Is There a Relationship between Self-regulation with Motivational Beliefs and Cognitive Strategy use among Undergraduates?

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Abstract
Self-regulation, motivational beliefs, and cognitive strategy use are closely related. These three factors can impact learners' ability to learn and succeed in an academic setting. Promoting self-regulation helps learners to develop positive motivational beliefs and effective cognitive strategies. It also encourages learners to be independent in decision-making. In addition, this study investigates how students' use of cognitive strategies affects their learning. The purpose of this quantitative study is to investigate undergraduate self-regulation strategies and motivational beliefs. The survey was completed by a random sample of 108 people. The instrument utilized is a study and is imitated from Pintrich and De Groot (1990). It has four parts. Items on the demographic profile are in Section A. There are 22 items on motivational beliefs in Section B. Section C has 13 questions about strategies for self-regulation, and Section D has 9 questions about how self-regulation is perceived. The findings show that there is also a strong positive relationship between self-regulation and cognitive strategy use and there is also a moderate positive relationship between self-regulation and motivational beliefs.
Keywords: Motivation, Learning, Motivational Beliefs, Students, Self-learning

Introduction
Background of Study

Motivation plays an important role in the learning process as it influences learners' behaviour and decision-making. According to Ghaedi and Jam (2014), motivation provides the momentum to begin learning and later the driving force to continue with the learning process. Social learning theory (SLT), proposed by Bandura (1986), suggests that people learn through observation, imitation, and modelling of others' behaviour (Nabavi et al., 2012). Although learners may imitate and model a behaviour through observation, it may or may not result in a behaviour change.

In the context of learning, motivation is crucial for driving learners to engage in behaviours that lead to acquiring new knowledge and skills. However, learning also requires extrinsic motivation as the outcome may be influenced by parent expectation, added objectives, and acquisition of some incentives (Lin et al., 2017). Educators can use social learning theory (SLT) to foster motivation in their students by creating a positive learning environment, providing positive feedback and reinforcement, and modelling desired behaviours themselves. In addition, incorporating social norms and expectations into the learning experience can help motivate students to engage in desired behaviours and achieve their learning goals.

Following up on motivation in learning, learners with positive motivational beliefs are high in self-regulation. Self-regulation, in learning content, means learners are metacognitively, behaviourally, and motivationally active (Jansen et al., 2019). According to social cognitive theory (SCT) by Albert Bandura, self-regulation is determined by personal processes, environmental factors, and behavioural factors (Maftoon and Tasnimi, 2014). Tadayon Nabavi and Bijandi (2012) reported that self-regulation is an important technique in learning process as it promotes learners to control their thoughts, emotions, motivations, and actions.

In Malaysia's higher education setting, self-regulation and motivational beliefs are equally important as learners who are high in self-regulation tend to have more positive motivational beliefs. On the other hand, students with low self-regulation may have more negative motivational beliefs. They might believe that they are not capable of succeeding, or less motivation to actively engage in the learning process.

Statement of Problem

Self-regulated learning (SRT) has been proven to be beneficial in the context of higher education setting. Based on a paper written by Maftoon and Tasnimi (2014), self-regulated learning has a significant effect on language learners' reading comprehension. Besides having a significant effect on language learning, SRL interventions may improve learners' overall achievement, though the improvements are mainly caused by other factors (Jansen et al., 2019). Most importantly, SRT helps educators to shift the autonomy in terms of decision-making to the learners.

According to Jansen et al (2019), self-regulated students tend to engage in more effective cognitive strategies. It is also believed that students' progress during learning is a result of their use of cognitive strategies. As they are more invested in the learning process, students who self-regulate use cognitive strategies such as elaboration and metacognitive monitoring. Overall, the relationship between self-regulation, motivational beliefs, and cognitive strategy use suggests that these factors are closely connected in higher education settings. By promoting self-regulation, educators can help students to develop positive motivational beliefs and effective cognitive strategies, which can improve their learning outcomes as well as overall academic success.

By theory, self-regulation is an important aspect in learning as it puts learners' cognitive abilities, metacognitive abilities, motivational beliefs, and attitudes to test (El-Adl and

Alkharusi, 2020). Learners, especially higher education learners, may not be able to understand, monitor, and direct their own learning well if self-regulation is not promoted to the learners. Nabavi and Bijandi (2012) said that SRL encourages learners to monitor, judge, and react towards their own learning process. As self-regulation encourages learners to be independent, it is very important for educators to apply it in teaching and learning settings. Learners who are not self-regulated may be less likely to use effective cognitive strategies and relying on passive approaches.

Objective of the Study and Research Questions
This study investigates how self-regulation influence learning. In addition to that this study also looks into how learners' use of cognitive strategies influence how they learn. It is also done to investigate the influence if motivational beliefs in learning among undergraduates. Specifically, this study is done to answer the following questions;

- How does Self-regulation influence learning among undergraduates?
- How does Cognitive strategy use influence learning among undergraduates?
- How does Motivational beliefs influence learning among undergraduates?
- Is there a relationship between self-regulation and cognitive strategy use?
- Is there a relationship between self-regulation and motivational beliefs?

Literature Review
Motivation to learn
Motivation to learn is characterised by both internal and external factors that provide encouragement to learners, resulting in a modification to their behavior in order to achieve their desired objectives and goals (Nashar, 2004; Hamzah, 2011). Therefore, based on Self-determination Theory (SDT), motivation can be classified as intrinsic motivation and extrinsic motivation. Intrinsic motivation is mostly derived from learners' biological, emotional, spiritual or social factors and has no extrinsic incentives (Filgona et al., 2020). According to Matt and Dale (2002), internal motivators consist of being captivated by the subject, recognizing its relevance to life and the world, experiencing a sense of achievement in mastering it and feeling a personal inclination towards it. To illustrate, if learners lack interest in a subject, they may struggle to absorb the material presented in class. Since internal motivation are self-influenced that arise from personal factors such as needs, interests and enjoyment, it indicates that learners have the ability to cultivate their own motivation (Filgona et al., 2020).

Extrinsic motivation on the other hand is influenced by external factors which could include the desire for monetary gain, the necessity to pass an exam or the potential for advancement in the future (Harmer, 1988). Similarly, Marsh (1996) refers to extrinsic motivation as any external factors that encourages and propels a learner during their learning journey. Extrinsic motivation usually generates quick outcomes and demands less effort as compared to intrinsic motivation. Nevertheless, extrinsic incentives can frequently divert students' attention from comprehending the subject matter or engaging in self-directed learning (Ryan & Deci, 2000). Thus, learner motivation is essential in achieving successful education.

Self-Regulated Learning Strategies
Self-regulated learning (SRL) strategies comprise of three major processes namely performance phase, self-reflection phase and forethought phase. Performance phase includes self-control and self-observation phases. This is where the learners performed self-

testing for self-recording purposes for future enhancement. Practicing this phase helps learners to self-directed interest and increase in motivation as it provides insight into keeping track of one's own performance and knowing the possibility to change the behaviour (Pintrich & Schunk, 2002). Subsequently, self-reaction phase consists of self-judgement, where it involves assessing one's academic achievements and assigning causal meaning to the results (Cetin, 2015), and self-reaction, which refers to how learners evaluate their own performance, attribute their success or failure and making judgements about tasks they have completed (Pintrich, 2010). Finally, the forethought phase can be categorised into two; self-motivation beliefs and task analysis. According to Cetin (2015, as cited in Bandura, 1997), self-motivation is derived from an individual's beliefs about their own learning abilities, such as their capacity to learn and expectations of their learning outcomes. Task analysis on the other hand, consists of goal setting and strategic planning (Zimmerman, 2012). Therefore, when SRL strategies are employed, learners are able to take charge of their own surroundings and enhance their personal control (Cetin, 2015).

Past Studies on Motivation to Learn
Many studies have been conducted to investigate the motivation to learn. A study by Tokan and Imakulata (2019) examined the effect of intrinsic and extrinsic motivation on learning behaviour. The respondents consisted of 229 students from the Biology Education Department, Faculty of Teacher Training and Education, University of Nusa Cendana. A questionnaire was employed to collect data on the participants' intrinsic and extrinsic learning motivation as well as their learning behaviour, while their learning achievement was based on their achievement in the first semester of their academic year. There were four significant findings from this study. Firstly, it was found that intrinsic motivation directly affected the participants' learning behaviour, while extrinsic motivation did not. Thirdly, intrinsic motivation and learning behaviour also directly affected learning achievement. Besides that, even though extrinsic motivation did not have a direct effect on learning behaviour, the joint effect of intrinsic and extrinsic motivation, and learning behaviour showed a positive influence on learning achievement.

Another study that examined motivation to learn looked at its relationship with cognitive learning strategies. The study by Muwonge et al (2019) sought to investigate the structural relationships between motivational beliefs, cognitive learning strategies, and academic performance. This is to fulfil the scarcity in studies related to teacher education students in third world countries and how they regulate their own learning. The participants comprised 1081 students enrolled in teacher education from seven randomly-selected universities in Uganda. A questionnaire made up of three sections were distributed to the respondents which consisted of 1) demographic information, 2) Grade Point Average (GPA) and 3) motivational beliefs and cognitive learning strategies. The third section contained subscales that were adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) attained from the original MSLQ (Pintrich et al., 1991). The results from this study echoed previous findings where cognitive learning strategies acted as a mediator to the relationship between the participants' motivational beliefs and academic performance. This means that in order to achieve academic success, teacher education students need to complement their motivational beliefs with suitable learning strategies. Consequently, interventions to improve the academic performance of students enrolled in teacher education should also emphasise on improving their use of cognitive learning strategies and not only on enhancing their motivation.

Past Studies on Self-Regulated Learning Strategies
There have been many past studies on the self-regulated learning strategies. The study by Lavasani (2011) was conducted to investigate the effect of self-regulation learning strategies training on the academic motivation and self-efficacy of students. 46 female elementary students from two classes were selected as participants for this study and 23 students were taught the self-regulation learning strategies for 10 sixty-minutes sessions. A motivated strategies for learning questionnaire (MSLQ) (Harter, 1981), academic motivation scale (Mcilroy & Bunting, 2001) and self-efficacy scale were given to the experimental group and the scores were compared with the non-treatment group by using post-tests. The researcher applied a quasi-experimental method as the research design with pre-test and post-test. The study recorded that the self-regulation learning strategies has had a significant effect on the academic motivation and self-efficacy, promotes active participation in learning process and creates meaningful learning experience for the students. As for cognitive strategy, students from this study were able to practice self-questioning, self-assessing and self-controlling from the exposure of self-regulation learning strategies. This resulted to them being able to observe and control their behaviour (self-evaluation) during the learning process.

Next, the study by El-Adl (2020) was done to examine the relationship of self-regulated learning strategies with students' learning motivation and academic achievement in mathematics. The Motivated Strategies for Learning Questionnaire were used to assess 238 ninth grade students' use of self-regulated strategies and motivation. Participants' score in mathematics answered the second issue of the study. This study showed positive relationship of self-regulated learning with intrinsic and extrinsic motivation, task value, control of learning beliefs, self-efficacy and academic achievement. The development of effective instructional strategies to improve students' self-regulated learning skills would be emphasized by future researches.

Another study conducted by Ilishkina (2022) was done to investigate the relationship between self regulation strategies and motivation to learn. Participants were 716 students from two Russian universities. A correlational study was conducted using Wolter's theory of motivational regulation strategies (MRSs) and Ivannikov's adaptation of Leont'ev's activity theory. From this study, the researcher found that students should be made aware of their interest in learning comes from either intrinsic or extrinsic motives. Two groups of MRSs could be distinguished by their relation to extrinsic (approach/performance-avoidance orientation, goal-setting, self-consequating, and environmental control) and intrinsic motives (interest, personal significance, and mastery orientation. With this study, students from other universities should be able to scaffold their self-regulation strategies to be motivated in learning.

Conceptual Framework
This study is replicated from the study by (Pintrich & De Groot, 1990). The study investigated the motivational beliefs of students and their self-regulated learning strategies. Nevertheless, this study looks at how the motivational beliefs and self-regulation are correlated (figure 1). According to Rahmat (2018), learning must be discovery. Learners learn more than the content when they embark on learning. in today's online learning, blended learning or even fact-to-face interactions, learners are capable of building their self-regulation. Self-regulation enables learners to search for knowledge on their own even way after the lessons are over. Self-regulated learners are known to use self-regulated learning strategies to cope. In

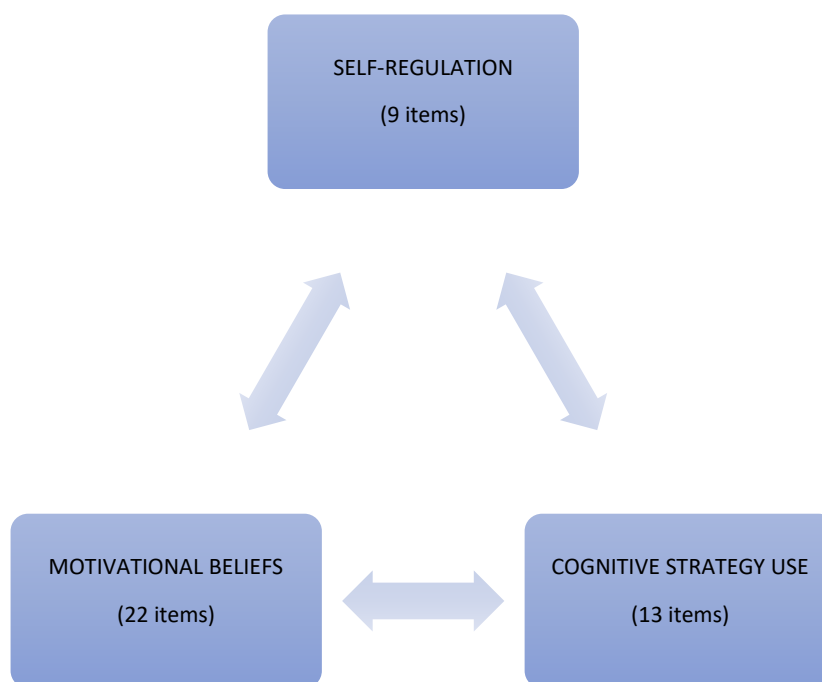addition to that, having positive motivational beliefs help learners become more self-regulated.

Figure 1- Conceptual Framework of the Study
Is there a relationship between self-regulation with motivational beliefs and cognitive strategy?

Methodology
This quantitative study is done to explore motivational beliefs and self-regulated strategies employed by undergraduates. A purposive sample of 108 participants responded to the survey. The instrument used is a survey and is replicated from Pintrich & De Groot (1990). It has 4 sections. Section A has ? items on demographic profile. Section B has 22 items on motivational beliefs. Section C has 13 items on self-regulated strategies and section D has 9 items on perception of self-regulation.

Table 1
Distribution of Items in the Survey

PART	STRATEGY		SCALE	No Of Items	Total Items
B	MOTIVATIONAL BELIEFS	i	SELF-EFFFICACY	9	22
		ii	INTRINSIC VALUE	9	
		iii	TEST ANXIETY	4	
C	SELF-REGULATED LEARNING STRATEGIES		COGNIVE STRATGY USE	13	22
D	PERCEPTION OF SELF-REGULATION			9	
	TOTAL NO OF ITEMS				44

Table 2
Reliability of Survey

Reliability Statistics

Cronbach's Alpha	N of Items
.927	44

Table 2 shows the reliability of the survey. The analysis shows a Cronbach alpha of .927, 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
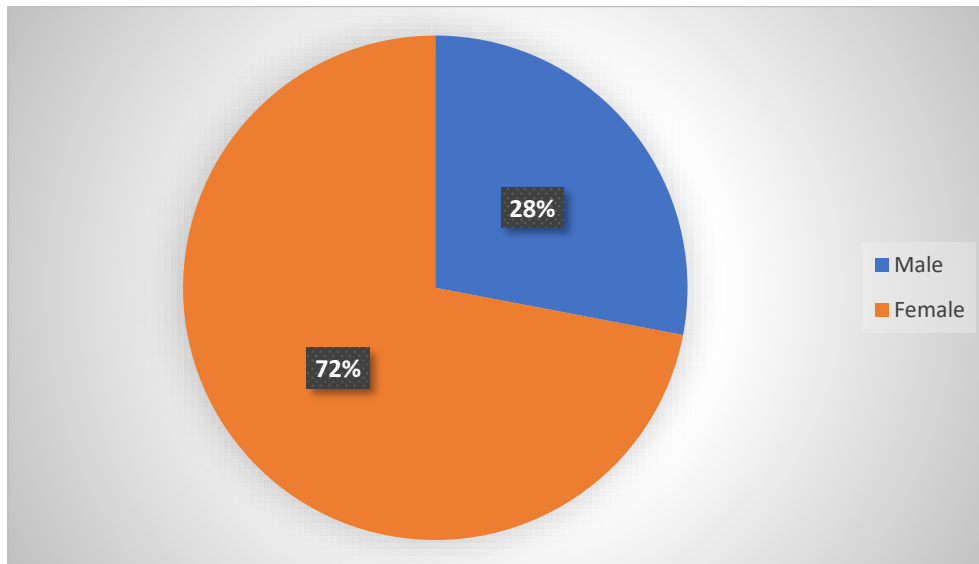Findings for Demographic Profile
Q1.Gender

Figure 2- Percentage for Gender

Figure 2 above shows the percentage for gender. 28% of the respondents are male while 72% are female.
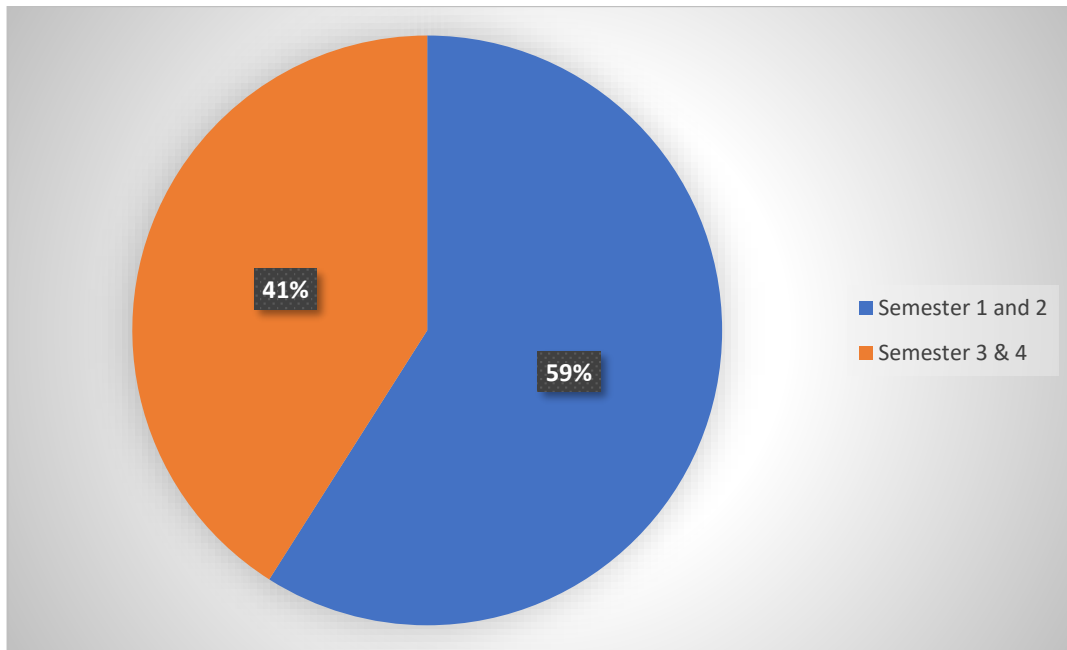
Q2 Semester

Figure 3- Percentage for Semester

With reference to figure 2, 59% of the respondents are form semester 1 & 2. 41% f the respondents are from semester 3 &4.
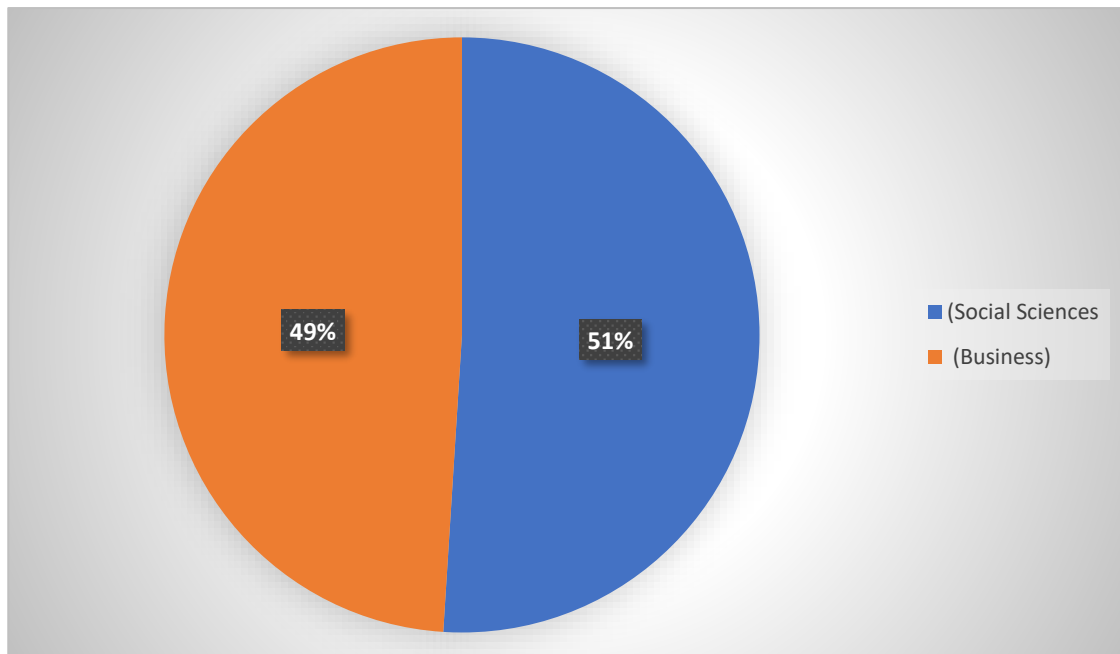
Q3 Course

Figure 4-Percentage for Course

With reference to figure 4 above, 51% of the respondents are from social sciences. 49% of them are from the business cluster.

Findings for Self-Regulation

This section presents data to answer research question 1- How does Self-regulation influence learning among undergraduates?
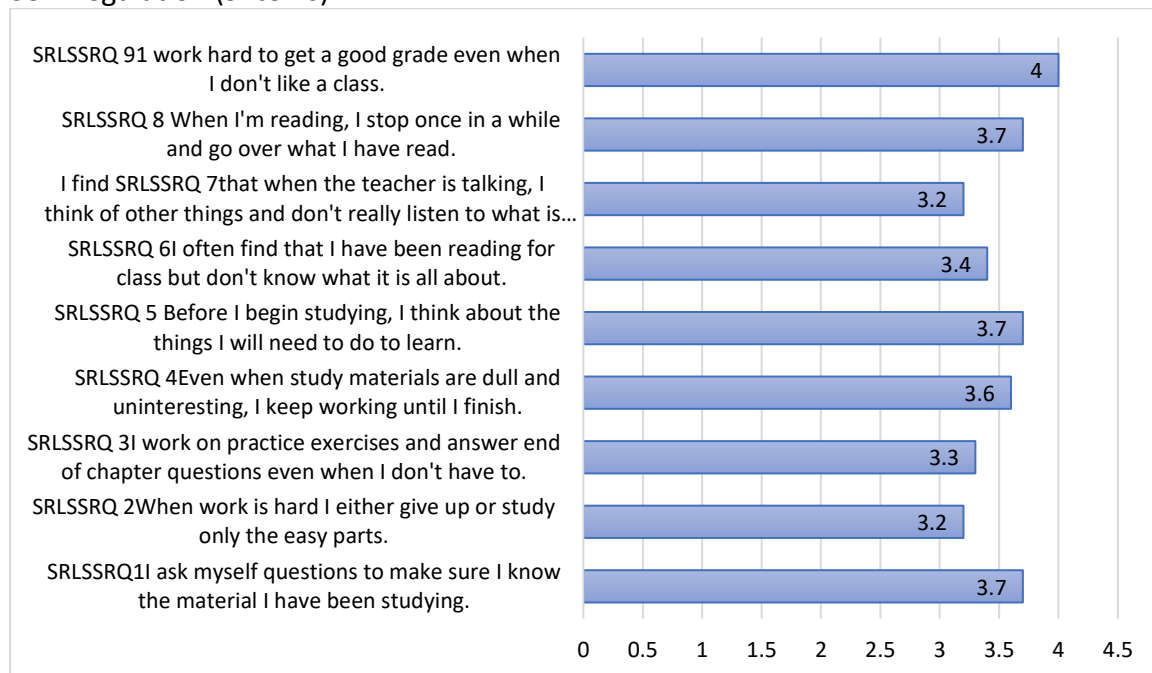
Self-Regulation (9 items)

Figure 5- Mean for self-regulation

Figure 5 shows the mean for self-regulation. The highest mean is 4 for the item "work hard to get a good grade even when I don't like a class". Next, three items share a mean of 3.7 and they are "ask myself questions to make sure I know the material I have been studying", "Before I begin studying, I think about the things I will need to do to learn", and "When I'm reading, I stop once in a while and go over what I have read".

Findings for Cognitive Strategy Use
This section presents data to answer research question 2- How does Cognitive strategy use influence learning among undergraduates?
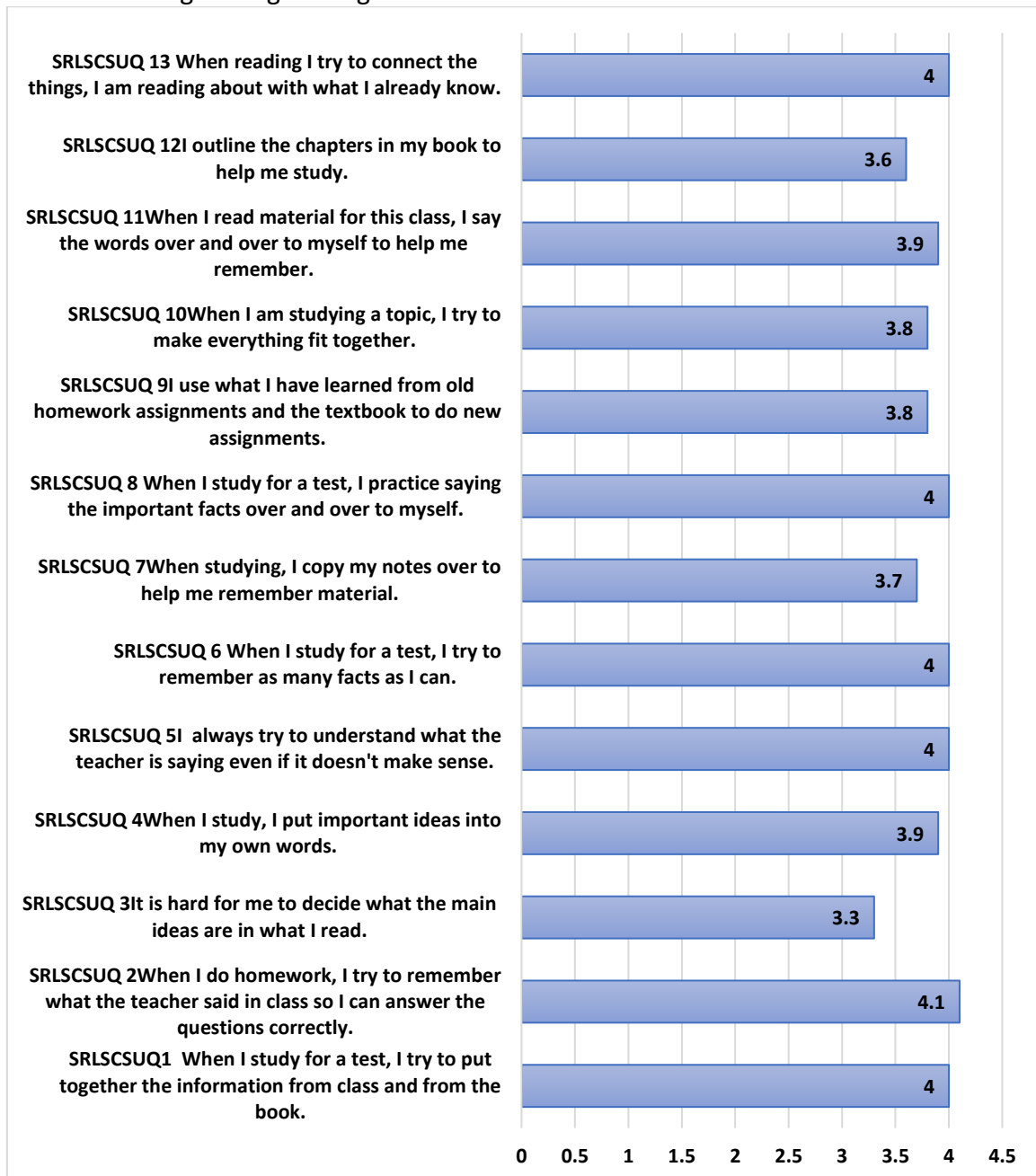

Figure 6- Mean for Cognitive Strategy Use

Figure 13 shows the mean for cognitive strategy use. Five items share the highest mean of 4 and they are "When I study for a test, I try to put together the information from class and from the book", "always try to understand what the teacher is saying even if it doesn't make sense", "When I study for a test, I try to remember as many facts as I can", "When I study for a test, I practice saying the important facts over and over to myself", and "When reading I try to connect the things, I am reading about with what I already know".

Findings for Motivational Beliefs

This section presents data to answer research question 3- How does Motivational beliefs influence learning among undergraduates? In the context of this study, motivational beliefs are measured by (i) self-efficacy, (ii) intrinsic value, and (iii) test anxiety.
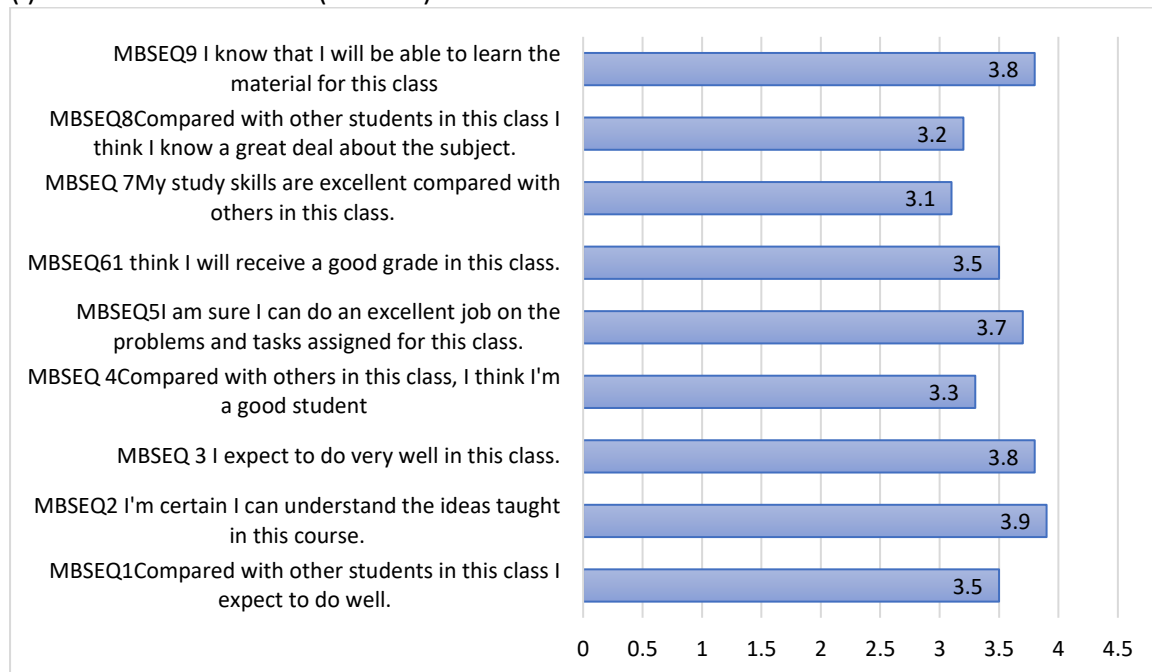
(i)   SELF-EFFICACY   (9 items)

Figure 7- Mean for Self-Efficacy.

Figure 7 shows the mean for self-efficacy. The highest mean is 3.9 for the item" I'm certain I can understand the ideas taught in this course". Two items share the same mean of 3.8 and they are "I expect to do very well in this class", and "I know that I will be able to learn the material for this class".
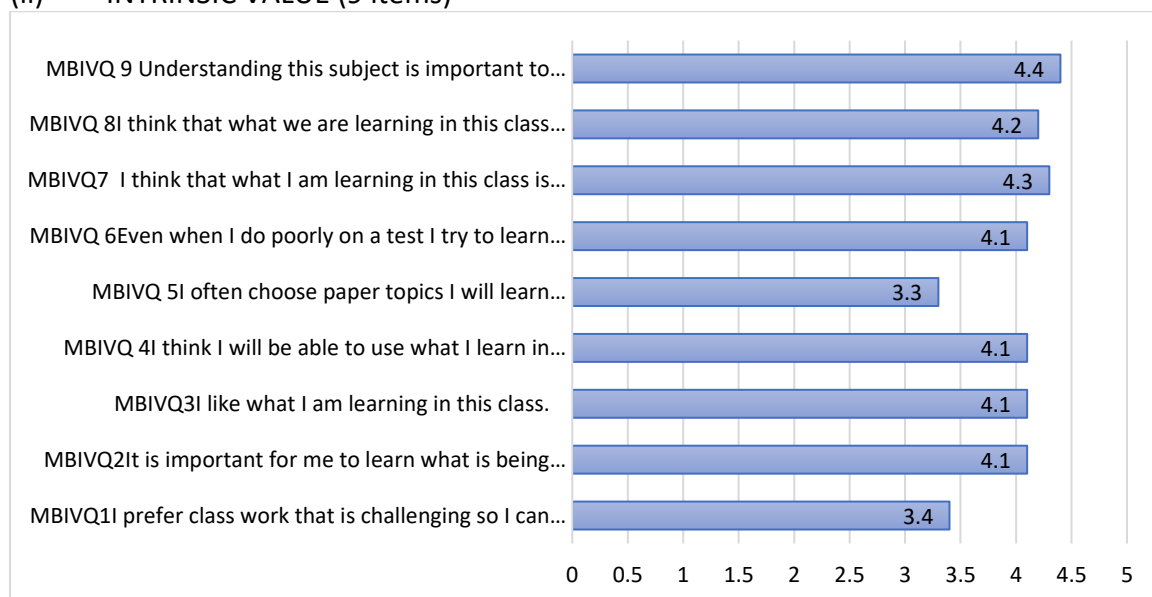
(ii)   INTRINSIC VALUE (9 items)

Figure 8- Mean for intrinsic value

Figure 8 shows the mean for intrinsic value. The highest mean is 4.4 for item "Understanding this subject is important to me." Next, the item "I think that what I am learning in this class is useful for me to know" has a mean of 4.3.
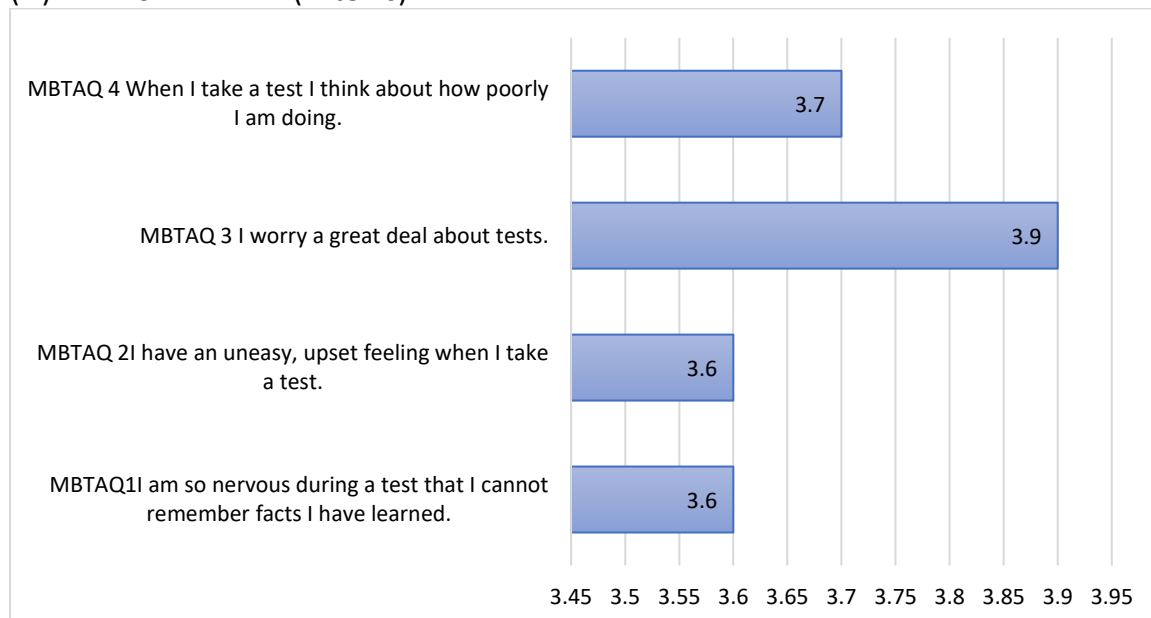
(iii)   TEST ANXIETY (4 items)

Figure 9- Mean for test anxiety.

Figure 9 shows the mean for test anxiety. The highest mean is 3.9 is for the item "I worry a great deal about tests". Next, the item "When I take a test I think about how poorly I am doing" has a mean of 3.7.

Findings for Relationship between self-regulation and motivational beliefs
This section presents data to answer research question 4- Is there a relationship between self-regulation and cognitive strategy use? To determine if there is a significant association in the mean scores between self -regulation and motivational beliefs, data is anlaysed using SPSS for correlations. Results are presented separately in table 3below.

Table 3
Correlation for   Self-Regulation and Cognitive Strategy Use

Correlations

		TIOTALMEAN REGULATION	TIOTALMEAN COGNITIVE
TIOTALMEANREGULATION	Pearson Correlation	1	.608**
	Sig. (2-tailed)		.000
	N	108	108
TIOTALMEANCOGNITIVE	Pearson Correlation	.608**	1
	Sig. (2-tailed)	.000	
	N	108	108

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

Table 4 shows there is an association between self-regulation and cognitive strategy use. Correlation analysis shows that there is a high significant association between self-regulation and cognitive strategy use. (r=.608**) and (p=.000). According to Jackson (2015), coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is also a strong positive relationship between self-regulation and cognitive strategy use.

Findings for Relationship between self-regulation and motivational beliefs
This section presents data to answer research question 5- Is there a relationship between self-regulation and motivational beliefs? To determine if there is a significant association in the mean scores between metacognitive, effort regulation, cognitive, social and affective strategies data is anlaysed using SPSS for correlations. Results are presented separately in table 4 below.

Table 3
Correlation between Self-Regulation and Motivation

Correlations

		TIOTALMEAN REGULATION	TIOTALMEAN MOTIVATION AL
TIOTALMEANREGULATION	Pearson Correlation	1	.594**
	Sig. (2-tailed)		.000
	N	108	108
TIOTALMEANMOTIVATIONAL	Pearson Correlation	.594**	1
	Sig. (2-tailed)	.000	
	N	108	108

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

Table 3 shows there is an association between self-regulation and motivational beliefs. Correlation analysis shows that there is a moderate significant association between self-regulation and motivational beliefs.. (r=.594**) and (p=.000). According to Jackson (2015), coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. Weak positive correlation would be in the range of 0.1 to 0.3, moderate positive correlation from 0.3 to 0.5, and strong positive correlation from 0.5 to 1.0. This means that there is also a moderate positive relationship between self-regulation and motivational beliefs..

Conclusion
Summary of Findings and Discussions
This study has revealed few interesting findings. Firstly, it can be seen that students still work hard even though they did not like the class and they prepared themselves for the classes. This can be supported by the research done by Tokan and Imakulata (2019) intrinsic motivation directly affected the participants' learning behaviour. The findings also show that for cognitive strategy, the students will gather ther information and understand the material and the lecture. Then, the students will do some practice over and over again. By doing that,

the students can learn faster compared to usual. It is suitable with the research done by Muwonge et al (2019) saying that cognitive learning strategies acted as a mediator to the relationship between the participants' motivational beliefs and academic performance. Students refer to the lecture's notes and materials while they are doing their self learning will help them more. Hence, there is a relationship strong, positive relationship between learners who are self-regulated and their use of cognitive strategy. Finally, the findings of this study also shows that there is a moderate yet positive relationship beterrn self-regulation and motivational beliefs. It is also found by El-Adl (2020) that showed showed positive relationship of self-regulated learning with intrinsic and extrinsic motivation, task value, control of learning beliefs, self-efficacy and academic achievement.

(Pedagogigal)Implications and Suggestions for Future Research (this is for no. 2)
Overall, this study contributes towards knowledge related to learning motivation. This study investigates relationship between self-regulation with motivational beliefs and cognitive strategy. Hence, it takes a look into three different strategies which are motivational beliefs, self-regulated learning strategies and perception of self-regulation. However, the interaction between lecturers and students can be something that future studies would like to conduct. It is a well-known issue that the age gap between these two generations is one of the biggest obstacles to learning. Future studies should look into the problems and solutions to this issue, In addition, future studies can also conduct studies for post-graduate students since their motivation to learn might be different from undergraduate students.

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