MODERATING EFFECT OF GOAL ORIENTATION ON THE RELATIONSHIP BETWEEN ACADEMIC SELF-EFFICACY, LEARNER CHARACTERISTICS AND LEARNING ACHIEVEMENT IN AN OPEN DISTANCE LEARNING (ODL) BASED HIGHER EDUCATION INSTITUTION

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ABSTRACT

This study focuses on factors influencing learning achievement in an Open-Distance-Learning environment of a higher education institution. This study explores the relationship between academic self-efficacy and individual learner characteristics on learning achievement (learning transfer, generalisation, and maintenance). Moreover, this study investigates the role of learner goal orientation. The objectives of the study are, first, to investigate a proposed model to represent theoretical relationship between academic self-efficacy, learner characteristics and learning achievement. Secondly, to confirm learner goal orientation moderates the relationship between learner self-efficacy and training effectiveness. The measures employed in the study are adopted from past studies; goal orientation, self-efficacy and learning achievement using a five-point Likert scale. The study utilised purposive sampling. Respondents are postgraduate students from Open University Malaysia (OUM). Analysis was done by using SmartPLS. Findings indicate that hypothesis were supported.

Keywords: *Learning achievement, Academic Self-efficacy, Learner Characteristics, Learner Goal Orientation*

INTRODUCTION

Due to rapidly changing working landscape, and increasing demand for flexible learning arrangements, higher education institutions have shifted to an open distance learning (ODL) environment (Nguyen, 2015). ODL setting enables the students to learn at their own pace and time, without having to be physically present in the traditional classroom setting (Butcher & Rose-Adams, 2015; Kauffman, 2015; Goolamaly, Yusoff, Subramaniam & Latif, 2010). However, research demonstrates because face-to-face interaction is greatly reduced in an ODL setting, a different learning approach focus is with the individual learner (Botha & Coetzee, 2016). The literature on learning achievement in the context of ODL demonstrates that individual characteristics, and academic self-efficacy play a major role in learning achievement. However, the review of the literature by Honicke and Broadbent (2016) has suggested further assessment of the moderating/mediating effect on the relationship, especially of goal orientation, as the current literature reported mixed findings.

Problem Statement & Research Questions

Previous studies on the factors that effects learning effectiveness were mostly conducted in Europe and Northern America. There are a handful of articles from Turkey, Australia, Bangladesh, Egypt, United Arab Emirates, Iran, Nigeria, Philippines, and Taiwan (see Honicke & Broadbent, 2016; Richardson, Bond & Abraham, 2012). However, there is a lack of recent studies that investigate the learning achievement in the context of ODL in Malaysia. Moreover, Honicke and Broadbent (2016) performed a review of the literature on the influence of academic self-efficacy on academic performance literature and found that there exist a possible moderating and/or mediating effect on the relationship. However, they highlighted inconsistencies in the literature as to academic self-efficacy or goal orientation acts as the mediating variable on academic performance. As such, this study intends to explore a framework for an effective ODL learning environment, thus the following questions are posed:

1. Does academic self-efficacy and individual learner characteristics influence learning achievement in an ODL environment in Malaysia?

2. Do different levels of learner self-efficacy have a significant impact on learning achievement, in an ODL environment?

3. Does learner goal orientation moderate or mediates the relationship between academic self-efficacy, learner characteristics and learning achievement, in an ODL environment?

Objective of the Study

In this study, the above questions are answered by integrating individual and contextual components in a conceptual framework. The guiding objective is to expand knowledge on factors affecting learning achievement. The research model comprises of four key factors; academic self-efficacy, individual learner characteristics, goal-orientation and learning achievement. Specifically, this study seeks to address the research gaps in the ODL teaching and learning literature. In this study, a replication of previous research but also respond to research calls by testing the relationships between individual academic self-efficacy, individual learner characteristics, and learner achievement, especially on the possible mediating or moderating influence of learner goal orientation. Thus, this study is to empirically validate a proposed model representing theoretical relationships between academic self-efficacy, individual learner characteristics, learners goal orientation and learning achievement.

Literature Review

Open Distance Learning (ODL) is a term used to describe technology-aided learning whereby learning is done at a distance, i.e. learners and the teachers does not necessarily share the same physical location (Botha & Coetzee, 2016). ODL can exist in a purely online format or a combination of online and traditional face-to-face known as blended or hybrid format. Both online learning and hybrid are considered as open distance learning, as literature compares these two formats against traditional face-to-face classroom, format of teaching and learning.

Learning Effectiveness

Reviews of literature on ODL are abundant with studies that examine the effectiveness of online learning. A large number of studies have found significant and positive effect of ODL on student's learning outcomes. Some of the findings are improved learning, improved engagement and improved perception of learning of the online format (Nguyen, (2015).

In a hybrid learning method, findings indicate students had obtained better learning outcomes with improved perceptions of learning (Feeley & Parris, 2012) by using a pedagogical tool known as PeerWise that enables the students to write, discuss and share multiple choice questions among themselves while receiving minimal to no feedback from teachers. Denny (2013) conducted a study to improve effectiveness of the PeerWise tool. One study emphasizing methodology on the effectiveness of online learning in comparison to traditional learning format was conducted by Bowen (2013). Bowen (2013) examined students randomly assigned to a control group (that uses the traditional learning format) and another group exposed to hybrid interactive online learning. Findings indicated comparable learning outcomes for both groups. Nonetheless, it is postulated a promise of cost savings and productivity gains for the hybrid format.

Learner's Characteristics and Learning Achievement

Several studies investigated learner characteristics contributing to ODL performance outcomes. Botha and Coetzee (2016) findings indicate that male respondents reported significantly higher academic success orientation than female learners. This is similar to findings by Huang (2013) which showed that male students from North America and Europe possess better developed academic self-efficacy compared to female counterparts. Findings were congruent with Vieira and Grantham (2011) study examining Internet self-efficacy of college students' showing males having a higher degree of Internet self-efficacy compared to females. Other findings were students with high Internet self-efficacy outperformed their counterparts and reported higher confidence level in their ability to complete an online course. Another study done in South Africa examines academic self-efficacy of students found male respondents reporting a higher level of self-efficacy (Mackay & Parkinson, 2008). Wood & Bandura (1989) confirms on written performance between students, the two genders were found to have statistically significant differences.

Learner's Academic Self-Efficacy and Learning Achievement

Academic self-efficacy is defined as learner's judgement about his/her ability to successfully achieve academic goals (Elias & Mac Donald, 2007). Self-efficacy is frequently described in terms of academic self-efficacy, as learner judgement on ability to successfully attain educational goals (Elias & MacDonald, 2007). Academic self-efficacy is the construct frequently used in an academic setting, whereas self-efficacy is the major component of the self-influence factors in Bandura's (1977) Social Cognitive Theory.

Researchers have suggested Social Cognitive Theory as the foremost theory utilised in explaining the process that regulates behaviour (Honicke & Broadbent, 2016). The theory hypothesized a combination of external and internal factors regulate an individual's behaviour (Bandura, 2012), and self-efficacy to be the most prominent influence on behaviour. Bandura (1997) defines self-efficacy as an individual's judgement of his/her capabilities to organise and execute actions required to attain desired outcomes.

Much literature indicates many studies that indicate the importance of academic self-efficacy on learning achievement. Moreover, a meta-analysis study done by Richardson, Bond & Abraham (2012) showed that academic self-efficacy had significant heterogeneity in effect size. This was also reported across studies by Richardson et al., (2012), proposing further investigation of factors that mediate the relationship between academic self-efficacy and learning achievement, to uncover moderator variables may account for this range of variability.

ODL-based learning environment requires learners are comfortable with using technology. Those students who have high computer literacy would be able to perform better than those who do not. Computer literacy can be defined as the belief that one has the ability to operate computers that are affected by motivation and behaviour (Bandura, 2006). Expertise in using computer applications are believed to affect the success of learning in distance learning methods, because all devices in distance learning are related to information technology. As such, students with higher online self-efficacy would perform better than those with lower score. For example, adult learners enrolled for undergraduate studies in an ODL university in South Africa indicate male learners scored significantly higher on online success orientation, were more likely to engage in online academic activities and make use of online learning resources (Botha & Coetzee, (2016). Such findings are congruent with Vieira Jr, & Grantham (2011) study on Internet self-efficacy of college students that males had a higher degree of Internet self-efficacy than females. Findings also indicate students with high Internet self-efficacy outperformed their counterparts whilst reporting higher confidence to complete an online course. This suggest due to higher self-efficacy, male learners are more willing to take on challenging tasks, although, female students set more difficult goals then male respondents (Vieira Jr, & Grantham, 2011). Similar findings done by Huang (2013) surveyed North American and European students found that female students have less developed academic self-efficacy then males. Mackay & Parkinson (2008) also found female students possess lower levels of self-efficacy.

Learner's Goal Orientation and Learning Achievement

Several studies examined the influence of learner goal orientation on the relationship between academic self-efficacy and learning achievement. Learner goal orientation refers to learner's aims for learning and performance outcomes established at the start of the online program (Littlejohn, Hood, Milligan & Mustain, 2016). There are four categories of goals: general learning and development; specific know-how; achieve certification; and completion of all assignments. The term goal orientation refers to a mental framework on how individuals respond to and interpret achievement situations Brett & VandeWalle (1999). The core proposition of Dweck and Leggett (1988) theory is that goal orientation influences cognitive and behavioural patterns in achievement setting.

Phan (2010) posits academic self-efficacy positively influences learner choice of type of goal orientation in order to achieve academic success. In this situation, if learner adopts a mastery goal due to the influence of his academic self-efficacy, the learner reports better academic results. This study lacks mediators but argues existence of the possibility of bi-directional relationship between two motivational variables, i.e. academic self-efficacy and effort regulation influence each other and learner achievement through a regulatory feedback loop. Hsieh et al., (2012) tested the mediating effect between academic self-efficacy and learning achievement found there is a mediating effect. Earlier studies found that academic self-efficacy acts as a mediator between learner goal orientation and learning achievement (Crippen et al., 2009; Neuma, 2008). Therefore, there are inconsistencies in the current literature as the construct of academic self-efficacy or learner goal orientation plays the role of a mediating variable.

Conceptual Framework

The conceptual framework for this study, as shown in Figure 1 below examines the influence of academic self-efficacy, learner characteristics and learning achievement. The study integrates learner's goal orientation as the moderating variable on the relationship. Academic self-efficacy literature recognizes that the construct predicts learning achievement. Individual characteristics are recognized as having direct and indirect effects on learner's goal orientation and learning outcomes. However, literature reveals mixed results on the role of learner goal orientation with some studies showing that learner goal orientation has a moderating effect.
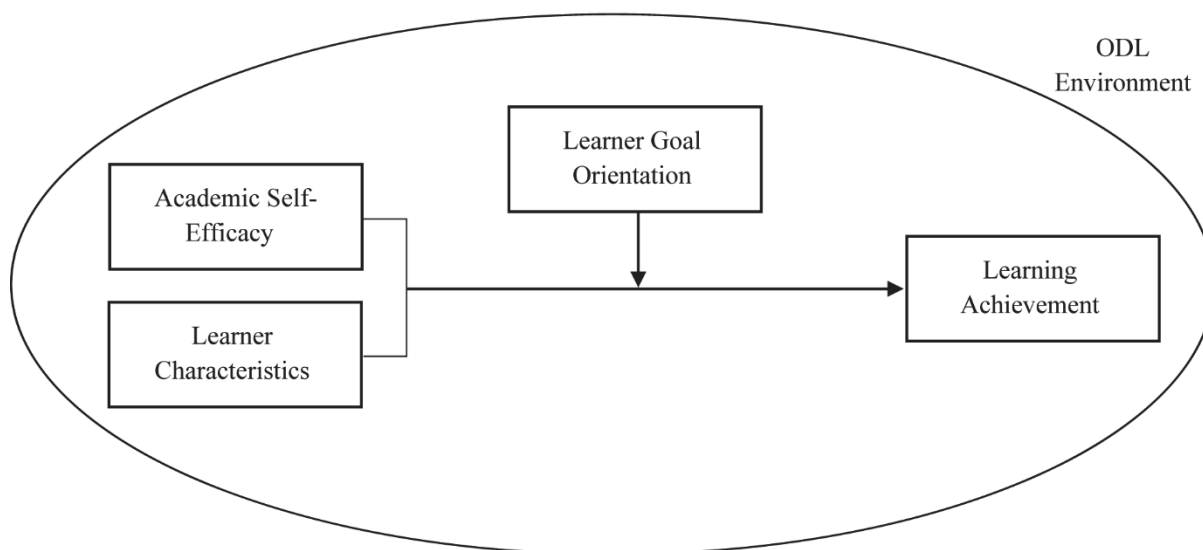

Figure 1: Conceptual Framework

Based on the above conceptual framework, the following hypotheses are forwarded:

H1:   Academic self-efficacy has a positive and significant influence on learning achievement.
H2:   Learner's characteristics has a positive and significant influence on learning achievement.
H3:   Learner's goal orientation has a moderating influence on learning achievement.

METHODOLOGY

Sample

Purposive sampling was utilized. Data was collected from post-graduate students at Open University Malaysia (OUM) Kuala Lumpur branch. Students enrolled are part-time students. PG programs offered at OUM are from business and management, applied sciences, educational and social sciences. A sample size of 150 university students responded to the survey questionnaire. 123 or 82% of the participants involved in this study were eligible. However, usable questionnaires were 107. Therefore, response rate is adequate for analyzing with SmartPLS.

Survey Instrument & Data Collection

Data collection was done by researchers themselves as this provided an opportunity to clarify misunderstanding of the items. Questionnaires were also distributed through lecturers and these assigned lecturers were briefed beforehand. Questionnaire had items related to learner characteristics, self-efficacy and goal orientation. Learners' characteristics had 5 items, learner's goal orientation had 4 items, and learner's self-efficacy had 5 items. Learning achievement had 6 items (see Figure 1) with a 5-point Likert scale of 1-strongly agree, 2-agree, 3-neutral, 4-disagree and 5-strongly disagree.

DATA ANALYSIS & FINDINGS

Data Analysis and Results

Partial least square (PLS) was used. Gudergan, Devinney and Ellis (2003) suggested PLS to analyse cause and effect relationship in business research. Furthermore, PLS can be applied (Hwang, Malhotra, Kim, Tomiuk & Hong, 2010) where PLS has the capability to support latent variables. As such, results were analysed by using SmartPLS.
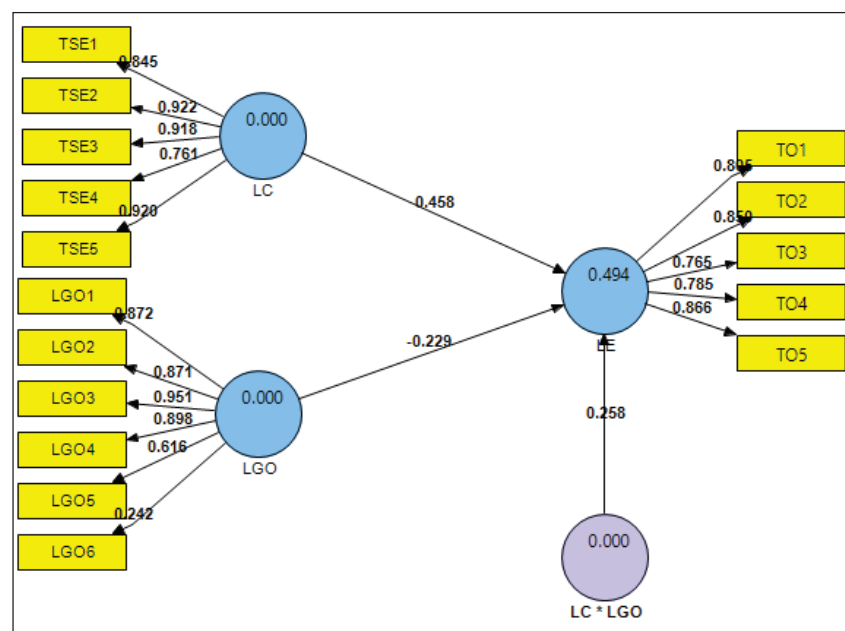

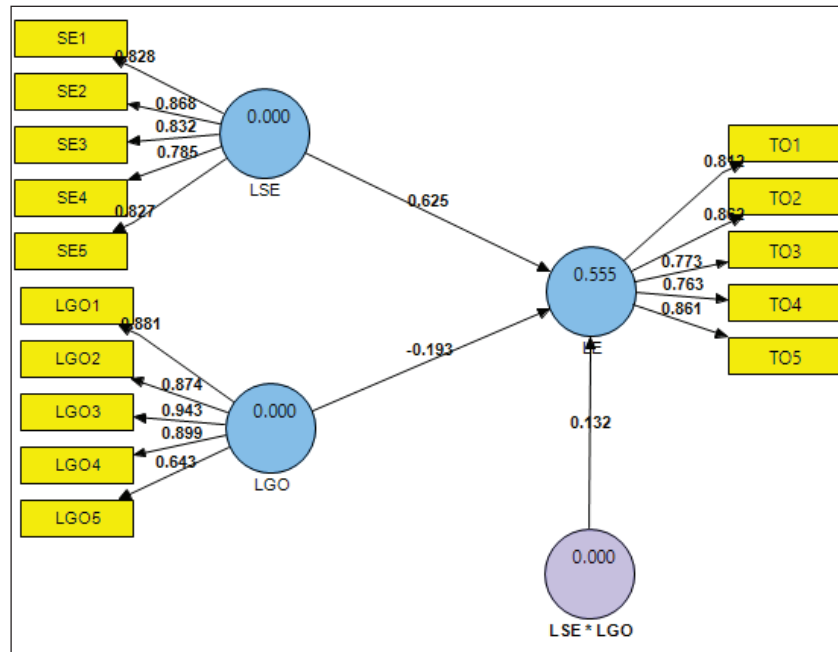
Figure 2: Model 1 & Path Coefficient

Figure 3: Model 2 & Path Coefficient

Convergent Validity

The outer-measurement models convergent validity sufficiency was assessed by calculating composite reliability (Hulland, 1999). The result of convergent validity analysis confirmed that both outer measurement models and their first-order factors are in line with reliability criteria, 0.70. Table 1 shows that all constructs composite reliability and their first order factors are in the range of 0.908 to 0.946. Therefore, the constructs linked with outer-measurement models revealed adequate convergent validity.

Discriminant Validity

Discriminant validity of the constructs was evaluated in three approaches. Fornell and Larcker (1981) suggested AVE utilization, which indicates the present of discriminant validity if the AVE square root is greater than all related correlations. As shown in table 2, AVE square root values are clearly larger than off–diagonal correlations, implying discriminant validity present at the construct level. Table 2 reveals that no correlation (ranged from -0.12 to 0.736) were greater than their respective AVE square root (ranged from 0.805 to 0.876), thus signifying sufficient construct discriminant validity. The cross-loadings showed in Table 3 displays adequate discriminant validity levels for each construct. Each individual item factor in bold of Table 3 shows strong loading values to the corresponding latent construct and low loading values to other constructs.

Table 1: Construct Validity & Reliability

	AVE	AVE sqrt	Composite Reliability	R Square	Cronbach AlphaA
LC	0.767	0.876	0.942	0.000	0.923
LE	0.665	0.815	0.908	0.600	0.874
LGO	0.730	0.855	0.930	0.000	0.907
LSE	0.686	0.828	0.916	0.000	0.886

Table 2: Correlations Against AVE Square Root

	LC	**LE**	**LGO**	**LSE**
LC	**0.876**			
LE	0.687	**0.815**		
LGO	0.003	-0.120	**0.855**	
LSE	0.736	0.730	0.009	**0.828**

Table 3: Cross Loading

	LGO	**LSE**	**LE**	**LC**
LGO1	**0.880**	0.014	-0.117	-0.040
LGO2	**0.874**	0.027	-0.084	-0.027
LGO3	**0.943**	0.045	-0.086	0.047
LGO4	**0.899**	-0.039	-0.132	0.023
LGO5	**0.646**	0.027	-0.044	0.022
SE1	0.002	**0.828**	0.664	0.628
SE2	0.053	**0.868**	0.634	0.650
SE3	-0.038	**0.833**	0.609	0.555
SE4	0.062	**0.785**	0.498	0.535
SE5	-0.031	**0.827**	0.613	0.671
TO1	-0.123	0.553	**0.809**	0.524
TO2	-0.084	0.719	**0.857**	0.601
TO3	-0.137	0.483	**0.769**	0.414
TO4	-0.062	0.553	**0.773**	0.620
TO5	-0.085	0.645	**0.864**	0.611
TSE1	0.081	0.704	0.581	**0.846**
TSE2	-0.061	0.637	0.633	**0.922**
TSE3	-0.013	0.674	0.654	**0.919**
TSE4	0.003	0.593	0.513	**0.761**
TSE5	0.009	0.619	0.616	**0.920**

Table 4: Path Coefficient & T-value

		Beta	**Tvalue**	
H1	LSE->LGO->LE	0.132	0.58	Not significant
H2	LCE->LGO->LE	0.258	1.583	Significant***
*** significant at 2-tailed*				

Hypothesis Testing and Results

H1 states that LGO is predicted to have positive and significant moderating influence on LSE and LE relationship. Table 4 results confirmed this hypothesis is not supported with path coefficient of 0.132 and t-value of 0.58. *H2*, LGO is predicted to have positive and significant moderating influence on LCE and LE relationship. and the results in Table 4 supports *H2* with the path coefficient of 0.258 and t-value of 1.583. Summary of the hypotheses testing results are summarized in Table 5.

Table 5: Hypotheses Result

	Hypothesizes Relationship	**Path Coefficient**	**T-value**	**Conclusion**
H₁	LSE->LGO->LE	0.132	0.58	Not Supported
H₂	LCE->LGO->LE	0.258	1.583	Supported

DISCUSSION & CONCLUSION

This study main objective is to form an understanding of the influence of goal orientation on the relationship between academic self-efficacy and learning achievement. Learner goral orientation refers to learner's aims for learning and performance outcomes established of the online programme. Where academic self-efficacy positively influence leaner choice of type of goal orientation in order to achieve academic success. In this situation, if learner adopts a mastery goal due to influence of his academic self-efficacy, the leaner reports better academic results.

This study suggested model to empirically test and to verify that are positive direct relationship among learner's characteristics, learner's goal orientation and on learning effectiveness. PLS technique data analysis was employed to achieve this objective Firstly, the most accepted relationship between learner's characteristics learner's goal orientation is verified. The direct relationship between the learner's characteristics and learner's goal orientation path coefficient is 0,258 and the critical ratio t-value is 1.583 which is significant. Secondly learner's self-efficacy and learning effectiveness is not supported with the direct relationship with path coefficient of 0.132 and the critical ratio t-value is 0.58 which is not-significant. The findings of this study suggested that learning effectiveness among student in Malaysian higher education institutions can be strengthened and enhanced by emphasizing the factors that can boost learner's characteristics, learner's goal orientation but not learner's self-efficacy.

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