

Exploring the Relationship Between Motivational Beliefs and Self-Regulated Learning

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Abstract

With the rise of digital evolution as a new approach to teaching and learning, coupled with the current COVID-19 global pandemic where students are granted enormous autonomy throughout their learning process, the need for students to develop self-regulated learning (SRL) skills is even more urgent. Moreover, extensive studies found that the current global pandemic has impacted students' motivation for learning, particularly when information technology infrastructure and facilities are lacking and social support from lecturers and peers is limited. This study was carried out to explore the relationship between students' motivational beliefs and self-regulated learning. The study adopted a quantitative study involving 142 students. An analysis of the survey adapted from Pintrich and De Groot (1990) reveals that there is a highly positive and significant association between motivational beliefs and self-regulated learning. The study acknowledges collaborative learning as a recent intervention in improving students' learning experiences. As such, it is recommended that future research can explore how collaborative learning excites students' SRL skills and strategies, particularly in the post-pandemic period.

Keywords: digital learning, motivational beliefs, open-distance learning, self-regulated learning, remote learning

1. Introduction

1.1 Background of the Study

The rise of student-centered learning, digital learning, and open-distance learning (ODL) coincides with the rise of self-regulated learning (SRL) research (Khalil et al., 2020; Lilian et al., 2021; Ng et al., 2005). Unlike traditional education, these learning approaches prioritise students' interests and recognize students' voices as central to the learning experience. Students also take an active role in deciding what to learn, how to pace their learning, and how to assess their learning, making SRL skills and strategies both important and critical.

SRL is defined by Zimmerman (1989) as the extent to which students are metacognitively, motivationally, and behaviorally active participants in their learning process. He went on to say that SRL consists of three components: self-regulated learning strategies, self-efficacy perceptions of performance skills, and commitment to academic goals. Similarly, Bai and Wang (2020) defined SRL as a proactive process in which students set goals, select and deploy strategies, and monitor and regulate their cognition in order to achieve those goals. According to Theobald (2021), learning is also perceived as a dynamic process in which learners personally activate and sustain cognitions, affects, and behaviours that are systematically oriented toward achieving personal goals. As a result, it is important to note that SRL requires students to participate meaningfully in their learning process by being able to set clear learning goals and initiate and direct their efforts to acquire knowledge toward those goals.

SRL research has been extensive to date. Some studies have been conducted to present its various elements (Boekaert, 1997; Panadero, 2017); identify SRL predictors (Ng et al., 2005); discuss various SRL strategies (Zimmerman, 1990); and demonstrate that students who use SRL strategies perform better academically (Zimmerman, 1990). Significantly, many of these academic debates highlight the close relationship between SRL and students' motivational beliefs (Zimmerman, 1990; Boekaerts, 1997).

During the global outbreak of Coronavirus Disease 2019 (Covid-19), students were forced to shift from face-to-face learning to either online learning or ODL, and attention to SRL increased dramatically. Malaysia is no different. The Malaysian government issued a Movement Control Order (MCO) in March 2020 to halt the spread of the disease (Prime Minister's Office, 2020). The order calls for the closure of public and private buildings, including schools and universities, with the exception of a few essential services. As a result, during the pandemic, students were given more autonomy throughout the learning process. Some people find the learning process more difficult during a pandemic, especially when access to information and communication technology infrastructure and facilities is limited.

Motivational beliefs are one of the predictors of effective SRL. This necessitates that students be highly motivated in the learning process in order to navigate their learning strategies and achieve excellent academic performance. With this in mind, it's worth investigating how motivational beliefs influence student self-regulated learning in the context of remote learning during the pandemic.

1.2 Statement of Problem

Traditional pedagogy is associated with spoon-feeding and encourages learners to seek assistance. However, in today's world, contemporary challenges are becoming more complex, necessitating students' ability to think critically and self-reflect in order to make discoveries. Malaysia is an IR 4.0 nation, with the current major game being the acceptance of digital technologies such as the Internet of Things (IoT), big data, artificial intelligence, and other significant technologies (Dianah et al., 2020). It promotes economic growth and educational revolution, resulting in the establishment of the Education Revolution (ER) 4.0. The ER 4.0 encourages technology-enhanced teaching practises and provides a high level of learning flexibility. Not long after, the outbreak of the COVID-19 pandemic compelled the use of ER 4.0. When the country's physical teaching style was totally phased out, students were compelled to switch from traditional to online distance learning (Abdullah et al., 2022). Self-regulated learning is vital in learning since it aids in environmental adaption and eventually improves self-competence (Cuyvers et al., 2021). According to Russell and Warner (2017), students' motivation in self-regulated learning is influenced by two mechanisms: cognitive, which influences one's belief system that he has control over his activities, and non-cognitive, which incorporates self-efficacy. When students engage in self-directed activities such as forethought, performance, and self-reflection, this proactive approach is likely to pave the way for success (Ztürk, 2021). Despite the fact that many people have identified the benefits of self-regulated learning, Cheng and Xie (2021) discovered that students tend to put off learning. Students' procrastination, according to the authors, is a complex scenario involving their view of learning, personal qualities, and motivating beliefs. Concurrently, Onah et al. (2021) revealed that dropout rates among online learners are continuously high. With the foregoing premises, the study is launched in order to answer the following questions:

- What is the level of motivational beliefs among students in learning?
- Do students have good self-regulated learning strategies?
- Is there a relationship between motivational beliefs and self-regulated learning strategies?

1.3 Describe Relevant Scholarship

1.3.1 Motivational Beliefs in Learning

Self-Regulated Learning (SLR) is defined as a process that is motivated. Many studies have found that motivational beliefs predict SRL (e.g., Bai & Wang, 2020, Bai & Guo, 2019). Motivation is commonly defined as a reaction to conditions or events that are either internally or externally stimulated (Aldridge & Rowntree, 2021). Students with the correct motivational beliefs can SRL their learning tactics and attain academic greatness. Three crucial aspects: motivating beliefs, self-efficacy, intrinsic value, and test anxiety, were specifically targeted for SRL research. Self-efficacy beliefs are related to a student's belief in his or her own ability to complete things successfully (Bandura, 1986). Learners with high self-efficacy see learning tasks as opportunities to successfully gain new knowledge, regardless of how

difficult the activity is. They are intrinsically motivated to succeed academically.

Intrinsic motivation (IM) is the interest and enjoyment that learners have when participating in a learning activity. Students that exhibit autonomous kinds of motivation do so when they “engage in behaviours that are seen as self-endorsed and volitional” 67 (Litalien et al., 2017). When students enjoy themselves while working on scholastic assignments, they are naturally motivated to succeed. Intrinsic value for a student learning a new skill/knowledge is produced by both interests and personal significance (Shanthi et al., 2019).

Academic grades are critical for undergraduates’ careers because they are utilised when applying for jobs or further study. Tests are useful instruments for motivating kids to learn. Fitzgerald (2015), on the other hand, discovered in her systematic study that there was a negative relationship between testing and motivational beliefs to perform academically. High-stakes testing has a number of detrimental effects on students’ performance, including anxiety and sleep deprivation both before and after the test. This is especially true for students with low academic achievement.

1.3.2 Self-Regulated Learning

Many research investigations on students’ abilities to plan, organize, and reflect on their learning and academic performance have used self-regulated learning. Self-regulated learning encompasses five key learning concepts: cognitive, metacognitive, behavioural, motivational, and affective (Panadero, 2017). As a result, the idea of self-regulated learning allows for a thorough and holistic understanding of numerous aspects such as self-efficacy and cognitive strategies associated to learning. Self-regulated learning, as seen through the lens of metacognitive learning techniques, explains learners’ talents and capabilities to govern and regulate their academic learning (An et al., 2022). The self-regulated learning technique is related to learner motivation and incorporates the active participation of learners. Self-regulated learning is a paradigm shift in the educational environment from a teacher-centered to a learner-centered learning strategy that employs self-regulated learning tools. Self-regulated learning aids in the development of students’ capacities and skills in directing the learning environment as well as problem-solving abilities (Hwang & Oh, 2021). This approach can also encourage pupils to believe in their own talents to motivate and control their learning activities. Self-regulated learning is a constructive, active process in which learning objectives are planned, structured, led, and controlled by their cognitive, motivation, and behaviour, which are guided and restrained by their goals and environmental elements (Zheng & Zhang, 2020). According to Social-Cognitive Theory, self-regulated learning involves three major phases: forethought (task analysis and objective determination prior to learning activities), performance control (applying cognitive strategies such as administration and management, elaboration, and rehearsal, as well as metacognitive monitoring), and self-reflection (learners critically determine and argue their performance). Learner performance in various learning environments can be positively influenced by their various self-regulated learning practises. Individuals actively participate in their learning through the metacognitive, motivational, and behavioural processes associated with self-regulated learning (Scheiter et al., 2018). This process can be seen at three separate

layers. The first layer is the outer layer, which incorporates motivational and volitional self-regulation, such as resource allocation and goal selection. The second layer is the middle layer, which elaborates on the regulation of the learning process, such as the adoption of metacognitive abilities to direct one's learning. The third layer is related to the inner layers and relates to process mode regulation, which includes the selection of cognitive strategies or information processing modes. Students must be familiar with declarative strategy knowledge, condition strategy knowledge, and procedural strategy knowledge.

1.3.3 Past Studies on Motivation and Self-regulated Learning

Self-regulated learning allows students to monitor their progress, and the SRL process encourages students to track their progress and evaluate their learning experience (Martin, Craigwell, & Ramjarrie, 2022). Expanding SRL can assist educators in amplifying motivational beliefs through practical applications and strategies (Callan, DaVia Rubenstein, Barton, & Halterman 2022).

According to Bai and Wang (2021), the relationships between motivational beliefs, use of self-regulated learning (SRL) strategies, and competence in English as a second/foreign language (ESL/EFL) writing demonstrated that students' motivational beliefs were critical for SRL strategy use, particularly in learning development. The study emphasises the importance of a growth attitude and curiosity in Hong Kong ESL/EFL learners' writing over self-efficacy and utility. In comparison, Guo and Bai (2022) investigated the impacts of SRL technique use on primary school students' motivation in EFL writing and contrasted such effects between high and low performers. The results showed that high achievers had a high level of self-efficacy, while low achievers had a low level.

Similarly, Bai, Wang, and Nie (2021) investigated the links between motivating beliefs, the use of self-regulated learning (SRL) techniques, and writing ability in English as a second/foreign language (ESL/EFL). 540 eighth students from Hong Kong took part. The authors used multivariate analyses of variance (MANOVAs) to see if high, average, and low achieving writers had different levels of motivational beliefs and SRL writing strategy use, and they also used structural equation modelling (SEM) to see how motivational beliefs affected SRL writing strategy use. According to the findings, students exhibited a high degree of utility but a low level of interest in writing. Students with varying levels of writing skill differed in their motivation and use of SRL strategies, demonstrating that both motivation and SRL strategy use contribute to writing competence. The study's implication was that students' motivated attitudes were critical for SRL technique application in English writing.

Another study, done by Khan and Khan (2015), discovered that SRL and motivating beliefs had a reasonably positive impact on students' academic achievement. The authors discussed the relationships between three goal orientations, motivational beliefs, and self-regulated learning in students. Students from Lahore's educational establishments in the seventh, eighth, and ninth grades took part in this study. To make the study more representative, a sample size of 210 respondents was used. This study's research was conducted utilising the survey method, with data obtained from respondents via a survey questionnaire. The authors conducted SEM analyses, which revealed a positive pattern of motivational beliefs, including

adaptive levels of task value, as well as cognition, including higher levels of cognitive strategy use, self-regulation, and academic performance, as well as a negative pattern of test anxiety, resulting in learning goal orientation. The findings indicate that motivational beliefs, self-regulation, and classroom performance all have a significant impact on the goal orientation that students adopt in the classroom. The authors explained the significance of this study by demonstrating that the students are the focus of the professors and coordinators when setting a certain aim or assigning a paper or exam to them. Khan and Khan (2015) also stated that educators are interested in the goals that students establish for themselves when completing or performing a specific task.

1.4 Conceptual Framework

Motivation plays a very important role in learning. Highly motivated learners are most likely to succeed. Many factors increase motivation among learners. The studies by Zainuddin et al. (2021), Lokman et al. (2021) and also Soh et al. (2022) found interesting links between value components and intrinsic and extrinsic motivations. Some learners value what they are learning and that helps to keep them motivated. Some learners are intrinsically motivated, and this acts as a drive to succeed. On the other hand, some need extrinsic motivation to keep their motivation going.

This study is rooted in the framework by Pintrich and De Groot (1990) who felt that learners' (a) motivational beliefs are related to their abilities to use (b) self-regulated strategies. Motivational beliefs from (i) self-efficacy, (ii) intrinsic value and also (iii) test anxiety. Self-regulated learning strategies include the use of (i) cognitive strategy and (ii) self-regulation.

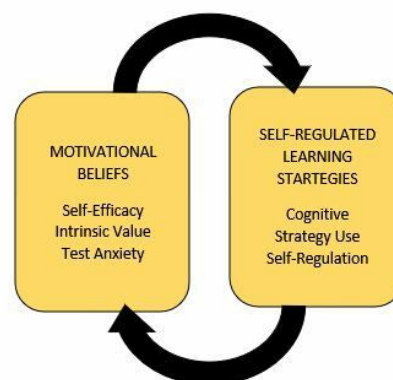


Figure 1. Conceptual framework of the study—The relationship between motivational Beliefs and self-regulated learning strategies

2. Method

This quantitative study was done to investigate learners' motivation toward learning. 142 respondents participated in this study. The 5-Likert scale instrument used a survey adapted

from Pintrich and De Groot (1990). Table 1 shows the distribution of items in the survey. Section A is the demographic profile. Section B has 22 items on Motivational Beliefs and 22 items on self-regulated learning strategies.

Table 1. Distribution of items in the survey

PART	STRATEGY	SCALE		No of Items	Total Items
2	Motivational Beliefs	A	Self-Efficacy	9	22
		B	Intrinsic Value	9	
		C	Test Anxiety	4	
3	Self-Regulated Learning Strategies	D	Cognitive Strategy Use	13	22
		E	Self-Regulation	9	
TOTAL NO OF ITEMS				44	

Table 2 shows the reliability statistics for the survey. SPSS analysis revealed a Cronbach alpha of .942 thus revealing the high reliability of the instrument used. Data is then analysed to reveal mean scores to answer all the research questions for this study.

Table 2. Reliability statistics

Cronbach's Alpha	N of Items
0.942	44

In the Results section, summarize the collected data and the analysis performed on those data relevant to the discourse that is to follow. Report the data in sufficient detail to justify your conclusions. Mention all relevant results, including those that run counter to expectation; be sure to include small effect sizes (or statistically nonsignificant findings) when theory predicts large (or statistically significant) ones. Do not hide uncomfortable results by omission. Do not include individual scores or raw data with the exception, for example, of single-case designs or illustrative examples. In the spirit of data sharing (encouraged by APA and other professional associations and sometimes required by funding agencies), raw data, including study characteristics and individual effect sizes used in a meta-analysis, can be made available on supplemental online archives.

3.1 Findings for Demographic Profile

Table 3 shows the demographic information of the respondents. 142 students responded to the survey. All students are from the March to July 2022 semester.

The majority of the informants were female, represented by 82%. Male recorded for 18% of the total population. Looking at age factor, the 21 to 22 years are the highest age group

among the respondents (53%). It follows by informants aged between 23 to 25 years old with 45% of the total population another 2% of the respondents were above 25 years old. Out of 142 respondents, 50% resided in at semi-urban area, 38% resided in at urban area and only 12% resided in rural area. The majority of respondents scored CGPA above 3 with 50% of respondents scoring between 3.00–3.49 and 34% scoring 3.5 and above. Students who scored below 3 are considered minimal in which 14% scored between 2.5–2.99 and only 2% scored 2.49 and below.

Table 3. Demographic information of respondents

Demographic Profile	
Gender	
Male	18%
Female	82%
Age Group	
21–22 years old	53%
23–25 years old	45%
Above 25 years old	2%
Program	
AM228	50%
AM226	25%
AM225	24%
AM110	1%
CGPA	
2.5 and above	34%
3.00–3.49	50%
2.5–2.99	14%
2.49 and below	2%
Location	
Semi Urban	50%
Urban	38%
Rural	12%

3.2 Findings for Motivational Beliefs

This section presents data to answer research question 1. How do motivational beliefs influence learning? In this context of the study, Motivational beliefs are measured by (i) 9 items in self-efficacy, (ii) 9 items in intrinsic values, and (iii) 4 items in test anxiety.

Table 4. Mean score for self-efficacy

No	Items	Mean Score
1	MBSEQ1 Compared with other students in this class I expect to do well.	3.4
2	MBSEQ2 I'm certain I can understand the ideas taught in this course.	3.7
3	MBSEQ 3 I expect to do very well in this class.	3.7
4	MBSEQ 4 Compared with others in this class, I think I'm a good student	3.6
5	MBSEQ5 I am sure I can do an excellent job on the problems and tasks assigned for this class.	3.6
6	MBSEQ6 I think I will receive a good grade in this class.	3.6
7	MBSEQ 7 My study skills are excellent compared with others in this class.	3.2
8	MBSEQ8 Compared with other students in this class I think I know a great deal about the subject.	3.3
9	MBSEQ9I know that I will be able to learn the material for this class	3.7

Table 4 shows the mean score for self-efficacy. The highest mean score is 3.7 with three statements where the respondents mentioned 'I'm certain I can understand the ideas taught in this course', 'I expect to do very well in this class' and 'I know that I will be able to learn the material for this class. The lowest mean score is 3.2 for the statement 'My study skills are excellent compared with others in this class. The overall mean score derived from Table 4 for self-efficacy value is 3.53. In short, the self-efficacy value has a positive high mean score.

Table 5. Mean for intrinsic value

No	Items	Mean Score
1	MBIVQ1I prefer class work that is challenging so I can learn new things.	3.5
2	MBIVQ2 It is important for me to learn what is being taught in this class.	4
3	MBIVQ3I like what I am learning in this class.	3.9
4	MBIVQ 4 I think I will be able to use what I learn in this class in other classes.	3.9
5	MBIVQ 5 I often choose paper topics I will learn something from even if they require more work.	3.6
6	MBIVQ 6 Even when I do poorly on a test I try to learn from my mistakes.	4
7	MBIVQ7I think that what I am learning in this class is useful for me to know.	4
8	MBIVQ 8 I think that what we are learning in this class is interesting.	3.9
9	MBIVQ 9 Understanding this subject is important to me.	4.1

Table 5 shows the mean score for intrinsic value. The highest mean score is 4.1 where the respondents said that understanding the subject is important to them. The lowest mean score is 3.5 for the question, "I prefer class work that is challenging so I can learn new things". The overall mean score derived from Table 5 for intrinsic value is 3.87. Overall, it is fair to say that intrinsic value has a positive high mean score.

Table 6. Mean for test anxiety

No	Items	Mean Score
1	MBTAQ 1I am so nervous during a test that I cannot remember facts I have learned.	3.6
2	MBTAQ 2I have an uneasy, upset feeling when I take a test.	3.5
3	MBTAQ 3I worry a great deal about tests.	3.8
4	MBTAQ 4When I take a test I think about how poorly I am doing.	3.8

Table 6 shows the mean score for test anxiety. The highest mean score of 3.8 refers to two statements “I worry a great deal about the test” and “When I take a test, I think about how poorly I am doing”. The lowest mean score is 3.5 for the question, “I have an uneasy, upset feeling when I take a test”. The overall mean score derived from Table 6 for test anxiety is 3.6. In brief, students’ test anxiety has a positive high mean score.

3.3 Findings for Self-Regulated Learning

This section presents data to answer research question 2: How does the use of self-regulated learning strategies influence learning? Self-regulated learning strategies are measured by (i) 13 items in cognitive strategy use and (ii) 9 items in self-regulation.

Table 7 shows the mean score for cognitive strategies. The highest mean score is 4.1 where the respondents said that they ‘put together the information from class and from the book’ before they sit for a test. The lowest mean score is 3.5 for the question, “It is hard for me to decide what the main ideas are in what I read.” The overall mean score derived from Table 7 for cognitive strategies is 3.92. Based on the finding, cognitive strategies have a positive high mean score.

Table 7. Mean for cognitive strategy

No	Items	Mean Score
1	SRLSCSUQ1 When I study for a test, I try to put together the information from class and from the book.	4.1
2	SRLSCSUQ 2When I do homework, I try to remember what the teacher said in class so I can answer the questions correctly.	4
3	SRLSCSUQ 3It is hard for me to decide what the main ideas are in what I read.	3.5
4	SRLSCSUQ 4When I study, I put important ideas into my own words.	4
5	SRLSCSUQ 5I always try to understand what the teacher is saying even if it doesn't make sense.	3.8
6	SRLSCSUQ 6When I study for a test, I try to remember as many facts as I can.	4
7	SRLSCSUQ 7When studying, I copy my notes over to help me remember material.	3.9
8	SRLSCSUQ 8When I study for a test; I practice saying the important facts over and over to myself.	3.9
9	SRLSCSUQ 9I use what I have learned from old homework assignments and the textbook to do new assignments.	3.9
10	SRLSCSUQ 10When I am studying a topic; I try to make everything fit together.	4
11	SRLSCSUQ 11When I read material for this class, I say the words over and over to myself to help me remember.	3.9
12	SRLSCSUQ 12I outline the chapters in my book to help me study.	4
13	SRLSCSUQ 13When reading I try to connect the things; I am reading about with what I already know.	4

Table 8 shows the level of the mean score is high. In self-regulation, most of the time the students are on their own to manage their learning, plan and monitor their outcomes. The highest mean score is reflected in the item, “I work hard to get a good grade even when I don't like a class” (mean = 4.0), meanwhile the lowest mean score is recorded in the item, “When work is hard I either give up or study only the easy parts”; and “When the teacher is talking, I think of other things and don't really listen to what is being said” (mean = 3.2).

Table 8. Mean score for self-regulation

No	Items	Mean Score
1	SRLSSRQ1 I ask myself questions to make sure I know the material I have been studying.	3.9
2	SRLSSRQ 2 When work is hard I either give up or study only the easy parts.	3.2
3	SRLSSRQ 3 I work on practice exercises and answer end of chapter questions even when I don't have to.	3.4
4	SRLSSRQ 4 Even when study materials are dull and uninteresting, I keep working until I finish.	3.6
5	SRLSSRQ 5 Before I begin studying, I think about the things I will need to do to learn.	3.8
6	SRLSSRQ 6 I often find that I have been reading for class but don't know what it is all about.	3.5
7	I find SRLSSRQ 7 that when the teacher is talking, I think of other things and don't really listen to what is being said.	3.2
8	SRLSSRQ 8 When I'm reading, I stop once in a while and go over what I have read.	3.8
9	SRLSSRQ 9 I work hard to get a good grade even when I don't like a class.	4

3.4 Findings for the Relationship Between Motivational Beliefs and Self-Regulated Learning Strategies

This section presents data to answer research question 3: Is there a relationship between motivational beliefs and self-regulated learning strategies? To determine if there is a significant association in the mean scores between motivational beliefs and self-regulation, data were analyzed using SPSS for correlations. Table 9 shows there is an association between motivational beliefs and self-regulation.

Table 9. Correlation between motivational beliefs and self-regulation

Variables		Total Means Motivational Belief	Total mean Self-Regulation
Total Means Motivational Belief	Pearson Correlation	1	.675**
	Sig (2-tailed)		0
	N	142	142
Total mean Self-Regulation	Pearson Correlation	.675**	1
	Sig (2-tailed)	0	
	N	142	142

Note. **Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis shows that there is a high positive significant association between motivational beliefs and self-regulation ($r = .675^*$) and ($p = .000$). The coefficient This relationship is significant at the .05 levels, and it is thus significant. According to Jackson (2015), a positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation

would be in the range of 0.1 to 0.3, a moderate positive correlation from 0.3 to 0.5, and a strong positive correlation from 0.5 to 1.0. This means that there is a strong and significant positive relationship between motivational beliefs and self-regulation.

4. Discussion and Conclusion

4.1 Summary of Findings and Discussion

This study has given further insight into the impacts of motivational beliefs on self-regulated learning in the context of learning during the pandemic. Based on the finding, the students have high motivational beliefs in learning which indicates that students are confident in their ability to acquire new knowledge, complete the given tasks, and remain motivated to learn despite the many limitations they encountered and endured during the pandemic. But this does not mean that it reduces students' test anxiety. The study also revealed that students' SRL is good because they have a good ability to set goals, plan and navigate their learning strategies during the pandemic towards the attainment of learning goals, and monitor the outcomes. Interestingly, the study confirmed that there is a significant positive relationship between motivational beliefs and SRL consistent with many past studies about the close association between motivational beliefs and SRL (Yen, Ng et al., 2005; Bai & Guo, 2019; Bai & Wang, 2020).

A few reasons can be attributed to this. Despite numerous studies on challenges of learning during the pandemic, students in tertiary education were reported as more able to cope with the sudden shift from face-to-face learning to online learning or ODL and have a more positive attitude towards online learning or ODL (Khalil et al., 2020; Muthuprasad et al., 2021). Financial assistance amounted to RM270 million announced by the Ministry of Higher Education of Malaysia (MOHE) and non-financial support from the university including counselling service and mental health support throughout this period were also helpful in reducing pandemic anxiety among students hence keeping them motivated to stay focus on their study. Moreover, almost all universities, public and private are responsive to the emergency shift from face-to-face learning to online learning or ODL (www.astroawani.com).

4.2 Pedagogical Implications and Suggestions for Future Research

The evolution of technology coupled with the current pandemic situation has a dramatic impact on the teaching and learning environment in tertiary education. Nevertheless, students' high motivational beliefs and good self-regulation in learning are obvious. The implication of this finding emphasizes the need for a comprehensive support system in the learning system, especially amid the emergency shift from traditional face-to-face learning to fully online learning or ODL approach. Clear teaching and learning policy guidelines, effective communication channel for effective dissemination of information, and strong emotional empathy are also needed in helping students who were struggling to adjust to remote learning. On top of this, instructors must keep playing a facilitating role to guide students so that they can transform positive thoughts and beliefs into action in pursuing their study goals. As collaborative learning is now a new chorus in educational approach, it would be interesting if

future research can explore how collaborative learning excites students' SRL skills and strategies.

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