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STUDY ON ACADEMIC PERFORMANCE AND LEARNING STRATEGIES OF TERTIARY LEVEL STUDENTS

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Abstract

Considering the interaction between the strategies of learning and academic performance is vital in teaching and learning environment. The purpose of the present study is to investigate whether there is a statistically significant correlation between students' learning strategies and their academic performance in learning business and accounting courses. The Learning Strategies Scale was adapted from the Motivated Strategies for Learning Questionnaire (MSLQ). This instrument includes 31 items concerning students' use of different cognitive and metacognitive strategies and 19 items regarding student management of different resources. Students' academic performance was measured by their Cumulative Grade Point Average (CGPA). A total of 312 business and accounting undergraduate students participated in this study. Based on the correlational analysis, the results showed that effort regulation was positively correlated to their academic performance. Nevertheless, there was no relationship between other subscales of the learning strategies and students' academic performance. This study offers insights on the relationship between learning strategies and academic performance which could assist to develop instructional strategies in enhancing students learning skills.

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Keywords: Learning strategies, cognitive strategies, metacognitive strategies, resource management, academic performance.

1. Introduction

Learning strategies are one of the essential elements to be successful in higher education institutions. Nevertheless, not all educators and students are aware of the importance of understanding learning strategy. In improving the academic achievements, the main priority is to comprehend the educational complications (Khan & Rasheed, 2019). Educator especially in the tertiary education have to be very responsive of their teaching approaches in imparting information and knowledge towards the students as the learning process will determine the students' academic performance. Hence, in helping the students to unleash their potential and progress holistically, teaching philosophies need to be concentrated in producing students learning outcome (Hanin et al., 2013). Based on this foundation, educators would be able to identify the students learning strategy so they can facilitate academic weaknesses and suggest better strategy and approach to suit the students learning ability. Workable learning strategies could help the students to cope and adapt to their learning requirement in higher education institutions. Besides, students are to be responsible in their own learning so they can unleash their full potential and consequently performed better in their education. Applying appropriate strategy in their learning experience will reward the students with better performance academically.)

2. Problem Statement

As different individual has different characteristics and preferences in studying, so do their learning strategies. There is little evidence on the relationship between learning strategies and academic achievement among students in tertiary education in Malaysia. Hence, the focus of this study is to explore learning strategies among undergraduate students in business management and accounting programs and how the learning strategies are correlated to academic performance. Identifying various types of learning strategy with regard to its relationship to academic performance is important as an effort to further understand how cognitive and metacognitive components are related to academic performance. Besides, Malaysian students have been identified to be lack in certain skills such as English communication, professional and technical skills (MOHE, 2012). This issue could possibly due to the deficiency of understanding learning strategy and approach to enhance teaching and learning in education institutions. The study strategy's formulation has made the learning more meaningful is part of vital phase in education development of any learners (Khan & Rasheed, 2019). Therefore, this study is not only crucial for integrating the existing theories of individual differences but also as a fundamental for shedding light on understanding the learners' differences of learning at tertiary level. Both educators and learners play an important role to identify the differences of learning strategies to improve academic achievement.

3. Literature Review

3.1. Learning strategies and academic performance

According to Zimmerman (1989), self-regulated learning process is part of strategies that can be educated to students so that students would be able to apply it in the real world condition. As indicated in the 'Blueprint on Enculturation of Life-Long Learning for Malaysia 2011-2020', to support the students

self-regulated learning, knowledge need to be transferred with flexibility towards learners with technological learning resources. In preparing towards high income level citizen and becoming the developed nation by 2020, the Government of Malaysia has emphasized that Malaysia education system should be constructed of two main elements which are creativity and innovation (MOHE, 2011). Therefore, at university level, designing innovative teaching approach to suit learning strategies need to be geared towards the new generation of students. Understanding the necessity of this transformation will encourage educators to put more effort to modify their teaching approaches. Acknowledging the link between teaching approaches and student learning styles, can result in the orientation of innovative teaching methods to cater students' needs (Mohamad Jafre et al., 2011). Consequently, this could foster better interaction and participation in the learning process and better performance among students.

Malaysia has put tremendous effort to enhance academic achievement among students. Academic achievement could determine a better individual success journey in working life. According to Richardson et al. (2012), academic achievement or performance is defined as a representation of numerical grade or point average from accomplishing a certain standard of results from grading of academic assessments (i.e assignments, examinations, subject, or degree). In Malaysia, final grades are commonly used to determine students' performance and achievements. The grades are being defined based on activities evaluated from extracurricular activities, assessments and final examination or any relevant assessments (Usamah et al., 2013). This process of evaluation is vital to continue monitoring the progress of students and to evaluate the value of learning. By having to look into the grades achieved by the students, educators can determine the strategy that works best with the students as their performance is part of any success indicator.

Academic performance can be influenced by many factors. According to Zimmerman and Kitsantas (2005), academic performance is highly linked with higher self-confidence. Self-confidence could boost the student's spirit to demonstrate better responsibility in completing any given task successfully. Hence, students' attitude towards their academic is vital as it could lead to greater performance.

Previous studies have contended that some strategies might be useful to enhance greater academic performance. For example, help seeking (a student seeks for assistance and guidance from educators) and peer learning strategies (a student seeks for assistance from peers), are also part of attaining soaring academic achievement (Akcaoglu, 2016). In contrary, different results were found in previous studies for the role of peer learning and help seeking. Peer learning and help seeking were seen to be not significantly correlated towards academic performance (Radovan, 2011). Similarly, Al-Alwan (2008) discovered that there is no significant difference of peer learning and help seeking among high and low performers of undergraduates' students in Al- Hussein Bin Talal University in Jordan.

There may be a number of learning strategies that could facilitate students' performance. In a recent study, Ulstad et al. (2016) examined the role of motivation and learning strategies in mediating student participation and performance. In the context of physical education classes at secondary schools in Norway, the findings revealed that students who applied certain learning strategies such as effort regulation, absorption, peer learning and help seeking in physical education classes participate more and show better performance. This study recommended that students need to apply these strategies in a condition whereby the activities were uninteresting. In a condition where students are unable to solve problems they faced, peer learning and help seeking are really needed to support students in their learning.

Another recent study was carried out by Akcaoglu (2016) to explore the connection between learning strategies and self-efficacy among teacher candidates in an education faculty in Turkey. Using the Motivated Strategies for Learning Questionnaire (MSLQ), the study found that learning strategies (i.e rehearsal, organization, metacognitive self-regulation, time/study environmental, peer learning and help seeking) were significantly correlated to self-efficacy. According to the author, the results could be directed by the nature of the examination specification particularly the multiple choice questions. The multiple choice items require the teacher candidates to recap and memorize the information learnt and this has promoted the use of rehearsal and organization strategies in their learning.

Studies indicate that there is a relationship between learning strategies and academic performance. A 10 years meta-analysis study (between 2004 until December 2014) was conducted by Broadbent and Poon (2015) in determining the correlation between self-regulated learning strategies and academic achievement. This study was carried out in a tertiary education environment to identify which learning strategies are adopted by students within the online setting in reaching academic accomplishments. The findings revealed that four of the learning strategies (effort regulation, time management, metacognitive and critical thinking) have a significant relationship with academic performance. Meanwhile, the remaining four subscales including rehearsal, elaboration and organization had the least correlation and peer learning had moderate positive effect with academic performance. Similarly, in the context of nursing undergraduate students, Rodríguez et al. (2016) found that the relationship between meta-cognitive strategies and academic achievement was positively significant. The strength of the relationship, however, is low. In other facet of study, Hamid and Singaram (2016) noted in their research that three learning strategies subscales (learning strategy component, critical thinking and time and study environment) were significantly poorly correlated to academic performance of medical students. In the same vein, in a study among English as Foreign Language (EFL) learners in Iran, Varasteh et al. (2016) concluded that cognitive and metacognitive strategies have positive relationship with language achievement. The empirical evidence provides by these studies imply that learning strategies have a significant relationship with academic performance for students at various levels. As such, it is crucial to investigate learning strategies in different context of learning so that it could heighten students' awareness and productivity in learning and assist students to become an independent life-long learner in the future.

3.2. Learning Strategies Subscales

The Motivated Strategies for Learning Questionnaire (MSLQ) was developed by Pintrich et al. (1991). The MSLQ is divided into two different categories; i) cognitive and metacognitive strategies, and ii) resource management strategy. Cognitive strategy is related to how students manipulate their cognitive abilities during learning process. For example, manipulating information by creating mental images and connecting new information with previously learnt information. Cognitive strategy can also be performed via physical acts such as grouping items accordingly. On the other hand, metacognitive strategy resolves around setting up for regulate learning and observing a student's understanding. Metacognitive strategy also includes making evaluation of student's achievable learning objective for example summarizing information that need to be stored for memorization purpose.

There are five subscales of the cognitive and metacognitive strategies namely rehearsal, elaboration, organization, critical thinking and metacognitive self-regulation. Rehearsal strategy involves students to recognize and naming items from set of list that need to be learned while elaboration strategy describes the extent a student is able to generate analogies, summarizing information and generate create own note-taking activity. This strategy will also enable students to incorporate and integrate old information or knowledge with a current one. Organization strategy assists students to choose suitable information and build link to information and knowledge to be learned. For example, deciding or outlining the main idea while doing a reading exercise. Critical thinking strategy relates the students to apply knowledge that they already possessed to a new condition so that they are able to articulate it when solving problems and later on making decision. Finally, metacognitive self-regulation refers to the consciousness and the managing of cognition upon task completion.

The second strategy, resource management includes four subscales namely time/study environmental management, effort regulation, peer learning and help seeking. Resource management requires students to recognize available learning resources such as searching for peers' involvement in acquiring knowledge, information and skills. Time/study environmental management engages with managing schedule in completing task while study environment management refers to the place where the student chooses to study. Effort regulation strategy refers to how the students are able to face distraction and maintain their attention when they have to face boring assignments. Peer learning refers to having connection to work together with peers. For example, sharing materials and have brainstorming and sharing session comfortably with friends. Finally, help seeking is related to how students are able to identify any person to offer and supply them with additional assistance on task or assignment. The identified person will be able to guide the students to achieve success through extra tutoring, individual consultation and peer help.

4. Research Questions

The main question of this study wants to address undergraduate students' learning strategies and its relationship with academic performance.

5. Purpose of the Study

The current study is aimed to examine undergraduate students' learning strategies and its relationship with academic performance. The results of this study could be effective in terms of its contribution to trigger awareness among educators and students particularly at tertiary institutions in relation to learning strategies.

6. Research Methods

6.1. Design and procedure

This research applies a quantitative design where correlational analysis is used to examine the relationship between learning strategies subscales and academic achievement. The data is collected by

means of survey to gauge students' learning strategies and academic performance. Participants in the present study were undergraduate students in business management and accountancy field. All students participated in this study were based upon voluntary participation. They were well-informed that the participation in this study was voluntary and it was their right to withdraw from the study at any time. Written consent was obtained from the students before they embarked in this study.

6.2. Instruments

This study adopts the learning strategies subscales from the Motivated Strategies for Learning Questionnaire (MSLQ) which was developed by Pintrich et al. (1991). A seven-point scale ranging from strongly disagree (1) to strongly agree (7) was used for the evaluation. Apart from the questionnaire, the participants' demographic information was also collected including the participant Cumulative Grade Point Average (CGPA). The learning strategies subscales consist of fifty items which identified students' use of different cognitive and metacognitive strategies (31 items) and student management of different resources (19 items). The reliability coefficient (alpha) for this learning strategies scale was 0.84.

6.3. Participants

The sample of the study composed of 312 students who were accessible during the data collection procedure. The information on the participants' characteristics is shown in Table 1.

Table 01. Participants' characteristics

Items		Frequency (%) (n=312)	(%)
Gender	Male	93	29.8
	Female	219	70.2
Programs	Bachelor of Accounting	2	0.6
	Bachelor of Finance	32	10.3
	Bachelor of Business Administration in Human Resources Management	84	26.9
	Bachelor of Business Administration in Marketing	22	7.1
	Bachelor of International Business	28	9.0
	Diploma in Business Studies	114	36.5
	Diploma in Finance	30	9.6
CGPA	Distinction (3.5 and above)	62	19.9
	Good (2.50-3.49)	156	50.0
	Pass (2.00-2.49)	6	1.9
	None	88	28.2

As presented in Table 1, it shows that the study consists of 93 (29.8%) male respondents and 219 (70.2%) female respondents. Out of 312 respondents only 2 (0.6%) are taking Bachelor of Accounting program, 32 (10.3%) are from Bachelor of Finance program, 84 (26.9%) are from Bachelor of Business Administration in Human Resources Management program, 22 (7.1%) are from Bachelor of Business Administration in Marketing program, 28 (9.0%) are from Bachelor of International Business program, 114 (36.5%) are from Diploma in Business Studies program, and 30 (9.6%) are from Diploma in Finance

program. Besides, from 312 respondents, 62 (19.9%) have achieved a CGPA of 3.5 and above, 156 (50.0%) with 2.50-3.49 CGPA, 6 (1.9%) with 2.0-2.49 CGPA and 88 (28.2%) were recorded as no CGPA as they are in their first semester of study.

6.4. Data analysis

During the data analysis procedures, the data was coded using Statistical Package for Social Sciences (SPSS) version 22. First, descriptive statistics was conducted. A normality test using Shapiro-Wilk was carried out to check whether the assumption of normality for the data is fulfilled. The test showed that the data is normally distributed. Next, a correlational analysis was done to find out whether there is any significant relationship between learning strategies and academic performance. This study applied the Pearson product-moment correlation (Pearson r) to indicate both the direction and the strength of the relationship between variables.

7. Findings

The mean (M) and standard deviations (sd) for all items in the nine learning strategies subscales are presented in Table 2.

Table 02. Mean and standard deviation of learning strategies

Learning strategies	Mean	Standard deviation
Rehearsal	5.2756	0.91089
Practice saying the material to myself over and over	4.9551	1.37194
I read my class notes and the course readings over and over again	5.2949	1.32848
Memorize key words to remind me of important concepts in this class	5.5705	1.26345
Make lists of important items for this course and memorize the lists	5.2821	1.31670
Elaboration	5.0278	1.06276
Pull together information from different sources, such as lectures	4.8141	1.25677
Relate ideas in this subject to those in other courses whenever possible	4.9167	3.16219
Try to relate the material to what I already know	5.1667	1.22058
Write brief summaries of the main ideas from the readings and note	4.7885	1.41653
Making connections between the readings and the concepts	5.2821	1.17199
Apply ideas from course readings in other class activities	5.1987	1.43641
Organization	5.0705	1.00313
Outline the material to help me organize my thoughts	5.3205	1.25258
Go through the notes and find the most important ideas	5.2628	1.26345
Make simple charts, diagrams, or tables to organize course material	4.5577	1.77963
I go over my class notes and make an outline of important concepts	5.1410	1.22382
Critical Thinking	4.8167	0.88951
Often find myself questioning things I hear or read	4.5192	1.28043
Try to decide if there is good supporting evidence	4.9487	1.24128
Treat as a starting point and try to develop my own ideas	4.7244	1.33984
Play around with ideas of my own related to what I am learning	4.9167	1.29783
Think about possible alternatives	4.9744	1.17831

Metacognitive Self-Regulation	4.8910	0.99456
Missed important points because I'm thinking of other things	3.6731	1.68658
Make up questions to help focus my reading	4.8013	1.44978
When confused, I breathing for this class, go back and try to figure it out	5.0321	1.27009
change the way I read the material	5.1987	1.21311
Often skim it to see how it is organized	4.6090	1.43262
I ask myself questions to make sure I understand the material	4.8846	1.42084
I try to change the way I study	5.0705	1.29859
Often find that I have been reading	3.5962	1.69652
Try to think through a topic	4.9615	1.32201
Try to determine which concepts I don't understand well	5.2756	1.30087
Set goals for myself	5.0128	1.34660
If I get confused, I make sure I sort it out afterwards	5.0192	1.29044
Time/ Study Environment Management	4.7612	0.73844
Study in a place where I can concentrate on my course work	5.5000	1.25008
Make good use of my study time for this course	5.1218	1.24411
I find it hard to stick to a study schedule	3.3974	1.58644
I have a regular place set aside for studying	4.9423	1.37146
Make sure that I keep up with the weekly readings	4.9679	1.28017
I attend this class regularly	5.6923	1.27108
I don't spend very much time on this course because of other activities	4.4744	1.40942
I rarely find time to review my notes or readings before an examination	3.3782	1.67195
Effort Regulation	4.6843	0.57400
I often feel so lazy or bored when I study	4.6795	1.67826
I work hard to do well in this class	5.0000	1.50455
I either give up or only study the easy parts	4.1667	1.77816
I manage to keep working until I finish	5.3269	1.19033
Peer Learning	4.7933	0.87119
Often try to explain the material to a classmate or friend	4.7372	1.33280
Try to work with other students to complete the assignments	5.4231	1.28828
Often set aside time to discuss course with a group of students	4.5128	1.55287
Help Seeking	4.7885	0.76874
Try to do the work on my own without help from anyone	3.7051	1.56414
I ask the instructor to clarify concepts I don't understand well	4.9103	1.42270
I ask another student in this class for help	5.3974	1.27645
Identify students in this class whom I can ask for help if necessary	5.1410	1.31011

A descriptive analysis was performed to identify the means and standard deviation of the nine subscales of learning strategies as presented in Table 2. To recapitulate, the views regarding the subscales were rated on a Likert scale ranging from “strongly disagree” (1) to “strongly agree” (7). Based on the descriptive statistic, the highest mean score ($M=5.2756$) was for rehearsal strategy. The findings also show that the item with the highest mean for rehearsal is “memorize key words to remind me of important concepts in this class” ($M=5.5705$, $sd=1.2634$) while the lowest mean is “practice saying the material to myself over and over” ($M=4.9551$, $sd=1.37194$).

The second highest occurrence of learning strategy ($M=5.0705$) was organization strategy. The result also indicated that “outline the material to help me organize my thoughts” ($M=5.3205$, $sd=1.25258$),

is the highest score of the subscale while “make simple charts, diagrams, or tables to organize course material” (M=4.5577, sd=1.77963) is recorded as the lowest score of organization learning strategy. In contrary, time/ study environment management strategy has the second lowest mean score (M=4.7612). The item with the highest score for time/ study environment management learning strategy is “study in a place where I can concentrate on my course work” (M=5.5000, sd=1.25008) while “I rarely find time to review my notes or readings before an exam” (M=3.3782, sd=1.67195) has the lowest score.

Finally, the lowest mean score of the subscales (M=4.6843) was effort regulation strategy. The highest mean for effort regulation strategy is “I manage to keep working until I finish” (M=5.3269, sd=1.19033) while “I either give up or only study the easy parts” (M=4.1667, sd=1.77816) has the lowest mean. Table 3 summarizes the correlation between the nine subscales of learning strategies and academic performance.

Table 03. Correlation between Learning Strategies and Academic Performance

Learning Strategies Subscale	Academic Performance
Rehearsal	.099
Elaboration	-.098
Organization	-.013
Critical Thinking	-.030
Peer Learning	-.102
Metacognitive Self-Regulation	.045
Time/ Study Environment Management	.088
Effort Regulation	.127*
Help Seeking	.004

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

* . Correlation is significant at the 0.05 level (2-tailed).

Table 3 presents the correlation between students’ learning strategies and academic performance. Based on the findings there was a positive correlation between effort regulation learning strategy and academic performance, $r = 0.127$, $N=312$, $p=0.005$. A low strength of association was noted between the variables. Nevertheless, there was no correlation between academic performance and other learning strategies. Effort regulation strategy is one of the subscales under resource management strategy. Among the strategies in effort regulation is being persistence in the face of difficult or boring tasks, handling challenging activities or tasks, and the capacity and ability to remain persevere when confronted with academic challenges.

Mixed results were found in previous studies with regard to effort regulation strategy. Effort regulation is one of the strategies that correlated with academic performance as noted by Broadbent and Poon (2015). This study found that four learning strategies have significant relationship with academic performance namely effort regulation, time management, metacognition and critical thinking. In the same vein, other studies have also found positive relationship between effort learning and academic performance (i.e., Carson, 2011; Cho & Shen, 2013; Puziferro, 2008). On the contrary, Chan Lin (2012) in her study found that the relationship between effort regulation and academic performance is not significant.

Furthermore, the current study discloses that although effort regulation strategy is the only learning strategy associated with academic performance, effort regulation is also the learning strategy with the

lowest mean (M=4.7612). In addition to that, further descriptive analysis of the students leaning strategy subscales shows that “I manage to keep working until I finish” (M=5.3269) has the highest score of mean followed by “I work hard to do well in this class” (M=5.000) as the second highest score. This is followed by “I often feel so lazy or bored when I study” (M=4.6795) and “I either give up or only study the easy parts” (M=4.1667) as lowest and second lowest scores of mean.

This finding is also aligned with Kim et al. (2015) who explored the differences between high-achiever and low-achiever students. The study reveals that high-achiever students who could sustain higher level of effort regulation throughout the semester will eventually have higher academic performance. In a systematic review of 59 research papers to identify the role of self-efficacy and performance among university students, Honicke and Broadbent (2016) concluded that effort regulation appears to at least partially facilitates academic performance. Students with a higher effort regulation are more likely to adjust the amount of effort spent on a learning task, hence, will result in higher level of academic performance.

In addition, prior research has found that effort regulation is important in facilitating academic performance (Kassab et al., 2015; Komarraju & Nadler, 2013). These studies have also discussed effort regulation in relation to self-efficacy trait. Students with higher self-efficacy will perform higher academic achievement due to the combination of cognitive and effort regulation strategies. Similarly, Robbins et al. (2006) have proposed effort persistence as one of the predictors of academic performance.

Based on the study conducted, it is noted that the students can perform well in their academic performance although they faced academic encounters. Having perseverance and retaining effort to confront the challenges will not make them fail, but eventually will lead the students to gain benefit in relation to their academic performance. It is possible that students with greater effort regulation strategies perform at a higher level because they can cope more efficiently with academic challenges. This could also due to the ability of the students to remain positive, increase effort, and assemble relevant self-regulating strategies in facing difficult tasks so that they can survive and become successful students.

8. Conclusion

The main objective of this study is to examine the relationship between undergraduate students' learning strategies and academic performance. Findings from this study indicated that there is a significant and positive relationship between effort regulation and academic performance. This finding shows that the respondents tend to apply effort regulation as their learning strategy to obtain the current academic performance. Learners with higher academic performance exhibits more effort regulation strategy in their learning in comparison to the students with lower performance.

This study has several limitations. First, the participants of the study could be considered as bias due to the participants' background that is only from business and accounting programs. This is because students in different fields of study might have different learning strategy. Furthermore, the relatively small number of students participated in this study. Even though random assignment would have been best, it was not a viable option. Nonetheless, further research should be conducted whereby larger number of students involving other institutions is studied.

Second, as this study only serves to examine the association between learning strategies and academic performance, further research that consider other individual differences such as learner

motivation, self-efficacy and other individual traits could be conducted. Longitudinal study could be carried out in investigating how and in what way these individual difference traits inhibit or exhibit the learning process.

From these findings, a more dynamic picture of how learning strategies could be geared among undergraduate students is possible. The results suggest that academic performance could be boosted by applying effort regulation strategy in learning. Being able to improve academic performance would be beneficial for educators and students at various levels.

Moreover, to maintain the student's academic performance, everyone in the organization needs to give full commitment and supports to ensure the goal can be achieved. Therefore, to assist students to understand and apply relevant learning strategies, the institution needs to organize programs such as workshops or seminars so that greater awareness could be enhanced. Furthermore, educators should encourage their students to be more flexible to understand the importance of understanding and applying learning strategies.

The findings offer implications for research on teaching at tertiary institutions. Understanding how students' apply learning strategies during their learning experience provides information of how useful certain learning strategies could be in facilitating teaching and learning process. Using these results, instructors can identify students who may be having trouble in learning and provide additional study skills assistance. The empirical evidence provided by this study could also offer future direction particularly to university students for creating potentially effective support and relevant approaches in accommodating strategies they apply in learning to improve the quality of academic achievement.

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