

Self-Regulated Learning Strategy in Conducting Remote Lecturing During Covid-19 Pandemic

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ABSTRAK

Sejak merebaknya virus Covid-19 yang melanda Indonesia, Kebijakan Work from Home yaitu bekerja, belajar, dan beribadah di rumah telah diterapkan untuk mengurangi aktivitas masyarakat di luar rumah. Untuk menjaga prestasi akademik mahasiswa dalam perkuliahan jarak jauh selama Pandemi Covid-19, diperlukan strategi untuk merencanakan, memantau, dan mengevaluasi kemajuan akademik. Penelitian ini bertujuan untuk menginvestigasi strategi Self-Regulated Learning (SRL) dalam perkuliahan jarak jauh. Desain penelitian yang digunakan adalah metode survei dengan pendekatan kuantitatif. Subyek penelitian ini berjumlah 209 mahasiswa perguruan tinggi dengan menggunakan teknik convenience sampling. Teknik pengumpulan data yang digunakan adalah skala SRL yang dikembangkan oleh Zimmerman. Skala diinput ke Google Form, kemudian didistribusikan secara online. Formula validitas Aiken dan reliabilitas Cronbach Alpha menunjukkan validitas yang baik dan reliabilitas yang tinggi. Teknik analisis data yang digunakan adalah statistik deskriptif, MANOVA dan ANOVA. Hasil penelitian menunjukkan bahwa indikator Self-Control merupakan faktor yang paling dominan di kalangan siswa. Selain itu, tidak ada perbedaan yang signifikan secara simultan antara laki-laki dan perempuan dan hasil yang tidak meyakinkan terkait gender dalam SRL dalam pelaksanaan perkuliahan jarak jauh.

ABSTRACT

Since the outbreak of the COVID-19 virus hit Indonesia, the Work from Home Policy of working, studying, and worshipping at home has been implemented to reduce community activities outside the home. To maintain students' academic performance in remote lecturing during the COVID-19 Pandemic, it needed a strategy to plan, monitor, and evaluate academic progress. The study aimed to investigate the Self-Regulated Learning (SRL) strategy in remote lecturing. The research design used was a survey method with a quantitative approach. The subjects of this study numbered 209 higher university students by using the convenience sampling technique. The data collection technique used was the SRL scale developed by Zimmerman. The scale was inputted into Google Form, then distributed online. The Aiken index validity and reliability using Cronbach Alpha showed good validity and high reliability. The data analysis techniques were descriptive statistics, MANOVA and ANOVA. The findings showed that the Self-Control indicator was the most dominant factor among students. Besides, there was no significant difference simultaneously between men and women and inconclusive results related to gender in SRL in the distance lecturing implementation.

1. INTRODUCTION

Since the outbreak of the COVID-19 virus hit Indonesia, the Work from Home Policy of working, studying, and worshipping at home has been implemented to reduce community activities outside the home (Rahayu & Fauzi, 2020). Particularly in the implementation of the policy of Studying from Home, higher education carried out learning with a remote lecture system which is identical to fully online learning (Churiyah et al., 2020). The learning model is applied in the next new school year. An anomaly occurs ultimately when the proportion of virtual learning adaptation becomes massive and is fully implemented (Wong et al., 2019). It can be claimed that this condition requires adaptation in a new learning environment,

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particularly in remote learning with fully online mode, so it might affect students' learning habits and attitudes (Carter et al., 2020).

The massive implementation of distance learning leads to several challenges and obstacles. To illustrate, virtual space cannot result in comprehensive discussions between students and lecturers, the material obtained is not in-depth and there is a lack of feedback and is exacerbated by an unstable network (Carter Jr et al., 2020; Wong et al., 2019). Therefore, it raises doubts regarding the knowledge they obtain from independent learning (Bintoro, 2013). The impact of inadequate knowledge and the inability of individuals to plan the learning goals to successfully handle academic obligations is very wide-ranging to create uncertain and unpleasant feelings of anxiety (Vivin, Marpaung & Manurung, 2019). Even before the COVID-19 pandemic took place, this kind of emotional state was felt by many students. Skepticism, worry, and decreased learning motivation, procrastination habits of academic tasks that had previously been studied have become the toughest obstacles encountered by students (Wolters et al., 2017).

Previous study offer a solution to cope with the situation (Fasikhah & Fatimah, 2013). They proposed that students are required to be able to learn more independently, have high motivation, and importantly do planning, monitoring as well as self-study evaluation. It is importantly considered so that distance learning does not cause a decline in student academic performance amid the COVID-19 social crisis which has entered its second year. The solution mentioned as Self-Regulated Learning (SRL), a global term in the field of learning and teaching (Fasikhah & Fatimah, 2013; Retnawati, 2016). The SRL is a learning strategy to regulate learning needs, methods, motivation, and goals through systematically regulating behavior and cognition (Retnawati, 2016; Saputro & Setyawan, 2020; Zimmerman & Pons, 1986; Zumbunn et al., 2011). The ability of SRL in students is believed to be an indicator of the success of online learning activities with the concept of self-regulation (Retnawati, 2016; Shirdel et al., 2018; Virtanen et al., 2015). Recently, complex variations of topics and subjects in online classrooms are less effective in regulating student learning behavior in gaining conceptual understanding if not supported by the SRL (Wong et al., 2019; Zhu et al., 2020). The findings of the studies revealed that the application of self-regulation learning can solve problems in remote learning in the online environment, especially during the COVID-19 pandemic.

By considering the SRL review which was previously written in scholarly educational papers, students need to apply the SRL in this crisis period. It also implies the presence of SRL study during the COVID-19 pandemic, because the application of SRL in remote learning is certainly different from in-class time (Retnawati, 2016). It showed that the effectiveness of SRL practice in conventional classes has been widely studied. By this, the previous studies of student's learning with the SRL strategy in the traditional class had been widely available. Regarding the success factor through the SRL approach has been revealed in previous studies in the realm of traditional classrooms, however, further investigation is needed regarding what the indicator are most dominant during the implementation of full online lectures in the perspective of the SRL approach. SRL studies in online learning are needed to review students' SRL achievements and academic progress, so that students, educators, educational institutions can take steps in developing SRL skills, especially in higher education students. The focus of the education sector in the future is to discuss SRL applied in an online learning environment so that further research is needed regarding SRL as it is predicted to be useful to support online learning practices (Carter Jr et al., 2020). In Indonesia, there is no better time to examine the practice of Self-Regulated Learning (SRL) than the moment created by the COVID-19 pandemic with the massive implementation of distance and online learning in higher education.

A study addressing the indicators that support the dominant factors of SRL's students in the COVID-19 Pandemic still needs to be further identified. The study of SRL during this moment that a self-regulated learning approach to a distance learning model in which the online learning environment is applied in a pandemic period with research subjects of K-12 students (Carter Jr et al., 2020). Therefore, this study is to fill the existing study gap, besides that it is intended to enrich the SRL literature in an online learning setting related to the pandemic era. It is also important to find out gender factors regarding differences between men and women in academic performance in terms of SRL perspective and in the context of remote lecturing (Karimpour et al., 2019; Kitsantas & Zimmerman, 2009; Neroni et al., 2019). Based on the phenomena and factual problems described above, this study examines the Self-Regulated Learning during remote lecturing for higher education students. Specifically, the objectives of this study are; (1) to identify the dominant factor of student SRL behavior in the pandemic era and (2) to find out whether or not the differences in the SRL strategy applied between male and female students during the implementation of distance lecturing.

2. METHOD

This research was quantitative descriptive using a survey method. The data collection technique in this study was the instrument of the Self-Regulated Learning scale, comprising three components namely forethought and planning, performance monitoring, and reflection on self-performance (Zimmerman, 2002). Besides, the items of the scale were adopted by employing a closed-ended question with a five-point scale using the Likert scale format (Retnawati, 2016). The alternative answers provided were ranged from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The data were distributed online by using Google Form. The blueprint of the SRL scale can be seen in Table 1.

Table 1. The Blueprint of Self-Regulated Learning (SRL) Scale

Components	Indicators	Sub-Indicators	Item Number	
Forethought and planning	Task Analysis	Setting the specific goals	1	
		Planning the strategy of learning and tasks	2	
	Self-Efficacy	Self-capacity	3	
		The clarity of goals to be achieved	4	
Performance monitoring	Self-Control	Self-Instruction	5	
		Efforts to focus on the study	6	
		Task completion strategy	7	
	Adequate Observation	Metacognitive monitoring	8	
		Self-Note	9	
	Reflection on Self-performance	Self-Consideration	Self-experimentation	10
			Self-evaluation	11
Self-Reaction		Causal attribution	12	
		self-satisfaction (reward)	13	
		self-satisfaction (punishment)	14	
	Adaptive/ defensive	15		

(Retnawati, 2016; Zimmerman, 2002)

The subjects of this study were graduate students at a university in the city of Yogyakarta who were undergoing the remote learning process during the pandemic. The sampling technique employed was convenience sampling, which included people who were available, voluntary, and easy to be recruited to be a sample in the study (Asriadi & Istiyono, 2020). Therefore, the total number of the sample was 209 respondents comprising 91 males and 118 females fulfilling the online questionnaire from May to August 2020. The validity result of the instrument showed that the Aiken index for Self-Regulated Learning scale was 0.79 with the mediocre category, hence the validity test proved that the instrument used in this study was valid (Retnawati, 2016). Furthermore, the reliability test of the instrument used was Cronbach's Alpha of 0.999. This indicated that the use of instruments was reliable to gauge the self-regulated learning strategies in the implementation of distance learning during the pandemic. The descriptive statistic was used to analyze the SRL behavior of graduate students. Next, it was continued to find out the percentage score of each indicator of SRL (Rahim et al., 2020; Riduwan, 2004). The annotations of the formula are Percentage Descriptive (DP%), then \bar{x} is the average score and $\sum x_i$ is the ideal score. The categories to know the percentage of each indicator of SRL and to see the highest percentage can be seen in Table 2.

Table 2. The classification of category

Interval of Percentage	Category
80%-100%	Very high
60%-80%	High
40%-60%	Moderate
20%-40%	Low
0%-20%	Very low

(Riduwan, 2004)

Multivariate of Variance (MANOVA) analysis was then performed to determine the simultaneous difference between men and women implementing SRL strategy. Furthermore, ANOVA analysis was carried out to find out significant differences in each measured indicator between men and women. To run the assumption test, the Kolmogorov-Smirnov One-sample test was conducted to determine the normal

distribution of the data, and the Variance Homogeneity test was carried out to test the variance differences between groups.

3. RESULT AND DISCUSSION

Result

Responses to the Self-Regulated learning questionnaire distributed online through Google Form responded well. The results of the response regarding the SRL's students in the implementation of remote lectures during the COVID-19 Pandemic were analyzed by using quantitative descriptive percentages. The results of percentage for each SRL indicator are presented in Table 3.

Table 3. The results of percentage for each indicator of SRL

Components	Indicators	Percentage (%)	Category
Forethought and planning	Task Analysis	72.50	High
	Self-Efficacy	67.80	High
Performance monitoring	Self-Control	74.46	High
	Adequate Observation	69.00	High
Reflection on Self-performance	Self-Consideration	72.50	High
	Self-Reaction	69.80	High

As shown in Table 3, the results of the analysis showed that the indicator of Self-Control reached 74.46% with a high category where it became the highest percentage. Whereas, the indicator of Self-Confidence obtained 67.8% with high category but it is the lowest percentage. It can be said that self-control is the dominant factor of SRL applied by university students during the implementation of remote lecturing during the outbreak of COVID-19. Then, a normal distribution test showed the Sig. = 0.091 > 0.05 meaning that the data in this study were normally distributed. The homogeneity test was estimated with Sig. (0.079) > α (0.05). As the Significance value was greater than Significance (α), the assumption of the population variance equation was fulfilled. Moreover, the multivariate significance test result showed that the significance value of Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root (0.33) was greater than α (0.05). The multivariate significance test for the main effect can be seen in Table 4.

Table 4. Multivariate Significance Test for Main Effect

	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Gender	Pillai's Trace	0.033	1.159	6.000	202.00	0.33	0.033
	Wilks' Lambda	0.967	1.159	6.000	202.00	0.33	0.033
	Hotelling's Trace	0.034	1.159	6.000	202.00	0.33	0.033
	Roy's Largest Root	0.034	1.159	6.000	202.00	0.33	0.033

Based on the result of the analysis simultaneously, there is no significant difference statistically in Self-Regulated Learning behavior between men and women. To review the differences in each indicator on the male and female, it is provided in Table 5.

Table 5. Significance Test of Univariate of Between-Subjects Effects

Source	Indicator	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Gender	Task Analysis	2.973	1	2.973	1.192	0.276	0.006
	Self-Efficacy	2.816	1	2.816	1.007	0.317	0.005
	Self-Control	0.779	1	0.779	0.269	0.604	0.001
	Adequate Observation	6.153	1	6.153	1.008	0.317	0.005
	Self-Consideration	1.967	1	1.967	0.721	0.397	0.003
	Self-Reaction	9.031	1	9.031	1.782	0.183	0.009

Based on the univariate significance test presented in Table 5, the Sig. of each indicator is greater than α (0.05). It means that the Task Analysis of male and female students with a Sig. = 0.28 > 0.05 means that there is no significant difference. The next indicator is Self-confidence which has a Sig value. = 0.32 > 0.05 means that there is no significant difference between male and female students. Furthermore, the indicator of Self-Control with the acquisition of the value of Sig. 0.60 > 0.05 indicates no significant difference. Then, the Adequate Observation for male and female students does not show a significant difference with the Sig. = 0.32 > 0.05. The Self-Consideration Indicator does not show a significant difference between men and women with the Sig. 0.39 > 0.05. Finally, the Self-Reaction indicator also shows that there is no significant difference between male and female students with the Sig. 0.18 > 0.05.

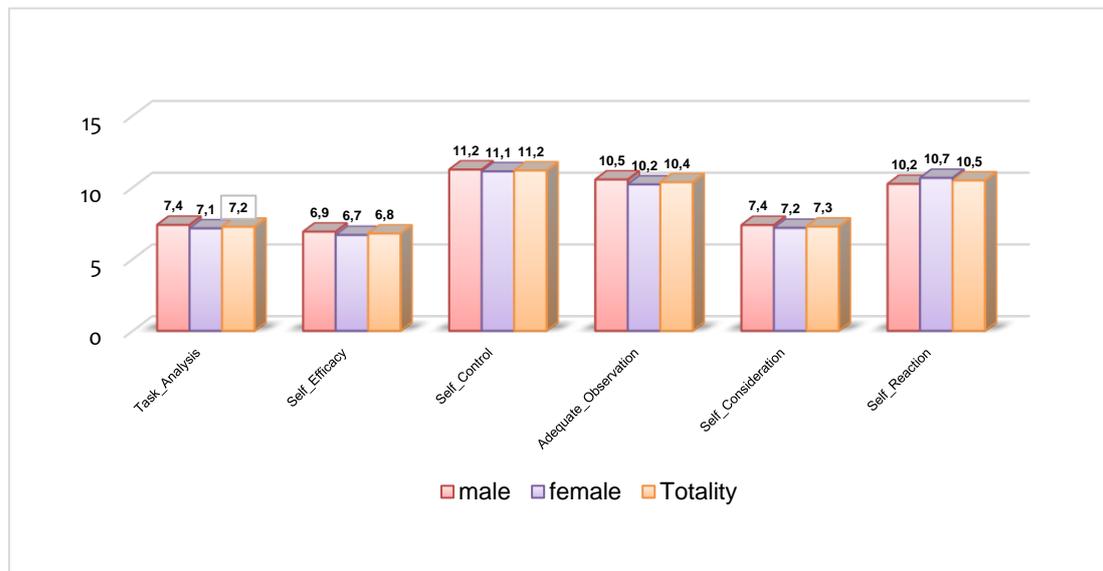


Figure 1. The Percentage Difference of Each Indicator for Male and Female Students

As shown in Figure 1, the indicators of Task Analysis, Self-Confidence, Self-Control, Adequate Observation, Self-Consideration, and Self-Reaction, results in rate values less dominant were shown by men even though the results produced were not much different with women. Likewise, the multivariate test results showed no significant difference simultaneously.

Discussion

As stated previously, the study was to identify higher education student’s learning behaviors in the implementation of remote lecturing at home by finding out the dominant factor of SRL strategy in adult learners such as university students during Pandemic. To begin with, the results of the analysis showed that all the measured indicators are in the high category. It means that the university students use the self-regulation learning (SRL) strategy to plan, monitor, and evaluate their academic performance during the implementation of online learning in the pandemic era. The strategy has been applied very well proven by the high category obtained. The analysis result of this study showed that the indicator of Self Control reached 74.46% with the highest percentage. It can be said that the most dominant component of SRL applied by university students is Self-Control. It means that college students do self-instruction, effort to focus on their studies, and conduct task completion strategies to monitor their academic performance during the implementation of online learning in the Pandemic situation. As stated by Wong et al (2019), self-instruction can be reflected through feedback gained from instructors, asking for integrated support systems such as web-based learning tools, and learning monitoring tables to manage students’ SRL schedules (Wong et al., 2019). Learning strategies using SRL can be identified by controlling the acquisition of student academic knowledge as a form of self-control (Azmi, 2016). Besides, during learning, students applied various strategies to help themselves learn and stay concentrated on tasks by controlling themselves (Carter Jr et al., 2020; Retnawati, 2016). Concentration on assignments refers to a focus on learning which is the key element of monitoring performance in SRL (Zimmerman, 1990). Therefore, it can be stated that self-instruction, effort to focus and task completion as self-control strategies is used by university students to concentrate on their tasks and focus on learning progress through monitoring the performance.

The indicator of Self-Efficacy is in the high category, although the gained percentage is the lowest score among the measured indicators. Lack of self-efficacy refers to what they get during the instructor’s

explanation, feedback that does not satisfy them, lack of readiness in online learning, and individual emotional readiness (Churiyah et al., 2020; Simatupang et al., 2019). Lack of readiness in online learning revealed by previous studies is associated with remote lecturing implemented during the pandemic of COVID-19, that unpreparedness experienced by students because they should adapt to the new system and were strongly encouraged to study independently due to academic activity restrictions at university. In the context of fully online learning, students need feedback to support their understanding during the implementation online learning (Wong et al., 2019). It is necessary to do because students' self-capacity differ each other. Students differ in many ways such as their low of high initial knowledge, low and high cognitive skills, intellectual abilities, and learning behaviors (Pratiwi & Wuryandani, 2020). Therefore, the reasons identified why the indicator of self-efficacy showed the lowest score are the unpreparedness to the new system lecture, pandemic situations and social restrictions, individual differences in self-capacity.

The Task Analysis and Self-Consideration indicators have the same percentage score of 72.5%. The Task Analysis is a component of forethought in SRL with two items measured. Meanwhile, the Self-Consideration indicator is in the Self-Reflection component. The indicator consists of two items. These two indicators are complementary components in the SRL phase where better forethought and planning can assist students to develop what they want to achieve maturely (Hidayat et al., 2019; Virtanen et al., 2015; Virtanen & Nevgi, 2010). According to previous researchers, students who apply SRL tend to analyze learning tasks and set specific goals to complete their tasks. The obligation to complete assignments encourages students to plan strategies and set goals in detail prior to facing the deadline for submitting assignments. This is also a form of avoiding the habit of procrastination in the academic field (Ananta, 2017; Soegiyanto et al., 2019; Wolters et al., 2017). The indicators of Self-Reaction and Adequate Observation achieved a score of 69, 8%, and 69%, respectively. The Self-Reaction Indicator consisted of three items. Self-reactions involve feelings of satisfaction and dissatisfaction (Zimmerman, 2002). Learning satisfaction during a remote learning environment can be influenced by the extent to which students are ready to learn online (Kumalasari & Akmal, 2020). Satisfaction with students means that they will more frequently use a sustainable online learning system (Zhu et al., 2020). Increased self-satisfaction will have an impact on their motivation to work better in learning and enhance academic achievement (Pratiwi & Wuryandani, 2020). While the decrease in self-satisfaction may cause frustration for students which is identical to fully online learning. Negative effects and emotional state reflect an individual's emotional response to academic difficulties during the Pandemic (Kumalasari & Akmal, 2020). This is also supported by previous study that the emotional state of students is a reason whether or not focuses on learning, especially on remote or online learning (Carter Jr et al., 2020).

Adequate Observation Indicators are in the Performance Monitoring dimension. This indicator is represented by three items. Adequate observation related to recording personal activity. Adequate observation is an aspect of metacognitive monitoring in which there are self-recording and self-evaluation activities as a form of controlling the performance of academic assignments (Retnawati, 2017). Furthermore, the purpose of self-recording was to obtain and store information obtained from learning activities. It also allows students to outsource their memory through paper (take notes) as well as create comprehensive content for future reference citations to them. Self-experimentation refers to the student learning process about what to avoid and create to create a good environment for learning. The second research purpose concerned the gender distinction in SRL in the online learning environment. Gender factors and an online learning environment are correlated with the SRL approach (Wong et al., 2019). Females reached a higher rate score in planning and goal-setting indicators referring to the detailed goals to enhance learning progress (Karimpour et al., 2019). Then, there were slightly higher mean scores of women compared to men students in the SRL regarding the forethought and planning aspect in the conventional classroom model (Virtanen & Nevgi, 2010). However, this study showed that the male students are slightly higher than female students in all the measured indicators, except for the self-reaction indicator. Based on the previous researches, there is a slight extent in SRL for gender differences but it is insignificant in general, so it might be said that it is inconclusive (Virtanen & Nevgi, 2010).

University students have known their capacity to regulate themselves in learning in order to maintain their academic performance (Latipah, 2010; Rachmah, 2015). This study found that both men and women students conducted the SRL strategy are not much different in the context of fully online learning. College students also belong to good self-control evidenced in this study that the indicator is the dominant factor for higher education students in the remote learning context. It means that they as adult learners are able to drive themselves in learning, strive to focus, and accomplish their academic tasks during the remote lecturing nuance. College students performing self-regulation in MOOCs learning are also set by educational motivation, such as getting a certificate of degree, in order to satisfy their community such as parents, relatives, and even themselves (Wolters et al., 2017). Adult learners have a big desire for self-control

(Latipah, 2010; Retnawati, 2017). It means that higher self-awareness may result in better self-regulation in learning.

With regards to the above discussion, a strategy to maintain academic performance is needed to provide university students appropriate support in academics during the social restrictions. This study reveals that SRL is applied sufficiently well by students as a learning strategy during the implementation of remote lecturing in the Pandemic era. One of the dimensions of SRL, named self-control, has been identified as the dominant factor for university students to be able to plan, monitor, and evaluate their academic progress. Learning challenges are obviously faced by students, therefore, not only strong learning behaviors in students such as self-control but also need to be supported by goal-based learning strategies as well as supported by emotional support, academic feedback, and internet facilities. Emotional support and academic feedback during online learning are claimed to help students to improve self-efficacy so that they do not hesitate in the knowledge they acquire and academic progress they do.

Moreover, SRL in the context of distance learning, especially for university students, showed insignificant differences. The SRL components to determine the learning behaviors of male and female students in the implementation of online learning are moderately similar. In other words, male and female students are almost similar to regulating themselves to plan (forethought and planning), monitor (performance monitoring), and evaluate their academic performance (reflection of self-performance) in the online lecturing during the COVID-19 pandemic. This research is also related to gender as a human factor to maintain academic performance. The findings of this study reveal that gender factors in learning behavior, particularly with the SRL in the context of online learning, become inconclusive result because of the influences of many Internal and external factors such as human factors, age, social, psychology, self-emotions, situations of environment, and circumstances in learning. Hence, the findings of this study support several previous studies that became the reference for this study that the gender element in SRL in the context of the face-to-face class showed the ambiguous result, even so in the context of the online class showed the minor conclusion of results. This research, hence, confirmed a consistent result found from several previous research revealing that human factor such as gender is minor conclusion, which means both men and women are quite similar, in terms of SRL perspective both in the setting of face-to-face learning and distance learning.

The suggestions that can be put forward in this study are first, the Self-Regulated Learning (SRL) scale can be used as one of the instruments for measuring the aspects of regulation, behavior, and student learning motivation. The SRL instrument can specifically and contextually measure student self-regulation, both offline / face-to-face and online/long-distance classes. Second, to support and maintain student academic performance, it is better to pay attention to learning support (including the need to prepare more comprehensive feedback and discussion) and understanding the emotional state of students in other crises. The recommendations offered are the study of Self-Regulated Learning on the application of distance learning during the pandemic is expected to be a study that remains to be highlighted in the world of education which is migrating from face-to-face learning concepts to fully online learning. Future studies related to the SRL could be further explored to predict the importance of planning, performance, and learning evaluation to improve academic performance for students at various levels of education. The limitations on this recent study were that this paper merely researched higher education students in general, not examine further aspects of student disciplinary, department or major, and faculty because it focuses on the behavior of male and female students which reflects the use of SRL as a strategy during the implementation of remote learning. Besides, the research was conducted in only one university in Yogyakarta Special Region, therefore it should be considered colleges/universities from other regions to reach the generalization of the gained results regarding the SRL of higher education students in terms of online lecturing.

4. CONCLUSION

He finding of this study reported the behavior of Self-Control in Self-Regulated Learning in remote learning is a dominant factor that helps students keep their academic performance including an attitude of personal responsibility in completing college assignments. Based on the previous studies, they reported that self-awareness in controlling themselves plays a better role in self-regulated learning as they are an adult learner who has a higher desire to be responsible for their academic accomplishment. The academic obligation required students to control themselves as the students' educational motivation such as getting a certificate of degree or self-satisfaction in accomplishing the degree. Additionally, in the strategy of Self-Regulated Learning applied in remote lecturing, the difference between male and female students is a minor conclusion as a result of statistically insignificant difference analysis. Also, it can be said that both male and female students have good regulation learning in the context of fully online learning.

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