Exploring Motivational Beliefs and Self-Regulated Learning Strategies in Learning among Undergraduates

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Abstract
The massive unplanned transition from traditional learning to an exclusively online learning setup, and then back to face-to-face classrooms resulted in students' learning strategies and motivations. Within this context, the present study aimed to explore perception of learners who have had the experience of this transition, on their learning strategies. This is specifically to identify how the learners' motivational beliefs and self-regulated learning strategies influence their learning process. This quantitative study is derived from a conceptual framework from Pintrich & DeGroot (1990), in which it is believed that learners who employ self-regulated strategies are known to practise some factors of motivational beliefs. The sample of this study consists of 51 Part 2 and Part 3 ESL undergraduates in a public university. The data was attained from an online survey questionnaire consisting of 4 sections, mainly on motivational beliefs and self-regulated beliefs. The instrument used is a 5-point Likert-scale survey, rooted from Pintrich & DeGroot (1990) to obtain the variables. From the findings, it can be concluded that the learning strategies from students of the post-Covid-19 pandemic are highly influenced by motivational beliefs and self-regulated learning strategies among diploma students. This can be seen by the high mean scores from the suggested Pintrich & DeGroot (1990) framework, which includes motivational factors such as (i) self-efficacy, (ii)intrinsic value and (iii) test anxiety. These factors indirectly influence their self-regulated learning strategies in terms of (i) cognitive strategy use, and (ii) self-regulation. From these findings, interventions to improve students' academic performance should focus not only on boosting their motivation but also on enhancing their self-regulated learning strategies.

Introduction

Background of Study

In this modern world where knowledge can be derived beyond classrooms, motivations in learning and self-regulated learning (SRL) strategies have evolved. Individuals are assumed to be more motivated, responsible and in control of their own learning and acquisition. This can be deemed to be a form of independent learning, where students autonomously and actively learn from multiple learning materials (Moore, 1973). Students can also manage their behaviours and anxieties to facilitate learning by self-regulated learning strategies (Byrnes et al., 1999). Motivational beliefs is another dimension of self-regulation, which consist of self-efficacy, task value, goal orientation, control belief, and test anxiety (Pintrich & De Groot, 1990). Although there are relational and experimental studies regarding this topic done in Malaysia, there is a need to study on how the SRL strategies and motivational beliefs influence students' learning after the Covid-19 pandemic, the transition from online distance learning (ODL) to physical classroom learning.

Statement of Problem

When it comes to learning, much emphasis is put on academic achievement. While rightfully understandable since students need to achieve certain grades to graduate, academic achievement is often attributed to intelligence as the key factor to determine the student's ability to perform academically. Attributing academic performance to intelligence, either the student has a lot of it or not, increases students' defensiveness against seeking for support because more effort is seen as acknowledging their current lack of ability to perform a task, helplessness due to believing additional effort will not translate to better academic achievement, and test anxiety (Dweck and Master, 2009). Focusing on the end result can lead to the overemphasis on outcomes instead of the dynamic process of learning and growth. Values such as taking risks, seeking for help and problem-solving skills are all integral part of the learning process. Taking into account how complex and intricate the learning process is, exploring student beliefs, active learning practices and strategies among different population should continue to interest researchers. In the case of academic achievement and goals, recent literature has shown the crucial role of motivations and autonomy as variational sources for students' drive and self-improvement (Costa and Faria, 2018; Rhew et al., 2018; Won et al., 2019; Liu, 2021; Zarrinabadi et al., 2021). In a recent review of twenty studies about motivational constructs and self-regulated learning (SRL), Lim and Yeo (2021) concluded that overall evidence proved that SRL could be predicted by self-efficacy, intrinsic goal orientation, task value, and control of learning beliefs. It shows how motivational frameworks and intrinsic values impact learners' behaviour and practice. This does not necessarily imply that the process is linear with motivations being the prerequisite to SRL and achievement. In 2021, Theobald's meta-analysis of 49 studies with over 5,000 participants revealed that SRL training programmes were able to enhance academic performance, SRL strategies, and motivation among university students. Similar to the learning process, many factors including motivation and SRL strategies look to be interactive rather than sequential and pre-determined.

As stated earlier, interest in different populations should be sustained since the learning environment naturally evolves and impacts our current understanding. The recent coronavirus pandemic and lockdown have catapulted students to take ownership of their learning and employ strategies to regulate their learning behaviours, away from traditional classroom instructions. The notion of motivation and SRL have been vibrantly researched and documented, but the global pandemic presented a rare and unique challenge to these university students who spent their earlier university lessons strictly at home. The learning environmental changes for this distinctive population calls for a current re-examination of motivation and independent learning. Although the students have mostly returned to the usual face-to-face classes, studying their motivational beliefs and SRL strategies is essential to updating our understanding of the interaction between motivations and SRL.

Objective of the Study and Research Questions
This study is done to explore perception of learners on their use of learning strategies. Specifically, this study is done to answer the following questions;
- How do learners' motivational beliefs influence learning?
- How do learners' self-regulated learning strategies influence learning?

Literature Review
Motivational Beliefs for Learning
In learning a language, motivation is a force or supportive tool that pushes learners to complete a task and accomplish their goals. Pintrich and De Groot (1990) divide motivation into three components: self-efficacy, value and affective component. Students who have high motivational beliefs tend to develop greater use of learning strategies. Past studies have shown the influence of motivational beliefs on students' learning. Raoofi and Maroofi (2017) conducted a study on 304 undergraduates in Malaysia and revealed intrinsic value was a significant predictor of writing scores of student essays. In another study, Bai and Wang (2023) investigated the role of growth mindset, self-efficacy and intrinsic value in self-regulated learning (SRL) and English language learning achievement. The study involved 690 Fourth Graders in a primary school in Hong Kong and findings revealed that the SRL use was driven by students' motivational beliefs in differing ways. The study concludes that 'growth mindset' had a bigger influence on SRL than self-efficacy and intrinsic value.

Independent Learning and Self-Regulated Learning Strategies
According to Holec (2001), the philosophy of independent learning has emerged as one of the major features in higher education teaching and learning since the late 20th century. It is claimed that higher education students are expected to be independent, self-reliant and take charge of their own learning to be prepared for future work environments. In an experimental study on the effectiveness of self-directed learning, Hubbard (1994) concluded that students who demonstrated their independent learning behaviours could academically perform better than those who did not. Meanwhile, Saber, Crosling and Rahman (2006) argued that independent learning is not carried out in isolation, but an independent learning environment requires support from teachers, institutions and the society. Studies found some evidence that whole-school policies which taught students to regulate their own learning behaviour were effective in supporting independent learning (Meyer et.al., 2008). In the context of self-regulated learning (SLR), students with SLR skill are able to plan, organise, instruct, monitor,

and evaluate themselves during the learning process (Gavora et al., 2015). A research result proves that SLR gives some effective impact towards the students' learning independence during the learning process (Hong & O'Neil, 2001). Therefore, it is important to acknowledge the effect of SLR towards students' independent learning.

Past Studies on Motivational Beliefs
To put it simply, motivation can be viewed as the act of moving toward any goal (Buehl and Alexander, 2009). Dweck and Master (2009) proposed self-theories to explain the different impacts of motivational beliefs in students. According to their motivational framework, self-theories can be broken into two parts, students with "entity theory" who believe intelligence is a fixed ability, and conversely, students with "incremental theory" who see it as a changeable attribute that can be strengthened and developed. These self-theories that students believe in can impact their goals, learning opportunities, effort, reactions to failure, and students' actual academic performance. In a similar vein, Fan and Williams (2018) conducted an extensive data analysis of over 14,000 teenage students to examine the mediating effects of motivation in school climate perceptions and academic achievement. The study echoed Dweck's and Master's (2009) self-theories as results showed that students' intrinsic motivation, and their positive beliefs in their capability to perform a task significantly facilitated achievement in reading and maths. Students' internalisation of motivational beliefs such as growth mindset, self-efficacy, intrinsic and extrinsic motivation also resulted in better willingness to self-monitor their learning, adjust learning strategies, planning, and goal setting (El-Adl and Alkharusi, 2020; Bai and Wong, 2023). However, according to von der Embse et al.'s (2018) 30-year meta-analytic review of data from 1988 to 2018, the study revealed a differing relationship between students' motivations and test anxiety. Test anxiety was negatively associated with intrinsic motivation but positively related to extrinsic motivation. Although the relationship differed, a significant correlation for both correlates (intrinsic and extrinsic) was found (von der Embse et al., 2018). This might point to implications of task values and goals when it comes to test performance.

Motivational beliefs have been found to be a strong predictor for career plans and aspirations as well. In a longitudinal person-centered study which followed over 800 students from Grade 7 (12-13 years old) to adulthood, the data revealed that students in a low *intrinsic value* profile and a *low motivational beliefs* profile demonstrated notably low likelihood of choosing a math-intensive college majors (Lazarides et al., 2020). In a gendered study that also investigated motivational beliefs' effects on educational and occupational pursuits, the study's results largely demonstrated that motivational beliefs, as well as other factors such as performance and school burnout, contributed to educational degrees and occupations that both female and male students aspire to (Widlund et al., 2020).

In essence motivational beliefs matter (Buehl and Alexander, 2009). One area that has been fertile in study of beliefs and motivations is the work on treating motivations as part of important teaching instructions. Studies on integrating motivation to instructions and cognitive load have accounted for changes in perceptions in attempts to improve academic performances (Buehl and Alexander, 2009; Feldon et al., 2019; Xu et al., 2021).

Past Studies on Self-Regulated Learning Strategies

Many studies have been done to investigate the learning of foreign languages, especially in terms of motivational beliefs and self-regulated learning strategies in both foreign and local contexts. Some of these studies look at relationships between SRL and motivational beliefs (Bai and Wong, 2023; Kosnin, 2007), SRL and academic performance (Raoofi and Maroofi, 2017) SRL and digital literacy (Lilian, 2022), SRL and academic self management skills (Xuan et al., 2020). These studies involved SRLs employed in learning English language, Arabic, foreign languages, mathematics and IT. The following section presents studies on SRL strategies and how they affect students' academic performance.

There have been many past studies on self-regulated learning strategies. The study by Kosnin (2007) was conducted to investigate self-regulated learning and academic achievement. In the study, 460 second-year electrical engineering students were involved comprising 315 males and 145 females from a public university in Malaysia. Students' self-regulated learning was measured by the Motivated Strategies for Learning Questionnaire (MSLQ) (McKeachie, Pintrich, Lin, and Smith, 1987). This study also looked at the differences of SRL in predicting academic achievement between high and low achievers. The samples were split by achievement level based on their cumulative grade point average CGPA scores. The lower achievement group comprised 249 samples while the higher achievement group had 248 samples. The Mean values for all MSLQ subscales were calculated for both the groups, followed by t-tests. The main objective was to investigate whether the predictor variables have a relationship with academic achievement in the same manner between the two achievement groups. The findings showed that high achievers were better users of self-regulated learning than low achievers. Additionally, the low achievers were not using enough metacognitive strategies in their studies compared to the high achievers with better metacognitive strategies. However, test anxiety had a low relationship with academic achievement for low achievers as they achieved better when they were worried. One important finding highlighted in this study was that metacognitive strategies were found to be important in influencing low achievers' achievement. The implication of this study is that efforts should be taken to help low achievers by focusing on their self-regulated learning behaviour.

In another study, Lilian (2022) investigated the relationship between motivational belief strategies and digital learning among university students. A total of 583 Information Technology (IT) students comprising 369 males and 187 females, from seven private institutions of higher learning in Malaysia were involved in the study. The study also examined the relationship between perceived technological self-efficacy and task value beliefs and goal orientation towards digital literacy competency. The instrument used was a questionnaire on motivation belief scales and digital literacy skills which was adapted for online learning. The results showed that technological self-efficacy was the most important construct and the highly self-efficacious students had more courage in trying out anything, put in more effort, persistence and persevere in completing tasks in digital learning. The implications of the study include utilising the right motivational strategies to enhance digital literacy competency among students, having more game-based learning to increase students participation to motivate them and giving tasks that are meaningful to boost students confidence.

A study by Xuan et al (2020) examined the relationship of students' academic self-management skills and SRL. A survey was conducted among 317 bachelor degree Arabic as a second language learners in six public universities in Malaysia. The purpose of the study was

also to look at gender and year of study to determine if there were differences in the SRL strategies employed and on academic achievements. The instrument used was a self-regulated online learning questionnaire (SOL-Q) by (Jansen et al., 2017). The findings of the study revealed that the metacognitive skills were influential on students' academic outcomes (GPA). The results also showed there were differences in self-regulated learning strategies based on their years of study but not gender. The implications for higher institutions is to identify new teaching and learning strategies for course instructors as well as students to increase the level of Arabic students' language performance. As the students were found to be weak in time management strategies, developing learners' time management strategies is important too to help improve self-regulation among students and enhance their SRLs to develop 21st-century skills for life-long learning.

As shown in the literature, most of the studies looked at SRL strategies employed, motivational beliefs and academic achievements. Hence there is a need to investigate how the SRL strategies influence students' learning.

Conceptual Framework

This study is rooted from the concept that learners become self-regulated because they inhibit some motivational beliefs. Learners may or may not struggle to understand what they are learning, Once they have understood what they have learnt, they can begin to use the knowledge in confidence (Rahmat, et.al., 2021). It is therefore the motivational beliefs that push the learners to employ their self-regulated learning strategies. According to Pintrich & DeGroot (1990), self-regulated learning strategies are those that enable the learner to display their (i) cognitive strategy use, and (ii) self-regulation. Nevertheless, according to Pintrich & DeGroot (1990), learners who use these self-regulated strategies, are known to practice some factors of motivational beliefs. The factors are (i) self-efficacy, (ii)intrinsic value and (iii)test anxiety.
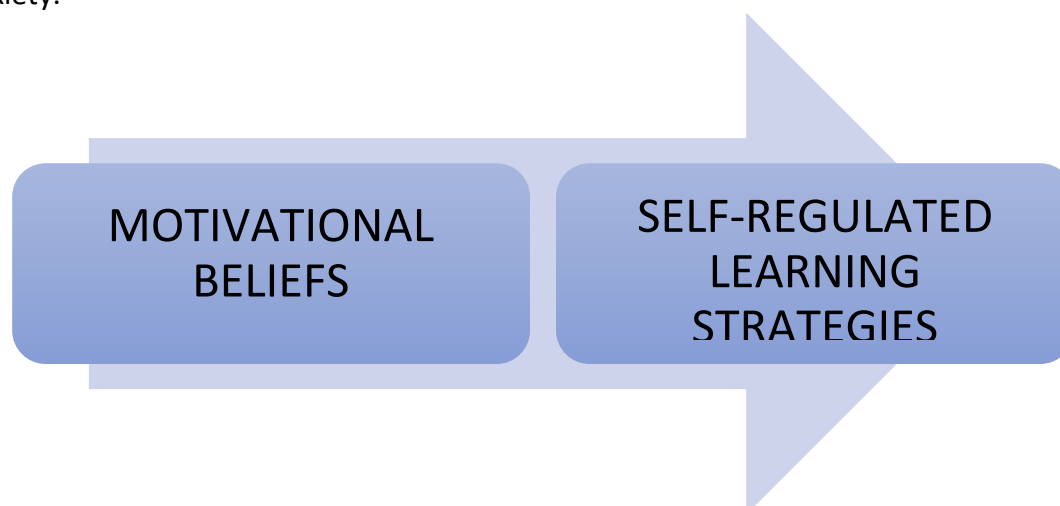

MOTIVATIONAL BELIEFS

SELF-REGULATED LEARNING STRATEGIES

Figure 1- Conceptual Framework of the Study-
Motivational Beliefs and Self-Regulated Learning Strategies

Methodology

This quantitative study is done to explore motivation factors for learning among undergraduates. A purposive sample of 51 participants responded to the survey. The instrument used is a 5-point Likert-scale survey and is rooted from Pintrich & DeGroot (1990)

to reveal the variables in table 1 below. The survey has 3 sections. SSection one comprises demographic information of the respondents. Section Two has 22 items on motivational beliefs and part three has 22 items on self-regulated beliefs.

Table 1
Distribution of Items in the Survey

PART	STRATEGY (Pintrich & DeGroot, 1990)		SCALE	No Of Items	Total Items
ONE					
TWO	MOTIVATIONAL BELIEFS	A	SELF-EFFFICACY	9	22
		B	INTRINSIC VALUE	8	
		C	TEST ANXIETY	4	
THREE	SELF-REGULATED LEARNING STRATEGIES	D	COGNIVE STRATGY USE	13	22
		E	SELF-REGULATION	9	
	TOTAL NO OF ITEMS				44

Table 2
Reliability of Survey

Reliability Statistics

Cronbach's Alpha	N of Items
.895	44

Table 2 shows the reliability of the survey. The analysis shows a Cronbach alpha of .895, thus, revealing a good reliability of the instrument chosen/used. Further analysis using SPSS is done to present findings to answer the research questions for this study.

Findings
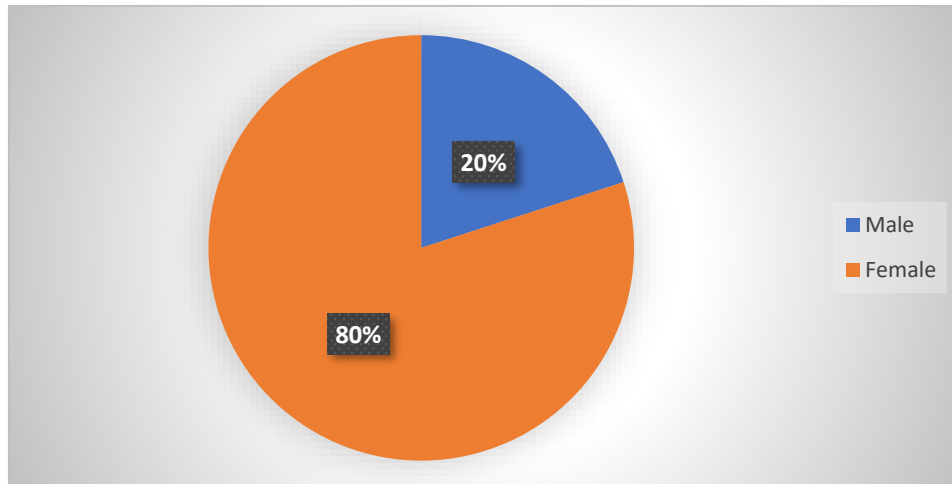*Findings for Demographic Profile*
Q1.Gender

Figure 1-Percentage for Gender

Figure 1 displays the breakdown of percentages from all the 51 participants according to gender, which comprises 80% females, while the remaining percentage is of male participants.

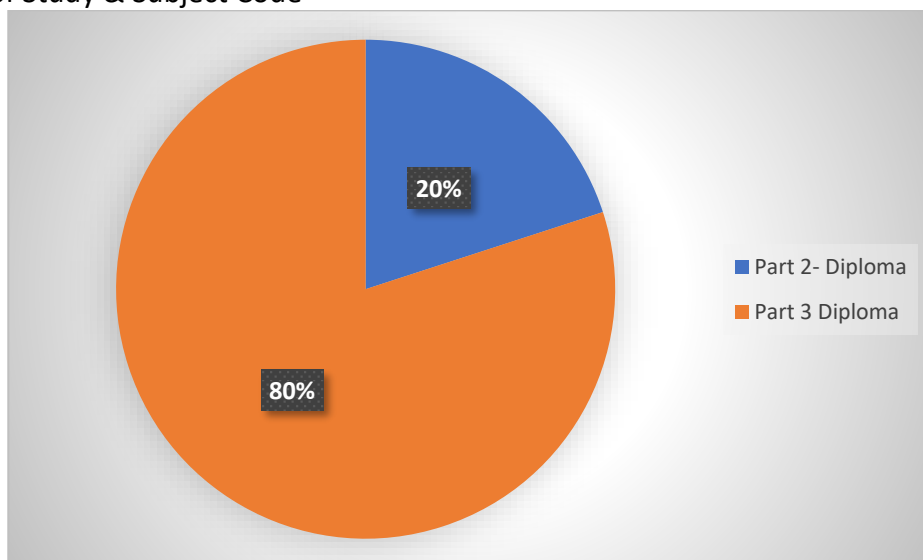Q2 Level of Study & Subject Code

Figure 2-Percentage for Level of Study

All participants are undergraduate (diploma level) students of Part 2 and Part 3. These are the students which have experienced both ODL (Online Distance Learning) sessions during the Covid-19 pandemic, as well as the face-to-face classes thereafter. As shown in Figure 2, 80% of the participants are Part 3 students, and 20% of Part 2.
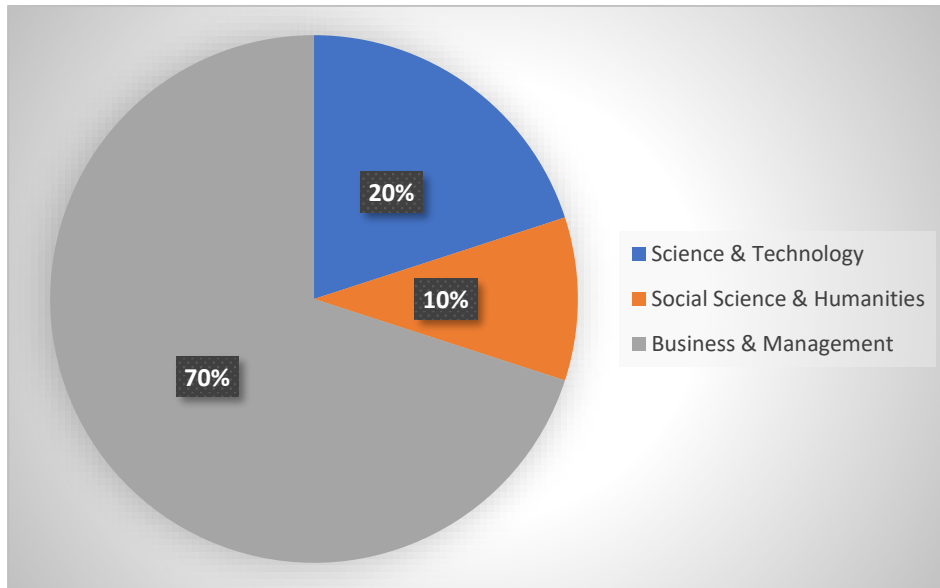
Q3 Discipline

Figure 3-Percentage for Discipline

Based on Figure 3, the participants are a mixture of different disciplines despite coming from the same institution. The majority (70%) are from Business and Management backgrounds, 20% are Science and Technology students, and a small minority of 10% come from Social Science and Humanities areas.

Findings for Motivation Beliefs

This section presents data to answer research question 1- How do learners' motivational beliefs influence learning? In the context of this study, motivational beliefs refer to (a) self-efficacy, (b) intrinsic value, and (c) test anxiety.
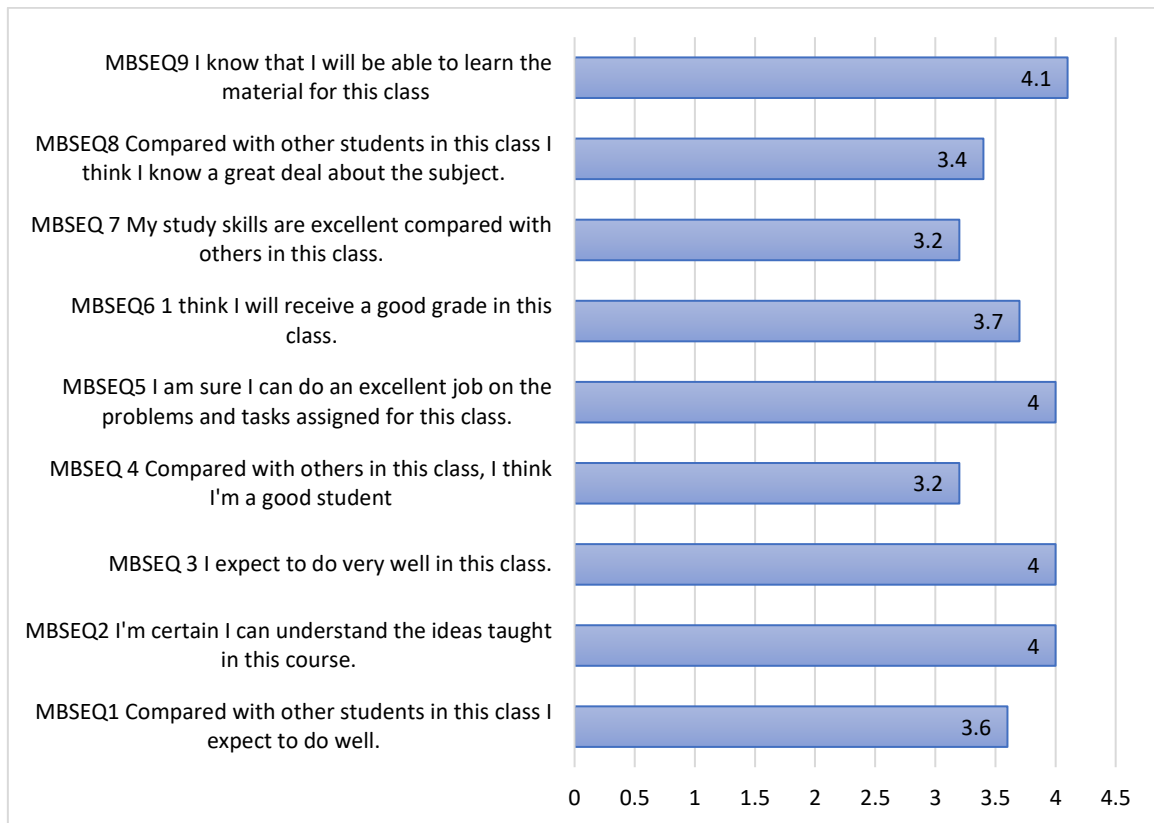
   (a) SELF-EFFICACY (9 items)

Figure 4- Mean for Self-Efficacy

Figure 4 shows that the self-efficacy with the highest mean score was the belief to be able to learn the material for the class (4.1), while two beliefs shared the lowest mean (3.2), which are the belief of being a good student if compared with others in class, and the belief of having excellent study skills if compared with other students in the class. The belief that they will receive a good grade in the class is the medium level criteria (3.7). However, feeling certain that they can understand the ideas taught in the course, expecting to do very well in the class, and feeling sure that they can do an excellent job on the problems and tasks assigned for the class were all above the median of 3.7. The mean of the nine dimensions was 3.68, which meant that the students had a medium level of self-efficacy beliefs.

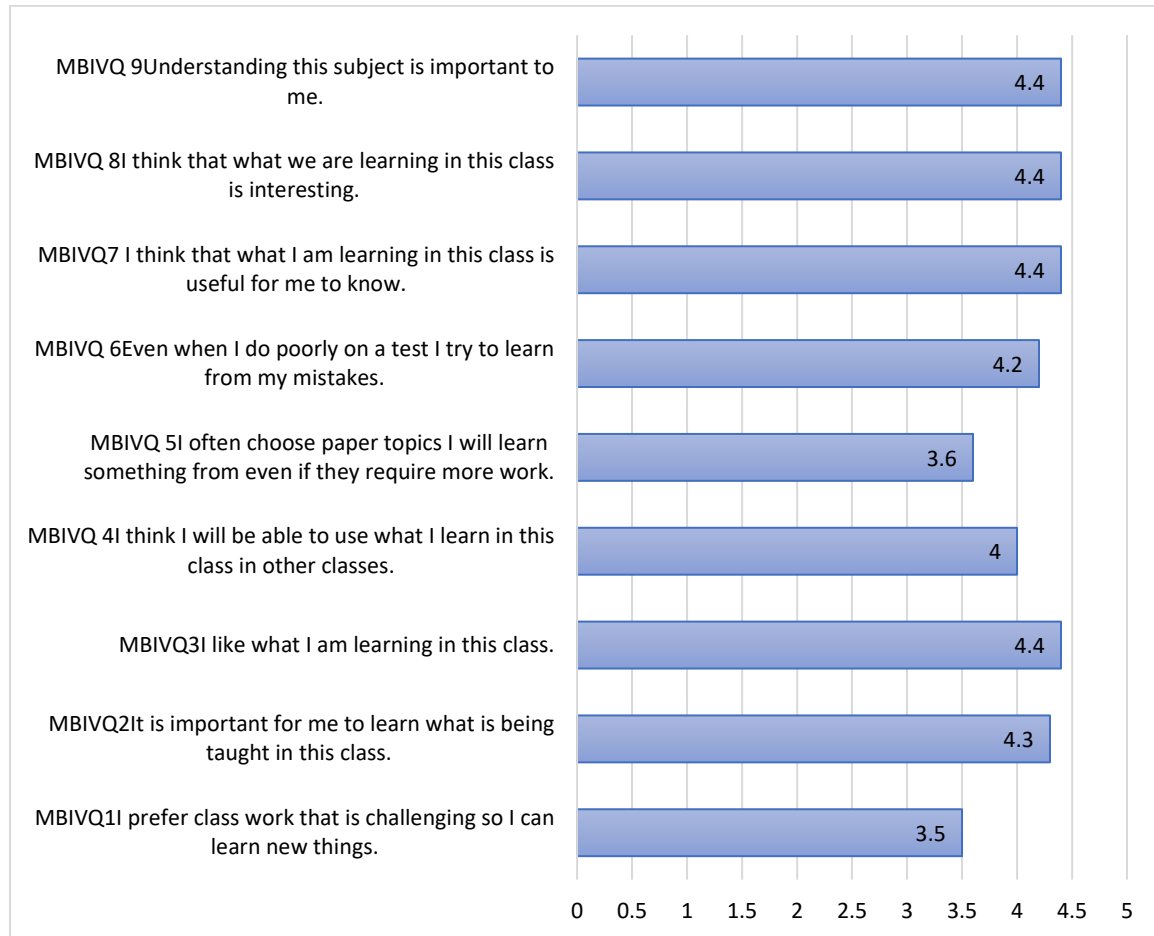(b) INTRINSIC VALUE (9 items)

Figure 5- Mean for Intrinsic Value

As shown in Figure 5, there are nine items related to intrinsic value that influence learning. Findings show that four items had the highest mean score of 4.4 The four items were MBIVQ3, MBIVQ7, MBIVQ8 AND MBIVQ9. The higher rating indicates that students are motivated to learn because they like what they are learning, the subject is important, it is interesting and useful. The average mean score of 4 was for item MBIVQ4 while the lowest mean value 3.4 was for item MBIVQ1 which relates to classwork that is challenging. The results show that most items are over 4.00 indicating that students have intrinsic value for learning.
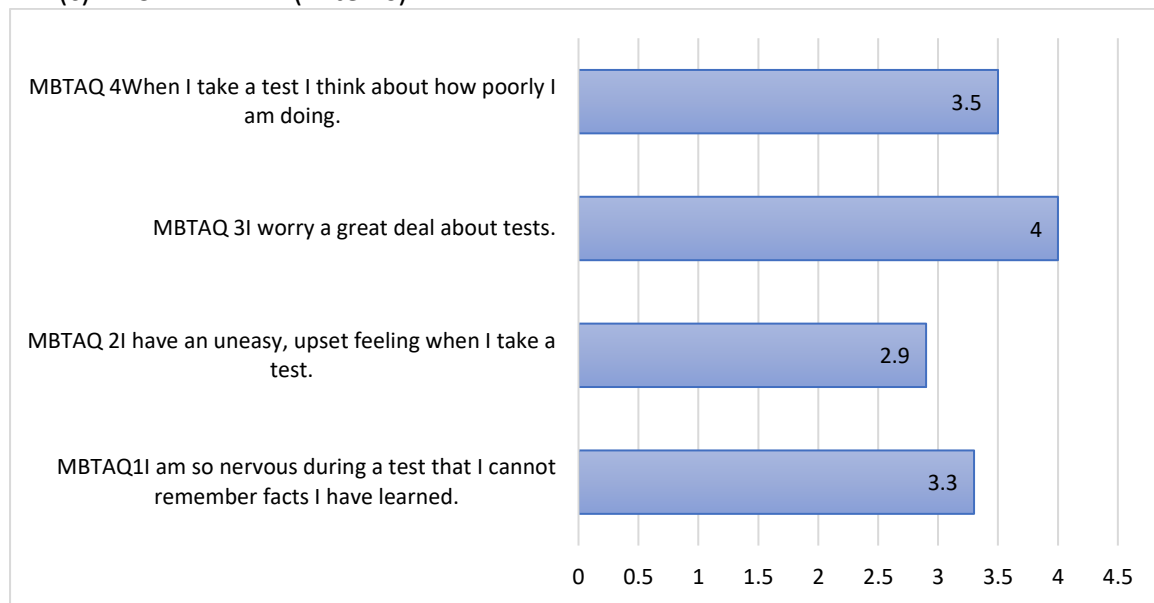
(c) TEST ANXIETY (4 items)

Figure 6- Mean for Test Anxiety

Figure 6 displays the mean score for test anxiety, in which item MBTAQ3 (students worry a great deal about tests) scores the highest mean value of 4. The average mean score of 3.5 was for item MBTAQ4, of how students think of how poorly they are doing when taking a test. Meanwhile, item MBTAQ2 scored the least, with a mean value of 2.9 whereby students would feel uneasy and/or upset when they take a test.

Findings for Self-Regulated Learning Strategies
This section presents data to answer research question 2- How do learners' self-regulated learning strategies influence learning? In the context of this study, self-regulated leaning strategies are measured by (a) cognitive strategy use and (b) self-regulation.
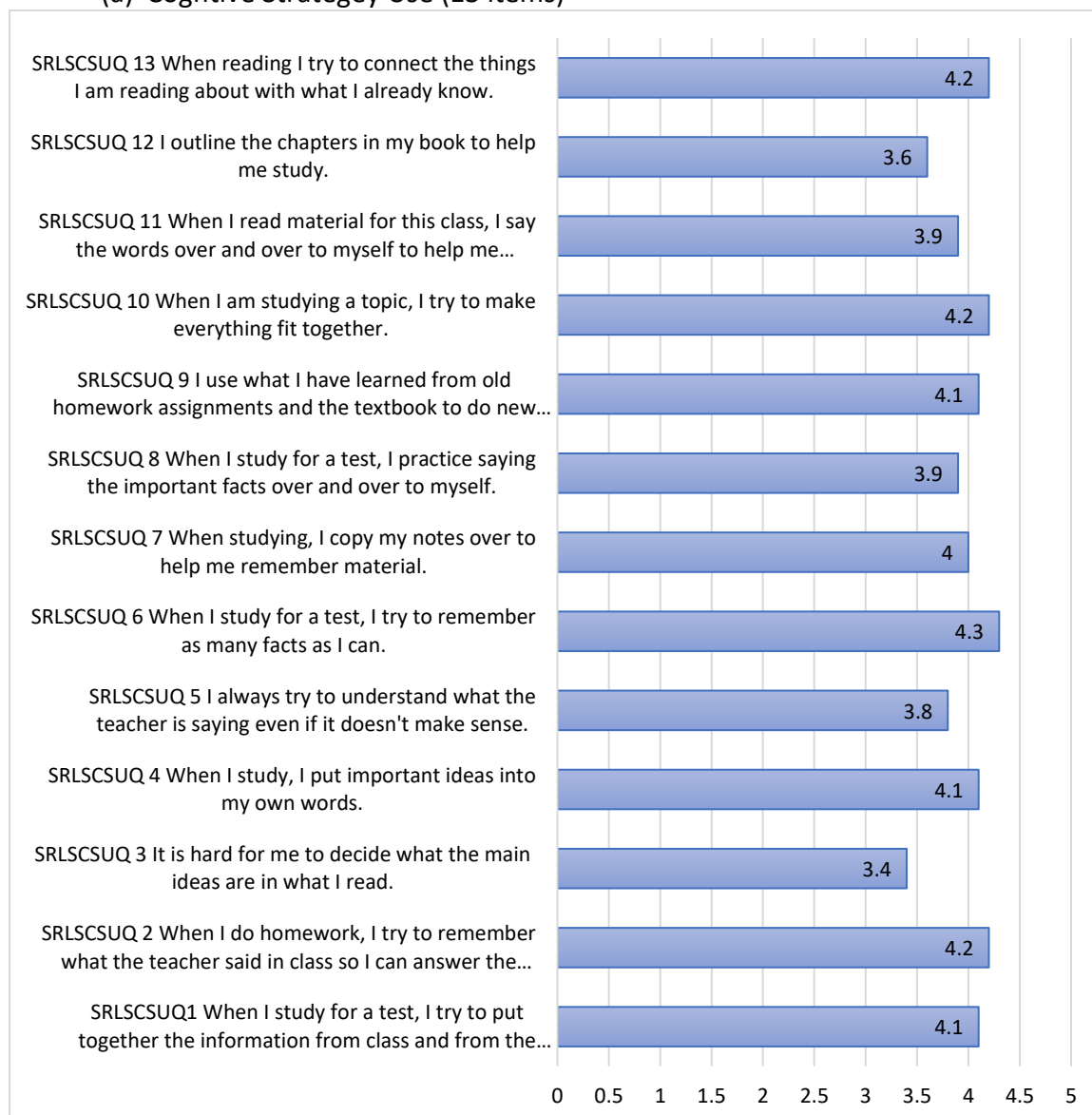
(a) Cogntive Strategey Use (13 items)

Figure 7- Mean for Cognitive Strategy Use

Based on Figure 7, the cognitive strategy use with the highest mean score was the strategy to remember as many facts as the students can when studying for a test (4.3), while finding it hard to decide the main ideas of what they read obtained the lowest mean (3.4). The cognitive strategies of trying to remember what the teacher said in class so they can answer the questions correctly when doing homework, trying to make everything fit together when studying a topic, and connecting what they are reading about with what they already know, were above the medium level criteria of 4.1. Meanwhile, three cognitive strategies share the median score (4.1) which are, trying to put together the information from class and from the book when studying for a test, putting important ideas into their own words when studying, and using what they have learned from previous homework assignments and the textbook to complete new assignments. The mean of the thirteen dimensions was 3.98, which meant that the students had a lower level of cognitive strategy use.
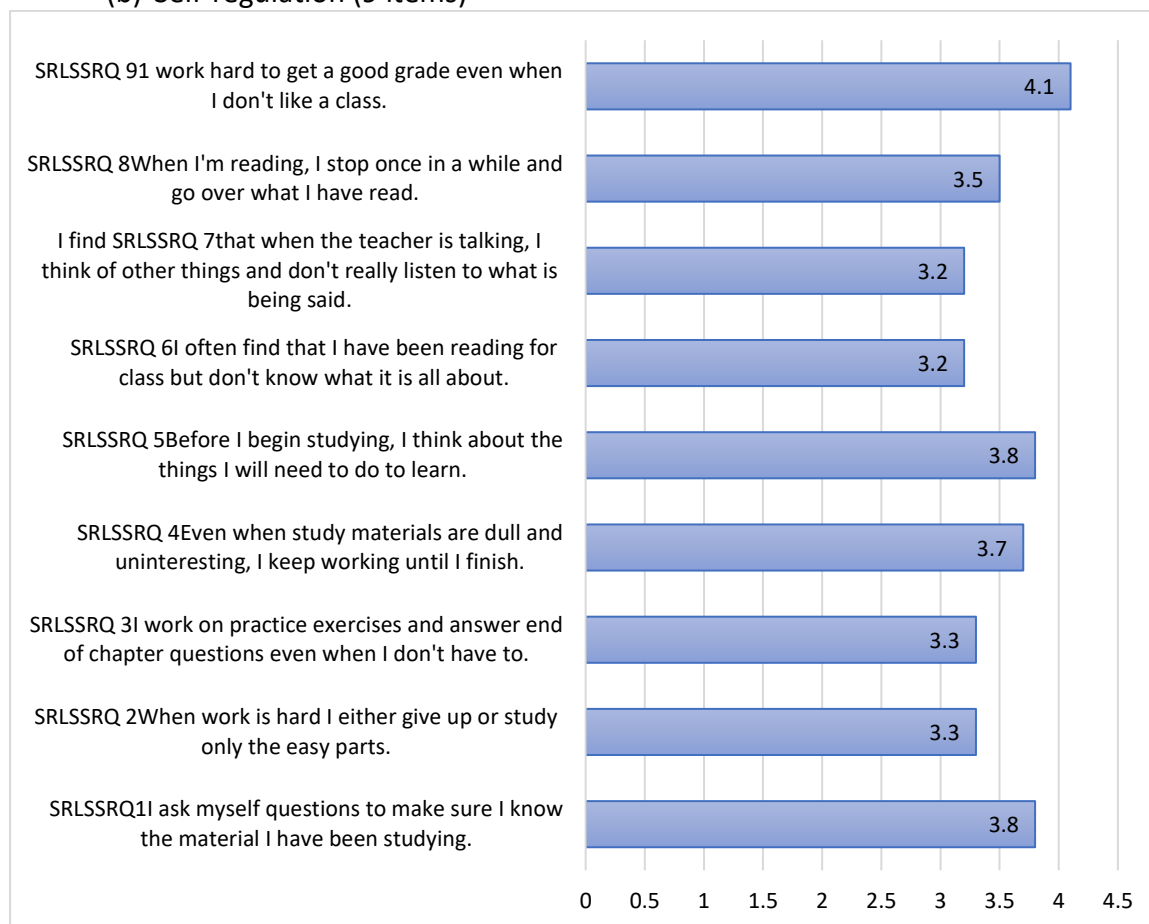
(b) Self-regulation (9 items)

Figure 8- Mean for Self-Regulation

Figure 8 above represents the mean score for self-regulated learning strategies that influence learning. As shown in the figure, there are nine items on self-regulation. The results of the study revealed that among the most important self-regulation learning strategies is getting good grades even if the student does not like a class. The students motivate and work hard themselves to get good grades as it represents the highest mean value of 4.1. The average mean score of 3.7 is for self-regulation learning strategy item 4 (SRLSSRQ4) where the students keep working to complete a task even though the study materials may be uninteresting. The least important self-regulation learning strategy is for SRLSSRQ6 and SRLSSRQ7 with a mean value of 3.2 respectively.

Conclusion
Summary of Findings and Discussions
Overall, the results of the reliability statistics of the study have indicated that learning strategies fully mediate the relationship between motivational beliefs and self-regulated learning strategies among diploma students during the post-pandemic era. Based on the findings on motivational beliefs, it can be generally concluded that students understand and do well in the course. In terms of intrinsic value, students find the course interesting and important to them. Moreover, the significant levels of test anxiety as shown in the findings influences high levels of motivation to strive for academic excellence, in line with OECD report 2019. Generally, students' self-efficacy, intrinsic value, and test anxiety had influenced their

motivational beliefs, which in turn could contribute to their academic performance. These results are in agreement with previous findings (El-Adl and Alkharusi, 2020; Bai & Wong, 2023), which stipulate that students' internalisation of motivational beliefs such as growth mindset, self-efficacy, intrinsic and extrinsic motivation resulted in better willingness to self-monitor their learning, adjust learning strategies, planning, and goal setting. This implies that these students' motivational beliefs must be complemented by the use of appropriate learning strategies for academic success.

The findings were also consistent with the various models of SRL, in that the findings indicated that self-regulated learning was highly correlated with cognitive strategy use and self-regulation in achieving their goals. This can be seen in the results from the mean scores for the cognitive strategy use, in which students use various strategies to remember information and ideas being discussed in class. In the aspect of self-regulation, it can be implied that students generally have the effort to study even if the course or its materials are uninteresting. This shows that such students have self-control and self-discipline and are using efforts to reach their set targets. This is parallel to the results from Adelosa & Li (2018) in their study on students that report high in self-regulation are more likely to report high in cognitive strategy use.

(Pedagogical) Implications and Suggestions for Future Research

From the findings, it is important that instructors and university management design strategies that not only increase the motivation of students but also improve on the use of various teaching and learning strategies in order to enhance their academic success since independent learning environment requires support from teachers, institutions and the society Saber et al (2006) The following limitations should be taken into consideration when interpreting the results of this study. Firstly, academic achievements of the student were not measured in relation to motivational beliefs and self-regulated learning. However, many studies use achievement as an outcome measure. Therefore, a clear description of the mechanism that is apparently assumed to be present in the link between motivational beliefs and achievement could shed some light on the inconclusive findings for achievement. Furthermore, more cross-cultural research should be conducted in this area, as the participants in the present study are of similar ethnicity background. This is as suggested by Lim (2004) in his study which the result leads to a meaningful discussion of the influence of different cultural orientation on learner motivation. A limited case study like this can collectively contribute to the understanding of SRL strategies and motivational beliefs among students of a specific ethnicity after the Covid-19 pandemic, and how they influence students' learning styles despite the changes in learning environment - from online classroom to being in a traditional class.

References

Adesola, S. A., & Li, Y. (2018). The relationship between self-regulation, self-efficacy, test anxiety and motivation. *International Journal of Information and Education Technology*, *8*(10), 759-763. https://doi.org/10.18178/ijiet.2018.8.10.1135

As-Saber, S., Crosling, G., & Rahman, N. (2006). International students and independent learning: Towards an eclectic framework. *Monash University, available at: http://www. napsipag. org/pdf/sharif-as-saber-inernational. pdf (accessed 02 February 2013)*.

Bai, B., & Wang, J. (2023). The role of growth mindset, self-efficacy and intrinsic value in self-regulated learning and English language learning achievements. *Language teaching research*, *27*(1), 207-228. https://doi.org/10.1177/1362168820933190

Buehl, M. M., & Alexander, P. A. (2009). Beliefs about learning in academic domains. In Wentzel, K., & Wigfield, A. (Eds.), *Handbook of motivation at school* (pp. 493-516). Routledge.

Byrnes, J. P., Miller, D. C., & Reynolds, M. (1999). Learning to make good decisions: A self-regulation perspective. *Child Development*, *70*(5), 1121-1140. https://doi.org/10.1111/1467-8624.00082

Costa, A., & Faria, L. (2018). Implicit theories of intelligence and academic achievement: A meta-analytic review. *Frontiers in Psychology*, *9*. https://doi.org/10.3389/fpsyg.2018.00829

Dweck, C. S., & Master, A. (2009). Self-Theories and Motivation: Students' Beliefs About Intelligence. In Wentzel, K., & Wigfield, A. (Eds.), *Handbook of motivation at school* (pp. 137-154). Routledge.

El-Adl, A., & Alkharusi, H. (2020). Relationships between self-regulated learning strategies, learning motivation and mathematics achievement. *Cypriot Journal of Educational Sciences*, *15*(1), 104-111. https://doi.org/10.18844/cjes.v15i1.4461

Fan, W., & Williams, C. (2018). The mediating role of student motivation in the linking of perceived school climate and achievement in reading and mathematics. *Frontiers in Education*, *3*. https://doi.org/10.3389/feduc.2018.00050

Feldon, D. F., Callan, G., Juth, S., & Jeong, S. (2019). Cognitive load as motivational cost. *Educational Psychology Review*, *31*(2), 319-337. https://doi.org/10.1007/s10648-019-09464-6

Gavora, P., Jakesova, J., & Kalenda, J. (2015). The Czech validation of the self-regulation questionnaire. *Procedia - Social and Behavioral Sciences*, *171*, 222-230. https://doi.org/10.1016/j.sbspro.2015.01.113

Holec, H. (2001). *Autonomy and foreign language learning*.

Hong, E., & O'Neil, H. F. (2001). Construct validation of a trait self-regulation model. *International Journal of Psychology*, 36(3), 186–194. https://doi.org/10.1080/00207590042000146

Hubbard, R. S. (1994). *How Effective Is Self-Directed Learning at Generating Successful Learning Experience, and What Is Its Role within Higher Education?* (ED375632). ERIC. https://files.eric.ed.gov/fulltext/ED375632.pdf

Jansen, R. S., Van Leeuwen, A., Janssen, J., Kester, L., & Kalz, M. (2016). Validation of the self-regulated online learning questionnaire. *Journal of Computing in Higher Education*, *29*(1), 6-27. https://doi.org/10.1007/s12528-016-9125-x

Jackson, S. L. (2015). *Research methods and statistics: A critical thinking approach*. Cengage Learning.

Kosnin, A. M. (2007) Self-regulated learning and academic achievement in Malaysian undergraduates. I*nternational Education Journal*, 8(1), 221-228. Shannon Research Press. http://iej.com.au

Lazarides, R., Dicke, A., Rubach, C., & Eccles, J. S. (2020). "Profiles of motivational beliefs in math: Exploring their development, relations to student-perceived classroom characteristics, and impact on future career aspirations and choices":

Correction. *Journal of Educational Psychology*, *112*(3), 465-465. https://doi.org/10.1037/edu0000469

Lilian, A. (2022). Motivational beliefs, an important contrivance in elevating digital literacy among university students. *Heliyon*, *8*(12).

Lim, D. H. (2004). Cross cultural differences in online learning motivation. *Educational Media International*, *41*(2), 163-175. https://doi.org/10.1080/09523980410001685784

Lim, S. L., & Yeo, K. J. (2021). A systematic review of the relationship between motivational constructs and self-regulated learning. *International Journal of Evaluation and Research in Education (IJERE)*, *10*(1), 330. https://doi.org/10.11591/ijere.v10i1.21006

Liu, W. C. (2021). Implicit theories of intelligence and achievement goals: A look at students' intrinsic motivation and achievement in mathematics. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.593715

McKeachie, W. J., Pintrich, P. R., Lin, Y. G., & Smith, D. (1987). Teaching a course in learning to learn. *Teaching of Psychology*, *14*(2), 81-86. https://doi.org/10.1207/s15328023top1402_3

Meyer B., Haywood N., Sachdev D., Faraday S. (2008). What is independent learning and what are the benefits for students? *Department for Children, Schools and Families Research Report,* 051, 1-6.

Moore, M. G. (1973). Toward a theory of independent learning and teaching. *The Journal of Higher Education*, *44*(9), 661. https://doi.org/10.2307/1980599

How is students' motivation related to their performance and anxiety? (2019). *PISA in Focus*. https://doi.org/10.1787/d7c28431-en

Pintrich, P. R., & De Groot E. V. (1990). Motivational and self-regulated learning Components of classroom academic performance. Journal of Educational Psychology, 82(1), 33–40. https://doi.org/10.1037/0022-0663.82.1.33

Rahmat, N. H., Sukimin, I. S., Sim, M. S., Anura, M., & Mohandas, E. S. (2021) Online Learning Motivation and Satisfaction: A Case Study of Undergraduates vs Postgraduates. *International Journal of Asian Social Sciences*, 11(2), pp 88-97. http://dx.doi.org/10.18488/journal.1.2021.112.88.97

Raoofi, S., and Maroofi, Y. (2017). Relationships among motivation (self-efficacy and task value), strategy use and performance in L2 writing. *Southern African Linguistics and Applied Languages Studies*. 35(3), 299-310. https://doi.org/10.2989/16073614.2017.1391706

Rhew, E., Piro, J. S., Goolkasian, P., & Cosentino, P. (2018). The effects of a growth mindset on self-efficacy and motivation. *Cogent Education*, *5*(1), 1492337. https://doi.org/10.1080/2331186x.2018.1492337

Theobald, M. (2021). Self-regulated learning training programs enhance university students' academic performance, self-regulated learning strategies, and motivation: A meta-analysis. *Contemporary Educational Psychology*, *66*, 101976. https://doi.org/10.1016/j.cedpsych.2021.101976

Von der Embse, N., Jester, D., Roy, D., & Post, J. (2018). Test anxiety effects, predictors, and correlates: A 30-year meta-analytic review. *Journal of affective disorders*, *227*, 483-493. https://doi.org/10.1016/j.jad.2017.11.048

Widlund, A., Tuominen, H., Tapola, A., & Korhonen, J. (2020). Gendered pathways from academic performance, motivational beliefs, and school burnout to adolescents'

educational and occupational aspirations. *Learning and Instruction*, 66, 101299. https://doi.org/10.1016/j.learninstruc.2019.101299

Won, S., Hensley, L. C., & Wolters, C. A. (2019). Brief research report: Sense of belonging and academic help-seeking as self-regulated learning. *The Journal of Experimental Education*, *89*(1), 112-124. https://doi.org/10.1080/00220973.2019.1703095

Xu, K. M., Koorn, P., De Koning, B., Skuballa, I. T., Lin, L., Henderikx, M., Marsh, H. W., Sweller, J., & Paas, F. (2021). A growth mindset lowers perceived cognitive load and improves learning: Integrating motivation to cognitive load. *Journal of Educational Psychology*, *113*(6), 1177-1191. https://doi.org/10.1037/edu0000631.

Zarrinabadi, N., Rezazadeh, M., Karimi, M., & Lou, N. M. (2021). Why do growth mindsets make you feel better about learning and yourselves? The mediating role of adaptability. *Innovation in Language Learning and Teaching*, *16*(3), 249-264. https://doi.org/10.1080/17501229.2021.1962888