Motivational Beliefs and Self-Regulated Learning:
A Study on Malaysian Students

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ABSTRACT

This study explored the relationships between self-regulated learning and selected motivational beliefs, namely self-efficacy, control beliefs, and anxiety of Malaysian students. A total of 322 students from two secondary schools were involved in this research. The Learning Strategies Subscale, developed by Pintrich, Smith, Gracia, and McKeachie (1991), was used to measure students' self-regulated learning. Their self-efficacy, control beliefs, and anxiety were gauged by another subscale, the Motivation Subscale, also developed by Pintrich, et al. Both of these subscales were taken from the Motivated Strategies for Learning Questionnaire. Findings provide evidence that self-efficacy and control beliefs were positively and significantly related to self-regulated learning. The opposite result, however, was obtained for anxiety. It has a negative and significant relationship with self-regulated learning. Further analyses have shown that there was a positive and significant association between self-efficacy and control beliefs while anxiety was negatively related to both of the motivational beliefs.

INTRODUCTION

Self-efficacy, control beliefs, and anxiety are motivational beliefs that initiate and sustain behaviour towards a certain academic goal (Pintrich & Roeser, 1994). Social cognitive theory proposes that these beliefs are personal factors that influence self-regulated learning, an important new area of research in educational psychology (Zimmerman, 1989). Generally, self-regulated learning describes how learners metacognitively, motivationally, and behaviourally improve their own academic achievement (Zimmerman & Schunk, 1989). Metacognitively, self-regulated learners plan, organize, self-evaluate and self-monitor at various stages of the learning processes. Motivationally, they perceived themselves as competent, self-efficacious, autonomous, and they work hard to achieve their academic goals. Behaviourally, they select, structure, and sometimes even create environments that optimize learning (Zimmerman, 1986). Obviously, such learners personally initiate and direct their own efforts to acquire knowledge and skills. In order to understand students' self-regulated learning, their motivational beliefs such as self-efficacy, control beliefs, and anxiety must be taken into considerations.

Self-efficacy and self-regulated learning

Bandura (1977) first introduced the construct of self-efficacy with the publication of 'Self-efficacy: Towards a Unifying Theory of Behavioural Change' in 1977. During the past three decades, self-efficacy has received increasing attention in educational research (Joo, Bong, & Choi, 2000; Pajares, 1997; Pintrich & Schunk, 1995; Schunk & Ertmer, 1999). Studies revealed that highly efficacious students have many positive learning behaviours, such as engage more in difficult tasks, expand greater efforts, persist longer, less anxious, and self-regulate more than low efficacious students (Bandura, 1997, 1995; Pajares & Miller, 1994). According to Bandura (1986), self-efficacy and self-regulated learning are closely related. This is because students' judgment of their capabilities to accomplish tasks may mediate between their knowledge and actual action to self-regulate. Hence, high self-efficacious students are more incline to apply self-regulated learning strategies to improve their learning. Reviewed of past research on self-efficacy and self-regulated learning have consistently shown that these two variables are significantly and positively related. These reviews lend further support that self-efficacy is the key personal variable affecting self-regulated learning (Bandura, 1986; Schunk, 1985; Rosenthal & Bandura, 1978; Zimmerman, 1997).

Control beliefs and self-regulated learning

Control beliefs have been highlighted as an integral constituent of individual thought and action across the lifespan (Bandura, 1997; Lopez, 1999; Lopez & Little, 1996). It is defined as means-ends beliefs or expectancies regarding the extent to which certain causes or means lead to successful goal attainment. These causes include effort, ability, luck, fate and some other unknown factors (Martin, 2002). Educational psychologists notice that self-regulated learning is related to control beliefs, which can be categorized into external and internal beliefs. Students who have external control beliefs feel that they have little or no control over their academic outcomes. In other words, they are uncertain as to whether they can avoid failure or bring about success. These students perceived that outside forces such as luck or fate exert considerable control over the outcomes in learning activities. Hence, they are less likely to self-regulate their studies (Elliot & Church, 1997). On the other hand, those with internal control beliefs feel that they have considerable control over the outcomes of their learning. These students perceive that success and failure is a function of

their own abilities and efforts, thus they are more likely to become self-regulated learners. Previous research did found that control beliefs are positively related to self-regulated learning (Elliot & Church, 1997; Weiten & Lloyd, 1994). This is because it can determine students' thought and action in learning. Students are more likely to self-regulate if they believe that they are in control of the learning outcomes and their efforts can help them produce the desired results.

Anxiety and self-regulated learning

Many people perceived evaluation such as testing as sheer invasion of privacy and poor test performance a source of humiliation (Sogunro, 1998). According to Gall (1985), learners often perceive test taking as unpleasant or threatening. Too much anxiety prior to or during a test can cause distraction and disorientation (Gall, 1985). Paradoxically, evidence showed that anxiety could be beneficial to learning (Alpert & Haber, 1960; O'Brien, 1991). A moderate amount of anxiety can increase motivation, produce a heightened state of alertness as well as concentration, consequently improve performance (O'Brien, 1991). Even though, anxiety can be a facilitative or debilitative factor in learning (Alpert & Haber, 1960), most evidence from previous research, however, supported the debilitative aspect of it. Many studies found that students are less inclined to take risk, study ineffectively, memorize details and have poorer performance when they are highly anxious (Hembree, 1988; Pajares & Urdan, 1996). For these reasons, anxiety is believed to be negatively related to self-regulated learning (Malpass, O'Neil, & Hocevar, 1999; Pintrich & Roeser, 1994). The relationship between self-regulated learning and anxiety is still inconclusive. Even though most evidence from past research showed that self-regulated learning is negatively related to anxiety, Samsilah Roslan's (2000) study has proven that this is not always the case. In fact, anxiety may even be positively related to self-regulated learning since it can play a facilitative role in learning (Alpert & Haber, 1960). Clearly, further studies are needed to confirm the impact of anxiety on self-regulated learning, particularly in Malaysian learning environment, which is very examination-oriented (Lee, 2002).

In short, most foreign research suggests that students' self-regulated learning may be related to their self-efficacy, control beliefs, and anxiety. Even so, these studies could not be fully generalized to the Malaysian context. Studies have to be conducted to confirm such postulation. Literature reviews also reveal that extremely few local studies have explored the

associations between the three motivational beliefs; self-efficacy, control beliefs, and anxiety. There are needs to do so as the findings may shed lights on the links between motivational beliefs and self-regulated learning among Malaysian students. To fulfil the above mentioned needs, two research objectives were formulated:

OBJECTIVES OF THE STUDY

(1) Determine the relationships between self-efficacy, control beliefs, and anxiety with self-regulated learning.

(2) Determine the interrelationships between self-efficacy, control beliefs, and anxiety.

METHOD

This study employed a quantitative correlational research design to achieve its objectives. Data were collected through questionnaire survey method. The sample consisted of 322 Form Four students (Mean = 16.2 year-old), from two randomly chosen schools located at the state of Johor and Malacca. These students were selected using the cluster sampling method. Two hundred and sixty students were taken from Sekolah Menengah Sains Muar, a school on the outskirts of Johor, while 62 students were taken from Sekolah Menengah Sains Muzaffar Shah, which is located at Air Keroh, Malacca.

Two main instruments were employed to measure the variables in this investigation; the Learning Strategies Scale and the Motivation Scale. Both scales were taken from the Motivated Strategies for Learning Questionnaire (MSLQ), developed by Pintrich, Smith, Gracia, and McKeachie in 1991.

The learning strategies scale

The MSLQ is a valid and highly reliable instrument (Pintrich et al, 1993). This scale comprises two sections; a motivational section and a learning strategies section. The Learning Strategies Scale was taken form the latter. It has 50 items, which measures

students' usage of various self-regulated learning strategies. Educational psychologists propose that self-regulated learning is reflected by the usage of self-regulated learning strategies (Pintrich, et al, 1991). The scale, thus, has adequate content validation. In spite of this, the Learning Strategies Scale has to be modified before it can be applied in this study. Items were first adapted to the Malaysian context then were translated into Malay Language by two language experts, who are competent in both English and Malay Languages. Six extra items were also added to make it more comprehensible. The content validity of the scale was verified by a panel of experts in educational psychology. The revised instrument has 56 self-rating items concerning cognitive, metacognitive, and resource management self-regulated learning strategies. It is a 7-point Likert instrument, whereby responses may range from 1 (not at all true of me) to 7 (very true of me). Scale scores are determined by summing the items and taking an average. The researchers have conducted an analysis to check its reliability. Result showed that the scale is highly reliable, with Cronbach's alpha coefficient of .92.

Motivation scale

The Motivation Scale was taken from the motivational section of the MSLQ (Pintrich et al., 1991). A Malay version of the scale was used in this study. The translation was done by Samsilah Roslan (2000), using a double back translation method. It is a 7-point Likert scale, responses may range from 1 (not at all true of me) to 7 (very true of me). There are six subscales in this instrument, which measure different motivational beliefs. This study only employed three of the subscales, the Self-Efficacy, Control Beliefs, and Anxiety Subscales, which in total has 18 items.

Self-efficacy subscale

Self-Efficacy Subscale measures student's beliefs about their own capabilities in academic settings. Specifically, it focuses on students' perceptions of their abilities to carry out learning activities, and their expectation for success. There are eight items measuring this variable. Cronbach's alpha analysis revealed that the scale has an alpha coefficient of .84.

Control beliefs subscale

Control Beliefs Scale measures students' perceptions of the locus of control for their learning behaviours and academic outcomes, with either internal or external controls. Students with internal control beliefs feel that they have considerable control over the outcomes of their learning activities. On the other hand, students with external control beliefs feel that outside forces such as luck or fate exert considerable control over the outcomes in learning. This scale is made up of four items. It is a reliable scale, with an alpha coefficient of .73.

Anxiety subscale

Anxiety Subscale measures students' nervous and worried feelings towards examination. This scale has six items concerning the cognitive and affective dimensions of anxiety. It is a reliable instrument. Cronbach's alpha analysis showed that the alpha coefficient was .77.

RESULTS

The relationships between self-efficacy, control beliefs and anxiety with self-regulated learning

The relationships between self-efficacy, control beliefs and anxiety with self-regulated learning were investigated using the Pearson product-moment correlation analyses. Interpretation on the strength of correlation was based on guidelines proposed by Cohen (1988) (Table 1).

Table 1: Guidelines to Interpret the Strength of Correlation (r)

Correlation Coefficient (r)	Strength
r = .10 to .29	Small Strength
r = .30 to .49	Medium Strength
r = .50 to 1.0	Large Strength

(Source: Cohen, 1988, p.120)

Table 2: Correlation between Self-Efficacy, Control Beliefs, and Anxiety with Self-Regulated Learning

Variables	Self-Regulated Learning
Self-Efficacy	.56**
Control Beliefs	.33**
Anxiety	-.17**

** Correlation is significant at .01 level (2-tailed)

Table 2 shows that self-efficacy (r=.56, p<.01) and control beliefs (r=.33, p<.01) were positively and significantly related to self-regulated learning. The strength of correlation between self-efficacy, and self-regulated learning was large, based on Cohen's (1988) guidelines. Control beliefs have medium strength association with self-regulated learning. Anxiety, on the other hand, was negatively related to self-regulated learning (r=.-17, p<.01). Even though the strength of correlation was small, it was significant at .01 alpha level.

The relationships between self-efficacy, control beliefs, and anxiety

Pearson correlation coefficient analysis was also used to analyze the interrelationships between self-efficacy, control beliefs, and anxiety. The results further clarified the link between these motivational beliefs. Table 3 shows that self-efficacy and control beliefs were positively and significantly related to each other (r=.30, p<.01). The strength of correlation was medium. Anxiety, however, was found to be negatively and significantly associated with both self-efficacy (r=-.13, p<.05) and control beliefs (r=.12, p<.05), yet the strength of associations were small (Cohen, 1988).

Table 3: Correlation between Self-Efficacy, Control Beliefs, and Anxiety

Variables	Self-Efficacy	Control Beliefs	Anxiety
Self-Efficacy	1.00		
Control Beliefs	.30**	1.00	
Anxiety	-.13*	-.12*	1.00

** Correlation is significant at .01 level (2-tailed).
* Correlation is significant at .05 level (2-tailed)

DISCUSSION

Self-regulated learning is still a new area of study in Malaysian educational research. To date, very few local studies have been conducted on this topic. The results of correlational analyses, obtained in this study, revealed that Malaysian students' self-regulated learning is related to their motivational beliefs. Such findings lend further support to social cognitive theory, which proposes that motivational beliefs are the underlying premise to self-regulated learning.

The first objective of the study was to determine the relationships between three motivational beliefs (self-efficacy, control beliefs and anxiety) with self-regulated learning. Results have shown that self-efficacy was positively related to self-regulated learning ($r=.56$, $p<.01$). The strength of association was considered large. This finding fell in the realm of expectation given that self-efficacy is deemed as the key motivational beliefs affecting self-regulated learning (Zimmerman, 1989). Students with high self-efficacy believed that they are capable of improving their academic performance by employing various strategies. These students use more and better quality learning strategies, particularly self-monitoring strategy to monitor their learning outcomes (Kurtz & Borkowski, 1984; Pearl, Bryan & Herzog, 1983).

Control beliefs ($r=.33$, $p<.01$) were also positively related to self-regulated learning. With high control beliefs, students are confident in employing learning strategies to manage their learning and believe that this will bring about the desired results. As such, they may self-regulate more when their control beliefs are improved. The negative association between anxiety and self-regulated learning ($r=.-17$, $p<.01$), conversely, indicates that as anxiety increases, students' self-regulated learning decreases. This is not surprising as anxiety can be a debilitative factor, which causes distraction and disorientation (Gall, 1985). Students with high level of anxiety are always worried and unconfident about their academic performances, consequently impeding their abilities to self-regulate effectively. Even so, control beliefs and anxiety only have medium strengths relationships with self-regulated learning. Therefore, self-efficacy is a more integral motivational factor when self-regulated learning is concerned.

The relationships between the three motivational beliefs, self-efficacy, control beliefs, and anxiety were also examined in this study. Self-efficacy and control beliefs were found to be positively related to each other (r=.30, p<.01). In past studies, these variables have consistently showed similar associations (positive relationships) with self-regulated learning. In fact, Pintrich and Roeser (1994) propose that self-efficacy and control beliefs are derived from the expectancy dimension of motivational beliefs. In other words, students' expectation about their own academic abilities and the extent to which they are able to control the academic outcomes are closely related, as found in this study.

Anxiety was found to be negatively and significantly associated with both self-efficacy (r=-.13, p<.05) and control beliefs (r=.12, p<.05). According to Pintrich and Roeser (1994), anxiety is the affective dimension of motivational beliefs. It could be related to self-efficacy negatively because students with low self-efficacy have less regard about their own academic abilities and may feel anxious when facing examinations. From the control beliefs perspective, students are more likely to worry about examinations if they believe that the attainment of the desired grades is not within their control.

CONCLUSION

Consistent with past research, this study found that self-efficacy, control beliefs, and anxiety were significantly related to self-regulated learning. The consistency of such results suggests that motivational beliefs may be the predictors of self-regulated learning. These beliefs must be taken into considerations when promoting students' self-regulated learning. It is also crucial for teachers to comprehend the interrelationships between the different dimensions of motivational beliefs. Results suggest that teachers should improve students' self-efficacy as well as control beliefs and reduce their anxiety level. For instance, teachers have to convince students that they are capable of self-regulated learning and efforts can make a difference in academic achievement. More autonomy, freedom and choices should also be given to students during the learning processes. This is to improve students' control beliefs and provide them with opportunities to self-regulate in learning. In addition, teachers ought to place more emphasis on learning per se and avoid being too examination-oriented during the teaching and learning processes so that students' anxieties towards examination can be reduced.

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