

The Role of Self-regulated Learning in Coping with Postgraduate Students' Academic Procrastination During the COVID-19 Pandemic in Malaysia

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Abstract

Academic procrastination is generally associated with insufficient self-regulated learning. However, through a qualitative case study, this research looks at another perspective which explores the academic procrastination experienced and the role of self-regulated learning strategies in motivational and behavioral aspects as coping mechanisms during the COVID-19 pandemic. Six research participants, postgraduate students at the National University of Malaysia, were selected through purposive sampling and follow-up interviews. This research discovered that postgraduate students demonstrate academic procrastination behaviors such as delaying starting and completing the task, deferring doing the assignment, having a time gap between planning and actual work, being more easily distracted, yet, having the self-assurance of being able to complete the assignment in time, and exhibiting a perfectionist personality trait. At the same time, academic procrastination was dominantly caused by the ambience of online learning during the COVID-19 pandemic and lack of social support. This study also discovered that the postgraduate students applied self-regulated learning motivational strategies such as mastery of self-talk, the relevant reinforcement strategy, the self-consequential strategy and the environment-forming strategy in rebuilding and maintaining motivation. Meanwhile, an effort regulation strategy and pursuing social support are carried out in the behavioral aspect of self-regulated learning strategies to reduce indulgence on academic procrastination. Concisely, self-regulated learning strategies have played a significant role in coping with academic procrastination during online learning throughout the COVID-19 pandemic.

Keywords: *COVID-19 pandemic, academic procrastination, self-regulated learning strategies*

Introduction

The world outbreak of COVID-19 on 11 March changed the daily lives of people around the world dramatically and prompted all countries affected by the virus to impose physical distancing and restriction of movement. In Malaysia the number of cases rose dramatically on 14 March when up to 16.000 people were affected by the virus, and then on 16 March 2020 the government of Malaysia finally implemented the quarantine and travel restrictions known as the Movement Control Order (MCO) (Irfan et al., 2020).

The implementation of the MCO in order to control and reduce the spread of the virus has created significant challenges for the higher education sectors, especially for the students. Both the MCO and online learning activities forced students in higher education in Malaysia to deal with virtual learning with no preparedness or plan (Rasheed Mohammad Nassr et al., 2020). Some recent studies have found that higher education students in Malaysia have been dealing with challenges and difficulties in conducting online learning, such as the lack of financial support for devices and tools for online learning, and internet connection barriers. The situation also forces students to maintain their study and academic achievement throughout the difficult days of COVID-19. It decreases their motivation, and even increases their level of depression (Rasheed Mohammad Nassr et al., 2020; Azlinda Azman, et al., 2020; Muhammad Irfan et al., 2020; Mohd Hanafiah & Chang, 2020). In a nutshell, the students are being affected psychologically, environmentally and physically during this Pandemic.

Meanwhile, despite all those difficulties and challenges the students face, at the same time, online learning during the COVID-19 pandemic demands students enhance their functioning in self-regulated learning (Hudaifah, 2020; Sari & Fakhruddiana, 2020). This is necessary since they are studying in their own house or flat, without being directly monitored by the lecturer. Nevertheless, the requirement to be fully functioning in self-regulated learning in dealing with distance learning during COVID-19 poses excruciating challenges.

Furthermore, another study by Son, Hedges, Smith and others in 2020 found that environment and situational factors affect motivation in self-regulated learning, which during these difficult days subvert students into a vulnerable state and simultaneously decreases their motivation and increases their tendency to procrastinate in the academic setting. Son et al. (2020) also uncovered that the tendency to procrastinate is caused by obvious motivations such as anxiety and fear in facing an uncertain future during the pandemic.

In addition, as research conducted by Duraku and Hoxha in 2020 discovered, the challenges for students during distance learning in this COVID-19 outbreak include a lack of focus while doing virtual learning, feeling limited in their capability

to control their learning environment at home, experiencing difficulty in time management, and having numerous assignments during lockdown (Duraku & Hoxha, 2020). This is also strengthened by research from Browning et al. (2021) who found university students to be a vulnerable group suffering from the pandemic since online learning makes them feel isolated and more anxious, thus displaying more symptoms of depression than before the COVID-19 pandemic era. Furthermore, Duraku and Hoxha (2020) describe that the lack self-regulated learning behaviors above also lead students to increase their tendency to procrastinate compared to before the COVID-19 pandemic.

However, to put it concisely, the previous studies regarding academic procrastination and self-regulated learning were only conducted to see the correlation and the measurement scale and there is no recent study about the role of self-regulated learning in coping with academic procrastination among postgraduate students who are dealing with virtual learning during COVID-19 pandemic. Thus, this research background becomes the main reason to conduct this study among postgraduate students in Malaysia. Therefore, the aim of this study is to gain a deeper understanding by exploring the role of self-regulated learning in behavioral and motivational aspects of postgraduate students in coping with academic procrastination during the pandemic.

Self-regulated Learning Strategies for Coping with Academic Procrastination during Online Learning

Schouwenburg, et al. (2004) defined procrastination as a behavior to put off intentionally and habitually something that should be done. In the academic setting it is known as academic procrastination by which students tend to postpone accomplishing their assignments, begin studying later than they had intended, be more easily distracted, or even give up on studying.

In addition, Ferarri et al. (2005) and Wolters (2003) report that academic procrastination occurs on a regular basis among university students. Furthermore, this statement is proven by some global studies whereby William (2008) found that 90 percent of university students are dealing with academic procrastination and 25 percent of them are dealing with chronic procrastination. Meanwhile Steel (2007) reported 75 percent of university students experience academic procrastination (see also Dharma et al., 2016; Sari & Fakhrudinana, 2019; Limone, et al., 2020).

In the meantime, Kok (2016) conducted research regarding the relation between academic procrastination and motivational aspects of self-regulation in which the study found that among 310 participants of university students in

Malaysia, all of them were dealing with academic procrastination, with only 22 participants (7%) stating they almost never procrastinated. This study also found that students procrastinate in almost all areas of study such as in accomplishing tasks, writing assignments, and doing tutorial and in-school activities in general.

However, Ferrari et al. (1995) explained that there are two kinds of academic procrastination based on the purpose of the procrastination (Mulyana, 2018); namely:

1. Functional procrastination

A student deliberately procrastinates in order to obtain more accurate information regarding their academic assignment.

2. Dysfunctional procrastination

A type of academic procrastination in which students put off their task without any clear purpose. Eventually, this will harm and cause problems for their academic life.

However, dysfunctional procrastination can be distinguished into two types:

a) Decisional procrastination: as a coping mechanism to avoid severe stress and to adapt to the stressful situation which influences the student's decision making.

b) Avoidance/Behavioral procrastination: a version of academic procrastination, for example, postponing doing an unpleasant and difficult assignment.

Furthermore, Ferrari et al. (1995), Damri et al. (2017) and Mulyana (2018) identified some characteristics of students who are demonstrating this behavior such as:

1. Delaying in starting and completing the academic task
2. Deferring doing the assignment
3. Having a time gap between planning and actual work
4. Being more easily distracted
5. Feeling self-assured about completing the assignment, even though they work the task close to the due date
6. Being a perfectionist

However, there is one thing that should be underlined in this research: displaying procrastination behavior is not an innate trait (Kartadinata & Tjundjing, 2008). This behavior is a habit which appears situationally in the academic environment (Damri et al., 2017; Mulyana, 2018; Sari & Fakhruddina, 2019).

Equivalently, Mulyana (2018) elaborates on the causes of academic procrastination based on Ferrari et al. (1995), namely:

1. The presence of irrational thoughts that the assignment should be perfectly done
2. Feeling anxious regarding the assignment which will be evaluated after submitting
3. Difficulty in making a decision and leaning on other people to do their task
4. Being naturally lazy and having poor time management
5. Environmental factors
6. Heaping up of academic tasks

Besides all those six factors above, all the experts who focus on the study of academic procrastination assert that that academic procrastination behavior is caused by a lack of self-regulated learning performance. (Zimmerman, 1990; Schouwenburg, et al., 2004; Ferrari 2005; Kansus, 2010; Zimmerman & Schunk, 2008; Wolters, 2003). The idea of academic procrastination as the result of a failure in functioning self-regulated learning is amplified by some recent studies (Abdullah Taura et al., 2015; Grunshel et al., 2016; Damri et al., 2017; Darma, 2017; Kartadinata & Tjundjing, 2018; Kok, 2016; Harris & Graham, 2017; Ling et al., 2020; Bashir & Gupta, 2018; Yilmaz, 2017; Limone et al., 2020; Raime, et al., 2020; Mulyana, 2018). Tersely, those studies found that self-regulated learning has a significant role in, and relation to, academic procrastination behavior by which university students with insufficient self-regulated learning tend to procrastinate more compared to students who can optimize their self-regulated learning.

Correspondingly, Schunk (1996) defined self-regulated learning as an ability of the individual to address, understand and control their learning environment; such as in how they set the aim of the learning, construct strategies to achieve the learning outcome, and track their own learning progress (Gregory Schraw, et al., 2010). Meanwhile, Montalvo and Torres in 2004 define self-regulated learning as a combination of abilities and willingness. The student's strategy is to plan, control and evaluate their cognitive, motivational, behavioral, and contextual processes. The learner who knows how to plan is self-motivated, knows its possibilities and limitations and, as this knowledge functions, controls and processes regulate learning to unify or combine objective tasks and their context to optimize performance and improve skills through practice (Hashemyolia et al., 2015).

At the same time, Wolters (2003) stated that self-regulated learning is an active and constructive process of the learner in setting goals for their learning process and trying to monitor, regulate and control their cognition, motivation and behavior, all of which are driven by being goal-directed and prioritizing the environmental context. Furthermore, Zimmerman (Zimmerman, 1990) distinguished self-regulated learning into three aspects which are cognitive,

motivational and behavior. Furthermore, Wolters (2003) elaborated on the strategies which are applied in these three aspects.

Nevertheless, this study is only focused on motivation and behavior since the sudden change of learning method due to the COVID-19 pandemic mostly affects the motivational and behavioral aspects. Therefore, this article will only deal with those two aspects, namely:

a) Motivation

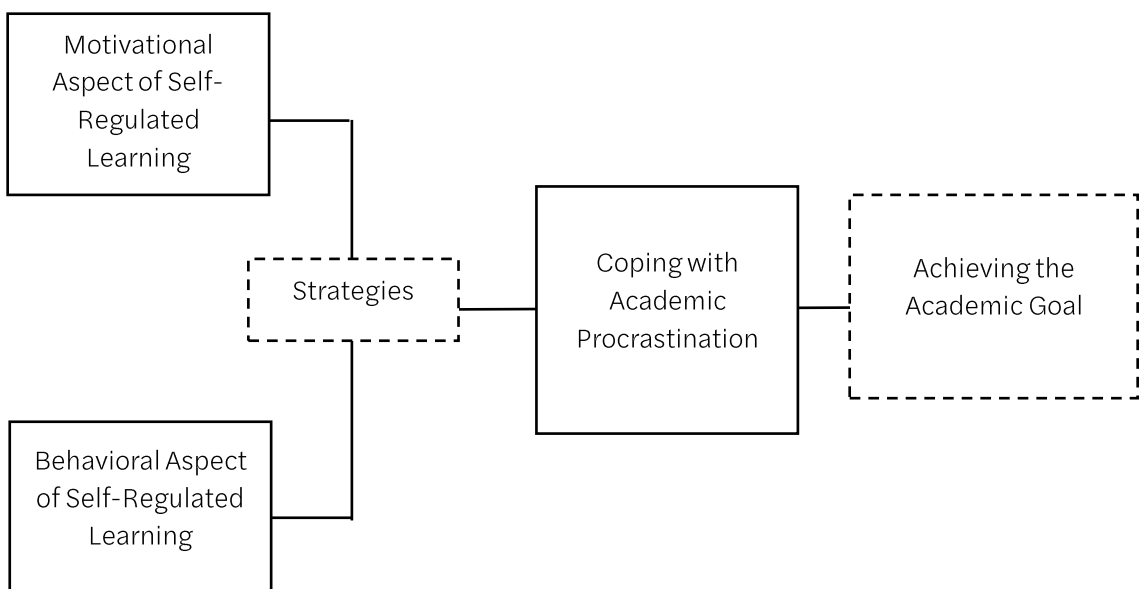
In this aspect, the learner grapples to regulate their motivation by applying some strategies, namely: 1) Mastery of self-talk consisting of self-determination, extrinsic self-talk, and peer self-talk; 2) Relevance of the reinforcement strategy; 3) Reinforcement of situational interest; 4) The self-consequential strategy; and 5) The environmental strategy.

b) Behavior

This aspect involves individual efforts to self-control distinct behavior. Furthermore, behavior strategies are divided into 1) comprise—effort regulation consisting of forethought, controlling and monitoring, and 2) reflection—pursuing social support and assistance

In short, all the descriptions above are included in the conceptual framework below:

Figure 1. *Conceptual framework.*



Method

Research Design

The research methodology in this study is qualitative case study used to answer the research objective in exploring the experience of academic procrastination in postgraduate students and the role of self-regulated learning (behavioral and motivational) for postgraduate students in coping with academic procrastination during the COVID-19 pandemic. In addition, this case study design is compatible with the research objective whereby the phenomenon in this study is the COVID-19 outbreak that forced people to undertake physical distancing in Malaysia. Furthermore, the phenomenon includes not only the COVID-19 pandemic but also students in university who face online learning. Equivalently, Woodside (2013) stated that the case study will answer the “how” question in research objectives by describing and/or understanding the individual processes and experiences.

Data Collection Method

Subsequently, this study conducted three phases of interviews through two types of interviews; namely, semi-structured and unstructured. This study decided to combine and mix both types of interviews since they are in line and appropriate to answer the research objective and research question. In accordance with Meriam’s explanation (1998) the semi-structured interview is conducted in an attempt to gain information where the researcher already has a brief picture of the phenomenon. Meanwhile, the unstructured interview is the questioning that leads the participants to share their experiences about the particular setting they are in. Concisely, the interview is conducted through social media (WhatsApp) by texting, and voice notes, due to the COVID-19 pandemic and the MCO regulation in Malaysia from February to March 2021.

Participant (Subject) Characteristics

Accordingly, the sampling method in this study is purposive sampling in which the researcher has determined the criteria of the research participant. This method is used to find appropriate subjects for the study as in Patton (1990). This study determined the criteria of people to be studied to reflect the research objective (Meriam, 1998; Cresswell, 2013; Yin, 2010). These criteria are as follows:

1. Postgraduate students at the University National of Malaysia who have a GPA above 3.50
2. Postgraduate students who faced online learning from March to December 2020 due to the COVID-19 pandemic

3. Postgraduate students, either local or international, who are staying in Malaysia, and who are affected by the COVID-19 pandemic
4. Postgraduate students who are dealing with an academic procrastination issue

Based on those criteria, the researcher chose six postgraduate students who meet the criteria to be interviewed, by using unstructured interviews to get general information about their GPA score, and their university enrollment (February 2020) where they had been dealing with online learning during their first to second semesters (March 2020 to January 2021), and have encountered academic procrastination issues during the COVID-19 pandemic. Each of the participants has been given a code to represent the participant without exposing any personal information. Therefore, the code used in this study is PO1 as the first participant, PO2 as the second participant, and so on. Thus, brief information about the participant is displayed in the table below:

Table 1. Participant General Information

No	Code	Course	GPA Score
1	PO1	Curriculum and Pedagogy	4.0
2	PO2	Islamic Education	3.88
3	PO3	Entrepreneurship	3.86
4	PO4	TESL	3.86
5	PO5	Early Childhood Education	3.79
6	PO6	Mathematics	3.69

Data Analysis and Validity

The data analysis used in this study is the *conceptually clustered matrix* by Miles and Hubberman (Said, 2011), therefore the results of the interviews are divided into several themes and displayed in the table. Simultaneously, since the data collection method in this study used interview-only therefore, validity and realibility of the data which is used in this research is triangulation in multiple theories, approaches of data analysis and perspectives, and consensual validation (Brink, 1993). This study used multiple theories and perspectives regarding self-regulated learning and academic procrastination to amplify the findings. Furthermore, consensual validation is carried throughout data analysis by which the researcher involved the research participants in analysing the data to ensure the validity of the data obtained in the interviews.

Results

This study was conducted over three phases of interviews with six postgraduate students in the Faculty Education of the National University of Malaysia. The first phase of the interview was conducted to explore and gain deeper understanding of academic procrastination experienced among the postgraduate students during online learning during this COVID-19 pandemic. Meanwhile, the second and the third phases were carried out to explore and understand self-regulated learning strategies used as coping mechanisms to deal with academic procrastination in motivational and behavioral aspects consecutively.

Concisely, the results of the three phases of interview are displayed in two tables below, Table 2 and Table 3, which are divided into several themes in regard to the academic procrastination experiences that occurred during online learning during the COVID-19 pandemic, and the self-regulated learning strategies in behavioral and motivational aspects that were employed as coping mechanisms toward academic procrastination. The use of tables in presenting the results is based on the *conceptually clustered matrix* by Miles and Hubberman (Said, 2011). This model is used since the validation and reliability of this study is triangulation in multiple theory perspectives. The validation and reliability processes used in this study are in line with the conceptually clustered matrix, based on the Rahmat Said (Said, 2011) explanation that the conceptually clustered matrix can be used to summarize various research results from various experts with different concerns.

Table 2. *Data Display of the Academic Procrastination Experiences of Postgraduate Students During Online Learning in the COVID-19 Pandemic Situation*

Academic Procrastination Experiences			
The type of academic procrastination		The characteristics of the academic procrastinator	The causes of academic procrastination
Functional procrastination	Dysfunctional procrastination	Delaying in starting and completing the task	Environmental factors
Intention	No Intention	Behavior	Causes
Procrastination with the intention of: • Finding as much	Procrastination with no intention	<ul style="list-style-type: none"> • Work slowly on the assignment • Don't put much effort into the assignment 	Ambience
	Decisional procrastination		<ul style="list-style-type: none"> • Feeling demotivated due to: - Staying at home only (MCO Regulation and

<p>resources and information regarding the academic task as possible</p> <ul style="list-style-type: none"> Ensuring the quality of the assignment by reviewing, and doing revisions of the academic task (self-assessment) <p>Mainly caused by the perfectionist personality of the participant</p>	<ul style="list-style-type: none"> Stressful situation caused by the COVID-19 pandemic, MCO regulations, and the online learning system simultaneously Lack of time management due to feeling demotivated Lack of social support due to the MCO regulations during the COVID-19 pandemic (extrovert personality) Demotivation and procrastination due to feeling stuck studying in the room and through the laptop and phone only The perspective that the online class is not effective and helpful at all 	<ul style="list-style-type: none"> Make excuses more easily for not submitting the task in time due to online learning. 	<p>COVID-19 pandemic situation)</p> <ul style="list-style-type: none"> Attending online classes only Just studying through the laptop and phone Feeling mundane with online learning Feeling sleepy and bored during online learning Preferring face to face interaction 	
		<p>Deferring doing the assignment</p>		
		<p>Behavior</p>		
		<ul style="list-style-type: none"> Doing other more pleasant activities such as watching Korean drama and hanging out with friends 		
		<p>A time gap between planning and actual work</p>		
		<p>Behavior</p>		
		<ul style="list-style-type: none"> Struggling to follow the study plan that has been made Not constantly following the study plan Making a study plan yet not being particular with it 		
		<p>Avoidance procrastination</p>		<p>Lack of social support</p> <ul style="list-style-type: none"> Having difficulty in meeting peers Difficulty in conducting discussion groups, especially face-to-face discussions Difficulty in getting assistance from the lecturer
		<ul style="list-style-type: none"> Doing the assignment near to the due date, even up to the last hours before the due date. Reasoning: The brain works well in that time. 	<p>Easier to be distracted</p>	
			<p>Behavior</p>	
		<p>Attention span</p>		
		<ul style="list-style-type: none"> Hard to focus, especially for a 3-hour class The attention span lasts for about 10-20 minutes 		

		<p>Distraction</p> <ul style="list-style-type: none"> • Easier to be distracted by the smartphone • Scrolling the whole day through social media such as WhatsApp, Facebook, Instagram and YouTube. 	
		Perfectionist	
		Behavior	
		<ul style="list-style-type: none"> • Finding as much resources and information as possible regarding the academic task • Ensuring the quality of the assignment by reviewing, and doing revisions of the academic task (self-assessment) 	
		Self-assurance on the assignment	
		Behavior	
		<ul style="list-style-type: none"> • Having the self-confidence that the assignment will be completely done, although they did it nearing the deadline, causing lack of sleep at night 	

Transcript of the interviews	
•	<i>I feel very demotivated because of some factors, that I cannot reach my friends and there is no support group, especially as an extrovert person like me. Getting some encouragement from my friends while meeting with them, talking and sharing about our university life as a postgraduate student will increase my motivation. But, due to the MCO we must stay at our house, I cannot keep in touch with them and it increases my tendency to procrastinate.</i> (P02/I1-22)
•	<i>I tend to put off my work, I find the material for my assignment immediately but I hold on to it and not finish it. Because I am a full-time masters student, not working, so I am busy scrolling along day through social media the most, and because the due date is always at the end of the semester. Sometimes, I always not make it in time after the assignment was handed out early. Seems like I feel so much lazy.</i> (P03/I1-23)
•	<i>Yes! Very demotivated and, honestly, it's increasing my tendency to procrastinate because I feel stuck studying in one corner of my house. I prefer the routine of driving to uni and meeting friends and having face-to-face human interaction during my learning sessions.</i> (P04/I1-124)
•	<i>20 minutes, I think, I could be stuck in a good sitting position for around 20 minutes. After that, I'll get some snacks, lay on the sofa or do anything else. In the worst case, fall asleep. I don't know why.</i> (P06/I1-36)
•	<i>If I'm bored doing assignments, I'll do whatever I want such as watching Korean drama or hang out. I'll never push myself to do work when I'm not ready for that. That I know for sure, I'll finish my work, even it makes me not get enough sleep at night.</i> (P06/I1-56)

Table 3. Data Display of Self-Regulated Learning Strategies in Motivational and Behavioral Aspects in Coping with Academic Procrastination During Online Learning in the COVID-19 Pandemic Situation

Self-regulated Learning Strategies			
Motivational		Behavioral	
Strategies	Activities	Strategies	Activities
Mastery of self-talk	Self-determination	Effort regulation	Forethought
	<ul style="list-style-type: none"> Set the time for studying and doing the assignment Set a short-term goal 		<ul style="list-style-type: none"> Addressing the mental and internal aspects such as needs, characteristics, flaws and strengths. Journaling by distinguishing the task based on the difficulty and the
	Extrinsic self-talk		
	<ul style="list-style-type: none"> Self-talk for encouragement when feeling bored, lazy, and procrastinating Re-thinking and reflecting on the main reason for continuing the study 		

	<ul style="list-style-type: none"> • Remembering the big goal • Remembering family members, especially parents 		<p>categories of activity, e.g., Categories of activity: academic, personal, work; Level of difficulty: Serious, so-so, relax.</p> <ul style="list-style-type: none"> • Make a to-do-list, timetable, and checklist
<p>The relevance of reinforcement strategies</p>	<ul style="list-style-type: none"> • Dressing up while attending online classes • Writing and elaborating on the course material and tasks with multiple colors and pens • Listening to favorite music while studying and doing the assignment • Drinking and eating favorite food and beverages, e.g., coffee and cake while studying and doing the assignment 		<p>Control and monitoring</p> <p>a. Construct and convert the knowledge -Make a short essay from the lecture notes and online class that has been conducted -Do a revision based on the notes of the online class that has been conducted -Conduct reading activities before and after class for obtaining an idea about the lecture</p> <p>b. Control the environment of the learning</p> <ul style="list-style-type: none"> • Dress up while attending online classes • Lessen distractions by preparing all the learning tools, locking the room, informing family members earlier
<p>The self-consequential strategy</p>	<ul style="list-style-type: none"> • Set a short-term goal and self-reward for accomplishing the task • Give self-punishment for being lazy and procrastinating, e.g., <i>lqab</i> (self-punishment by reading one <i>juz Al-Qur'an</i>) 		

			<p>about the class and assignment, and wearing headphones to reduce the noise</p> <ul style="list-style-type: none"> • Drink coffee to keep energized during online learning and doing the assignment
<p>The environmental forming strategies</p>	<ul style="list-style-type: none"> • Look for a proper place to study, e.g., library and bedroom • Lock the room for studying • Inform family members earlier about having an online learning session and doing the academic task • Prepare all the learning tools such as pens, pencils, notebooks, printed documents of the course material, laptop, phone, and internet connection 		<p>Reviewing the task</p>
			<p>Ensure the quality of the individual and group assignment by re-reading two or three times and reviewing the writing, e.g., for grammatical errors.</p>
			<p>Making a study plan</p> <ul style="list-style-type: none"> • Use a check list to monitor which of the plans and tasks have been accomplished • Constantly follow the study plan since it will make the learning activities easier and minimize the failure
			<p>Maintaining positive activities</p> <ul style="list-style-type: none"> • Watching motivation videos on Facebook and YouTube every morning
			<p>Reflection</p>

			<ul style="list-style-type: none"> • Write a journal and make a list of what makes the postgraduate student feel demotivated and solve the causes • Reflect on spiritually about the relation to God and humans around them and improve prayer • Address and evaluate the limitations and achievements every semester of study
		Pursuing social support	<ul style="list-style-type: none"> • Ask for prayers and encouragement from the family members, e.g., parents • Conduct a study group discussion through social media with peers for encouragement and ask some questions when facing difficulties in learning and assignments

Transcript of the interviews

- *I usually journal it; I list what makes me demotivated and then I try to solve it, I try to find the solution and I try to implement it. And once or twice I succeeded but once I face the online class again, it happens like usual, I'm demotivated again and then, yaa, I go back to fix my self-regulated learning again. (P01/13-41)*
- *I will do self-talk, why that I feel bored, lazy and procrastinate and I'll ask again myself "the big why" that I have patched to my bedroom wall. I will read again "The Big Why" and do a reflection on why I want to continue my study, why do I want to be a postgraduate*

student. **My “big why” is my parents**, I want to make their dream come true since they really want to see their children take a higher level of education. (P02/I2-32)

- **I commonly do my learning activities in my bedroom** therefore, to lessen the distraction I will lock my bedroom, prepare my laptop, notebook, etc. to do online classes. I will also stick motivations and my goal in front of my wall near my desk so I will read all those things multiple times to encourage me and I will make sure **my internet connection is running smoothly by upgrading the speed of my Wi-Fi**. (P02/I23-252)
- **I always do a timetable/schedule and I will make a to-do list**. I always do it on my notes, my book, and I always do it on a piece of paper and put it on my wall so I remember what is the assignment that I need to hand in and what I need to read and need to study so that's a way I cope with online classes and keep up my motivation. (P05/I23-225)
- **I set up short term goals**, if I can finish my assignment in time, I can treat myself something, as simple as a drive to the coffee shop or extra time for Netflix. (P04/I2-34)
- **I take notes with multiple colors of pen and it makes me happy and motivated**, and also drinking a cup of coffee and eating a piece of cake... (P01/I2-31)
- **If I feel lazy and tending to procrastinate I will reflect about the sins and mistakes that I have made either from my relationship with Allah, hablumminallah and habluminannas**. I will do tazkiyatunnafs and iqab or punish myself by reading one juz Al-Qur'an. (P02/I2-42)
- **I will ask du'a from my parents** so it will keep up my motivation and **I will ask my classmates through messages or WhatsApp** if I don't understand the course material that has been explained by the lecturer and **I will ask them to discuss with me about the assignment too**. (P02/I3-42)

Discussion

The sudden change of regular learning to online learning during the COVID-19 pandemic tremendously demotivated the postgraduate students and led them to have to deal with academic procrastination. Having a mundane academic life in which they have to be confined to their room and learn only through the monitors of their laptop and smartphone are the main causes of their procrastination behavior. Furthermore, in accordance with the studies by Son, et al. (2020) and Duraku and Hoxha (2020) the environmental factor of online learning during the COVID-19 pandemic narrowed the wriggle room of students in higher education while simultaneously increasing their tendency towards procrastination. In addition, these findings also amplify that academic procrastination occurring amongst postgraduate students is not an innate trait as has been proposed by Kartadinata and Tjundjing (2008) in their study against the statement that has been made by Steel (2003). However further study needs to be carried out to find whether academic procrastination is associated with an innate trait behavior.

Lack of locus of control and strongly indulging in smartphones have been proven as factors that induce procrastination (Li et al., 2020; Sari & Fakhruddiana, 2019) This also affects the postgraduate student, as well as them acquiring some other academic procrastination characteristics (Ferrari, 1998, in Mulyana 2018) such as delaying starting and completing the task, deferring doing the assignment, and being easier to distract. Equivalently, this finding is also in accordance with the study conducted by Yilmaz (2018) which found that students who are attending online learning generally tend to procrastinate more compared to students who are in regular classes.

Despite academic procrastination generally being considered as a sign of insufficient self-regulated learning strategies in academic settings (Wolters, 2003; Schouwenburg et al., 2004; Ali et al., 2015; Kok, 2016; Bashir & Gupta, 2020). Grusnel et al., (2016) and Limone et al. (2020) found that self-regulated practical strategies such as the self-talk approach, setting the learning environment, and goal-oriented strategies were effective in reducing the tendency toward academic procrastination. Those previous studies are in line with the findings here in which the postgraduate students applied self-regulated learning motivational strategies in rebuilding and maintaining their motivation. Meanwhile, the effort regulation strategy and pursuing social support are carried out in the behavioral aspect of self-regulated learning strategies to reduce the indulgence on academic procrastination. The result is supported by Hashemyolia et al. (2015) that effort regulation is frequently applied by Malaysian university students compared to other strategies. However, in identifying social support where dominantly the support comes from the postgraduate students' parents is contrary to the findings of the study by Kok (2016), that the parents are the cause of the procrastination of Malaysian college students since they have been forced to enroll in the courses by their parents.

Furthermore, it is assumed that the postgraduate students' self-regulated learning strategies are sufficient as coping mechanisms. Nevertheless, Hashemyolia, et al. (2015) recognised the need for lecturers and universities to provide, encourage, and facilitate the self-regulated learning strategies that are deemed necessary during online learning in this pandemic. Both parties need to work equally in optimizing self-regulated learning strategies.

Conclusion

This study concludes that self-regulated learning strategies, especially in motivational and behavioral aspects, have a significant role as coping mechanisms toward academic procrastination during the COVID-19 pandemic. However, despite self-regulated learning strategies being successful in coping with academic

procrastination, lecturers and universities should consider providing online learning which facilitates and encourages the self-regulated learning strategies of postgraduate students. The cognitive aspect of self-regulated learning is not included in this study. Therefore, further study regarding the cognitive strategies of self-regulated learning could be conducted in the future.

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