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The Influence of Learners' Motivation and Self-Regulated Learning Behaviour

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Abstract

In the current trends of education, the learning process is not confined to only traditional methods of acquiring knowledge. Students can now gain knowledge and information at their fingertips using various types of resources available. For students to be able to be independent of their own learning, the role of motivation is an essential element to make this a success. Hence, this study is conducted to explore the motivating factors for learning among undergraduates. The instrument for this quantitative study is adapted from (Zimmerman, 2000; Pintrich and De Groot, 1990). The survey consists of four sections, which are Demographic Profiles, Forethought, Performance and Self-Reflections. A total of 43 items are used for this study with a 5-Likert scale rating ranging from 1 (Never) to 5 (Always). 122 undergraduate students at a public university in Malaysia completed the survey which was administered online through a Google Form. Generally, the findings revealed that forethought, performance and self-reflection influenced learners' motivation to self-regulate. A positive correlation was also observed among the three variables in SRL. The findings imply interesting implications for educators to facilitate learners in the teaching and learning process, as well as for learners themselves to be in control of their own learning.

Keywords: Motivation, Self-Regulated Learning, Behaviour, Learning, Autonomy

Introduction

Background of Study

Self-regulated learning (SRL) has been advocated as one of the current approaches to learning. Pintrich (2000) defines SRL as a "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and contextual features of the environment". It involves a cyclical process in which a learner is responsible and in control of his/her own learning. In his review of six SRL models, one of the conclusions made by Panadero (2017) is that SRL is indeed a comprehensive framework that is beneficial for

learners and they can be trained to use SRL strategies effectively. Hence, with the right assistance and guidance, learners can be successful in applying SRL in their own life-long learning process.

In the Malaysian context, SRL has also been explored in various settings. Abu Bakar et al (2017) confirms that SRL strategies were one of the three factors that influence student achievement, even though it was the least strongest predictor. More recently, Tajudin et al (2022) also denotes that students have a high level of SRL strategy use to engage in an online learning environment. This may indicate that students perceive SRL as an important factor to achieve autonomous learning and be independent learners. In addition, some other factors that influence SRL have also been reported, such as teacher support (Kesuma et al., 2021), self-efficacy (Yu, 2023) and motivation (Abu Bakar et al., 2017). Therefore, it is pertinent for the current study to explore the influence of motivation on SRL to further understand variables that contribute to learner autonomy.

Statement of Problem

Self-regulated learning and motivation go hand in hand since self-regulated learning is often fueled by motivation. Self-regulated learning is the process through which people actively participate in their learning by setting goals, tracking their progress, and changing their strategies as necessary to reach those goals. Contrarily, motivation describes the need or desire to carry out a specific activity, like learning. A study by Wolters and Pintrich (1998) found that students who were more self-regulated in their learning also reported higher levels of intrinsic motivation. Similarly, Zimmerman (2000) found that self-regulated learning was positively related to task value, which is a component of motivation.

Motivation is crucial to self-regulated learning, as it drives and sustains the learning process. Without motivation, students may lack the drive and energy to engage in self-regulated learning behaviors. There may be individual differences in how students regulate their learning and what motivates them. There is a need for continued research on how to effectively promote motivation to enhance learners' self-regulated learning.

Objective of the Study and Research Questions

This study is done to explore the motivating factors for learning among undergraduates. Specifically, this study is done to answer the following questions

- How does forethought influence learners' motivation?
- How does performance influence learners' motivation?
- How does self-reflection influence learners' motivation?
- What is the relationship between all variables in self-regulated learning?

Literature Review

Motivation for Learning

According to Bandura (1997), motivation serves as a concept that emerges through individual learning experiences and actions that are influenced by a variety of external factors. In order to inspire learners to learn, it is important to understand their motivation. Mazuin et al (2021) found that learner motivation had a beneficial impact on learning in terms of achievement, appreciation, relationship with classmates, and interaction with teachers. Realising that

motivation is one of the most vital elements in the learning process, there are many studies that have been done in order to explore the influence of motivation in learners' achievement. According to a study by Leong et al (2018), they stated that students with higher levels of intrinsic motivation outperform those with lower levels. This is in accordance with a study by Wardani et al (2020) as they claimed that students that have a desire to learn are more likely to succeed in the learning process.

Motivation for Independent Learning

Motivation is an important aspect of autonomous learning, which is the process of gaining skills or knowledge without being under the direct guidance or monitoring of a teacher or instructor. The student takes charge of their own learning in an independent manner by setting goals and working towards them (Zimmerman, 2002; Pintrich, 2004).

According to (Knowles, 1975; Zimmerman, 1989; Deci & Ryan, 1985; Jonnasen & Hung, 2008), students who can learn on their own are:

- 1) independent in learning, which means that they can analyze, plan, carry out, and evaluate their own learning activities on their own;
- 2) self-managing, which means that they can figure out what they need during the learning process, set their own learning goals, manage their own time and effort to learn, and organise feedback for their work; and
- 3) self-motivated, which means that they want to learn. Independent learners are highly motivated to learn because they want to know more; and
- 4) problem solver and get the best learning results. Independent learners use existing learning resources and the right learning strategies to deal with problems that come up during the learning process.

Motivation is the key to learning (Brown, 2003; Haerazi & Irawan, 2020), so it is important to find ways to get learners interested in learning, whether it comes from within or from the outside.

Past Studies on Learning Motivation

The use of motivation theories in education has received a lot of attention in recent years (Credé and Phillips, 2011; Gopalan et al., 2017) and has been applied to a variety of target populations and contexts, including middle school students, vocational training students, and university students (Expósito-López et al., 2021; Li et al., 2016). In learning, motivation is described as an internal condition that awakens, guides, and sustains people's learning activities (Woolfolk, 2019). Learners who are intrinsically driven may always "reach within themselves" to discover a drive and intensity to complete even the most difficult activities without the need for rewards or pressure. Extrinsically motivated behaviours, however, are those that are driven by goals outside of one's own self-interest (Ryan and Deci, 2020).

Generally, students are more likely to stick with a task and perform better academically if they have higher expectations for themselves (expectancy) and find the tasks or activities meaningful or enjoyable (value) (Paris and Okab, 1986; Kaplan and Maehr, 1999). Expectancy-value theory has since concentrated on comprehending and boosting student motivation, particularly in fundamental academic topics (Wigfield and Eccles, 2000; Liem and Chua, 2013). Several empirical studies show how the expectancy-value theory can be used to better

understand how students behave and perform in important academic topics throughout their studies. Expectancy-value theory was used by Schnettler et al (2020) to investigate the connection between motivation and dropout intention. Findings from the study of 326 undergraduate law and maths students revealed that high dropout intention was significantly correlated with low intrinsic and achievement value. Joo et al (2015) revealed that the expectancy component and value component had statistically significant direct effects on academic achievement among 963 college students participating in a computer application course. This approach has recently been used in experiential learning contexts like civic education (Liem and Chua, 2013; Li et al., 2016). The findings indicated that more expectation and value beliefs could improve students' appreciation of and participation in civic activities, which would then encourage the development of certain civic virtues. This implies that if expectancy-value theory is applied to service-learning, it would be expected that students would be more motivated to participate in the project and thus achieve higher learning outcomes if they believe they can complete the service project (expectancy component) or find the project meaningful (value component). Hence, it is evident that learning motivation clearly plays a significant impact in students' learning.

Past Studies on Self-Regulated Learning

Self-regulated learning has emerged as an important new construct in education. Recent research on self-regulated learning mainly focussed on the motivational and cognitive aspects in a classroom learning.

One particular study is on self-regulated learning of vocabulary in English as a foreign language. The study by Choi et al (2018) studied the relationship between learning strategies used by 230 Korean high school students studying English as a Foreign Language (EFL) and motivational factors (extrinsic and intrinsic incentives). Through the mediation of vocabulary acquisition procedures, motivation had a significantly favourable indirect effect on EFL vocabulary knowledge, according to structural equation modelling (SEM) analysis. The correlation between intrinsic and extrinsic motivations was positive, and both were linked to effective vocabulary learning techniques and vocabulary knowledge. Separate SEM analyses also revealed a trend that was similar to an indirect influence of these two motivational kinds on vocabulary knowledge through the employment of learning procedures. Discussion of the findings takes into account the significance of both intrinsic and extrinsic motives in high school students' acquisition of English in the context of foreign languages in Korea.

Another study was done by Wang et al (2012) where two questionnaires about self-regulated learning (SRL) strategies and self-efficacy beliefs in learning English as a foreign language were filled out by Chinese college students majoring in medicine as part of this study. Additionally, information was gathered regarding the participants' performance on one oral English test and two written English exams. The usage of SRL methods, self-efficacy beliefs, and achievement in learning English were found to be statistically significant associations. However, participants' judgments of their own self-efficacy and utilisation of SRL methods were not particularly high. In written English exams, students who read articles before reading the questions performed better than their peers.

Conceptual Framework

The framework for this study is rooted from Zimmerman's (2000) SRL model. The model states that self-regulated learning (SRL) is organised in three phases, and they are (1) Forethought, (2) Performance and (3) Self-Reflection. Zimmerman's (2000) model is then used to scaffold

the influence of motivation by Pintrich & De Groot (1990) to reveal the conceptual framework shown in figure 1.

In the forethought phase, the learner analyzes the task. The learner also sets goals, plans how to reach them and a number of motivational beliefs energies. According to Rahmat (2022), motivation is crucial for learning as it allows learners to use pre-existing experiences to make connections with the new knowledge. This behaviour then influences the activation of learning strategies. In the context of this study, forethought is measured by (i) self-efficacy and (ii) intrinsic value. The next phase, performance phase, is the actual learning phase. This is the stage where the learner manages his/her own learning. In the context of the study, this phase is measured by (i) test anxiety and (ii) cognitive use. The last phase, the self-reflection phase, the learner assesses how he/she has performed the task and how far he/she has achieved in the learning. In the context of this study, this is measured by (i) perception of self-regulation.

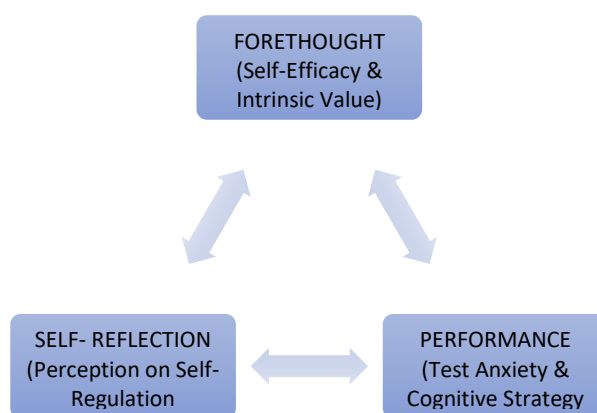


Figure 1- Conceptual Framework of the Study-
The Influence of Motivation on Self-Regulated Learning

Methodology

This quantitative study is done to explore motivation factors for learning among undergraduates. A purposive sample of 122 participants responded to the survey. The instrument used is a 5 Likert-scale survey and is rooted from Zimmerman (2000) to merge with Pintrich & De Groot's (1990) motivational construct to reveal the variables in table 1 below. The survey has 4 sections. Part One has items on demographic profiles. Part two has 18 items on forethought. Part three has 17 items on performance while part four has 9 items on self-reflection.

Table 1

Distribution of Items in the Survey

PART	SELF-REGULATED LEARNING (Zimmerman, 2000).		MOTIVATIONAL SCALE (Pintrich & De Groot,1990)	No of Items	TOTAL
TWO	FORETHOUGHT	A	SELF-EFFICACY	9	18
		B	INTRINSIC VALUE	8	
THREE	PERFORMANCE	C	TEST ANXIETY	4	17
		D	COGNITIVE STRATEGY USE	13	
FOUR	SELF-REFLECTION	E	PERCEPTION ON SELF-REGULATION	9	9
					44

Table 2

Reliability of Survey

Scale	Cronbach's Alpha	N of Items
Forethought	.949	18
Performance	.882	17
Self - Reflection	.776	9

Table 2 shows the reliability of the survey. The analysis shows a Cronbach alpha of .949, .882 and .776 > 0.7 for forethought, performance and self-reflection respectively, thus revealing a good reliability of the instrument used. Further analysis using SPSS is done to present findings to answer the research questions for this study.

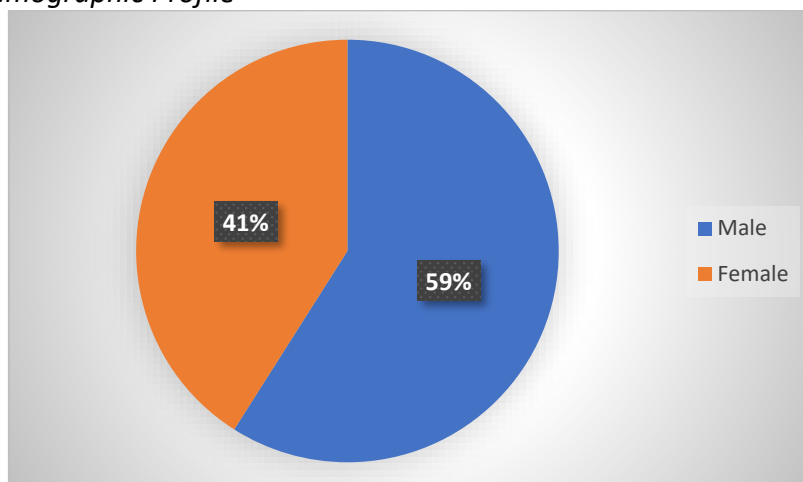
Findings*Findings for Demographic Profile*

Figure 2- Percentage for Gender

According to the data provided (Figure 2), the population in this study has a gender distribution that is skewed towards males, with males representing 59% of the population and females representing 41%.

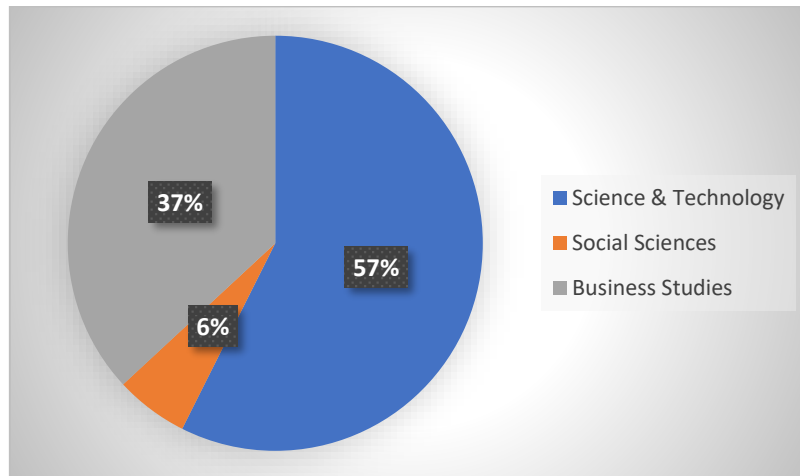


Figure 3- Percentage for Discipline

Figure 3 shows the distribution of academic discipline among the respondents. As seen in the figure, the majority of the respondents were from Science and Technology disciplines with 57%. This is followed by Business Studies with 37% and the least was from Social Sciences with only 6%.

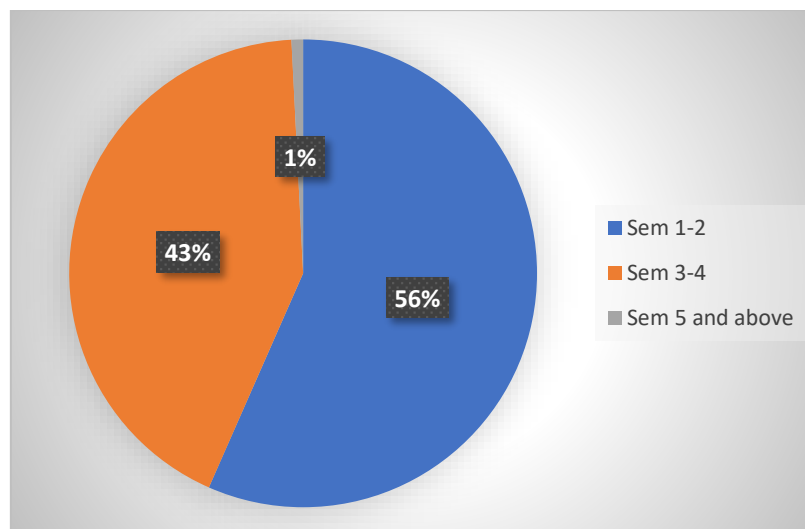


Figure 4- Percentage for Semester

As seen in Figure 4, the majority of respondents are in semester 1 and 2, with 56% falling into this category. Meanwhile, 43% of respondents are in semester 3 and four of study. It's worth noting that a very small percentage of respondents (only 1%) are in semester 5 and above.

Findings for Forethought

This section presents findings to answer research question 1- How does forethought influence learners' motivation? In the context of this study, forethought is measured by motivational beliefs such as (i) self-efficacy, and (ii) intrinsic value.

Motivational Beliefs (22 items)

(i) SELF-EFFICACY

Table 3

Mean for Self-Efficacy

No.	Statement	Mean
1	Compared with other students in this class, I expect to do well.	3.46
2	I'm certain I can understand the ideas taught in this course.	3.85
3	I expect to do very well in this class.	3.87
4	Compared with others in this class, I think I'm a good student.	3.30
5	I am sure I can do an excellent job on the problems and tasks assigned for this class.	3.54
6	I think I will receive a good grade in this class.	3.60
7	My study skills are excellent compared with others in this class.	3.20
8	Compared with other students in this class, I think I know a great deal about the subject.	3.34
9	I know that I will be able to learn the material for this class.	3.82
	Mean Value for Self-Efficacy	3.55

Table 3 shows the mean for self-efficacy among the respondents. It can be derived that the highest mean for self-efficacy is for item 3; 'I expect to do very well in this class (M=3.87). This is followed by the second highest mean for item 2 where the respondents are certain that they can understand the ideas taught in the course. (M=3.85). However, the lowest mean score is 3.20 for item 7; 'my study skills are excellent compared with others in this class'.

(ii) Intrinsic Value

Table 4

Mean for Intrinsic Value

No.	Statement	Mean
1	I prefer class work that is challenging so I can learn new things.	3.64
2	It is important for me to learn what is being taught in this class.	4.10
3	I like what I am learning in this class.	4.04
4	I think I will be able to use what I learn in this class in other classes.	3.80
5	I often choose paper topics I will learn something from even if they require more work.	3.52
6	Even when I do poorly on a test, I try to learn from my mistakes.	4.13
7	I think that what I am learning in this class is useful for me to know.	4.11
8	I think that what we are learning in this class is interesting.	4.00
9	Understanding this subject is important to me.	4.23
	Mean Value for Intrinsic Value	4.00

Table 4 presents the mean score for 9 items for Intrinsic Value. It shows that the respondents value the importance of understanding the subject as it represents the highest mean score. (M=4.23). Meanwhile, the lowest mean score is for item 5 (M=3.52) where the respondents prefer to choose a topic that they want to learn even though it requires more work.

Findings for Performance

This section presents findings to answer research question 2- How does performance influence learners' motivation? In the context of this study, performance is measured by (i) test anxiety, and (ii) cognitive strategy use.

(i) TEST ANXIETY

Table 5

Mean for Test Anxiety

No.	Statement	Mean
1	I am so nervous during a test that I cannot remember facts I have learned.	3.10
2	I have an uneasy, upset feeling when I take a test.	3.0
3	I worry a great deal about tests.	3.24
4	When I take a test, I think about how poorly I am doing.	3.26
	Mean Value for Test Anxiety	3.14

The data presented in Table 5 represents the mean value for test anxiety as well as scores on four specific items from a test anxiety construct. The mean value for test anxiety is 3.14, indicating that, on average, respondents experienced some level of anxiety or nervousness when taking tests. Taking a closer look at each individual item, it appears that the highest score was on Item 4, with a score of 3.26, indicating that respondents tended to worry a great deal about tests. The next highest score was on Item 3, with a score of 3.24, indicating that respondents tended to think about how poorly they were doing while taking a test. The third highest score was on Item 1, with a score of 3.10, indicating that respondents reported feeling nervous to the point of not being able to remember facts they had learned while taking a test. The lowest score was on Item 2, with a score of 3.0, indicating that respondents reported experiencing an uneasy, upset feeling while taking a test.

Part Three- Self-Regulated Learning Strategies

(ii) Cognitive Strategy Use

Table 6

Mean for Cognitive Strategy

No.	Statement	Mean
1	When I study for a test, I try to put together the information from class and from the book.	3.88
2	When I do homework, I try to remember what the teacher said in class so I can answer the questions correctly.	4.02
3	It is hard for me to decide what the main ideas are in what I read.	3.18
4	When I study, I put important ideas into my own words.	3.84
5	I always try to understand what the teacher is saying even if it doesn't make sense.	3.61
6	When I study for a test, I try to remember as many facts as I can.	4.0
7	When studying, I copy my notes over to help me remember material.	3.83
8	When I study for a test, I practice saying the important facts over and over to myself.	3.80
9	I use what I have learned from old homework assignments and the textbook to do new assignments.	3.82
10	When I am studying a topic, I try to make everything fit together.	3.86
11	When I read material for this class, I say the words over and over to myself to help me remember.	3.84
12	I outline the chapters in my book to help me study.	3.69
13	When reading, I try to connect the things I am reading about with what I already know.	3.85
	Mean Value for Cognitive Strategy	3.78

Table 6 showed the results of the analysis of 13 items for cognitive strategy domain. Generally, the mean value for cognitive strategy is 3.78 and this indicates that the respondents applied cognitive learning strategies to enhance their learning. Item 2 received the highest ratings from the respondents (M=4.02), stating their acceptance of the notion that their schemata assist them in completing their homework. Item 6 came in second with a mean score of (M=4.0), indicating that when taking a test, respondents frequently strive to remember as many facts as they can. The fact that item 1 (M=3.88) placed third in the cognitive strategy domain shows that respondents blend knowledge from their classes and books when studying for exams. Overall, the slight variation in mean scores across all items demonstrates that respondents use all cognitive approach domains during learning.

Findings for Self-Reflection

This section presents findings to answer research question 3- How does self-reflection influence learners' motivation?

(iii) Self-Regulation

Table 7

Mean for Self-Regulation

No.	Statement	Mean
1	I ask myself questions to make sure I know the material I have been studying.	3.67
2	When work is hard, I either give up or study only the easy parts.	3.07
3	I work on practice exercises and answer end of chapter questions even when I don't have to.	3.37
4	Even when study materials are dull and uninteresting, I keep working until I finish.	3.57
5	Before I begin studying, I think about the things I will need to do to learn.	3.66
6	I often find that I have been reading for class but don't know what it is all about.	3.24
7	I find that when the teacher is talking, I think of other things and don't really listen to what is being said.	2.98
8	When I'm reading, I stop once in a while and go over what I have read.	3.43
9	I work hard to get a good grade even when I don't like a class.	3.78
	Mean Value for Self-Regulation	3.42

Table 7 shows the result of analysis on self-regulated learning. The highest mean score is 3.78 in which respondents claimed to work hard to get a good grade even when they don't have a class. As for the lowest mean score (M=2.98), respondents disagreed with the statement that they did not focus and listened to what the teacher was talking about. In contrast, they did pay attention and listen to what the teacher was saying at that time. As for item 1 and 5 which carry the average score of M=3.67 and M=3.66, it is proven that most respondents will prepare themselves before studying so that they will know the types of material that they will be dealing with and prepare themselves beforehand. This is to ensure a better understanding of the learning process for the respondents. To sum up, most respondents demonstrate self-regulated learning as part of their learning and motivational process.

Findings for Relationship across Variables

This section presents findings to answer research question 4- What is the relationship between all variables in self-regulated learning?

To determine if there is a significant association in the mean scores between forethought, performance and self-reflection, data is analysed using SPSS for correlations. Results are presented in Table 10.

Table 8

Correlation between three variables

	FORETHOUGHT	PERFORMANCE	SELF REFLECTION
FORETHOUGHT	1	.621**	.507**
PERFORMANCE	.621**	1	.674**
SELF REFLECTION	.507**	.674**	1

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

Table 8 shows there is an association between forethought, performance and self-reflection. Correlation analysis shows that all three variables correlate positively.

There is a high significant correlation between forethought and performance. ($r=.621^{**}$), and performance and self-reflection ($r= .674^{**}$). A moderate positive correlation can be seen between forethought and self-reflection ($r= .507^{**}$). 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 a strong positive relationship between forethought, performance and self-reflection.

Conclusion

Summary of Findings and Discussions

The present study explores the influence of motivating factors on SRL. There are three phases of SRL investigated in the study, which are Forethought, Performance and Self-Reflection. It also further analyses the relationship between the motivating factors and SRL. From the findings presented above, it can be concluded that motivating factors do influence learners' SRL. In response to the first research question, having a positive forethought is crucial to motivate learners to do self-learning. When they have a positive expectation towards their learning, it can encourage them to do or perform better in the class. This is supported by Wardani et al (2020) as students will have a higher chance of success when they are inclined to learn.

Looking at the Performance phase, it is common to find that students tend to experience anxiety when dealing with tests or assessments since they are at the state of being evaluated. In this study, the students did not experience a high level of anxiety as they have a positive mindset towards learning, which motivates them to perform in class. This is consistent with the findings from Adesola and Li (2018) who revealed that students who were not self-regulated learners tend to experience test anxiety. The current study also showed that the respondents used a variety of cognitive strategies, such as memorization and making connections between input from teachers in class and from learning materials, to assist them in learning. This is in accordance with the effective learning strategies adopted by the high performing students in Foong et al (2021), in which they used associations and meaning making in studying the medical content.

In the Self-Reflection phase, the learners were willing to work hard to achieve a good result even though they did not like the class. This shows that they did not give up easily even though they had to learn about something they were not really interested in. It is also important to note that the learners in this study prepared before and after they studied. This was evident when they planned what they needed to do before studying, and after they had done studying, they asked themselves questions to validate their understanding of the materials learnt. Similarly, Foong et al (2021) found that their respondents also were adaptive to effective learning strategies which worked for them. They also reflected frequently based on their achievement and made necessary changes to suit their learning goals.

A further correlation analysis indicated that there was a correlation between all three variables in the study. A high significant correlation was found between forethought and performance, and performance and self-reflection; meanwhile, a moderate positive correlation was observed between forethought and self-reflection. Mustopa et al (2020) also found a relationship between SRL and learning motivation and metacognitive skills. The findings imply that students who have positive beliefs and are intrinsically motivated tend to

perform better in learning. They also practice reflections based on the achievement gained and adopt effective strategies in order to achieve their goals. If they can adopt these as a cycle, it is most likely that they will become autonomous learners.

Pedagogical Implications and Suggestions for Future Research

The findings from this study have led to interesting implications for educators and learners in facilitating the teaching and learning process. Based on the findings presented, moderate or high level of motivation is essential to encourage learners to perform better in their learning. As educators, they can ease the learning process for learners by understanding the factors that can motivate learners to be self-regulated learners. When the factors are identified, necessary guidance and support can be provided to learners as needed. The support may be provided in terms of improvisation of teaching methodology according to the needs of learners, teaching materials, feedback and training if necessary. All of these will contribute to a positive and encouraging environment for learners to be independent of their own learning. Besides, it will be advantageous for learners too when they are aware of their motivating factors in learning. Factors and strategies that are useful to them in learning should be further emphasized to scaffold their potential in independent learning. With the right mindset and proper planning, learners have a high potential to succeed and achieve better results.

There are several recommendations to be made for future researchers to consider. Even though the sample size is considered sufficient, the findings of this research cannot be generalized to all undergraduate learners because the sample chosen were from one public university only. Hence, future research should include samples from various universities to gain more comprehensive findings that can be generalized to the whole population. In addition, the current study only employs a survey questionnaire to gather the data from the respondents. This method of data collection may be able to collect a limited data of responses. Therefore, further research should consider utilizing qualitative methods such as interviews or journal entries to elicit extensive and multi-dimensional data from the respondents. This could provide further insights into how motivation affects self-regulated learning.

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