engagement:

Role of Self-Regulated Learning in the Time of Coronavirus Pandemic

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Abstract—As the coronavirus spread, the school closed down its physical campuses and began to move students to remote learning. One of the critical questions that arise under this circumstance is how do students engage in a new world of online-only instruction. This study aims to describe school engagement that includes behavior, emotion, and cognitive engagement during their online learning; and the impact of self-regulated learning (SRL) on school engagement. The respondents of this research are 232 public high school students in Jakarta. They filled in two scales via G-form due to physical distancing policy, namely School Engagement Measures, and Online Self-regulated Learning Questionnaire. Confirmatory factor analysis was used to validate the instrument and regression analysis was used to test the role of SRL on school engagement. The finding showed that 57% of students have low emotional engagement, 54% have low behavioral engagement and 63% have low cognitive engagement in their school activities. Another finding showed that students' ability to regulate their goals and time management has a significant influence on their school engagement. Some recommendations were made for policy consideration.

Keywords—component, school engagement, self-regulated learning, online learning

I. INTRODUCTION

As the coronavirus spread, schools closed down their physical campuses and began to move students to remote learning, which is very different from the traditional classroom environment. In remote learning, information is relayed through technology, such as discussion boards, video conferencing, and online assessments, without the physical presence of educators or information sources.

Some finding shows that during pandemic covid 19 as much as 69% of children feel bored during school from home [1], skipping classes when online class meetings are held and not submitting their assignments [2], feel burdened because students are given more assignments while studying from home compared to when studying at school [3].

Without physical interaction with students, monitoring student attendance, and school engagement serves as a primary means for ensuring student achievement [4]. The ability of

active self-regulated learning is a key feature of showing student engagement in the school context [5].

A. School Engagement in Online Learning

Online learning from home is something new in Indonesian education, for which adaptations are still needed. According to Gudanescu [6], online learning is considered to have several advantages over face-to-face education, including flexibility and accessibility to study anywhere, anytime, without requiring one's physical presence at the school location, as well as effective and efficient delivery. Although traditional face-to-face learning has a different method from online learning, both of them still require active student involvement in the learning process [7].

A key issue in online learning is to improve learners' engagement with their educational activities. Since the 1980s, learner engagement has been a key topic in the education literature [8]. School engagement has become a major research project in two decades due to its potential in overcoming persistent educational problems such as low achievement, high dropout rates, and levels of student boredom and isolation [9].

Several studies have proven a positive correlation between school engagement and outcomes related to achievement for elementary, junior high, and high school students [9,10]. The importance of engagement is positively related to several desired outcomes, including high scores, student satisfaction, and persistence. For this reason, activities such as student-faculty interactions, peer-to-peer collaboration, and active learning are considered important in face-to-face and online learning environments [11-13]

According to reference Schaufeli et al. [14], school engagement is a positive state of mind and a connection with the study which is characterized by enthusiasm, dedication, and absorption. Furthermore, reference Fredricks et al. [9] described school engagement as student involvement in the learning process in academic and non-academic activities that can be seen through the behavior, emotions, and cognitive performance of students in the school and classroom environment.

There are three dimensions of school engagement, namely behavioral, affective, and cognitive engagement. Behavioral engagement refers to student conduct that is beneficial to psychosocial adjustment and achievement at school. This dimension can be divided into three main axes: discipline, involvement in school-related tasks, and participation in extracurricular activities [9].

The affective dimension of engagement refers to feelings, interests, perceptions, and attitudes toward school. Researchers have operationalized this variable using perceptions of belongingness [15], the perceived benefits, and the value of education [16].

Cognitive engagement addresses two variables that might affect achievement and psychosocial adjustment. These are student psychological investment in learning and the use of learning strategies by students. Cognitive investment in learning covers perceptions of competency, willingness to engage in learning activities and engage in effortful learning, and establishing task-oriented goals.

B. School engagement and Self-regulated Learning

Online learning from home during a pandemic requires the awareness of students to have good self-regulated learning abilities. Students who can be regulated their learning are expected to engage in activities at school.

According reference Zimmerman [17] self-regulated is not mental ability or academic performance skills; it is a self-direction process in which students convert their mental abilities into academic skills. self-regulated learning theory focuses on how students can proactively initiate or substantially design activities to educate themselves.

Barnard developed online self-regulated based on the development of many universities in America that conducted distance learning in the 1990s [18]. Then according to him the environment with distance learning makes self-regulated learning an important factor for successful learning.

Reference Barnard et al. [18] defines online self-regulated learning according to Zimmerman's theory on self-regulation. According to reference Barnard et al. [18], self-regulated learning is also based on the assumption that individuals can act as causal agents in their own lives. Self-regulated learning refers to the active behavior and willingness of individuals to be achieved in their learning.

There are six dimensions of online self-regulated learning, (1) Goal setting is the student's ability to set goals during the

online learning process, (2) Environment structuring is the ability of students to determine learning locations that get optimal benefits with minimal interference during the online learning process. (3) Task strategies are the ability of students to develop effective strategies to complete the tasks given during online learning. (4) Time management is the ability of students to organize and manage effective time during online learning (5) Help-seeking is the ability of students to ask peers and teachers to assist in the learning process, and (6) Self-evaluation is the ability of students to evaluate themselves on the goals that have been achieved during the learning process.

Online learning when studying from home, as during the Covid-19 pandemic currently requires awareness of students to have good self-regulated learning abilities to maximized their academic performance. Students who have the ability to self-regulate are expected to engage in school activities. Therefore, it is very important to examine the influence of online self-regulated learning on school engagement at school from home. This study aims to describe school engagement that includes behavior, emotion, and cognitive engagement during their online learning; and the impact of self-regulated learning (SRL) on school engagement.

II. METHODS

The respondents of this research are 232 public high school students in Jakarta. Table 1 showed the description of respondent.

TABLE I. DESCRIPTION OF RESPONDENTS

		Frequency	Percentage
Sex	<i>Male</i>	54	23.3%
	<i>Female</i>	178	76.7%
Grade	<i>X</i>	42	18.1%
	<i>XI</i>	112	48.3%
	<i>XII</i>	78	33.6%
High School Location	<i>Jakarta Timur</i>	136	58.6%
	<i>Jakarta Barat</i>	19	8.1%
	<i>Jakarta Selatan</i>	76	32.7%
	<i>Jakarta Pusat</i>	1	0.6%
	<i>Jakarta Utara</i>	0	0%
Total		232	100%

They filled in two scales via G-form due to physical distancing policy in Jakarta, first School Engagement Measures that developed based on Frederick, Blumenfeld and Paris work [9]; second, Online Self-Regulated Learning Questionnaire [18] (see table II). Confirmatory factor analysis was used to validate the instruments.

TABLE II. ONLINE SELF-REGULATED LEARNING QUESTIONNAIRE

	ITEM	Coeff.	Stand. Error	T-Value
Goal Setting	I set standards for my assignments in online courses.	0.63	0.06	10.37
	I set short-term (daily or weekly) goals as well as long-term goals (monthly or for the semester).	0.60	0.06	9.78
	I keep a high standard for my learning in my online courses.	0.65	0.06	11.07
	I set goals to help me manage studying time for my online courses.	0.82	0.06	14.49
	I don't compromise the quality of my work because it is online.	-0.04	0.07	-0.62
Environment Structuring	I choose the location where I study to avoid too much distraction.	0.58	0.06	9.16
	I find a comfortable place to study.	0.50	0.06	7.58
	I know where I can study most efficiently for online courses.	0.64	0.06	10.70
	I choose a time with few distractions for studying for my online courses	0.31	0.07	4.77
Task Strategies	I try to take more thorough notes for my online courses because notes are even more important for learning online than in a regular classroom.	0.62	0.06	10.26
	I read aloud instructional materials posted online to fight against distractions	0.23	0.07	3.53
	I prepare my questions before joining in the chat room and discussion	0.58	0.06	9.55
	I work extra problems in my online courses in addition to the assigned ones to master the course content.	0.23	0.07	3.53
Time Management	I allocate extra studying time for my online courses because I know it is time demanding.	0.55	0.06	8.93
	I try to schedule the same time every day or every week to study for my online courses, and I observe the schedule	0.65	0.06	10.93
	Although we don't have to attend daily classes, I still try to distribute my studying time evenly across days.	0.72	0.06	12.34
Help seeking	I find someone who is knowledgeable in course content so that I can consult with him or her when I need help.	0.35	0.06	5.38
	I share my problems with my classmates online so we know what we are struggling with and how to solve our problems.	0.27	0.06	4.18
	If needed, I try to meet my classmates face-to-face.	0.21	0.07	3.28
	I am persistent in getting help from the instructor through e-mail.	0.48	0.06	7.67
Self-Evaluation	I summarize my learning in online courses to examine my understanding of what I have learned	0.69	0.06	11.82
	I ask myself a lot of question about the course material when studying for an online course.	0.47	0.06	7.44
	I communicate with my my classmates to find out how I am doing in my online classes	0.51	0.06	7.95
	I communicate with my classmates to find out what I am learning that is different from what they are learning.	0.48	0.06	7.51

The school engagement scale consisted of 19 items that were tested for unidimensional characteristics. The results of the initial analysis with the one-factor model were not fit (chi-square = 981.89 df = 152, p-value = 0.0000, RMSEA = 0.154). Then modifications were made, by freeing the error some items to correlate with one another. After modification, a fit one-factor model was obtained with Chi-square = 127.76, df = 105, P-value = 0.06493, and RMSEA = 0.031. After the appropriate one-factor model is carried out, the next step is to look at the T-value and factor load coefficient for each item (see Table II). If the T-Value >1.96 and the factor loading coefficient is positive, the item can be accepted for inclusion in the next analysis. Based on the test, all items have positive coefficients and there is one item with a value of t <1.96, namely item number 9. Therefore, the item is dropped and not included in the next analysis.

The same procedure was used to 24 items of online self-regulated learning. After modification, a fit one-factor model was obtained with Chi-square = 221.65, df = 189, P-value = 0.05206, and RMSEA = 0.027.

III. RESULTS AND DISCUSSION

The finding showed that 57% of students have low emotional engagement, 54% have low behavioral engagement and 63% have low cognitive engagement in their school activities (see Table 3).

TABLE III. DESCRIPTION OF STUDENT’S ENGAGEMENT

Variable	Frequency		Percentage	
	Low	High	Low	High
	≤ M	>M	≤M	>M
Behavioral Engagement	125	117	54%	46%
Emotional Engagement	132	100	57%	43%
Cognitive Engagement	146	86	63%	37%

Multiple regressions were used to assess the six aspects of SRL to predict school engagement. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The total variance explained by the model as a whole was 43% (See Table 4).

TABLE IV. R SQUARE

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.657 ^a	.432	.417	7.63736

^a Predictors: (Constant), Self-evaluation, Environmental structuring, Time management, Help seeking, Task strategies, Goal setting

Furthermore, the finding showed that student's ability to regulate their goal ($\beta=.41$) and time management ($\beta=.19$) have a significant influence on their school engagement. While environmental structuring, task strategies, help seeking and self-evaluation do not have significance influence on school engagement (see Table 5).

TABLE V. REGRESSION COEFFICIENTS

Model		Unstandardized Coefficients		Standard Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.556	3.464		3.914	.000
	Goal Setting	.409	.074	.409	5.531	.000
	Environmental Structuring	.076	.060	.076	1.259	.209
	Task Strategies	.094	.070	.094	1.336	.183
	Time Management	.196	.072	.196	2.708	.007
	Help Seeking	-.079	.062	-.079	-1.284	.200
	Self-evaluation	-.034	.074	.034	.461	.645

a. Dependent Variable: School Engagement

This finding showed that our students face challenges in engaging themselves in their online learning during the pandemic. Especially, the ability to giving cognitive investment, such as a willingness to learn and the use of learning strategies.

This finding showed 63% of students that participated in this research have a low cognitive engagement which means that they still hard to put all their attention and hard work into their online learning. They also seem don't have a new strategy with distance learning, which means they still struggling to adapt to this kind of learning.

Learning strategies describe how students learn; they conjointly offer sensible indicators of the standard of students' engagement whereas learning, i.e. how much mental effort a student devotes to learning activities. Reference Greene and Miller [19] distinguished shallow psychological feature engagement, such as surface learning, and purposeful psychological feature engagement, such as a deep learning approach and self-regulated learning. Analysis specifically highlights the importance of purposeful psychological feature engagement explaining action, specifically within the type of self-regulated ways and a deep learning approach [20]. The use of metacognitive and self-regulated learning approaches is important in high school level, where less external regulation exists.

In the online learning situation, surface cognitive engagement would offer solutions without judgement or justification; repeating ideas without clarification; or general agreement with others without explanation or further contribution. Students who work at this level would simply easily be distracted, using avoidance strategies, and focus on completing the task as a means to an end rather than learning from the task [9]. Whereas, those students who using deep cognitive engagement showing more complex processes. Their online posts justify or compare ideas and solutions; they integrate ideas from multiple sources, provide new information, judgements, or integration of information, and can support their ideas [21]. Learners working at deep cognitive levels have a psychological investment in learning, a preference towards challenge, as well as a desire to go beyond base requirements. They sustain engagement through persistence and can find relevance in new information by aligning it with previous knowledge. Instructors can impact the level of cognitive engagement based on the requirements of activities and assessment tasks.

Student's ability to regulate their goal and time management has a significant influence on their school engagement. The ability of active self-regulated learning is a key feature of showing student engagement in the school context [5]. And also this research found that online SRL is a predictor of school engagement during study from home.

Student's ability to set their own learning goals has a significant influence on their school engagement. A goal helps them to direct their behaviors towards something that they want to achieve. Without a goal, they do not have a study plan and do not give big effort to their learning activities. Motivation theories has explained that students' expectations, beliefs, and goals contribute to their school engagement, self-determination theory is exclusive that it emphasizes the academic task of invigorating students' inner psychological feature resources as the key step in facilitating high-quality engagement [22].

Online learning gives students autonomy and promotes self-directed learning, yet it also requires them to exercise self-regulation in managing their time. Time management is the way of individuals using their time in their psychological

characteristics and behavior [23]. The ability of managing time gave contribution to the success of student learning [24].

Although most experimental research in the online self-regulatory learning space comes from higher education, the principles of student self-regulation learning are the same across grade spans and replicable in the digital environment. Correlation between time management and study engagement has been investigated on university students in previous research [25]. The results identified that study engagement can be predicted by placing value on sense of time and time control.

The promotion of key self-regulatory behaviors from the student, including goal setting, planning toward goals, and monitoring progress, can increase engagement in the online environment. This plan provides space for students to set weekly, semester-long, and long term goals, breaking goals down into tasks and reflect on their progress toward the goal to adjust their approaches.

It is suggested to the next research to study about parent's role to increase school engagement, as we know many parents become a teacher or accompany their children while study at home during this pandemic.

Teachers can also play a role in promoting student regulation in their online class by guiding their students to set learning goals and manage time. But on the other side, we need to provide teachers with training or guidance on the use of techniques or technology features to help promote student self-regulation. In theory, the basic theory of self-regulated learning affects school engagement, as stated by reference [5], the ability of active self-regulated learning is a key feature of showing student engagement in the school context and also considered as a characteristic of successful development because it is relevant for student engagement.

IV. CONCLUSION

In this study, we showed that self-regulated learning or independent learning when online greatly affects school engagement at school from home or online learning. Online self-regulated learning has a significant effect in a positive direction and provides the greatest contribution to school engagement. This means that the higher the value of online self-regulated learning in students, the higher school engagement and statistically significant. Specifically, this finding showed that student ability to set their own goal in learning and their ability to manage their time are predictors of student's engagement, especially through their online learning.

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