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Balancing Motivation and Self- Regulated Learning in Online Classes among Undergraduates

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Abstract

Motivational belief and self-regulated learning are among the many vital aspects of learning particularly in the recent years after the pandemic Covid-19 hit worldwide and transformed the norm of our education system forever. Majority of educational institutions conduct online classes to adapt and students of all levels feel the burden to familiarize themselves with the new learning method. This quantitative study which was adopted from the framework by Pintrich and De Groot (1990) is performed to investigate the balance of motivation and self-regulated learning in online classes specifically among undergraduates at one Malaysian public university. Questionnaires were sent to 122 respondents of different genders and ages. The data is analyzed using SPSS which revealed a Cronbach analysis of 0.928, thus showing high external reliability for the instrument. Collected data is presented in terms of mean scores to answer the research questions. In general, the result revealed that students' motivation belief which comprises self-efficacy, intrinsic value and test anxiety can directly correlate and have an impact on the ability of students to apply self-regulated learning strategies whether cognitive strategy or self-regulation. Overall mean calculated for self-efficacy is 3.57, intrinsic value is 4.02 and test anxiety is 3.6. Meanwhile, cognitive strategy is 3.825 and self-regulation is 3.58. For further research, since the world will slowly go back to the face-to-face method, we can study how this transition to a physical classroom impacted students' motivation to continue learning and excel in their studies as compared to online classes.

Keywords: Motivation in Online Learning, Self-Regulated Learning, Online Class, Learning Strategies, Undergraduates

Introduction

Background of Study

Academic outcomes are significant not only to learners but also educators because it can define the success rate of learning. Therefore, it is necessary to identify elements that will have an impact on the desired academic outcomes. Due to the Covid-19 pandemic, some study shows that students' motivation in the learning process was affected gravely due to the immediate transformation from the traditional method of face-to-face approach and attending a physical class to the online approach of remote digital learning (Gustiani, 2020). Students' motivation, which is a major factor that contributes to students' achievement and success rate, can be associated with the pros and cons of online classes.

Self-regulation concept which originated from psychology is now being incorporated in education-related areas by researchers who reformed the idea into the current concept of self-regulated learning applicable to students learning or educational practice (Schunk, 2005). From an educational perspective, the terms self-regulation and self-regulated learning have similar meaning and are interchangeable. Several researchers described the concept of self-regulated learning in different means, however, the principal idea behind it is the same, which is about motivation and learning strategies that students apply to accomplish their learning goals (Kuo, 2010).

The COVID-19 outbreak has had a significant impact on the educational system globally. In Malaysia particularly, the government has imposed the Movement Control Order (MCO) in early 2020, to mitigate the COVID-19 cases (Arumugam & Yunus, 2020). Thus, educational institutions in Malaysia have to implement and make use of technology in order to tackle the issues, and to conduct teachings and training remotely. Until now, the education system in Malaysia has been implementing blended learning into the teaching and learning practices. Therefore, it is very important for educators to help their students in balancing two key elements of online classes; motivation and self-regulated learning to reassure that they can benefit from online classes the same as physical classes.

Statement of Problem

The COVID-19 outbreak in 2019 had forced many educators worldwide to shift their traditional classroom session to online classroom. This situation brought up new challenges for both students and teachers in making sure that all the learning outcomes are met. While it is true that distance learning gives more flexibility in the learning process, it is highly dependent on the learner's ability to regulate their learning and motivation (Pelikan et al., 2021). In an online setting, the use of self-regulated learning is highly essential for a successful learning process (Winters et al., 2008). Effective self-regulated learning can only be achieved when the students are highly motivated (Pintrich, 1999; Zimmerman, 2008). A study by Eom (2019) shows that intrinsic and extrinsic motivation both show significant positive relationships with self-regulated learning. This indicates that both types of motivation are important components in an effective self-regulated learning process which in turn will positively affect the learning outcomes.

A study by Tan (2020) on 282 university students in Malaysia found that there is a lack of motivation and lower learning performance among students during the MCO period. This is due to lack of infrastructure to support the learning and social support from the lecturers and peers. This study also reported lower cognitive presence, which is an aspect of self-regulated learning during MCO. In another study, Biwer et al (2021) stated that 47% of their respondents reported low motivation during online learning and experienced more difficulties in their studies in terms of wisely managing their time and adapting their attention and efforts. Moreover, most of the respondents agree that the reduced or lack of contact with teachers and peers makes the learning process less motivating compared to face-to-face education, which supports the finding in (Tan, 2020). In Malaysia, even though the MCO has ended, online learning is still implemented to minimize contact among students and lecturers, which in turn will reduce the risk of COVID-19 infection. Therefore, it is necessary to further study effective learning strategies during online learning to ensure that the students can fully adapt. Hence, this study aims to investigate the motivation and self-regulated learning in online learning among undergraduates in Malaysia. This investigation is done to answer the following questions.

1. How does motivational beliefs influence learners' motivation to learn online?
2. How does self-regulated learning strategies influence learners' motivation to learn online?

Literature Review

Characteristics of Learning Online

Online and virtual learning is an option and alternative way for educators and students to engage, and achieve learning outcomes without physically attending the classes, by means of technological infrastructures (Hongsuchon et al., 2022). Generally, online learning requires digital tools or applications to conduct and carry out the classes virtually.

According to Chiu et al (2021), online learning could give benefits and drawbacks, depending on the situations and circumstances of the individuals. For instance, students majoring in computer science have advantages, whereby they can practice and enhance their computer knowledge and skills in digital platforms and applications. Although students in other study programs may face a slight disadvantage at the beginning, most applications provide user guides and require the users, especially the beginners, to learn the interface and tools to get started with the applications (Arifianto & Izzudin, 2021). Thus, the users, particularly students, can gain experience and exposure in handling web and mobile applications, which will enhance their knowledge and skills, aligned with the current trend of industrial revolution (I.R) 4.0. Besides skills, online learning also benefits the students in terms of learning time flexibility, and convenient access to materials and recorded sessions (Hongsuchon et al., 2022). Students can access study materials and re-play recorded classes or sessions at any time of day, to revise and gain better understanding.

Nevertheless, one of the crucial issues and drawbacks regarding online learning is equity and social justice concerns (Chiu et al., 2021). Students living in rural areas have limited and poor internet connectivity, compared to those who live in urban areas. Students' engagement with teachers and classmates is limited, as well as the access to materials and resources, due to such situations. Moreover, there are some underprivileged students who do not possess any electronic devices. Thus, these drawbacks could affect their online learning process.

According to Pokhrel and Chhetri (2021), the limited accessibility issue in online learning not only affected the students academically, but also psychologically. Moreover, students with special needs also experienced difficulties during online classes, whereby they must rely on a caretaker to assist in tasks and carry out instructions given (Young & Donovan, 2020). Thus, educators, students, and even family members must cooperate and play their roles diligently, in order to assist the students in adapting to the online learning system.

Characteristics of Self-Regulated Learning

Online learning relies on the students' ability and determination to learn and adapt, to maximise the effectiveness of the online learning and excel academically. According to Marcou and Philippou (2005), learning is influenced by several components, such as motivational beliefs and self-regulated learning.

Motivational beliefs refer to individual opinions and beliefs that drive and guide them to take actions or goals (Pintrich & De Groot, 1990). There are several theories of motivational beliefs that relate with students' learning process, such as self-efficacy, intrinsic value, and test anxiety. According to Bandura (1977), self-efficacy refers to the individual's confidence in performing and accomplishing a task, while intrinsic value refers to the individual's choice and interest in engaging and involving in that task. Test anxiety is one of the components in motivational beliefs which associate with emotions and cognition (Bembenutty et al., 1998). Test anxiety may influence students' motivation in learning and thus will affect their performances. Students with high test anxiety often get anxious, insecure and feel demotivated (Bembenutty et al., 1998). Thus, researchers have studied an approach to moderate the effect of anxiety by employing self-regulated learning strategies.

According to Zimmerman (1989), self-regulation is a concept whereby the individuals would regulate their own action, behaviour, and choices, to properly manage and plan their aims and objectives. Self-regulated students are generally active in learning and have high determination in achieving goals. Zimmerman (1989) stated that there are several characteristics of self-regulated learning, such as using self-regulated strategies, having self-confidence and belief in own capabilities, and setting own goals and targets to be achieved. Furthermore, there are few processes involved in self-regulated learning, whereby students or self-regulated learners will observe and monitor their own activities and accomplishments, the learners then reflect and evaluate their performance, and lastly, the learners start to plan and effectively apply learning skills and factors to achieve intended goals.

Past Studies

Past Studies of Motivation in learning Online

Online learning can be described as a form of online education that uses technological devices and is used by students in their own environment (Hartnett, 2016). Motivation in online learning has become widespread since the mid-1990s. Motivation should be explored more in online courses because students tend to participate less in online learning sessions (Kyewski & Kramer, 2018). Various things have been proposed to interact with the motivation of online learning in an effort to address the problem of student participation in online learning. Online learning makes students intrinsically motivated which involves students' curiosity and self-regulation to engage in learning (Yong & Thi, 2022). It requires the participation of students on their own responsibility for their own learning. The students'

performance in online learning is related to their motivation which leads to a high drop in their academic performance leading to the question of the importance of motivation in online learning. Motivation plays an important role for students in online learning, and it is a very important factor that needs to be considered in conducting online learning. This motivation consists of internal motivation and external motivation. Some studies report that students are mostly influenced by their internal motivation rather than external motivation. When students skip classes and do not take part in activities, they experience lower levels of motivation. De Barba et al (2016) found that the state-level motivation of learning acts as a middle point between participation and intrinsic motivation. Later on they discussed how much activities and content in an online learning environment are able to keep students' attention and will increase students' motivation and participation as situational interest. In addition, according to Cebi and Guyer (2020), the intensity of students' engagement with course material and personal motivation shows a positive connection. While students' choices of materials did not directly affect their motivation.

There are many studies that have been done to investigate motivation in learning online. Ozhan and Kocadere (2020) studied factors that explain academic success in a gamified online learning environment considering flow, emotional engagement, and motivation. They found that the most important predictors of success which significantly influenced the participants' motivation are the experience of flow in the learning setting with games and emotional engagement. This study involved 40 students who participated in a gamified online learning setting and were collected within 13 weeks. They used three different scales for data collection on learners' flow, emotional engagement, and motivation in the gamified online learning environment. The implication of this study shows that the experience of flow and emotional engagement in the gamified learning setting had a highly significant impact on motivation. Kyewski and Kramer (2018) said giving badges might increase student motivation in an online learning environment and used two different types of badges for example public badges that all students can see and private badges only the winner can see. The aims were to identify whether using these badges to receive successful task performance in specific activities within an e-learning course in a higher education setting would significantly impact on students' motivation and performance. They found that the hat badges had less impact on intrinsic motivation and performance. However, the students appreciate the badges that only them can see as they let them trail their development. This study involved 324 students from a wide range of subjects registered for the online course who participated in at least one survey round. They used experimental design in which the students were randomly and automatically divided and assigned into three different conditions. Two conditions were treatment conditions (badges visible to peers, badges only visible to students themselves) and one condition served as a control group (no badges). Badges could be earned within the first five weeks of the course. This study helps to point out important aspects regarding gamification reveal influences of badges on students' motovation, activity, and performance more comprehensively.

Past Studies of Self-Regulated Learning

Numerous studies have investigated the relationship between online class and self-regulated learning in the educational environment. According to Zimmerman (1989), these students take charge of their own learning rather than relying on teachers, parents, or other facilitators of learning. This concept emphasises the significance of three factors: students' self-regulated

learning strategies, their self-efficacy perceptions of performance skill, and their dedication to academic goals.

Research by Turan (2020) examines students' perceptions of flexibility, self-regulated effort, and distance learning satisfaction. The research sample included 1,760 students from 28 universities and was analysed by t-test, ANOVA, and regression analyses. Male students were happier with distance education than female students, and education faculty were happiest. According to the research, self-regulated effort and adaptability also affect student satisfaction in distance education.

The Covid-19 pandemic also directly affects self-regulated learning in an online learning environment. Research by Meshram (2022) investigates how the COVID-19 pandemic affected marketing students' self-regulated learning and grade expectations. The Hayes process macro was used to test the proposed framework on 841 undergraduate marketing students, and the findings indicate that SRL and its sub strategies have a direct and significant impact on students' grade expectations.

Based on prior research, it has been determined that there are relationships between students' self-regulated learning, self-efficacy, demographic backgrounds, and academic success and the online learning environment (Foong et al., 2021; Kuo et al., 2020)

Conceptual Framework

Learners who are self-regulated usually have higher motivation to learn. According to Rahmat (2018), besides using the correct learning strategies, the learning process is facilitated by the surrounding learning environment. This study is rooted from the framework by Pintrich and De Groot (1990).

Motivational Beliefs

Factors that can influence motivational beliefs associated with students' ability to learn from the chosen framework are self-efficacy, intrinsic value and test anxiety. One fundamental factor to insert motivational beliefs among learners is to get them to believe that they can succeed (Pressley et al., 2003). This is the essence of self-efficacy of how learner's verdict their ability to do well on a task and produce certain results. Learners who are intrinsically motivated perform tasks for self-satisfaction and positive feelings which lead to their best performances (Deci & Ryan, 2008). Test anxiety is also an important aspect since anxiousness interferes with students' ability to retrieve what is learned because their attention is divided between the task and negative concerns (Benmansour, 1999).

Self-Regulated Learning Strategies

There are two aspects of self-regulated learning strategies considered in this study which are cognitive strategies used by the students and their self-regulation in the learning process. The cognitive strategy used refers to the learners' approaches for improving their learning process (Latifa, 2016). Self-regulation refers to the students' cognitions and behaviours to achieve their goal (Zimmerman, 2002). Students who practice self-regulation will continuously reflect on the effectiveness of their cognitive and behavioral strategies. Successful implementation of these strategies will then lead to increased motivation for continued improvement (Bradley et al., 2017).

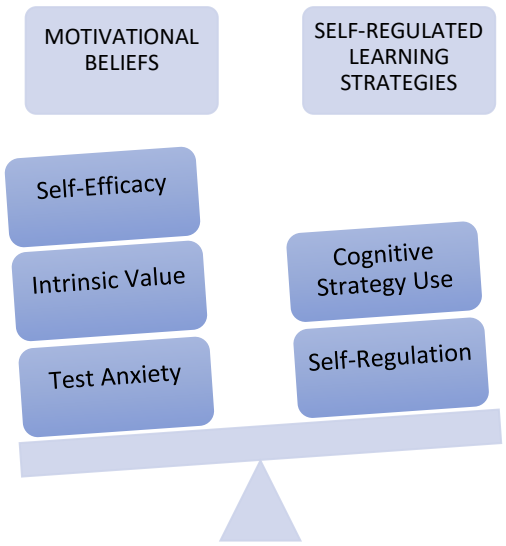

Figure 1- Conceptual Framework of the Study-Balancing Motivation and Self-Regulated Learning in Online Classes among Undergraduates.

Methodology

This quantitative study is done to investigate motivation and self- regulated learning in online classes among undergraduates in a public university in Malaysia. A total of 122 participants of different genders and ages were purposely chosen for this study. A survey which comprises several instruments adapted from Pintrich and De Groot (1990) is used and distributed for data analysis purposes (refer Table 1). Apart from the demographic profile in Part One, there are two other parts. Part Two has 22 items on motivational beliefs and Part Three has 22 items on self-regulated learning strategies.

Table 1
Distribution of Items in Survey. Source: Pintrich & De Groot (1990).

PART	STRATEGY		SCALE	No Of Items	Total Items
TWO	MOTIVATIONAL BELIEFS	A	SELF-EFFICACY	9	22
		B	INTRINSIC VALUE	8	
		C	TEST ANXIETY	4	
THREE	SELF-REGULATED LEARNING STRATEGIES'	D	COGNITIVE STRATEGY USE	13	22
		E	SELF-REGULATION	9	
	TOTAL NO OF ITEMS				44

Table 2
Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.928	44

The survey is distributed through Google form and the data is collected and analysed using SPSS version 26. With reference to Table 2, the SPSS analysis revealed a Cronbach analysis of 0.928, thus showing high external reliability for the instrument. Data is presented in terms of percentage for the demographic profile and mean scores to answer the research questions.

Findings

Findings for Demographic Profile

In the demographic profile, there are two items which are gender and course.

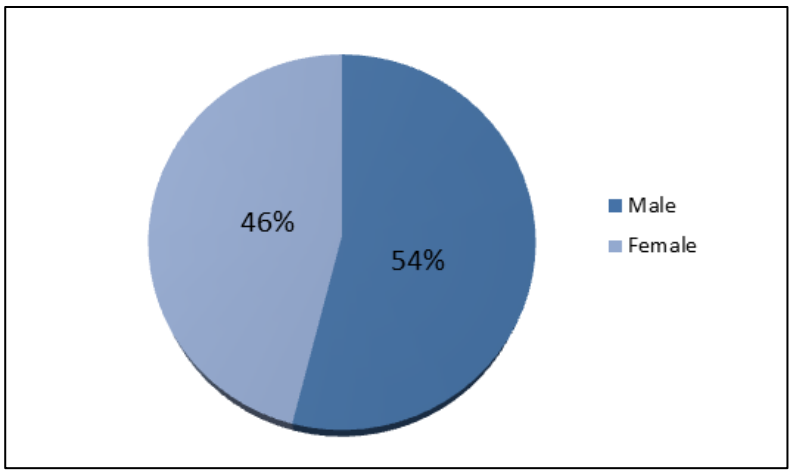

Figure 2- Percentage for Gender

Figure 2 depicts the distribution of gender of respondents. From a total of 122 students, 46 percent were female, and 54 percent were male students.

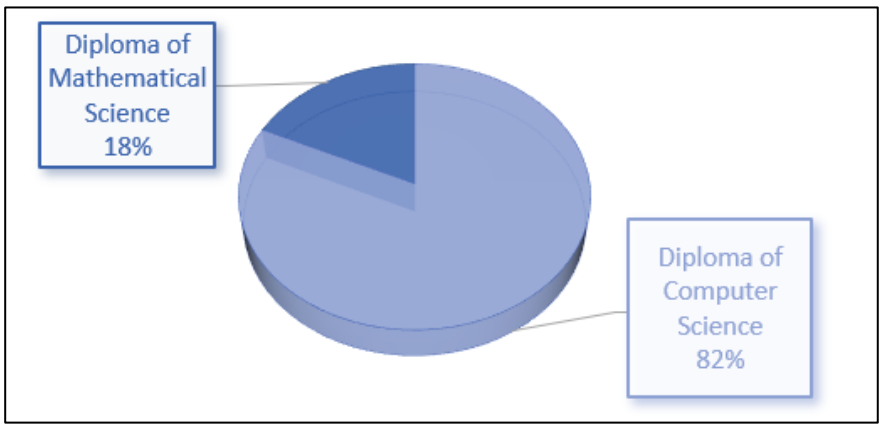

Figure 3- Percentage for Course

Figure 3 indicates that, from a total of 122 students who are answering the questionnaire, 18 percent of students enrolled in Diploma of Mathematical Sciences and 82 percent of students enrolled in Diploma of Computer Sciences.

Findings for Motivational Beliefs

This section presents data to answer research question 1; How does motivational beliefs influence learners' motivation to learn Mathematics online?

A. SELF-EFFICACY

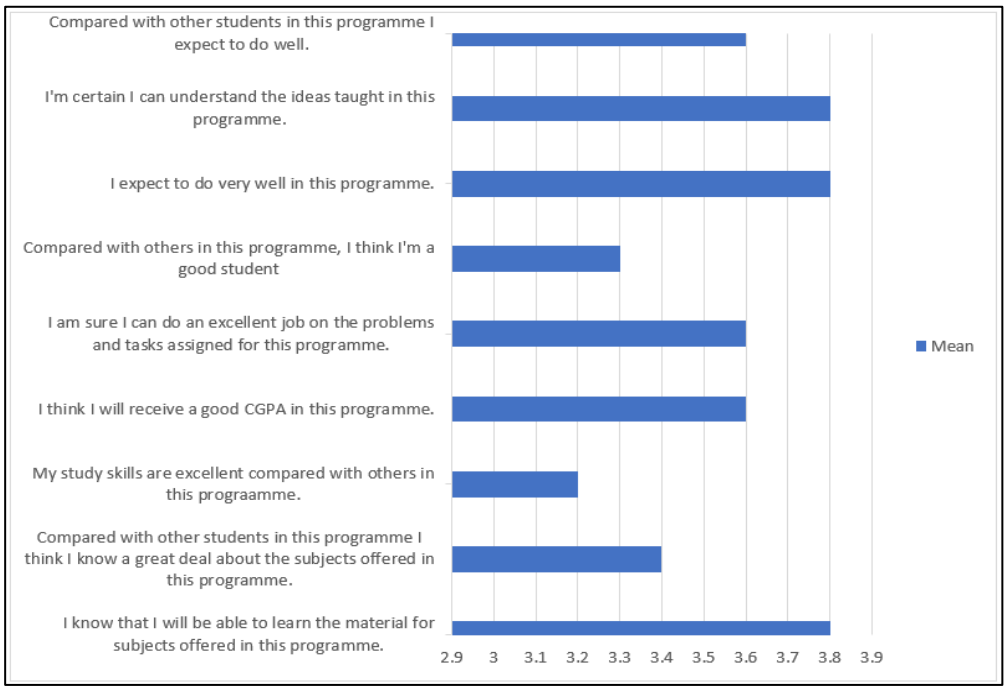

Figure 4- Mean for Self-Efficacy

Self-efficacy is a crucial component of motivational belief. Based on Figure 4, there are at least three items with the highest mean score of 3.8 for those who believe they understand the ideas taught in this programme, expect to do very well in this programme and are able to learn the material for subjects offered in this programme. However, their belief that their study skills are excellent compared with others in this programme is the lowest mean by only 3.2. This is followed by the belief that they are good students compared with others in this programme with a mean of 3.3 and know a great deal about the subjects offered, which is 3.4.

B. Intrinsic Value

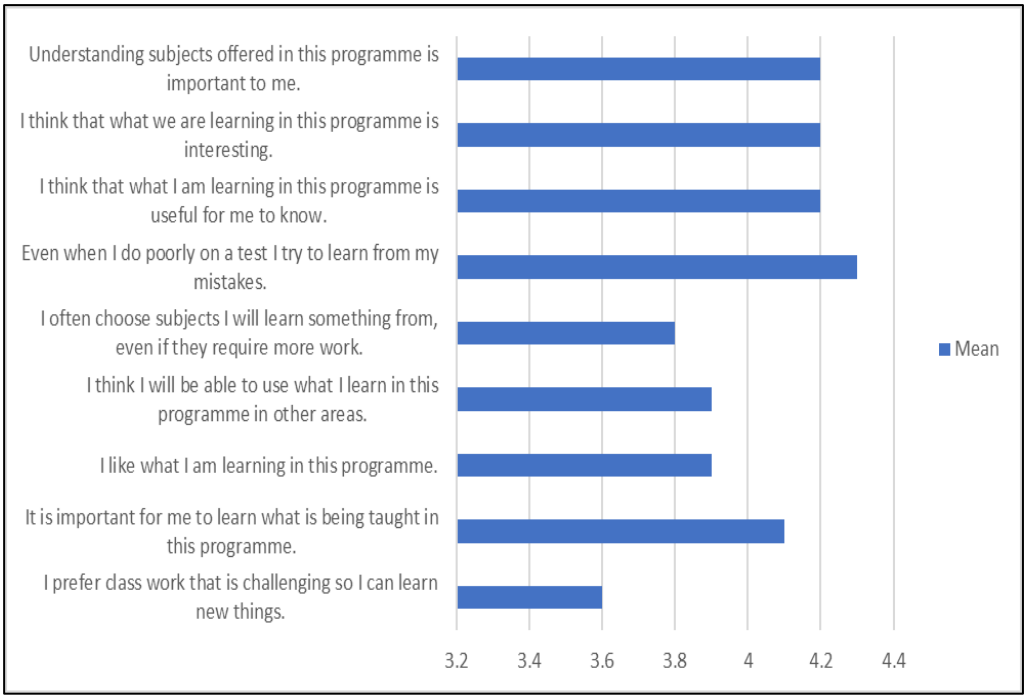

Figure 5- Mean for Intrinsic Value

Figure 5 shows the mean scores obtained for intrinsic values, which is one of the components of motivational beliefs. There are nine items considered for this study. The highest mean value is 4.3 for item "Even when I do poorly on a test I try to learn from my mistakes". Next, there are three items with the same mean score of 4.2 and they are "I think that what I am learning in this programme is useful for me to know", "I think that what we are learning in this programme is interesting" and "Understanding subjects offered in this programme is important to me." The item "I prefer class work that is challenging so I can learn new things" has the lowest mean score of 3.6.

C. Test Anxiety

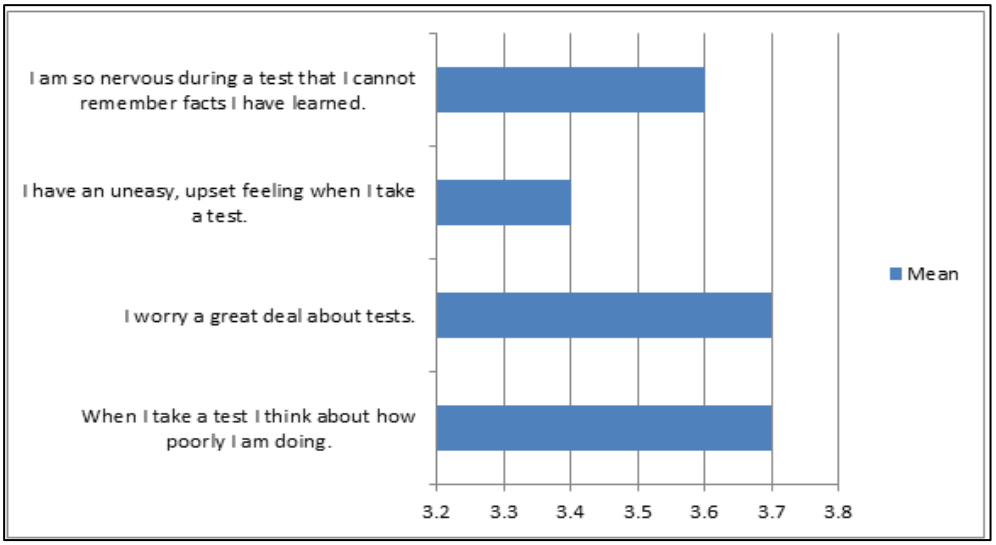

Figure 6- Mean for Test Anxiety

Figure 6 shows the result for calculated mean for test anxiety. Two items get a similar value of 3.7 for "I worry a great deal about tests" and "When I take a test, I think about how poorly I am doing". The lowest mean is for item "I have an uneasy, upset feeling when I take a test" with a value of 3.4. Lastly the item "I am so nervous during a test that I cannot remember facts I have learned" scored a mean of 3.6. This shows that students really care about the outcome of an assessment, and it makes them feel anxious and worried up to a point it can jeopardize the result of the given task because in their mind they are not doing it well.

Findings for Self-Regulated Learning Strategies

This section presents data to answer the research question "How does self-regulated learning strategies influence learners' motivation to learn online?"

A. Cognitive Strategy Used

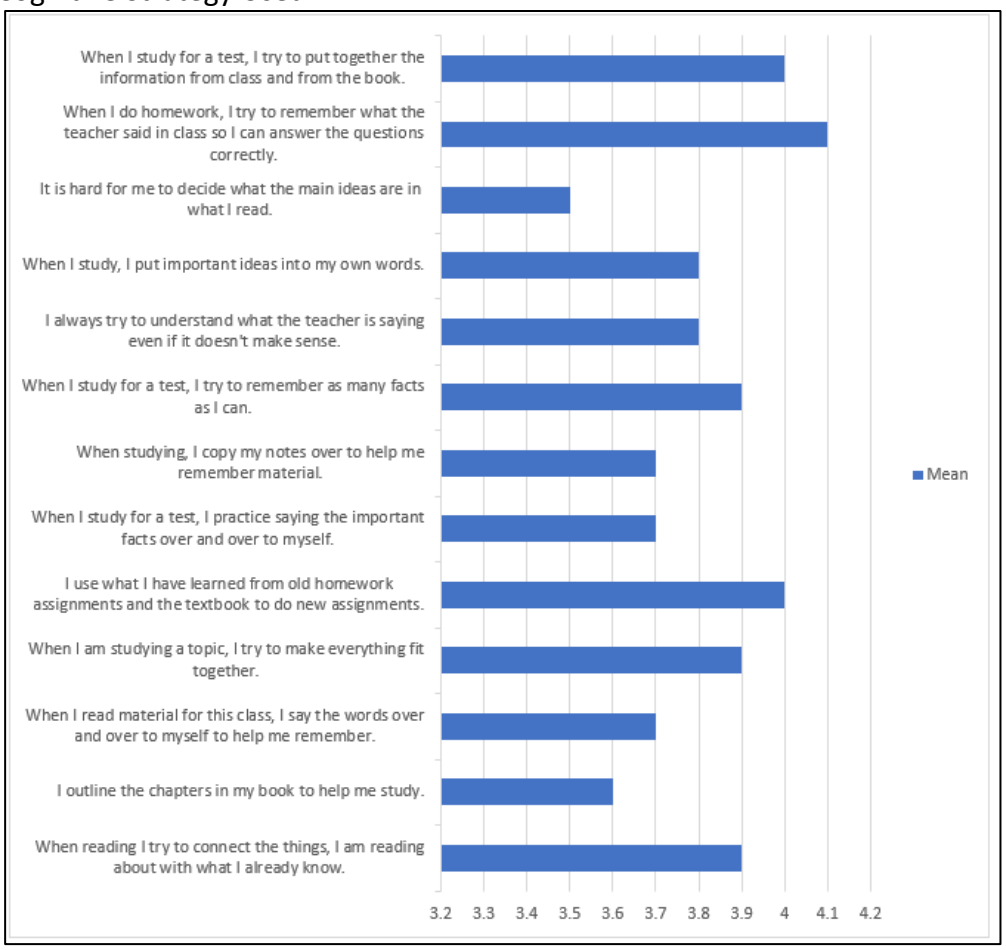

Figure 7- Mean for Cognitive Strategy Used

Figure 7 presents the mean score for cognitive strategy used. There are 13 items considered for this part. The highest mean is 4.1, for the item namely, "When I do homework, I try to remember what the teacher said in class so I can answer the questions correctly". The second highest mean is 4.0 for two items. The items are "I use what I have learned from old homework assignments and the textbook to do new assignments" and "When I study for a test, I try to put together the information from class and from the book". Next mean is 3.9, for three items, namely, "When reading I try to connect the things, I am reading about with what I already know", "When I am studying a topic, I try to make everything fit together" and

"When I study for a test, I try to remember as many facts as I can." Then, mean 3.8 is for two items namely "When I study, I put important ideas into my own words" and "I always try to understand what the teacher is saying even if it doesn't make sense". Meanwhile, the second lowest mean is 3.6, for item "I outline the chapters in my book to help me study". Lastly, the lowest mean is 3.5, for the item namely, "It is hard for me to decide what the main ideas are in what I read".

B. Self-Regulation

Figure 8 shows the mean for self-regulation. Self-regulation is how students control the learning process or activity including the cognitive behaviour of students during online learning. To measure self-regulation, nine items have been used.

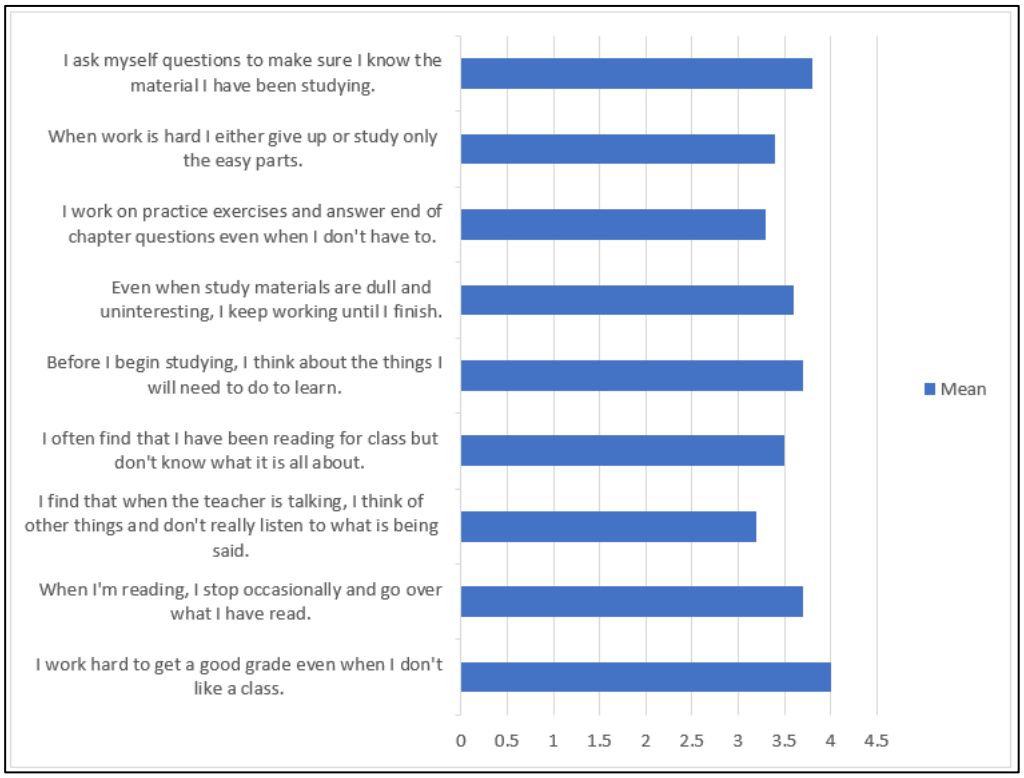

Figure 8- Mean for Self-Regulation

Based on the result in Figure 8, the highest mean is 4.0 for the item, namely, "I work hard to get a good grade even when I don't like a class". This result indicates that each student must have their own responsibility for their learning process and activities to get the great result. The second highest mean is 3.8 on item "I ask myself questions to make sure I know the material I have been studying". Two items show the same mean which is 3.7 are on items "Before I begin studying, I think about the things I will need to do to learn" and "When I'm reading, I stop occasionally and go over what I have read". The mean result for self-regulation also shows the lowest mean value is 3.2, which involves an item of "I find that when the teacher is talking, I think of other things and don't really listen to what is being said".

Conclusion

Summary of Findings and Discussion

A Cronbach's Alpha test that was done on the 44 number of items in the questionnaire revealed a result of 0.928. It is proven that the instruments and variables used in this study are reliable and consistent to explore the topic and answer the research questions. Essentially this study is done to examine the balance of motivation and self-regulated learning in online classes among undergraduate students. The intention is to answer two research questions.

The first one is how does motivational beliefs influence learners' motivation to learn online? The overall mean calculated from the first criteria which is self-efficacy is 3.57. The second criteria; intrinsic value resulted in the highest mean which is 4.02. While the mean for the third criteria; test anxiety is 3.6. According to Pintrich and De Groot (1990), self-regulation, self-efficacy, and test anxiety appeared to be the perfect predictors of performance. However, regardless of former accomplishment level, intrinsic value did not have a direct impact on performance but was hugely associated with self-regulation and cognitive strategy use. There is a great connection between test anxiety and academic outcomes. Students who have high test anxiety will find it harder to perform well in the given tasks which might lead to poor academic outcomes. Thus, students that lack motivation to self-regulate were more likely to report test anxiety.

The second research question is how does self-regulated learning strategies influence learners' motivation to learn online? There are two learning strategies that are being tested in this study. First is cognitive strategy which resulted in the higher mean of 3.825 while self - regulation resulted in 3.58 mean. The values of both means showed very small differences. Students who are able to apply self-regulated learning are more likely to use cognitive strategy as well (Adesola & Li, 2018). Self-efficacy was highly associated with cognitive strategy use. Self-regulation indicated that students who report high in self-regulation also applied cognitive strategy and self-efficacy in achieving their goals. To reach their desired goals, students must have self-control and self-discipline and should put more effort to tackle any obstacles. Without huge self-motivation no one can have such a strong personal drive to set their aim and get what they want.

Pedagogical Implications and Suggestions for Future Research

Motivation is defined as a set of interrelated beliefs and emotions that influence and direct behaviour (Wentzel, 1999). For learners to feel motivated to learn online, factors like motivational belief and self-regulated learning plays a huge role in the subsequent result or academic performance. Parents, other family members, classmates, educational institutions and educators especially have to support one another to create the optimum environment for each student to help them design their own goals and build their motivation consequently works hard towards it. Future research should look in terms of how they can collect and use data from highly motivated students who are proven to be successful and try to make a general model out of it and see how it can be applied to the less motivated students. From there we can really see if motivation can improve someone's desire to be more successful in what they are doing like learning online. Furthermore, since the world will slowly going back to the face-to-face method, we can study how this transition to a physical classroom impacted students' motivation to continue learning and excell in their study as compared to online classes.

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