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The Relationship between Self Efficacy with Higher Order Thinking Skills (HOTS) among Accounting Students

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Abstract

Higher order thinking skills (HOTS) are one of the skills that is emphasized in the 21st century learning environment. Students with high ability in thinking skills will be able to compete and gain a place in the global market. Self-efficacy is one of the elements that can be a catalyst for the achievement of HOTS among students. Therefore, this study was conducted with the main purpose to examine the relationship between students' self-efficacy and HOTS. In addition, this study was also conducted to identify the level of HOTS and self-efficacy among Accounting students. This study uses questionnaires and achievement tests as instruments to collect data. A total of 467 Form Four Accounting students were selected as the study sample using proportional stratified random sampling techniques. The Generalized Self-Efficacy Scale (GSES) instrument is used to measure students' self-efficacy. Meanwhile, the students' HOTS achievement is measured based on the total score obtained in the administered achievement test. Data were analyzed by descriptive and inferential using correlation analysis using IBM SPSS version 23. The findings of the study indicated that there is a significant positive relationship between students' self-efficacy and HOTS. The findings also show that the level of students' self-efficacy and HOTS is at a moderate level. Hence, when the level of self-efficacy of students increases, then the level of HOTS also will increase. The implication, teachers need to give emphasis to increase students' self-efficacy and thus increase HOTS in the teaching and learning process.

Keywords: Self Efficacy, Thinking Skills, Higher Order Thinking, Accounting, Secondary School.

Introduction

Higher order thinking skills (HOTS) are one of the important skills in dealing with the demands and challenges of the 21st century (Ichsan, Sigit & Miarsyah, 2019; Mustika, Nurkamto & Suparno, 2020; Wijers & de Haan, 2020). Students with high ability in thinking skills will be able to compete and gain a place in the global market (Ministry of Education Malaysia, 2014).

In line with global change and the challenges of the 21st century, the emphasis on thinking skills is also a major agenda in the education system in Malaysia as contained in the Malaysian Education Development Plan (PPPM) 2013-2025. In 2017, Malaysia Education Ministry introduced a new curriculum, namely the Primary School Standard Curriculum (KSSR) and the Secondary School Standard Curriculum (KSSM) to replace the previous curriculum. Changes in this curriculum have shown that the elements of HOTS continue to be given more serious emphasis. HOTS is not a separate subject but this element is applied indirectly across the curriculum. Elements of HOTS in the curriculum have been explicitly stated in KSSM. The purpose of this transformation is to further enhance and strengthen thinking skills among students. Students are expected to be able to understand what is being learned in class and apply that knowledge in real situations. To solve everyday problems, cognitive skills are needed and learning that takes place in the classroom should not be memorized and theoretical (Othman, Aris, Mohammed, Zaid & Abdullah, 2014). Therefore, through this new curriculum, students should be able to be trained to use thinking skills that is able to think critically and creatively to solve problems faced and make their own decisions wisely and not depend on others.

In line with the government's intention to enhance the HOTS element among students, the readiness or motivation of students to accept the teaching and learning process in the classroom should also be emphasized. According to Bandura (1997) one of the factors that can influence student achievement, especially in terms of academics is self-efficacy. Self-efficacy refers to a person's ability to learn or perform something at a level set by himself (Bandura, 1997). This ability can affect the thoughts, feelings and behavior of an individual. Motivation and readiness of students in the teaching and learning process can contribute and be a catalyst to student achievement (Hamid, Baharum & Sarkowi, 2019) including the achievement of HOTS. Self-efficacy can affect the motivation and process of self-regulation of students in several ways (Pajares, 1997). Among them is influencing the choices and actions taken. In addition, it will also affect the amount of students effort for an activity, their perseverance or resilience when facing obstacles and difficulties. Therefore, self-efficacy factors need to be given attention to ensure that the government's aspiration achieved.

The issue of students' mastery of HOTS is often debated by scholars at various levels to find solutions to meet what the country intends. However, based on previous studies, it was found that many researchers are studying the level of HOTS among primary, secondary and tertiary students (Peng & Hamad, 2018; Arshad & Yasin, 2015; Mat Norwani, Yusof, Yahya & Ismail, 2019; Ichsan, Sigit, Miarsyah, Ali, Arif & Prayitno, 2019; Saido, Siraj, Nordin & Al_Amedy, 2015). In addition, the challenges and factors in the implementation of HOTS are also studied by past researchers in various subjects (DeBourgh, 2008; Yeung, 2015; Yen & Halili, 2015; Onoska, 2012). However, studies in the subject of Accounting, especially on the level of self-efficacy and HOTS among the secondary students as well as the relationship between these two variables are still lacking. Therefore, this study was conducted with the aim of:

- Identify self-efficacy and HOTS level among Accounting students in Malaysia.
- Identify the relationship between self-efficacy with HOTS among Accounting students in Malaysia.

Purpose of The Study

This study carried out intends to answer the following research questions.

1) What is the level of HOTS among Accounting students in Malaysia?
2) What is the level of self-efficacy among Accounting students in Malaysia?
3) Is there a significant relationship between self-efficacy and HOTS among Accounting students in Malaysia?

Literature Review

Level of Higher Order Thinking Skills (HOTS)

Many studies related to the level of HOTS have been conducted in and outside Malaysia. However, the results of previous studies shown that the level of HOTS among students still needs to be discussed. Peng and Hamad (2018) in his study found the level of HOTS students in Malay Language is located in satisfactory position, where no students truly master HOTS questions. In this regard, Mat Norwani, Yusof, Yahya and Ismail (2019) also conducted a study to indentify the level of HOTS and the achievement of form four students in the subject of Accounting Principles. The findings of the study found that the HOTS level of the majority of the students is at a moderate level, which is 58.88% followed by 55.48% of students have reached a high level and only 27.44% reached a low level. In line with that, the findings of Arshad and Yasin (2015) also found that the level of HOTS of Science students is at a moderate level and is still in the cognitive application domain. The findings of the study also found that overall the achievement of HOTS for female students is better than male students (Arshad & Yasin, 2015). Futhermore, Shukla and Dungsungnoen (2016) in their study also found that the level of HOTS among students in Thailand is still at a moderate level.

Meanwhile, in contrast to the results of a study by Saido, Siraj, Nordin and Al_Amedy (2015) found that the level of HOTS among Science students in Iraqi-Kurdistan is at a low level especially in synthesis and evaluation domains. This study proves that almost all students need to improve HOTS especially the synthesis and assessment skills needed, to increase students' creativity in Science. In this regard, Ichsan, Sigit, Miarsyah, Ali, Arif and Prayitno (2019) in their study in Indonesia also found that overall students from all levels of education have a very low level of HOTS and need to be improved. Various ways need to be done to increase the level of HOTS among students. The development and the use of various learning models, learning methods and strategies, learning and teaching materials, student worksheets and learning media are seen to increase the level of student HOTS (Ichsan, Sigit, Miarsyah, Ali, Arif & Prayitno, 2019).

Self-Efficacy and Its Relation to Student Achievement

Many research related to the level of students self-efficacy as well as their relationship with student performance and achievement are conducted done in Malaysia and abroad. Farrand, Wild and Hilson (2016) have conducted a study to look at the level of self-efficacy of visually impaired students. The results of the study found that the level of self-efficacy of junior students is at a high level. Meanwhile, Dogan (2016) also conducted a study to indentify the level of self-efficacy of first year English Language Teaching Department students at Necmettin University Erbakan Konya Turkey. The findings show that the students self-efficacy level is at a moderate level where the level of self-efficacy of male students is higher than female students. This result is different from the findings of a study by Abtholuddin (2013) who found that the level of self efficacy of female students is higher than male students. The finding of this research found that if the level of self-efficacy of a student is high, then it can also influence in improving learning skills. In line with Bandura's cognitive theory which states

that self-efficacy can be used as a basis for anticipating a student's academic performance (Bandura, 1986).

Likewise, Kitikana and Sasimonton (2017) have also conducted a study to see the extent to which self-efficacy factors can affect English language achievement among students in Thailand. Findings of the study show that students' self-efficacy is at a high level and has a strong positive relationship with students achievement. This shows that self-efficacy factors have a strong influence on the achievement of English as a second language. The findings of this study are parallel with the results of a study by Mooi (2006); Beghetto (2006) and Hutagalung (2016) that also proved that self-efficacy has a positive relationship with the students achievement. According to Beghetto (2006), students with a high level of creative self-efficacy will have a positive confidence in academic ability in all subjects. Students with high levels of creative self-efficacy will be more likely to participate in activities held after school hours compared to students with low creative self-efficacy. Correspondingly, Hutagalung (2016) also proves that there is a significant positive relationship between self-efficacy and motivation on student achievement. Self-efficacy and motivation factors can have an impact on students achievement. When the level of self-efficacy and motivation of students is high, then students will put high effort to achieve good performance in a subject.

Methodology

Research Design

This study is a survey study using questionnaire and achievement tests. Survey method suitable as it involves a large number of samples, being everywhere and collecting data using standard questionnaires is more practical (Gay, Mills & Airasian, 2012). Questionnaire and achievement tests were distributed to the respondents using proportional stratified random sampling techniques. The data obtained were then analyzed using IBM SPSS version 23.

Population and Sample

The population of this study consists of Form Four students of Accounting from national secondary schools in Malaysia. A number of 467 students (153 males and 314 females) from 28 schools by zone were selected as the study sample. The proportional stratified random sampling techniques was used in sample selection. This technique was chosen because it would better represent the overall characteristics of the population (Ary, Jacobs, Sorensen & Razavieh, 2010). According to Darusalam and Hussin (2018), this technique is very suitable to be used for studies based on zones, states, divisions and districts or selection based on several categories.

Instrument of Study

Research instruments or tools in quantitative research include checklists, questionnaires, dichotomy, classification and comparison (Darusalam & Hussin, 2018). In this study, questionnaires and achievement tests were used as instruments to collect data. Questionnaire sets were used to measure students' self-efficacy. While the achievement test is used to measure HOTS among students. The Generalized Self-Efficacy Scale (GSES) instrument developed by Schwarzer and Jerusalem (1995) has been modified and adapted to measure students self-efficacy. While the achievement test is created by the researcher based on the Form Four Standard Document for Curriculum and Assessment for Principle of Accounting (DSKP) and the Specification Test Table (JSU). This achievement test is approved by six specialists before it is utilized.

The questionnaire set is divided into two parts, namely part A consist of six questions regarding respondents 'demographic and part B consist of 10 questions related to self-efficacy. Meanwhile achievement test contains 12 multiple choice questions and 3 subjective questions on HOTS. The topic of Classification of Accounting and Accounting Equation has been selected as a topic to measure HOTS among studnets. The questions in achievement test cover the constructs of applying, analyzing, evaluating and creating according to the cognitive level of Bloom's Taxonomy.

Data Analysis

IBM SPSS version 23 has been used in processing the data obtained. Data were analyzed descriptively and inferentially using correlation analysis. Descriptive analysis including mean (M), standard deviation (SD), frequency (f) and percentage (%) was used to determine the level of self-efficacy and level of HOTS among Accounting students. While pearson correlation analysis was used to test the relationship between students self-efficacy and HOTS.

Research Findings

The Self efficacy and HOTS Level among Accounting Students in Malaysia

Descriptive analysis involving frequency, percentage, mean and standard deviation was used to answer the first and second questions. To determine the level of HOTS among student in this study, students' mark score is analyzed and categorized to high (70-100%), moderate (50-69%), and low (0-49%) levels based on the Examination Analysis System (SAPS), Ministry of Education Malaysia (2016). While to determine the level of self-efficacy of students, scores obtained from the questionnaire were also analyzed and categorized into levels to high (3.01-4.00), moderate (2.01-3.00), and low (1.00-2.00) levels based on the class interval formula proposed by Rusinah and Sudirman (2003).

Self-Efficacy Level among Accounting Students

The results of the analysis showed that the majority of 284 students (60.8%) stated that their level of self-efficacy against HOTS is at a moderate level, followed by 131 students (28.1%) stated that the level of self-efficacy is at a high level and finally only 52 people (11.1 %) who stated their level of self-efficacy was low. The overall mean value for students level of self-efficacy towards HOTS is 2.74 and the standard deviation value is 0.52. In overall, this indicator shows the level of self-efficacy among Accounting students in Malaysia is at a moderate level. Table 1 shows the distribution of students' level of self-efficacy on HOTS.

Table 1
Distribution of students' level of self-efficacy on HOTS

Self efficacy	f	%	Mean	SD	Level
Overall			2.74	.52	Moderate
High	131	28.1			
Moderate	284	60.8			
Low	52	11.1			

HOTS Level among Accounting Students

The results of the analysis showed that of the 467 respondents involved, the majority of 181 students (38.8%) have reached a moderate level between 50 to 69%, followed by 151 students (32.3%) have reached a high level between 70 to 100%. Only a total of 135 students (28.9%) who have achieved a score between 0 to 49% which is at a low level in the HOTS test conducted. Meanwhile, the analysis also shows that the overall mean value for students HOTS score achievement is 60.66 and the standard deviation value is 19.96. These results show that based on the Examination Analysis System (SAPS), Ministry of Education Malaysia (2016), the level of HOTS among Accounting students in Malaysia is at a moderate level. A summary of the distribution of HOTS achievement level among students in the tests conducted is shown in table 2 below.

Table 2
Distribution of HOTS level among students

HOTS Score	f	%	Mean	SD	Level
Overall			60.66	19.96	Moderate
High	151	32.3			
Moderate	181	38.8			
Low	135	28.9			

The Relationship between the Self-efficacy with HOTS among Accounting students in Malaysia

The Pearson correlation test analysis is used to show the correlation between self-efficacy and HOTS among Accounting students. Table 3 shows the analysis results.

Table 3
The relationship between students self-efficacy and HOTS

Variables	Mean	Standard Deviation	r Value	Significant (p)	Interpretation in Relation
Self-efficacy	2.74	.52	.344**	.000	Moderate
HOTS	60.66	19.96			

The results of the pearson correlation test as shown in table 3 illustrate that there is a significant positive relationship between the mean self-efficacy and the students' HOTS score [r (467) = .344**; p = 0.00 < 0.05]. According to Cohen (1988), this relationship is at a moderate level. These findings show that there is a positive correlation between students' self-efficacy and HOTS in the subject of Accounting. This indicator shows that as the self efficacy of students increase, the HOTS among the students will also increase and vice versa.

Discussion

The research outcome has shown that the level of students self-efficacy towards HOTS in the Accounting subject is at a moderate level. This indicator shows that students are found to have a moderate level of self-efficacy in learning Accounting Principles subject. Meanwhile, the level of HOTS among the students in Accounting was also found to be at a moderate level. This situation shows that the students have been able to master the HOTS questions at a moderate level. Classroom learning activities conducted by teachers have exposed students to the form of HOTS questions and how to answer HOTS questions. This reseach findings are parallel with the findings of a study by Dogan (2016); Peng and Hamad (2018); Mat Norwani, Yusof, Yahya and Ismail (2019); Shukla and Dungsungnoen

(2016); Arshad and Yasin (2015) who stated that the students' level of self-efficacy and HOTS is at a moderate level. However, the findings of the study are different from the findings of Farrand, Wild and Hilson (2016); Ichsan, Sigit, Miarsyah, Ali, Arif and Prayitno (2019); Saido, Siraj, Nordin and Al_Amedy (2015) who found that the students' level of self-efficacy and HOTS is at a high and weak level.

In this study it was found that most students are confident that they can achieve the desired goals in Accounting subject and solve difficult problems if they work hard by finding various solutions. This indicator shows that students have confidence in learning Accounting subject and also in answering the HOTS questions. Self-efficacy is an important aspect in the implementation of HOTS because it is the beginning of someone acceptance of learning and even affects the behavior and motivation of a person to apply HOTS in life. High self-efficacy will be able to influence an individual to mobilize cognitive resources, motivation and solutions that are appropriate to the needs of a task based on belief in one's abilities (Bandura, 2000).

Moreover, the results of the correlation analysis conducted also showed that there is a significant positive correlation between self-efficacy and achievement of HOTS among Form Four Accounting students. The strength of the relationship between students self-efficacy and HOTS in this study is at a moderate level. This situation shows that when students' self-efficacy is high, then it can have a positive impact on students' HOTS achievement. Conversely, when the level of students' self efficacy is low, then it also affects the level of HOTS among students. It proved that, in line with Bandura's Cognitive Theory which states self-efficacy as the basis for anticipating a student's academic performance (Bandura, 1986). When a student has high trust and confidence in a subject, then this confidence will encourage them to put efforts to continue learning and improve achievement. In addition, educational psychology also acknowledges that motivation is an important factor or positive influence that can encourage students to participate and achieve academic results as desired (Wilson & Kim, 2016; Dogan, 2016). Students with high self-efficacy will see HOTS as something that need to be learn and master.

Self-efficacy can be linked to students' beliefs and convictions in the learning process. Students with high self-efficacy will be able to deal with problems in a variety of new and unexpected situations. Students also will able to find various solutions when faced with problems. Obviously, this shows that when students are faced with the challenge of HOTS questions in the subject of Accounting, the implication is that students will try to find a solution by applying the knowledge learned previously in the classroom. The findings of this study coincide with the results of a study conducted by Abtholuddin (2013); Kitikana and Sasimonton (2017); Hutagalung (2016); Mooi (2006); and Beghetto (2006) that show a high level of self-efficacy will be able to influence good students achievement. Moreover, this situation will indirectly be able to improve learning skills, student attendance and student involvement in the activities carried out.

Therefore, it can be concluded that students' self-efficacy should be given attention in the learning process, especially in the aspect of mastery of HOTS. Self-efficacy can drive a person's tendency to respond positively or negatively to an idea or situation. Diversity in teaching methods can increase students motivation and achievement (Mat Norwani, Yusof, Yahya & Ismail, 2019). Therefore, as a suggestion, the learning process in the classroom will be more meaningful if teachers can attract the interest and attention of students through effective teaching and learning activities of HOTS.

Conclusion

The findings of this study support that there is a significant correlation between students' self-efficacy and HOTS achievement. High levels of self-efficacy can increase student mastery in HOTS. Therefore, the implications of this study are which the teachers need to use their creativity and abilities wisely in planning the teaching and learning process to be more interesting in line with 21st century student-centered learning. An interesting learning environment can motivate students to continue to be interested and enjoy in learning the subject of Accounting. Next, this will affects students' confidence to master HOTS. Hence, it can contribute towards the success of the country to produce students with high ability in thinking skills as stated in the Malaysian Education Development Plan (PPPM) 2013-2025.

In addition, the findings of this study have been able to add more empirical evidence that states self-efficacy is one of the important influences in encouraging students to think critically and creatively. It can be used as a basis for predicting a student's academic performance as stated in Bandura Cognitive Theory. Indeed, the information obtained through this study can be used by the Ministry of Education in order to improve and enhance the level self-efficacy and HOTS among students.

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