Augmenting Entrepreneurial Learning among Postgraduate Students in Research University

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Abstract – *This paper investigates the level of learning approach among research university (RU) postgraduate students in Universiti Teknologi Malaysia (UTM). It is believed that managing self-efficacy may assist students in choosing deep approach as a preferred learning approach that can help students to adapt with on-going challenges for a research university such as UTM. In specific, this paper aims to firstly determine the level of learning approaches adopted by postgraduate students, and to identify the level of self-efficacy and measure the effect of self-efficacy in learning. The participants included 354 postgraduate students from different faculties in UTM whereas questionnaires were distributed via email and through the designated contact person. The descriptive statistics revealed that the degree of usage in deep and surface-rational is almost equal which was at high level. The self-efficacy levels among participants were also high. The result proved that the usage of deep learning will be enhanced when self-efficacy is increased. Our investigation concludes that deep approach to learning should be included in their academics, however the suggestion is tailored based on two factors: firstly the tasks given to students and secondly teaching methods used by lecturers.* ***Copyright © 2015 Penerbit Akademia Baru - All rights reserved.***

Keywords: Entrepreneurial Learning, Learning Approach, Self-efficacy

1.0 INTRODUCTION

The important of innovation in the higher education have become one of the area that have been taken serious lately. In the Malaysia Education Blueprint 2015–2025 for Higher Education has stated that the technologies and innovations that address students' need and more personalization learning experience as one of the aspiration of Ministry of Higher Education [21]. The ministry had also developed an implementation plan for the development of innovative human capital at tertiary level [23] to show its seriousness in addressing the important of innovation among its graduate as they move into the employment and help to drive the nation's economy.

Today, the higher education has faced a new challenge especially on the issue of diversification of higher education provider and methods of delivery [34]. Universiti Teknologi Malaysia or UTM just like any other universities in Malaysia is inculcating an energetic academic culture of creativity and innovation as one of their strategic agenda as a way to move forward. Developing a new academia environment is critical in order to success and to remain competitive [34]. The current scenario requires that university must be not only increasing number of students' intake but also emphasized on their quality.

Due to this, lot of measures have been taken by the university to ensure that sustainable and competitive academic performance are made in order to improve the teaching and learning standard [31] It is agree that entrepreneurship thinking or education can increase the quality and quantity of graduates as they enter into the country economy while after receiving their education in the higher academic institution [29]. Entrepreneurship thinking or education can be acquired by acquiring entrepreneurial knowledge and their working experienced which are easily done in academic institutions. With a numbers of academician and expert together with linkages with entrepreneur in the industry, it is easier for students to acquire the knowledge under one roof.

The government consciousness on the entrepreneurship as a contributor to economic growth and employment opportunity had become among the reasons in increasing trend in entrepreneurship teaching in universities, colleges and training centers around the country. Educational institutions especially the higher education institutions have been recognized by the government as an avenue for the entrepreneurship development and inculcating entrepreneurial spirit among students [38]. Due to this, the Ministry of Higher Education had introduced Entrepreneurship Development Policy for the higher education institutions (HEIs) in 2010. The main objectives of the policy is to produce quality human capital with entrepreneurial thinking, attribute and values, and to produce more graduate entrepreneur as a catalyst for country economic transformation toward high-income economy with the axis of innovation towards achieving developed country status by the year 2020 [22].

Students who have positive approaches towards learning, in terms of attitudes and behaviours, tend to enjoy good learning outcomes [2]. There are at least two different ways for student approach their learning; deep and surface. Kirby et. al [15] claimed that deep learning occurred when students integrates new and old information, synthesizing it, make new connection and finally form the knowledge into wider perspective. On the other hand, the surface approach occurred when students see tasks as being imposed, for which they develop strategies that focused on reproduction of essentials points and memorizing information for assessment rather than for the purpose of understanding the given knowledge. It leads to superficial retention of material for examinations and does not promote understanding or long-term retention of knowledge and information [8].

Several studies have attempted to discuss on how student's academic performance at the university level is closely related to their learning approaches [5, 7, 18, 32]. Most of the research on student learning and higher education has been conducted in developed countries such as the US, UK and Australia [5, 6, 10, 35] with very few studies conducted in Asian contexts [13, 19, 24]. Although numerous studies are available in the area of learning approaches, research on learning approaches in relation to postgraduate students in Malaysian Research University is still lacking. This implies that there is a significant difference in the current learning environment for postgraduate students, particularly since creative solutions and collaborative teamwork are necessary skills for them to master.

Previous research [1, 16, 27, 30] showed that self-efficacy has a significant role in academic motivation and learning. It is concluded that learner beliefs influence their capabilities to regulate their own learning activities such as choice of activities and level of effort [39]. Even though there is a large body of research relating to students' self-concept and self-efficacy beliefs in classroom situations, learner's self-concept especially postgraduate students in the university setting has received less attention. Self-efficacy and self-concept represent different ways of looking at oneself [25]. Self-efficacy represents the judgment of confidence that

individuals have about their abilities, while self-concept describes individual's own perceived self, accompanied by an evaluative judgment of self-worth [17]. The level of self-efficacy depends on the difficulty of a particular task such as application of a subject to real life situations. Thus, it is assumed that UTM postgraduate students must also demonstrate certain level of self-efficacy in order to adapt and accept challenges in university current scenarios.

This paper emphasizes on the following research questions:

1.   What is the level of learning approaches used among postgraduate students in UTM?

2.   What is the level of self-efficacy among postgraduate students in UTM?

3.   What is the effect of self-efficacy on learning approaches?

2.0 METHODOLOGY

This is cross-sectional study used questionnaires for data collection. Participants consist of postgraduate students from six faculties. The selection of faculties was based on three main streamline: engineering, social sciences and science and technology. A total number of 14 faculties were grouped according to the streamline, which enable two faculties to be selected randomly from each group. A total number of 100 questionnaires were distributed to each faculty. Participants were given a week to return the questionnaire to the designated contact person. Part time postgraduate students were also invited to participate in the study via email. Participation in the research is made on voluntarily basis.

The self-efficacy instrument was adopted from the General Self-Efficacy Scale by Jerusalem and Schwarzer [11]. The scale was originally developed in Germany and has been translated into 33 languages by other authors. However, the English language version in 1995 was used in this present study and it can be accessed online at http://userpage.fu-berlin.de/health/engscal.htm. This questionnaire is a 10 item psychometric scale that was designed for adults to assess optimistic self-beliefs in coping with a variety of difficult demand in life. The learning approaches measurement is adapted from Kirby *et al.* [15]. The questionnaire was commonly used in the workplace learning, therefore we change the term "work" to fit in postgraduate studies context. The learning approaches are divided into three categories: deep, surface-disorganized and surface-rational. The examples of the items are as follows:

I find it helpful to 'map out' a new topic for myself by seeing how the ideas fit together (Deep Approach)

I seem to be a bit too ready to jump into conclusions without waiting for all the evidence (Surface-disorganized Approach)

I find it better to start straight away with the details of new tasks and build up an overall picture in that way (Surface-rational Approach)

Respondents selected from a four point scale that was coded as binary variables; Strongly Disagree=1, Disagree=2, Agree=3 and Strongly Agree=4. The total amount for each learning scores were calculated. The questionnaire was pretested to assess the reliability of the

instrument. The Cronbach's alpha values were 0.80 for deep approach, 0.83 for surface-disorganized, and 0.75 for surface-rational. For the self-efficacy the values were 0.82.

Descriptive analysis, such as frequency, percentage and mean were used to explain the level of self-efficacy and also the usage level of learning approaches. Whereby, Simple Linear Regression was employed to investigate the causal effect between self-efficacy and learning approaches.

3.0 RESULTS AND DISCUSSION

The response rate was 59% (333). The majority of the respondents is male (58.6%), between the age category of 20 – 29 years (69.4%), on the full-time study basis (64.6%) and have less than 5 years (73.3%) working experience (Table 1).

The results on the usage level for learning approaches used by respondents are summarized in Table 2. According to the findings, the highest level of learning approach used by respondents is deep approach ($\mu = 3.07 \pm 0.36$), followed by surface-rational approach ($\mu = 3.03 \pm 0.36$) and surface-disorganized approach ($\mu = 2.78 \pm 0.48$). In this situation there is a puzzling pattern among students who adopt deep and surface-rational approach when only a trivial difference is indicated. Students who approach learning in a more mechanistic way or just on the surface is always determined as 'rote learners' [19]. This might postulate to the issue of quality level since approaching learning at surface level tends to be associated with low level outcomes [14]. Though students are assumed to be independent and creative, 87% (290) of them like being told what is expected and have little desire to discover for themselves. In return, lecturers still need to spoon feed them in order to help them in achieving learning goals. Surprisingly, the majority of them fail to understand the function of learning new things is to transform it into meaningful context, e.g. lots of effort in their study is being used to memorise new facts (81.9%, 255) and definitions from textbooks (65.4%, 218). This may denotes that students neglect to understand information from different disciplines and to make necessary connections among them beyond well-structured context and through the more 'real-world' constraint. University's vision and mission in producing competent and versatile graduates is hard to achieve if this situation transpire continuously.

The level of self-efficacy among respondents is also quantified to identify their perception on their abilities. Research has revealed that self-efficacy beliefs are closely related to academic achievement [20, 25, 26]. The result on the level of self-efficacy can also be depicted in Table 2 which the level is indicated at high ($\mu = 3.09 \pm 0.37$).

In particular, almost all (91.8%, 336) respondents have strong belief in managing to solve difficult problems if they try hard enough and invest the necessary effort in dealing with it. Nonetheless, quite a number (18.9%, 63) of respondents were unsure whether they are able to deal with unexpected events efficiently. Albeit the level of self-efficacy is high, there are many facets that need to be addressed, especially when it is related to independency, creativity and confidence among respondents in approaching learning. Graduates in UTM especially in postgraduate studies not only should possess a range of attributes and generic skills with sound disciplinary and professional knowledge; they also are expected to inculcate within themselves high self-esteem, effective skills in communication, team working, problem solving and lifelong learning. The issue of dependency, unimaginative and uncertainty must be managed so that they are ready to meet challenges and to cope with pressures within a research university scenario. If students are able to master a challenging task with limited assistance, their levels

of self-efficacy will rise [3]. As level of self-efficacy increased, students can assess their strengths and weaknesses and assume control of their own learning [4].

The regression result in Table 3 indicated that self-efficacy is found to be a significant predictor in explaining the three learning approaches. It is shown that self-efficacy explain around 21% of the variance in Deep Approach (β = 0.456, p < 0.01), and followed by around 12% of the variance in Surface-Rational Approach (β = 0.342, p < 0.01). Only 2% of the variance in Surface-Disorganised Approach is explained by self-efficacy (β = 0.144, p < 0.01).

More consideration in discussing the effect of self-efficacy on deep approach will be given as deep learning involves the critical analysis of new ideas and linking them to already known concepts and principles, which as the result leads to understanding and long-term retention of concepts so that those concepts can be used for problem solving in unfamiliar contexts. Deep learning promotes understanding and application for life [9]. As a result, teaching and learning methodology must be seriously valued in order to enhance self-efficacy level. By referring to the above result, 21% of usage level in deep approach can be increased when efficacy level in learning is increasing correspondingly. The development of learners' self-efficacy in successfully completing a task is closely related to the effective use of learning strategies [38]. Students who possess a high degree of self-efficacy are more likely to attempt challenging tasks, to persist them at a longer period of time, and to exert more effort in the process. In contrast, failures in a highly efficacious individuals is attributed the outcome to a lack of effort or an adverse environment [36].

Table 1: Demographic Characteristics of the Study Population

Demographics (n=333)	Category				
Gender	Male (*f=195; %=58.6*)	Female (*f=138; %=41.1*)			
Age	20-29 (*f=231; %=69.4*)	30-39 (*f=82; %=24.6*)	40-49 (*f=16; %=4.8*)	> 50 (*f=4; %=1.2*)	
Main streams	Engineering (*f=94; %=28.2*)	Social Sciences (*f=138; %=41.4*)	Science & Technology (*f=101; %=30.3*)		
Mode of Study	Full-Time (*f=215; %=64.6*)	Part-Time (*f=118; %=35.4*)			
Working Experience	< 5 (*f=244; %=73.3*)	6-10 (*f=45; %=13.5*)	11-15 (*f=22; %=6.6*)	16-20 (*f=14; %=4.2*)	> 21 (*f=8; %=2.4*)

Notes. The majority of the respondents is male (58.6%), between the age category of 20 – 29 years (69.4%), on the full-time study basis (64.6%) and have less than 5 years (73.3%) working experience

Table 2: The Level of Self-Efficacy & Learning Approaches

Variables	Mean	SD	Level
Deep	3.07	0.36	High
Surface-Disorganized	2.78	0.48	Medium
Surface-Rational	3.03	0.36	High
Self-efficacy	3.09	0.37	High

*Note*s. The highest level of learning approach used by respondents is deep approach (μ = 3.07 ±0.36), followed by surface-rational approach (μ = 3.03 ±0.36) and surface-disorganized approach (μ = 2.78 ±0.48).

4.0 CONCLUSSION

The rationale of this study is trying to reach an understanding of the learning approaches and the effect postgraduates students' self-efficacy in a research university. Since transforming a traditional learning environment into new academia environment has become the main agenda of Malaysian public universities, particularly UTM, evaluating students' performance relating to learning approach is crucial. It is now possible to describe and explain this issue fully. The appropriateness of teaching and learning methods to facilitate students in adopting deep approach more than surface approach is highly desirable. Lecturers, program owners, curricula developers and assessors need to restructure and redesign teaching and learning methods to foster a deep approach in post graduate studies which require active participation of the students. When introducing this approach, students need to be supported and guided to allow time for adaptation. Deep learning is highly required by experienced postgraduate students to adopt for problem solving. Indeed, it could be related to the task assigned in postgraduate courses that required them to adopt deep approach. If this strategy is used continuously, students may experience less difficulty in analyzing problems [31]. Literature on learning approach explores different ways of learning [7, 12, 19, 28]. However, students' motivation and use of learning strategies can be controlled by learners and changed through teaching. Therefore, once self-efficacy can be enhanced, students will know how to adapt the best strategy which will lead to success in learning. When they succeeded, they credited their achievement to their abilities. In their perception their abilities lead to the achievement that affects the outcome rather than their actual abilities [36].

Even though a conclusion may review the main results or contributions of the paper, do not duplicate the abstract or the introduction. For a conclusion, you might elaborate on the importance of the work or suggest the potential applications and extensions.

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