`The Impact of COVID-19 on University Students' Self-Regulation: A Descriptive Analysis

Norsimah Dasan*
Balan Rathakrishnan
Mohamad Idris Bullare
Lailawati Madlan
Norkiah Arsat

Universiti Malaysia Sabah

* Corresponding e-mail: [*norsimahdasan@ums.edu.my*]

The COVID-19 pandemic had a major impact on the lives of the entire population of the world. The effect is also felt by students at the university. To pursue a role as a student without face -to -face guidance, the self-regulation factor is very important. The concept of self -regulation is an individual's beliefs about his or her ability to plan and control behavior. Students at the university need this factor to ensure that the thought patterns and feelings generated are consistent with their role as students to perform academic tasks and at the same time still be able to control behavior from adversely affecting social and environmental. Self -regulation has become a popular scope of study in identifying psychological problems among students towards outstanding academic achievement and personality. However, previous studies have focused less on its relevance in pandemic situations and because of its gap, it became objective in this study by identifying the level of students' self -regulation during pandemic. The Adolescent Self -Regulation Inventory was used to collect data from 590 students that were selected through simple random sampling. Descriptive analysis such as frequency, percentage and mean values were used. The results showed that 501 (34.9%) students were at the moderate level and 89 (13.9%) students were at the high level and 1.2% of students recorded in low level. The total mean value and standard deviation of self -regulation is 3.26 and 0.38. The mean values for the 27 items of student self -regulation ranged from 1.69 - 4.21. These findings indicate that the level of self -regulation of university students during pandemic is in moderate level. This indicates that the pandemic period did not cause weaknesses in students' self -regulation. However, it needs to be improved. Modules of self-regulation development and its relationship to other variables can be the focus for future studies.

Keywords: Self-regulation, Adolescent Self-Regulation Inventory, COVID-19

COVID-19 pandemic significantly increases the level of uncertainty in all areas of life, including work, leisure, food, and sports (Stankovska, Memedi, & Dimitrovski, 2020; Wang, Di, Ye, & Wei, 2021). Higher learning institutions are also facing a similar impact. Most of the face-to-face teaching and learning methods used previously have been reduced by forcing the use of online methods. In other words, virtual teaching and learning through various online platforms violates traditional course delivery methods as happened in previous lecture halls. The dangers of COVID-19 also urge changes in social interactions that ultimately affect psychology and the need for behavior modification to everyone in society. The implementation of Standard Operating Procedures (SOP) during

Movement Control (MCO) opens up new norms in life to break the virus chain.

Among students, adaptation to changes in learning and social activities are required. In this case, self-regulation plays an important role. It emphasizes an individual's beliefs about his or her ability to plan and control behavior (Zimmerman, 2000). Baumeister (1991) asserts that failure in self - regulation has led to one major social pathology in this decade. In line with that, Inan, Yukselturk, Kurucay, and Flores (2017) emphasized that self-regulation processes, and primarily planning, are important factors explaining success and subjective satisfaction of students in the process of online learning. Hence, self-regulation is very important, and students need to understand it can determine their goals as responsive students in academics and as individuals in society as well.

Literature Review

Self-regulation has its own role in an individual's efforts to change his or her own response to the environment. It is the process by which people attempt to constrain unwanted urges in order to gain control of the incipient response (Baumeister & Vohs, 2007). The responses shown by individuals include actions, thoughts, feelings, desires, and achievements. Without self-regulation, individuals will react to situations based on learning, habits, and natural inclinations (Baumeister & Heatherton, 1996). Taking this into account, self - regulation becomes the first gateway to the formation of efforts towards the success undertaken.

Social cognitive theory able to explain the role of self-regulation. Self-regulation has three main mechanisms in its functionality. It includes self-monitoring into one's behavior, its determinants, and its effects; judgement of one's behavior in relation to personal standard and environment circumstances; and affective self-reaction (Bandura, 1991). Apparently, all three of these mechanisms work together to ensure that self-regulation is built toward the motivation of action execution. The application of this theory has been developed when temporal relevance is given attention. Moilanen (2007) focuses on this self - regulation in two aspects that can help students make the right decisions, namely long-term self-regulation and short-term self-regulation. For example, in the event of a perception of destructive behavior, short-term self-regulation is demonstrated by responding disgustingly to the matter immediately, and controlling emotions when stimuli are just received. While long-term self-regulation refers to an individual's ability to make judgments, control emotions and make decisions for a period so as not to jeopardize their goals. Few studies related to social problems, risk taking behavior and social other deviants relate to this temporal factor in self-regulations. (Dasan et.al, 2020; Laventhal et.al, 2016).

To date, several previous studies have applied this theory to the COVID-19 phenomenon and its challenges to self-regulation among students. This means that the consistency of self-regulation is important to plan and control life as well as carry out their respective roles during the pandemic. For university students, the majority of assignments and learning need to be implemented using internet platforms that are available in the market such as Google Meet, Cisco Webex, Zoom, Microsoft Team and so on. These changes have to some extent exposed students to a variety of new challenges in online

class engagement, group discussions, and a variety of other academic assignments. It also tends to lead it into ineffectiveness of online learning. Students must face such as lack of mastery of technology, high Internet cost, and limited interaction/socialization between and among students, anxiety, depression, poor Internet service, and unfavorable home learning (Suryaman et.al, 2020; Kapasia et.al, 2020). This means that obstacles will caused impaired self - regulation related to motivation, and self -control.

Same goes to individual involvement in society. Every student as a social individual must abide by government directives to break the chain of viruses. They should limit their connection during a pandemic. This is very stressful to students who are actively involve physically in social community before. However, a study by Behzadnia & FatahModares (2020) found that several aspects related to functionality as a human need to be focused on for self -regulation to be maintained. There are some activities to satisfy basic needs of psychology which related to autonomy (feeling volition and act with choice), competence (feeling effective and capable in doing things and influencing the environment) and relatedness (feeling significant and connected to others). By fulfilling their basic needs, greater experiencing in good well-being and decrease ill-being and its mediates motivational self-regulation.

Undeniably COVID-19 creates undue physical and mental stress for individuals (Saltzman, Hansel, & Bordnick, 2020) as well as to student's new normative life that surely affected their self -regulation. They need to be consistent with self -regulation appropriate to current health conditions.

Studies have proven self-regulation and its relation to online learning satisfaction, motivation, across the variety of courses taken are considered to be significantly correlated among students worldwide (Hamdan et.al,2021; Santamaria-Vazquez et.al, 2021; Staller et. al, 2021). Meanwhile, the negative effects of academic procrastination on students 'academic achievement were investigated with the correlation of self -regulation subscales which includes memory goal setting strategies, self-assessment, help, responsibility, and organization (Sohrab, et al, 2020). The study ultimately found negative interactions and significant relationships for the two variables.

In addition, information search through social media and various platforms among students is increasing during the pandemic period. Najmul Islam et.al (2020) found that unfavorable personal factors influenced social media fatigue and unconfirmed information sharing during the COVID-19 pandemic. The results prove that people, who lack self-regulation, tend to share unverified information besides those who are driven by self-promotion and entertainment.

Behavioral modifications associated with self-regulation also show the existence of its relevance when a pandemic occurs. A study by Zinchenko et al, (2020) found the higher the level of conscious self-control, the more productive a person is at self-regulating his or her behavior in the event of lockdown. They also found self-regulation consciousness contributes to the success of self-organization, to overcoming its difficulties, and to accepting the uncertainty of the future. Hence, self -organization difficulties, in turn, are

associated with low levels of regulatory resources.

Apart from that, we are also exposed to how the social, financial, health, employment, and pandemic-related stresses occur at this point. It is also experienced by various parties in society, including university students. This has affected the motivation of individuals to engage in potentially addictive behaviors, including on the internet (Bonenberger, 2019). Weak self -regulation causes them to fall into problematic internet use such as browsing porn sites (Mestre Bach & Blicker, 2020), cyber bullying and so on.

Before COVID-19 pandemic occurred, studies have shown that self-regulation has a significant association with physical social connectedness (Jdaitawi, 2015; Viau & Poulin, 2015; Shulruf,2010). However, there is still a lack of studies linking it to physical social involvement due to the pandemic except through internet platforms that in some cases have found the occurrence of emotional and behavioral problems (Coyne et.al, 2019; Acuff, 2019). Students need to comply with these changes due to health factors. Yet the extent to which their conformity is applied in their self-regulation to ensure that no activities or social interactions can violate SOP or health directives issued by the government.

Even though the transition to online learning before the pandemic had already taken place, the transition was happening slowly with most of the learning still prioritizing the face-to-face approach. Study by Dabbagh and Kitsantas (2004), already reveal the self-regulation was already a critical factor for success in digital learning, as students must rely more on the source of their self-regulation for learning activities. A study by Carter (2020) found several strategies in ensuring self-regulation in online learning takes place effectively. Among the strategies are through asking students to consider how they learn online, providing pacing support, monitoring engagement and supporting families. This is even more important during a pandemic period in order to students able to complete their academic task.

Therefore, in the context of higher education in Malaysia, it is necessary to know in advance the level of self-regulation among students during a pandemic period. Furthermore the authorities can make appropriate efforts to strengthen students' self-regulation and further encourage research efforts in terms of factors that influence self-regulation.

Problem Statement

Self-regulation related to performance and behavior control among students needs to be strengthened from time to time. The widespread of COVID-19 tends to affect students' self-regulation in determining and implementing goals related to academic performance and behavior control. 25% to 28% of students under these conditions show an increased level of worry and anxiety, which in turn reduces their productivity (Cao et al., 2020; Wang et al., 2021). It is quite natural that the burden on conscious self-regulation is increasing. However, scientific evidence is still given less attention among university students in Malaysia who are still in studies at the time of the pandemic. Therefore, research related to their level of self -regulation needs to be identified.

Purpose of the Study

Despite the numerous evidences in prior literature concerning the cause factors of student's self-regulation, there is still a need to conduct the study among university students in Malaysia. Thus, this study contributes to literature in this field in the context of university students by assessing the descriptive analysis of self-regulation. Specifically, the main objectives of the present study are:

1) To examine the data distribution related to the demographics of the students.
2) To identify the level of self-regulation among the students.

Method

Research Design

By choosing survey methods, it can scrutinize the accuracy of phenomenon and provides a precise description of what the research observes (Babbie & Mouton, 2001). It can be considered the most appropriate method that is available to be utilized for data collection to describe a large population. The application of quantitative methods is suitable in this present study as it allows the researcher to obtain snapshot views and attitudes of respondents with regards to the phenomenon under examination (Sekaran, 2003). Other than that,Stacks (2002) contended the survey as a method that gathers in-depth information concerning the attitudes and beliefs of respondents, specifically those involving large populations as in this study that involve 590 students. Significantly the number of respondents in this study is challenging to gather authentic and objective data through other methods.

Sampling

The respondents of the study were a total of 590 students among the students of Universiti Malaysia Sabah. They were selected based on simple random sampling. According to Merrigan and Houston (2004) this type of sampling requires the researcher to identify a selected study sample, and select a sample based on the chances and probabilities of each member to be selected into the study sample. As in this study, the questionnaire data collected found that the sample of students consists of those who represent all the faculties in the parent university and UMS branches which all total 10 faculties.

Instrument

In this study, the instrument used was the Adolescent Self-Regulation Inventory (ASRI) questionnaire developed by Moilanen (2007). This questionnaire takes into account the context of short-term and long-term time constraints among adolescents on the basis of the theory that adolescents can organize and regulate long -term emotions and actions to achieve desired goals. The questionnaire contained 27 items. It is divided into short-term item components and long -term item components. A total of 13 items for short-term self-regulation and 14 items for long -term self -regulation. This questionnaire uses a 5-point Likert scale that is "Absolutely not true about me", "Not true about me", "True and not true about me", "There is truth about me", or "Very true about me". This instrument also has a high reliability value of 0.86

Data Analysis

The data of this study were analyzed using The Statistical Package of Social

Science (SPSS) 26.0 software. The distribution of respondent profiles was identified through total frequency and percentage value. Meanwhile for the purpose of determining the level of self-regulation, mean value analysis and standard deviation were used. Self-regulation is determined by three levels which are high, moderate and low. This level was identified in all items of the

ASRI questionnaire as well as the overall level of ASRI itself.

Results

Based on Table 1, it is found that the distribution of student respondents in terms of gender shows that female students are more numerous which is 76.6% compared to male students which is only 23.4%.

Table 1

Descriptive Data Based on Demographic Factor.

	Frequency	Percentage (%)
Gender		
Male	138	23.4
Female	452	76.6
Ethnics		
Malay	129	21.9
Chinese	50	8.5
Indian	27	4.6
Sabah Native	323	54.7
Sarawak Native	32	5.4
Others	29	4.9
Students' Location		
University Hostel	76	12.9
Rented House	21	3.6
Relatives House	21	3.6
Parents House	459	77.8
Rented Room	5	0.8
Others	8	1.4
Year of Study		
Year 1	168	28.5
Year 2	146	24.7
Year 3	214	36.3
Year 4	62	10.5

Based on Table 1 clearly shows that the distribution of respondents in terms of gender is dominated by female students compared to male students. Meanwhile students from Native Sabah are the highest among the ethnic Malay, Chinese, Indian, Native Sarawak and others. The demographic distribution also showed, most students were at their parents' house when the pandemic

occurred. Only a small percentage of students still live-in university hostels, relatives' houses, rooms and rental houses and others. The above data also found the highest involvement for students' year of study are among those who are in Year Three. Whereby students in Year 1 and Year 2 achieved almost a similar proportion in this survey involvement. Only a small

number of Year 4 students were involved.

Level of Self- Regulation

To identify the level of self -regulation, analysis of mean and standard deviation by item and overall value of self - regulation was conducted.

Table 2

Level of Self-Regulation Based on Items of ASRI

No. Of Item	Statement	Mean Value	SD Value
1	When I'm sad, I can usually start doing something that will make me feel better.	1.65	0.86
2	If something isn't going according to my plans, I change my actions to try and reach my goal.	4.21	0.83
3	I can find ways to make myself study even when my friends want to go out.	3.73	1.83
4	When I'm bored I fidget or can't sit still.	2.69	1.09
5	I can usually act normal around everybody if I'm upset with someone.	1.79	0.94
6	I am good at keeping track of lots of things going on around me, even when I'm feeling stressed.	3.90	0.93
7	I can start a new task even if I'm already tired .	3.35	1.10
8	I lose control whenever I don't get my way.	2.98	1.21
9	Little problems detract me from my long-term plans	2.72	1.19
10	I forget about whatever else I need to do when I'm doing something really fun.	1.91	0.94
11	If I really want something, I have to have it right away.	1.91	0.94
12	During a dull online class, I have trouble forcing myself to start paying attention.	2.27	1.15
13	After I'm interrupted or distracted, I can easily continue working where I left off.	3.34	1.10
14	If there are other things going on around me, I find it hard to keep my attention focused on whatever I'm doing.	2.32	1.07
15	I never know how much more work I have to do.	2.83	1.34
16	When I have a serious disagreement with someone , I can talk calmly about it without losing control.	4.05	0.94
17	It's hard to start making plans to deal with a big project or problem, especially when I'm feeling stressed.	2.32	1.08
18	I can calm myself down when I'm excited or all wound up.	3.88	0.94
19	I can stay focused on my work even when it's dull.	3.46	0.99

20	I can stop myself from doing things like throwing objects when I'm mad.	4.15	1.12
21	I work carefully when I know something will be tricky.	4.13	0.83
22	I am usually aware of my feelings before I let them out.	3.93	0.97
23	In online class, I can concentrate on my work even if my friends are disturbing	3.23	1.07
24	When I'm excited about reaching a goal (e.g., getting good result in exam), it's easy to start working toward it.	4.12	0.92
25	I can find a way to stick with my plans and goals, even when it's tough.	4.05	0.84
26	When I have a big project, I can keep working on it.	3.92	0.87
27	I can resist doing something when I know I shouldn't do it.	3.23	1.07

There are 27 items being analyzed in this research. Through the analysis of mean and standard deviation, the results in Table 2 show all items at values indicating medium and high levels. Meanwhile, the lowest item value is item no.1 (Mean= 1.65, SD=0.86), and the highest item value is item in no.2 (Mean=4.21, SD=0.83). The low level items of self regulation particularly consisting of 5 items includes no.1,5,11,12 and 14. There are 10 items in moderate level consisting items no. 4,7,8,9,10,13,15,17,19,and 23. The remaining 12 items reached a high level of self -regulation consisting of item no. 2,3,6,16,18,20,21,22,24,25,26,and 27.

Table 3

Level of Total Self-Regulation

Self-Regulation Level	Frequency	Percentage
High	82	13.9
Moderate	501	84.9
Low	7	1.2
	Mean	SD Value
Total Level (Moderate)	3.26	0.38

To be more precise, Table 3.0 shows that most students with 84.9% of them are at a moderate level of self-regulation. However there is still a high level of self-regulation recorded among students with 13.9%. Only a small percentage with 1.2 % of students in low level of self regulation. In total the level of self-regulation among university students is at a moderate level as shown by value mean 3.26 and standard deviation value 0.38. These values are derived from the mean frequency distribution of total self-regulation of university students as

shown in Table 4.0 and illustrated in figure 1.

Table 4

Mean Distribution for Self-Regulation

| M	F	%	M	F	%	M	F	%	M	F	%	M	F	%
2.15	1	0.2	2.19	1	0.2	2.22	1	0.2	2.30	1	0.2	2.33	3	0.5
2.37	2	0.3	2.44	4	0.7	2.48	3	0.5	2.52	1	0.2	2.56	5	0.8
2.59	1	0.2	2.63	6	1.0	2.67	6	1.0	2.7	5	0.8	2.74	9	1.5
2.78	10	1.7	2.81	16	2.7	2.85	14	2.4	2.89	11	1.9	2.93	19	3.2
2.96	13	2.2	3.00	19	3.2	3.04	17	2.9	3.07	24	4.1	3.11	16	2.7
3.15	28	4.7	3.19	18	3.7	3.22	22	3.7	3.26	24	4.1	3.30	23	3.9
3.33	24	4.1	3.37	33	5.6	3.41	18	3.1	3.44	20	3.4	3.48	25	4.2
3.52	15	2.5	3.56	16	2.7	3.59	19	3.2	3.63	6	1.0	3.67	15	2.5
3.70	10	1.7	3.74	9	1.5	3.78	12	2.0	3.81	9	1.5	3.85	4	0.7
3.89	7	1.2	3.93	4	0.7	3.96	3	0.5	4.00	2	0.3	4.04	2	0.3
4.07	3	0.5	4.11	2	0.3	4.19	2	0.3	4.26	2	0.3	4.30	2	0.3
4.33	1	0.2	4.56	1	0.2	4.63	1	0.2						
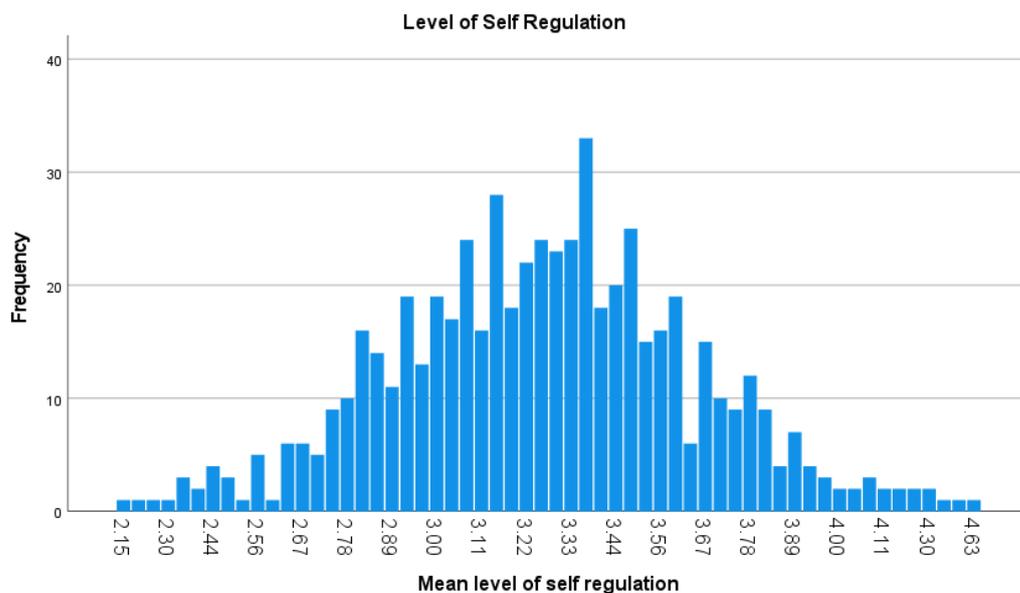
Figure 1 Mean Distribution for Self-Regulation

Discussion and Conclusion

As we know, the pandemic situation has led to significant changes in the mode of implementing professional and educational activities. People's perception of discrepancies and the inadequacy of the new requirements triggers the processes of conscious self-regulation of human activities (Kooij, 2020).

The results of the study have been able to reveal the level of self-regulation among university students during the pandemic period is in moderate. This means that when isolation occurs due to lockdown, most students'self - regulation is not affected. Only a small

fraction of the 7 students were at a low level during the pandemic. More students are at moderate level (501) and high level (82) and a mean value of 3.37 is most achieved by students (33). It shows self-regulation still plays a role in determining the desired success among students in university even though they have to gone through a critical situation with an invisible deadly virus, the changes of continuous learning methods and controlling oneself from physical interaction with others in big scale.

Furthermore, this study also reveals the self-regulation among students related to goal setting. Any distractions from surroundings would not affect their goals. For instance, item no.3 "I can find ways to make myself study even when my friends want to go out" achieve M=3.73. It shows students who is distracted by peer pressure, still maintain their self -regulation at high level. They can restructure the necessary steps to ensure that planning toward goals can be achieved eventually (item no 2. "If something isn't going according to my plans, I change my action to try and reach my goal", M= 4.21). In other words, students coordinate psychological resources to progress and achieve the goals of its activities. This is consistent with previous studies showing that people with high levels of self-regulation are generally most successful in familiar and new situations (Zinchencoa et.al, 2020), and the pandemic era more significantly when performing unusual and new tasks (Morosanova Fomina & Bondarenko, 2015). It also indirectly serves as an important resource for overcoming difficult life situations (Morosanova, Kondratyuk, Gaidamashko, & Voytikova, 2018).

In addition, a moderate level of self-regulation was obtained in most items with good self-control to ensure that every academic task and social activity was completed in compliance with the new norms. Adaptation to a pandemic life forms self -control as well as self-regulation. To date, the phase of movement control order in the form of several categories is still ongoing and self-control helps students regulate their behavior toward goal achievement. This echoes a study by Mamayek et.al (2017) who found self-control as an entity associated with self -regulation that has capacity to override impulsive desires. It also supports a study by Kokkoris et.al (2021) which found the ability of people with high self-control to continue to engage in goal-directed pre-pandemic behaviors and change new behaviors into habits explains their success in achieving goals despite major disruptions caused by pandemic.

Some limitations in this study need to be acknowledged and addressed in future studies. One limitation of this study is that it exclusively focused on desciptive analysis, and students 'perspectives. Future studies may widen the empirical analysis and other factors which influence students perception. For instance, family supports and peer influence.

It can be concluded that the coronavirus disease pandemic situation has forced us to change the prevalent behaviors undertaken by re-evaluating self-regulation. Therefore, students need to constantly monitor their self -regulation so that the goal of being a well-performing student is maintained. At the same time, behaviors during social activity are in line with SOPs during a pandemic

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