

The Influence of Cognitive Strategy Use on Self-Regulation, Self-Efficacy, Intrinsic Value and Test Anxiety

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Abstract

Motivation and self-regulation play crucial roles in learners' academic achievement. It is imperative for learners to possess a comprehensive understanding of their learning needs and goals, which encompass their motivation. Self-regulated learning serves as a catalyst for learners' cognitive processes, behaviors, and motivation, empowering them to take control of their learning journey. Consequently, this study aims to explore learners' perceptions of their motivation and utilization of self-regulated strategies. The quantitative survey used in this study is adapted from Pintrich & De Groot (1990) and comprises three sections: Demographic Profiles, Motivational Beliefs, and Self-Regulated Learning Strategies. A total of 44 items were employed in the survey. The participants, consisting of 151 individuals from the UiTM Centre of Foundation Studies, were purposely selected and responded to the survey. The findings reveal a positive relationship between the use of cognitive strategies for self-regulation and intrinsic value, while a moderate positive relationship exists between the use of cognitive strategies for self-efficacy and test anxiety. These findings have significant implications for both educators and learners, emphasizing the importance of motivation and self-regulation in fostering effective learning practices.

Keywords: Self-regulation, Self-Regulated strategies, Cognitivestrategies, Motivation, Self-Efficacy, Intrinsic Value, Test Anxiety.

Introduction**Background of Study**

Motivation and self-regulated learning (SRL) are two interconnected constructs that significantly impact educational outcomes and students' academic achievement. Self-regulation, also known as SRL, refers to an active and constructive process in which learners establish learning goals and then engage in monitoring, regulating, and controlling their cognition, motivation, and behaviour, guided and influenced by their goals and the contextual factors in their environment (Pintrich, 2000, 2008, as cited in Shangarffam & Ekhlas, 2012). Extensive research has focused on understanding the factors that influence motivation and the strategies learners use to regulate their learning. Multiple theories and empirical studies have been conducted to explore the complex relationship between motivation and self-regulated learning. Research suggest that when learners are motivated, they are more likely to engage in self-regulated learning behaviours, such as setting goals, planning strategies, and persisting through challenges (Pintrich & De Groot, 1990) and students who actively engage in SRL demonstrate superior performance compared to those who do not employ SRL strategies (Dent & Koenka, 2016; Hattie & Donoghue, 2016, as cited in Ahmed, 2017).

Several research studies have been conducted in Malaysia to investigate the relationship between motivation and SRL within the local context. Sukimin et al (2023) conducted a study that revealed a positive correlation between SRL and Malaysian undergraduates. Likewise, Bakar et al (2017) found strong evidence indicating that SRL serves as a strong predictor of higher academic performance among Malaysian undergraduates. According to Azlina (2007), the study highlights the close relationship between SRL and students' motivation and demonstrates that high achievers used self-regulated learning more effectively than low achievers.

The current study must therefore investigate and gain a comprehensive understanding of how learners' motivation affects their engagement and how their ability to self-regulate skills affects their capacity to monitor, control, and adapt their learning strategies, which leads to better educational experiences and academic success.

Statement of Problem

Motivation and self-regulated learning play a vital role in the academic setting. This is because the learners need to be able to comprehend their needs in learning so they will achieve their academic goals, and this also includes motivation. Learners' cognition, behaviors, and motivation are stimulated and sustained via self-regulated learning (Karwan, Haenilah, Rini, Suparman, & Hariri, 2020). So, it is crucial to improve self-regulated learning as it is fundamentally seen to empower the learners to manage their own path and display their motivation as they oversee the learning process (Tosuncuoglu, 2019). In other words, the learners should be able to regulate their learning on their own and at the same time, they need to be able to measure their motivation in order for them to achieve their academic goals. To support this, Antonio et al (2017) in Ugwuanyi et al (2020) stated that psychological aspects such as motivation, self-efficacy, etc are probable determinants for the learners' school achievement. Research by Tang and Osman (2022) also has found out that there is a significant positive relationship between learning motivation and learning self-efficacy. Despite that, another study provided a different result which is that anxiety was found to be negatively related to self-regulated learning (El-Adl & Alkharusi, 2020). Nevertheless, it would be an immense challenge for the learners to achieve positive academic results if the learners are not aware of how to regulate their learning as well as their motivation in doing so. As

Çetin (2022) cited from Pajares (2002) noted that learners who pursue their academic goals with self-assurance and have self-regulated learning skills indeed work harder, handle assignments calmly, overcome obstacles more easily, and recover more easily after experiencing disappointments. However, these are not achievable if the learners are not aware about self-regulated learning. This results in this study being made to explore more in-depth about this matter. Numerous research (El-Adl & Alkharusi, 2020; Karwan et al., 2020, Tang & Osman, 2022; Tosuncuoglu, 2019; Çetin, 2022) have explored mostly on motivation and self-efficacy, motivation and self-regulated learning etc, yet, there is a deficiency in research related to the perception of learners on their motivation and the use of self-regulated strategies being done in Malaysia. Thus, the core of this study explores the influence of cognitive strategy used on self-regulation, self-efficacy, intrinsic value and test anxiety among the learners.

Objective of the Study and Research Questions

This study is done to explore perception of learners on their motivation and use of self-regulated strategies. Specifically, this study is done to answer the following questions;

- How do learners perceive their use of cognitive strategy for learning ?
- How do learners perceive their self-regulation in learning
- How do learners perceive their self-efficacy in learning?
- How do learners perceive their intrinsic value in learning?
- How do learners perceive their test anxiety in learning?
- Is there a relationship between cognitive strategy use with self-regulation, self-efficacy, intrinsic value and test anxiety in learning?

Literature Review

Motivation for Learning

The motivation of students to learn directly affects both the acquisition of knowledge and the development of their character (Virvou et al., 2005). It encompasses a complex interplay of cognitive, affective, and social processes that influence individuals' willingness, effort, and dedication to acquiring knowledge and skills. In the context of self-regulated learning (SRL), it will be achieved once students are motivated to achieve a particular learning goal. Their learning goal could be powered by intrinsic or extrinsic motivation. In the context of learning, Abuhamdeh, Csikszentmihalyi, and Jalal (2015), as well as Deci and Ryan (1985), highlighted that intrinsic motivation entails a natural inclination towards pursuing novelty, exploration, and optimal challenges solely driven by the gratifying sensations of interest and enjoyment, without any external justification. It could be a situation where a student gains new vocabulary as they enjoy reading, or feeling accomplished after completing a task during a lesson, not for any award or applause from others.

Meanwhile, extrinsic motivation, such as external rewards or recognition, can provide additional incentives for learning. Extrinsic motivation compels students to participate in academic tasks for reasons external to themselves, in contrast to intrinsic motivation (Adamma et al., 2018). Factors like self-efficacy beliefs, goal orientation, and a supportive learning environment also contribute significantly to individuals' motivation to learn. A clear example of the situation would be students working hard on a particular subject to gain an 'A' or students going through rigorous training in order to win an Olympiad. Regardless of which type, understanding and nurturing motivation to learn is essential for educators, as it

enhances learners' curiosity, effort, and ultimately, their ability to acquire and apply knowledge effectively.

Characteristics of Self- Regulated Learners

Self-directed learners possess a distinctive set of characteristics that enable them to take ownership of their learning journey and thrive in their academic pursuits. In other words, they are proactive, displaying personal initiative, perseverance, and adaptability in acquiring knowledge. Self-directed learners are not passive recipients of information, but they are often actively seeking and contributing to their own learning journey (Pintrich, 2000). Hence, they are resourceful and adept at finding and utilising learning resources and are less dependent on teachers, instructors, or mentors. They exhibit a strong sense of autonomy and additionally possess the ability to set specific goals and regulate or monitor their cognition, behaviour, and motivation to reach those predetermined goals (Supramaniam, 2016; Pintrich, 2000). Highly skilled self-regulated learners are excellent at employing effective learning strategies and are highly adaptable to any learning demands, as well as novel tasks (Gullickson, 2020). These proactive skills are key to successful learning in autonomous learning contexts. Overall, self-directed learners are proactive, adaptable, driven, and equipped with self-regulated learning strategies needed to navigate their own learning experiences and thrive in today's dynamic academic world.

Past Studies on Motivation for Learning

Many studies have been done to investigate motivation for learning, especially on how the three aspects; motivation to learn, self-regulated learning and prediction of student's GPA, affected each other, and studies have been conducted on the influence of motivation, learning behavior, self-efficacy on academic achievement.

There have been many past studies on the differential impact of intrinsic and extrinsic motivation on self-regulated learning. The study by Cetin (2015) is done to investigate issues regarding the contrasting effects on self-regulated learning demonstrated by intrinsic and extrinsic motivation. The objective of Cetin's study was to investigate the predictive relationship between academic motivation, academic self-regulated learning, and students' GPAs within the same course. The study sample comprised 166 Early Childhood Education students of the same batch who were enrolled at Georgia Southern University, United States of America. Data collection involved the utilization of the "academic motivation scale" developed by Vallerand, Pelletier, Blais, Brière, Sénécal, and Vallières (1992, as cited in Cetin, 2015) and the "academic self-regulated learning scale" developed by (2010, as cited in Cetin, 2015). The study revealed no significant association between GPA and academic motivation or academic self-regulated learning. Put simply, the combined scores of students' academic motivation and academic self-regulated learning did not demonstrate the ability to predict their GPA.

Next, a part of the study by Metriana (2014) focused on the influence of motivation, learning behavior, self-efficacy on academic achievement. The study employed primary data obtained through the distribution of questionnaires to 200 students, using proportional random sampling. Data collection involved the utilization instruments from Roy Setiawan (2010, as cited in Metriana, 2014) on motivation for learning, Januar, 2013, as cited in Metriana (2014) on learning behaviour as well as from Riani and Farida (2006), as cited in (Metriana, 2014). The data in this study were analyzed using multiple linear regression and independent sample

t-test. The results revealed a significant and positive relationship between motivation, learning behavior, and self-efficacy with academic achievement.

Past Studies on Self-Regulated Learning

There have been many past studies on self-regulated learning. The study by Gambo and Shakir (2022) explored students' readiness for a self-regulated smart learning environment using a mixed-method design. The research involved 157 undergraduate students who completed an online survey and additionally, eight participants were selected for a focus group discussion. The Self-Regulated Learning Questionnaire (OSLQ) developed by Barnad, Paton, and Lan in 2008 was used for quantitative data collection to assess students' self-regulated learning (SRL) skills. To complement the quantitative findings, focused group discussion was conducted to gain insights into students' experiences and the availability of technology resources necessary for implementing a self-regulated smart learning environment. The findings revealed high SRL skills, with help-seeking, goal setting, and task strategies being highly important. Students demonstrated a good understanding of SRL and its role in learning. Goal setting, time management, and self-assessment skills were highly developed. Additionally, a positive relationship was observed between online learning experiences and SRL skills, indicating increased readiness with more online course experience. The study highlights the importance of promoting SRL strategies and utilizing technology for enhanced online education outcomes.

Next, a study by Bakar et al (2017) also looked at self-regulated learning. The researchers aimed to investigate the correlation between self-regulated learning and academic achievement among undergraduate students at UniSZA (University Sultan Zainal Abidin). The objective was to assess the impact of self-efficacy belief and the use of learning strategies on the academic performance of UniSZA undergraduates. A closed-ended questionnaire on student self-regulated learning was administered to a sample of 364 randomly selected students from various faculties of the university, including 202 females and 162 males. The data obtained from the questionnaire was analyzed using correlation and regression analysis. The results demonstrated a strong relationship between self-regulated learning and academic achievement. Specifically, there was a significantly positive correlation between students' self-efficacy belief, use of learning strategies, and their academic performance. Moreover, the regression analysis revealed that self-efficacy and learning strategies were reliable predictors of higher academic performance, as measured by GPA. Among the three variables examined, self-efficacy emerged as the strongest predictor of academic achievement. Based on the findings, the study recommends the cultivation and development of autonomous learners and a shift towards student-centered instruction. These strategies can help enhance self-regulated learning skills, foster self-efficacy beliefs, and promote effective use of learning strategies, ultimately leading to improved academic outcomes.

Conceptual Framework

Figure 1 shows the conceptual framework of the study. This study explores the influence of cognitive strategy use on self-regulation, self-efficacy, intrinsic value, and test anxiety. Cognitive strategies are the strategies that learners use to be successful at the learning task. Self-regulated learners are more prone to use cognitive strategies. Initial success at learning gives learners confidence to become more motivated to more learning (Rahmat et al., 2021). Pintrich and De Groot (1990) state that learners are motivated by their motivation beliefs. These beliefs are (a) self-efficacy, (b) intrinsic value, and (c) text anxiety.

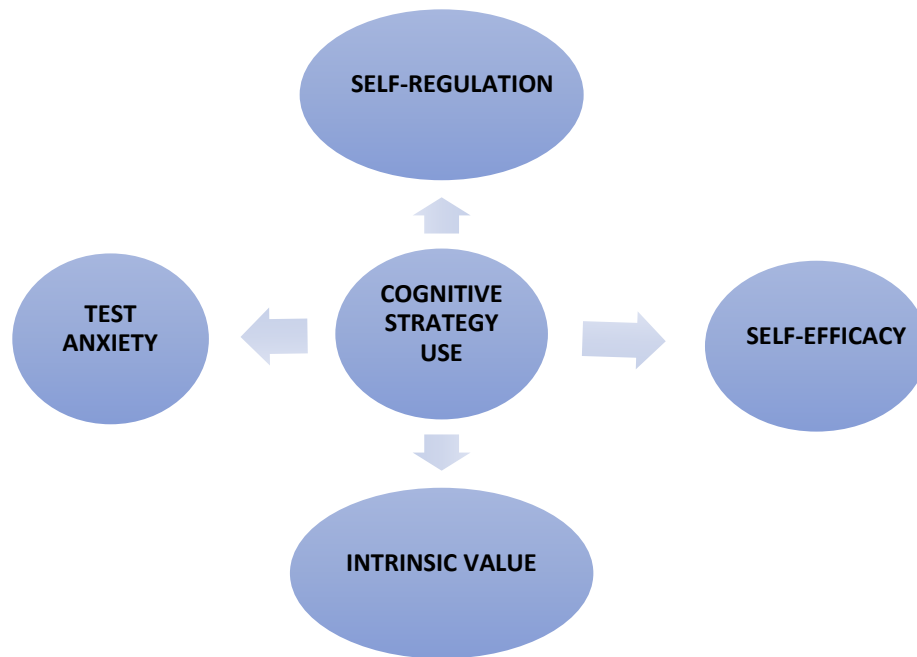


Figure 1- Conceptual framework of the Study-

The Influence of Cognitive Strategy use on Self-Regulation, Self-Efficacy, Intrinsic Value and Test Anxiety.

Methodology

This quantitative study is done to explore motivation factors for learning among undergraduates. A purposive sample of 115 participants responded to the survey. The instrument used is a 5 Likert-scale survey and is rooted from Pintrich and De Groot (1990) to reveal the variables in table 1 below. The survey has 3 sections. Part one is items on demographic profile. Part two has 22 items on motivational beliefs. Part three has 22 items on self-regulated strategies.

Table 1

Distribution of Items in the Survey

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

Table 2
Reliability of Survey

Reliability Statistics	
Cronbach's Alpha	N of Items
.920	44

Table 2 shows the reliability of the survey. The analysis shows a Cronbach alpha of .920, 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

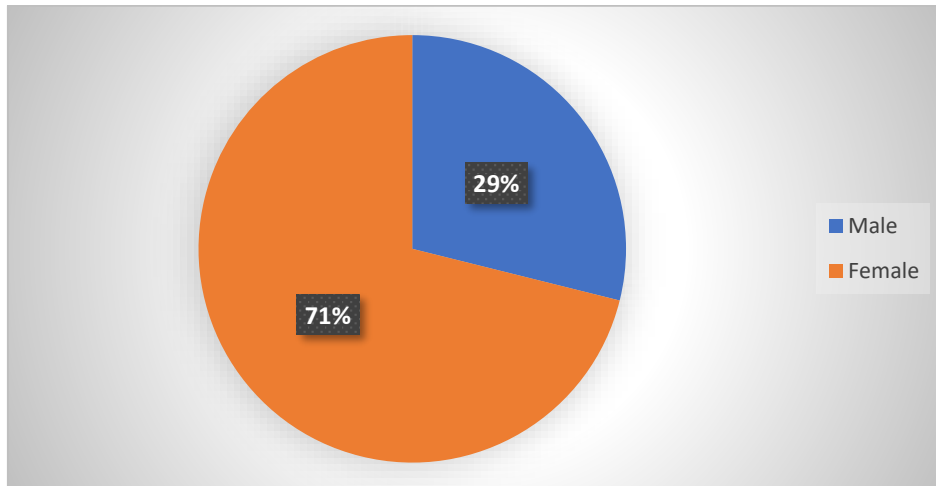


Figure 2- Percentage for Gender

Figure 2 presents the percentage of the research participants based on gender. The majority of the respondents were female, accounting for 64% of the total population, while males constituted 26%.

Q2 Programme

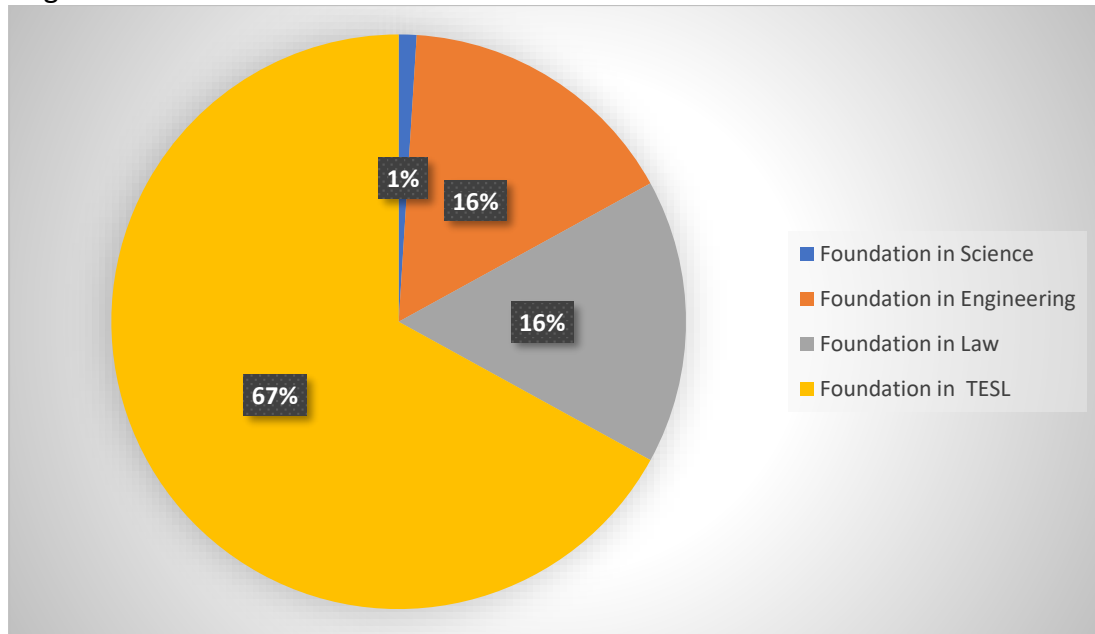


Figure 3- Percentage for Programme

The data presented in figure 3 reveals the distribution of respondents across distinct programmes, with the Foundation in Science program accounting for 1% of the participants, while the Foundation in Engineering and Foundation in Law programs each encompassed 16% of the sample. Notably, the majority of respondents, comprising 67%, were enrolled in the Foundation in TESL program.

Findings for Cognitive Strategy Use

This section presents data to answer research question 1- How do learners perceive their use of cognitive strategy for learning ?

Cognitive Strategy Use (13 items)

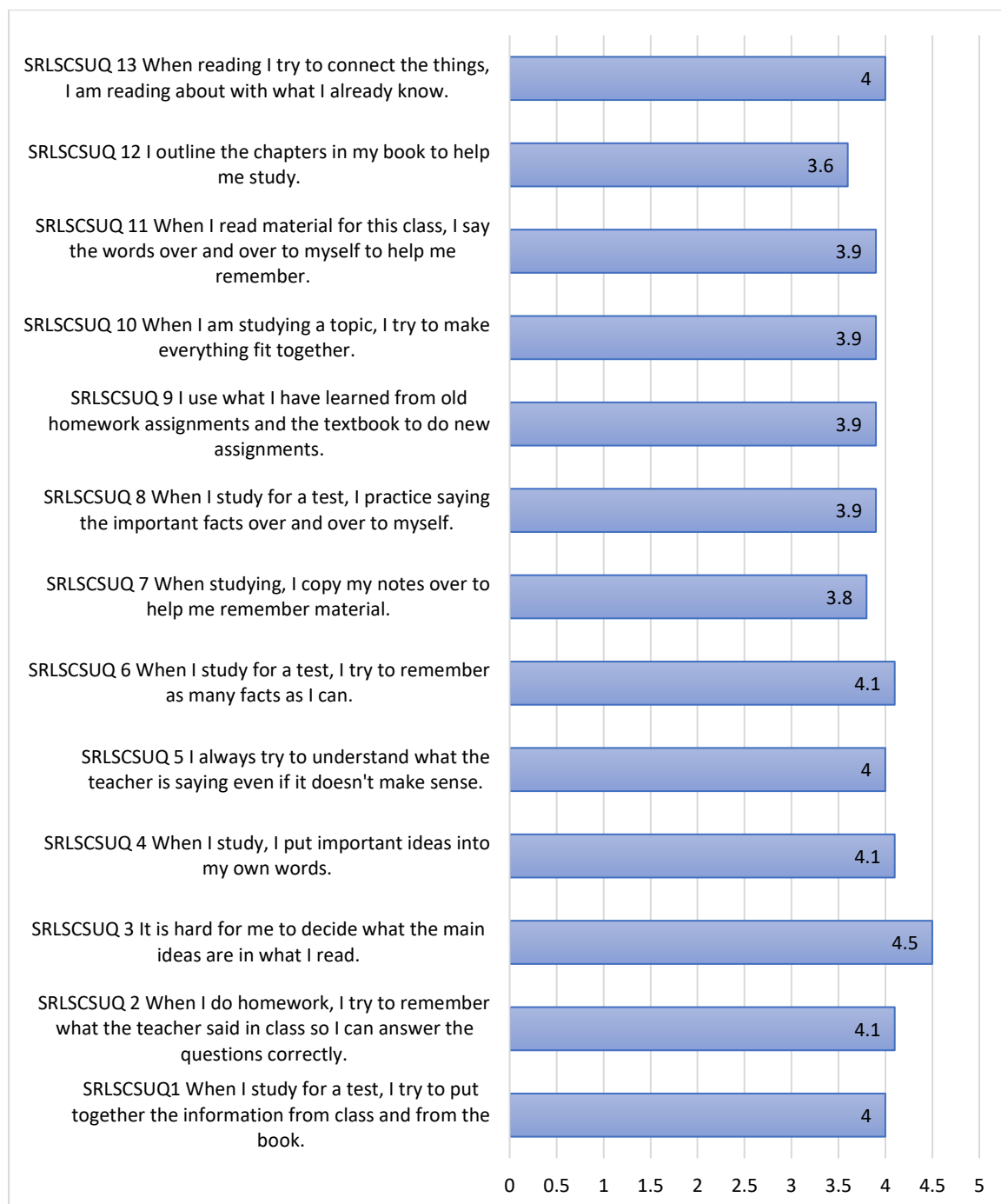


Figure 4- Mean for Cognitive Strategy

Figure 4 presents the mean score for cognitive strategies. The highest mean score (Mean=4.5) is for the item 'It is hard for me to decide what the main ideas are in what I read.' Three of the items have the same mean scores (Mean=4.1), which is the second highest mean score for cognitive strategies. These items are: 'When I do homework, I try to remember what the teacher said in class so I can answer the questions correctly,' 'When I study, I put important ideas into my own words,' and 'When I study for a test, I try to remember as many facts as I can.' The third highest mean score (Mean=4) is for the items 'I study for a test, I try to put

together the information from class and from the book,' 'I always try to understand what the teacher is saying even if it doesn't make sense,' and 'When reading I try to connect the things, I am reading about with what I already know.' Based on the results, cognitive strategies have a high level mean score.

Findings for Self-Regulation

This section presents data to answer research question 2- How do learners perceive their self-regulation in learning?

Self-Regulation (9 items)

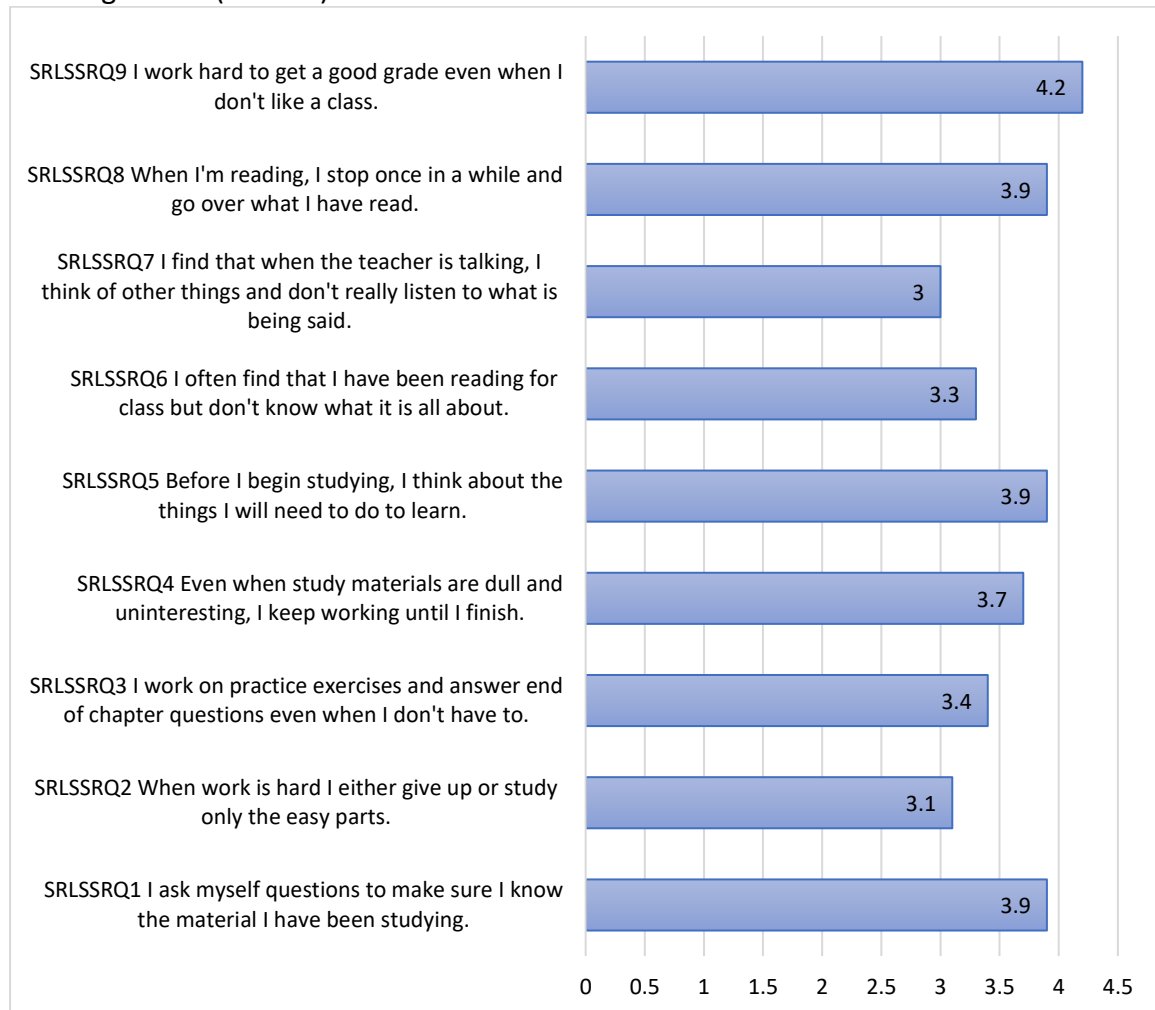


Figure 5- Mean for Self-Regulation

Figure 5 shows a high level of mean score for self-regulation. The highest mean score among all is for 'I work hard to get a good grade even when I don't like a class (Mean=4.2). Three items scored a mean of 3.9, which is the second highest. The items are 'I 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.' The third highest mean score (Mean=3.7), is for the item 'Even when study materials are dull and uninteresting, I keep working until I finish.' The findings indicate that respondents possess the ability to regulate themselves during learning.

Findings for Self-Efficacy

This section presents data to answer research question 3- How do learners perceive their self-efficacy in learning?

PART 2- MOTIVATIONAL BELIEFS (22 items)

Self-Efficacy (9 items)

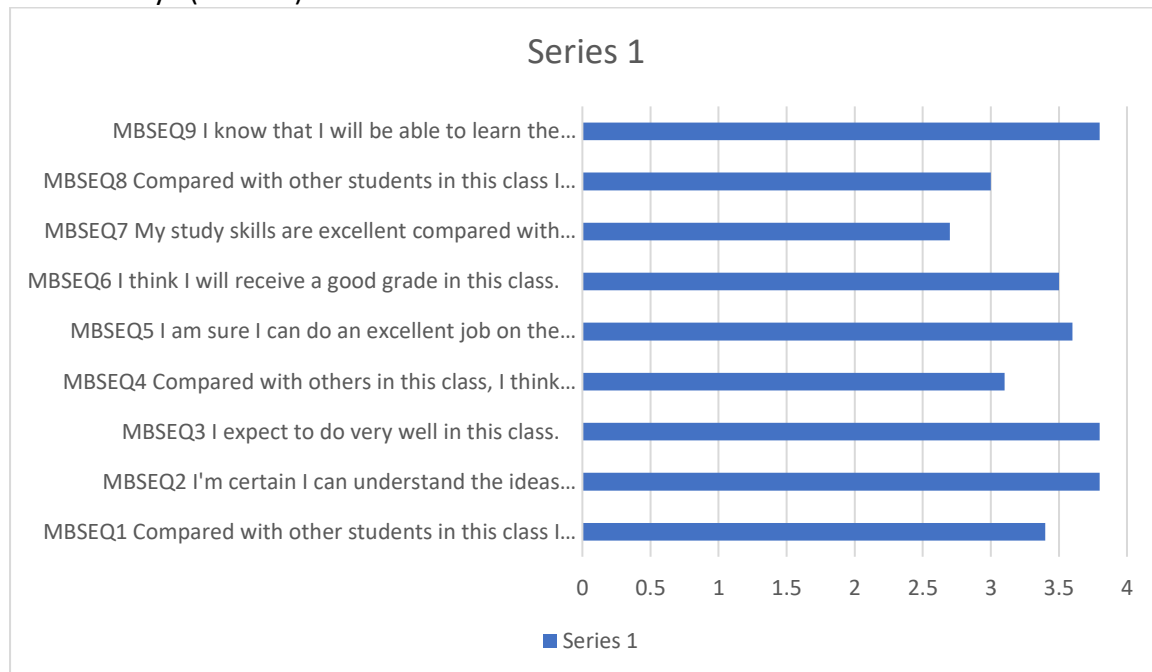


Figure 6- Mean for Self-Efficacy

Figure 6 shows a mixture of both high and average mean scores for Self-Efficacy. The highest mean score was attained by three items (Mean=3.8). The items are; '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'. Next, the second highest mean is for item 'I am sure I can do an excellent job on the problems and tasks assigned for this class.' (Mean=3.6), followed by item 'I think I will receive a good grade in this class' (Mean=3.5). However, the item 'My study skills are excellent compared with others in this class,' received the lowest mean (Mean=2.7). The results indicate that the respondents sometimes perceive themselves as self-efficient in learning.

Findings for Intrinsic Value

This section presents data to answer research question 4- How do learners perceive their intrinsic value in learning?

Intrinsic Value (9 items)

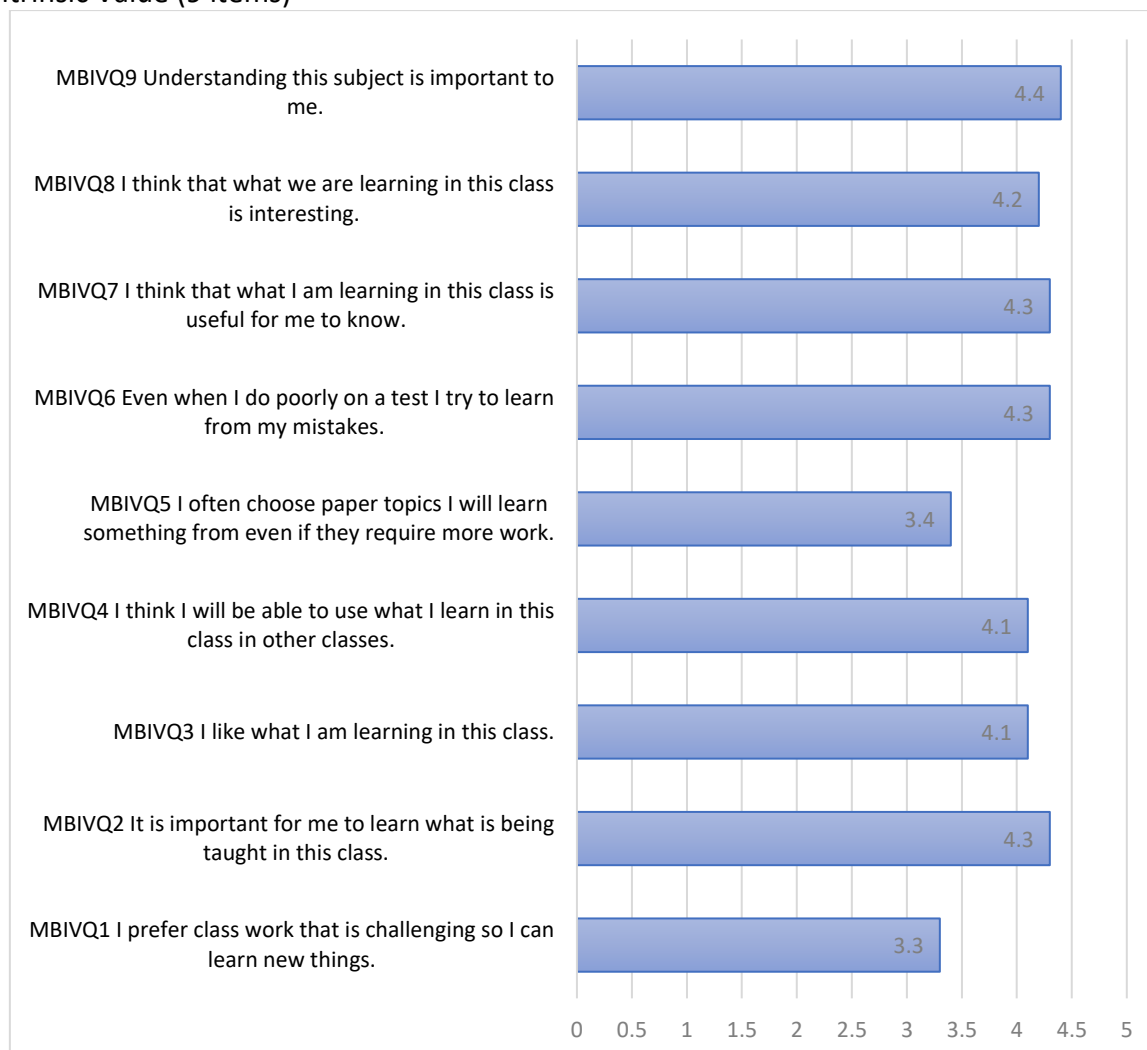


Figure 7- Mean for Intrinsic Value

Figure 7 shows a relatively high mean score for Intrinsic Value. The item 'Understanding this subject is important to me' attained the highest mean score above all (Mean=4.4). There are three items that share the second highest mean score (Mean=4.3). The items are; 'It is important for me to learn what is being taught in this', 'Even when I do poorly on a test I try to learn from my mistakes.', and 'I think that what I am learning in this class is useful for me to know.'. Next, the third highest mean score is for item 'I think that what we are learning in this class is interesting.' (Mean=4.3). However, the item 'I prefer class work that is challenging so I can learn new things,' received the lowest mean (Mean=3.3). The results indicate that the respondents very often have high intrinsic value when it comes to learning.

Findings for Test Anxiety

This section presents data to answer research question 5- How do learners perceive their test anxiety in learning?

Test Anxiety (4 items)

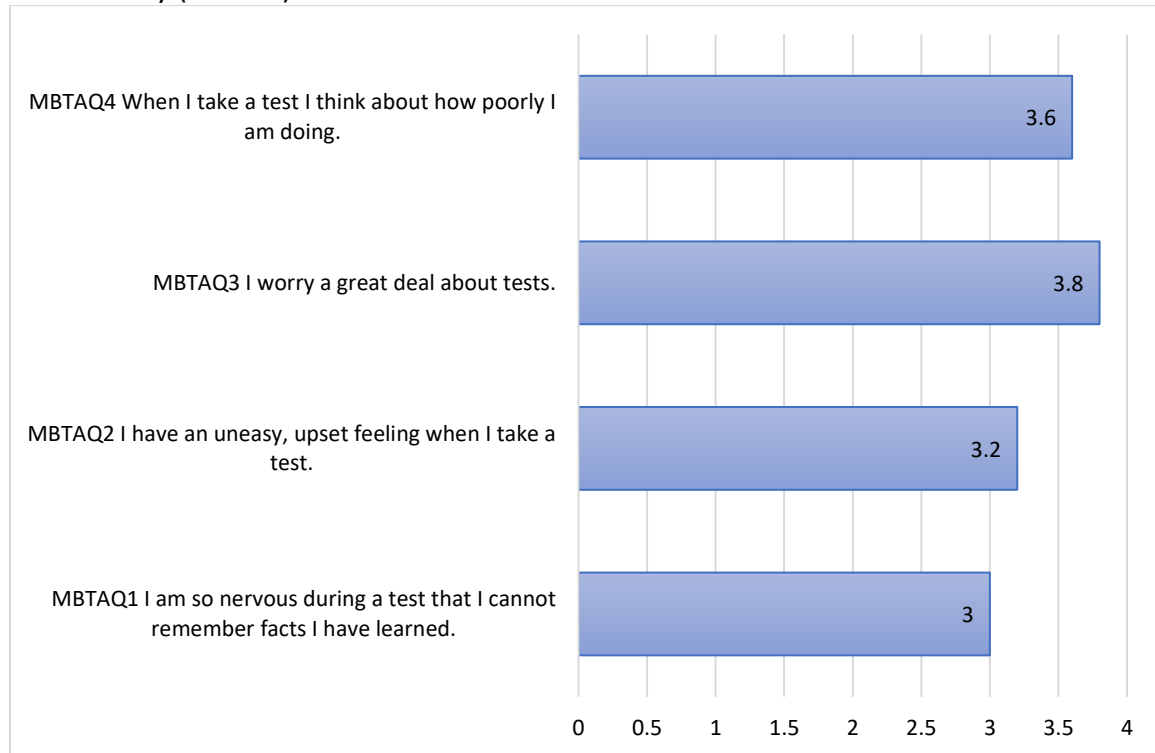


Figure 8- Mean for test Anxiety

Figure 8 presents the mean score for test anxiety. The highest mean score (Mean 3.8) is for the item 'I worry a great deal about the test'. This is followed by item 4; 'When I take a test, I think about how poorly I am doing' with the second highest mean score at 3.6. The third highest mean score (Mean = 3.2), is for the item 'I have an uneasy, upset feeling when I take a test'. This shows that respondents generally agreed to a moderate extent with this statement, indicating that they occasionally felt anxious or unhappy while taking examinations.

Findings for Relationship between cognitive strategy use with self-efficacy, intrinsic value and test anxiety in learning

This section presents data to answer research question 6- Is there a relationship between cognitive strategy use with self-efficacy, intrinsic value and test anxiety in learning? To determine if there is a significant association in the mean scores between cognitive strategy use, self-regulation, self-efficacy, intrinsic value and text anxiety, data is analysed using SPSS for correlations. Results are presented separately in table 3, 4, 5 and 6 below.

Table 3

*Correlation between Cognitive Strategy Use and Self-Regulation***Correlations**

		Cognitive	SelfRegulation
Cognitive	Pearson Correlation	1	.506**
	Sig. (2-tailed)		.000
	N	115	115
SelfRegulation	Pearson Correlation	.506**	1
	Sig. (2-tailed)	.000	
	N	115	115

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

Table 3 shows there is an association between cognitive strategy use and self-regulation. Correlation analysis shows that there is a high significant association between cognitive strategy use and self-regulation ($r=.506^{**}$) 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 cognitive strategy use and self-regulation.

Table 4

*Correlation between Cognitive Strategy Use and Self-Efficacy***Correlations**

		Cognitive	selfefficacy
Cognitive	Pearson Correlation	1	.469**
	Sig. (2-tailed)		.000
	N	115	115
selfefficacy	Pearson Correlation	.469**	1
	Sig. (2-tailed)	.000	
	N	115	115

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

Table 4 shows there is an association between cognitive strategy use and self-efficacy. Correlation analysis shows that there is a moderate significant association between cognitive strategy use and self-efficacy ($r=.469^{**}$) 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 cognitive strategy use and self-efficacy.

Table 5

*Correlation between Cognitive Strategy Use and Intrinsic Value***Correlations**

		Cognitive	intrinsicValue
Cognitive	Pearson Correlation	1	.613**
	Sig. (2-tailed)		.000
	N	115	115
intrinsicValue	Pearson Correlation	.613**	1
	Sig. (2-tailed)	.000	
	N	115	115

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

Table 5 shows there is an association between cognitive strategy use and intrinsic value. Correlation analysis shows that there is a high significant association between cognitive strategy use and intrinsic value ($r=.613^{**}$) 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 cognitive strategy use and intrinsic value.

Table 6

*Correlation between Cognitive Strategy Use and Test Anxiety***Correlations**

		Cognitive	testAnxiety
Cognitive	Pearson Correlation	1	.306**
	Sig. (2-tailed)		.001
	N	115	115
testAnxiety	Pearson Correlation	.306**	1
	Sig. (2-tailed)	.001	
	N	115	115

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

Table 6 shows there is an association between cognitive strategy use and test anxiety. Correlation analysis shows that there is a moderate significant association between cognitive strategy use and test anxiety ($r=.306^{**}$) 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 cognitive strategy use and test anxiety.

Conclusion

Summary of Findings and Discussions

The primary objective of this study is to examine learners' perceptions of their motivational beliefs and self-regulated learning strategies as they engage in the learning process. The following section provides a summary of the research findings, addressing the formulated research questions and presenting an overview of the study's outcomes.

Research Question	Conclusion
How do learners perceive their use of cognitive strategy for learning?	A high level of engagement and utilization of cognitive strategies. Learners actively employ various cognitive strategies, such as identifying main ideas, recalling information, summarizing, memorizing facts, integrating information, seeking understanding, and making connections with prior knowledge.
How do learners perceive their self-regulation in learning?	Learners perceive themselves as possessing self-regulatory behaviors, including working hard to achieve good grades despite disliking the class. They demonstrate proactive approaches to their studies by asking questions, planning, reviewing, and persisting through difficulties, reflecting their commitment to academic goals.
How do learners perceive their self-efficacy in learning?	Learners have high confidence in their ability to excel academically and consider themselves on par with their classmates in terms of competence.
How do learners perceive their intrinsic value in learning?	Learners perceive intrinsic value as crucial, as it facilitates effective comprehension of the subject matter and supports self-regulated learning.
How do learners perceive their test anxiety in learning?	Learners acknowledge feelings of nervousness and excessive worry related to tests. This suggests that experiencing test anxiety motivates students to regulate their learning to improve their performance.
Is there a relationship between cognitive strategy use with self-regulation, self-efficacy, intrinsic value and test anxiety in learning?	A strong positive relationship is observed between cognitive strategy use for self-regulation and intrinsic value, while a moderate positive relationship exists between cognitive strategy use for self-efficacy and test anxiety

Importance and Significance of Study

This study is significant as it explores the interconnected relationships between cognitive strategies and various psychological factors crucial in academic performance. By investigating the impact of cognitive strategy utilization on self-regulation, self-efficacy, intrinsic value, and test anxiety, this study aims to shed light on the critical role of cognitive approaches in shaping

learners' academic outcomes and emotional well-being. Understanding these relationships could potentially inform educational practices and interventions to enhance learning experiences and learners' success. This study undoubtedly holds significant importance due to some reasons.

First, the findings highlight learners' active utilization of various cognitive strategies, such as identifying main ideas, summarizing, integrating information, and seeking understanding. Understanding how learners employ these strategies can inform educators on how to promote effective learning techniques and optimize their comprehension and retention of course materials. Additionally, understanding the relationship between cognitive strategy use and self-regulation, self-efficacy, intrinsic value, and test anxiety also provide valuable insights for educators. It allows them to design targeted interventions and instructional strategies to foster effective learning approaches, enhance learners' self-regulatory skills, boost their confidence, and promote intrinsic motivation. The perception of possessing self-regulatory behaviors and proactive approaches to studies aligns with Zimmerman's (2002) study, reinforcing the concept of self-regulated learners exhibiting autonomy and commitment to academic goals. This correspondence strengthens the theoretical foundation of self-regulation theories and provides empirical evidence for the significance of learners' proactive behavior in achieving academic success.

Learners' high confidence in their ability to excel academically and view themselves on par with their peers in terms of competence also emphasizes the importance of self-efficacy in motivating learners to actively engage in their studies. Understanding this relationship can guide educators in fostering a positive environment that enhances learners' self-belief and perseverance. These findings align with previous research by Herndon and Bembenu (2017); Ucar and Sungur (2017), adding to the theoretical framework of self-efficacy's impact on learners' motivation and accomplishments. The findings also highlight the role of cognitive strategies in influencing intrinsic value which helps educators to create a more engaging learning and meaningful learning environment. The recognition of intrinsic value as crucial and its positive relationship with cognitive strategy use and emotional engagement in learning are in line with Umemoto and Ito's (2016) study. This reinforces the theoretical significance of intrinsic value in influencing learners' motivation and learning outcomes. By aligning instructional methods with students' interests and passions, educators can enhance motivation and emotional engagement in the learning process.

On top of that, this study also highlights the influence of test anxiety on learners' self-regulated learning behaviors. Acknowledging feelings of nervousness and excessive worry related to tests can prompt educators to provide necessary support and interventions to help learners manage their anxiety and enhance their self-efficacy in learning. Certainly, the observed relationships between cognitive strategy use, intrinsic value, self-efficacy, and test anxiety contribute to a deeper understanding of how these factors interplay in the learning process. Such insights can inform educators on how to effectively leverage these connections to foster better engagement and learning environment for learners.

Overall, this study's significance lies in its potential to inform educational practices, empower educators to design more effective teaching strategies, and create a supportive learning environment that fosters learners' motivation, engagement, and self-regulated learning skills. By understanding learners' perspectives and experiences, educators can tailor their approaches to meet individual needs, ultimately leading to greater educational experiences and academic success for learners.

Pedagogical Implications and Suggestions for Future Research

The findings of this study have significant implications for both educators and learners, providing valuable insights into effective teaching and learning practices. It is essential for learners to have at least a moderate level of motivation in order to enhance their learning performance. Educators, on the other hand, should possess a thorough understanding of learners' motivational beliefs to foster autonomy and independence in their learning. In the current educational landscape, educators can support and encourage students in developing self-regulatory skills by offering guidance on goal setting, time management, and self-reflection. Creating a supportive and structured learning environment that promotes autonomy and self-reflection can enhance students' abilities in self-regulated learning.

However, it is important to acknowledge that this study has certain limitations. To address these limitations and further advance research in this area, several recommendations can be made for future researchers. Firstly, conducting longitudinal studies can provide a deeper understanding of the development and stability of learners' motivational beliefs and self-regulated learning strategies. Investigating how these beliefs and strategies evolve over time and their impact on long-term academic outcomes can offer valuable insights for educational interventions and support systems. Additionally, exploring learners' perceptions of motivational beliefs and self-regulated learning strategies in different cultural contexts can shed light on the influence of cultural factors on these constructs. Comparative studies can help identify cultural variations and similarities, informing the development of culturally responsive pedagogical practices that better cater to the needs of diverse learners.

In conclusion, by considering the implications and future research areas suggested by this study, educators can create supportive learning environments that foster students' motivation, self-regulation, and academic success.

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