



Self-Regulation in Chinese College Students' EFL Writing

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Abstract

This study aimed to test a model of self-regulated EFL writing that involved the components of motivational beliefs, motivational self-regulation, strategy use and performance in EFL writing. The participants were 617 year-two college English majors in mainland China. Data were analyzed using path analysis via Amos 5.0. Results indicated that the whole model accounted for 33% of the variance in the participants' EFL writing performance. The findings emphasized the importance of motivational regulation, especially motivational awareness, motivational regulatory strategy use and mastery and outcome goals in self-regulated EFL writing.

Key words: Self-regulated EFL writing; Motivational regulation; Writing strategies; EFL writing performance

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INTRODUCTION

Writing is a challenging and demanding task for student writers and is the language skill that demands the most self-regulation as "writing activities are usually self-

planned, self-initiated and self-sustained" (Zimmerman& Risemberg, 1997, p.76). Though motivation and cognitive regulation have attracted much attention in the field of EFL/ESL writing, students' motivational regulation, particularly motivational awareness and use of motivational regulatory strategies has been mainly restricted to theoretical discussion (e.g., Pintrich, 2004; Wolters, 2003). Only a limited number of empirical studies have examined students' use of motivational regulatory strategies in face of motivational setbacks (e.g., Wolters, 1998, 1999; Wolters & Rosenthal, 2000; Su & Cheng, 2005), and variables of motivational awareness or motivational monitoring have been excluded in their assessment. Motivational regulation has been comparatively less explored in the field of EFL writing with majority of the empirical studies related to general academic learning in colleges (e.g., Wolters, 1998, 1999; Wolters & Rosenthal, 2000; Cheng, 2002; Su & Cheng, 2005).

The objective of the study is to test a model of self-regulated EFL writing involving the components that have been found important for self-regulated learning using path analysis. These components includes motivational beliefs (self-efficacy, goal-orientations), motivational regulation (motivational awareness, motivational regulatory strategy use), cognitive regulation (writing strategy use) and performance in EFL writing.

I. LITERATURE REVIEW

1.1 Goal Orientations and Self-Efficacy in Writing

Goal orientations and self-efficacy are important motivational beliefs for writing learning. Studies by Pajares, Britner, and Valiante (2000), and Pajares and Cheong (2003) indicated that mastery goals were predictive of self-efficacy for writing, self-efficacy for self-regulation and self-concept. Performance-approach

goals were positively related to self-efficacy for self-regulation, self-concept (Pajares, Britner, & Valiante, 2000; Pajares & Cheong, 2003), and value of writing (Pajares & Cheong, 2003). Different findings also existed regarding the relationship between performance-approach goals and self-efficacy for writing. Performance-approach goals were not significantly correlated with self-efficacy for writing in Pajares et al. (2000), but positive correlation between these two constructs were found in Pajares and Cheong (2003). Mastery goals were not correlated to writing performance (Pajares et al., 2000). The relationship between goal orientations and writing strategy use has also been investigated. He (2005) found that students from the HMLP (high-mastery-low-performance-goal) group applied monitoring, evaluating, revising and compensating strategies more than the HPLM (high-performance-low-mastery-goal) group. HMLP goal orientation was found to be a significant and positive predictor for students' use of writing strategies and the quality of students' writing.

Though literature generally designates a 2×2 conceptualization of achievement goals that consisted of mastery-approach goals, mastery-avoidance goals, performance-approach goals and performance-avoidance goals (Elliot & McGregor, 2001), other categories of academic goals have also been proposed. For example, Grant and Dweck's study (2003) supported four empirically and conceptually distinct goal subtypes, that is, learning goals, ability goals, outcome goals and normative goals. Outcome goals are defined as goals to obtain positive outcomes or good grades or doing well in learning and was quite common in authentic classroom learning (Grant & Dweck, 2003).

Self-efficacy for writing refers to students' perceptions of one's own capabilities to accomplish particular writing tasks to attain designated levels of writing (Zimmerman & Bandura, 1994). Pajares and Johnson (1994) found that self-confidence about writing and perceived usefulness of writing accounted for 68% of the variance in writing performance. Zimmerman and Bandura (1994) indicated that self-efficacy for writing had impact on both self-efficacy for writing achievement and personal evaluative standards for composition quality, both of which, in turn, influenced goals for mastering writing skills. Pajares and Valiante (1997) found that the model involving self-efficacy for writing, writing apprehension, task value and writing aptitude on essay writing accounted for 64% of the variance in students' writing performance. Self-efficacy for writing had a direct effect on writing performance and perceived usefulness of writing, and mediated the effect of writing aptitude on writing performance.

1.2 Motivational Regulation in Self-Regulated Learning (Srl)

Pintrich (2000b) and Zimmerman (2000) define SRL as a goal-directed process and individuals regulate their own learning process not only cognitively,

behaviourally, contextually but also motivationally. The social cognitive model of self-regulated learning (Pintrich, 2000b; Zimmerman, 2000) integrates both motivational and strategic orientations in their models and their explanation of self-regulated learning. Among other aspects of self-regulation, motivational regulation is regarded as an integrative component of SRL (Pintrich, 2000) in which individuals select, apply and adjust their use of motivational regulatory strategies based upon the feedbacks from monitoring their own motivation in the learning process (Wolters, 2003; Wolters & Rosenthal, 2000). According to Wolters (1998, 2003), motivational regulation refers to "the activities through which individuals purposefully act to initiate, maintain, or supplement their willingness to start, to provide work towards, or to complete a particular activity or goal" (p. 190). Motivational regulation is achieved by purposefully intervening in managing, or controlling the underlying processes of motivation. Behaviourally it concerns thoughts, actions or behaviours that aim to influence students' choice, effort or persistence for academic tasks. Wolters (2003) pointed out that regulation of motivation was a relatively unexplored component in self-regulated learning.

1.2.1 Motivational Awareness

Compared with the studies related to metacognition and metalinguistic awareness, higher-order processes in motivation such as motivational awareness or motivational monitoring have been underexplored (Boekaerts, 1995; Pintrich, 2000), though they are theoretically discussed in some important self-regulated learning models (e.g., Pintrich, 2004; Wolters, 2003). For example, In Pintrich's (2000b) conceptual framework of SRL, the awareness or monitoring of motivation is an explicit construct in SRL, but is not subject to detailed elaboration, though it is assumed that monitoring of motivation is an important prerequisite or prelude to the control and regulation of motivation.

The role of motivational awareness in SRL has also been a relatively neglected aspect in empirical investigations. Chen (1995) conceptualized and investigated the construct of metamotivation within the framework of self-regulated second language learning. Metamotivation was conceptualized as a higher-order motivational construct referring to learners' awareness and knowledge of their own motivation. Results from canonical correlation suggested that goal-directed metamotivation was related to learners' use of general self-regulatory strategies, and language learning strategies with reflective goal setting carried the major weight in the above linkage.

1.2.2 The Use of Motivational Regulatory Strategies in Srl

Motivational regulatory strategies refer to "the various actions or tactics that students use to maintain or increase

their effort or persistence at a particular academic task" (Wolters, 1999, p. 283), especially in the face of motivational setbacks or waning motivation. These strategies include attempts to influence and control their level of motivational outcomes such as levels of effort or persistence (Boekaerts, 1995; Wolters, 1998, 1999, 2003). They also involve attempts to manipulate and control the processes that determine their motivation such as goal orientations, self-efficacy beliefs, task value and personal interest (Wolters, 2003; Pintrich & Schunk, 2002).

Though previous studies regarding the relationship between students' motivational regulatory strategy use and other constructs in SRL were limited in number, findings from these studies generally indicated that 1) students' use of motivational regulatory strategies were different across academic tasks and motivational problems (Cheng, 2002; Li, Xue, & Han, 2006; Wolters, 1998); 2) students' use of motivational regulatory strategies as a whole could be used to predict their use of cognitive and metacognitive strategies, effort exercise and academic performance (Cheng, 2002; Wolters, 1999). It seemed that mastery goal orientation was a more powerful predictor for students' motivational regulatory strategy use than performance goal orientation as findings from both Su and Cheng (2005) and Wolters and Rosenthal (2000) indicated that mastery goal orientation was significant predictor for students' use of all motivational regulatory strategies assessed in the studies, whereas performance goal orientation only predicted some of the motivational regulatory strategy use; 3) students' motivational beliefs constructs such as self-efficacy, task value and goal orientations could predict their use of motivational regulatory strategies (Su & Cheng, 2005; Wolters & Rosenthal, 2000); and 4) students' use of motivational regulatory strategies seemed to play a linking role between motivational constructs and their use of learning strategies (Fang, 2003; McCann, 1999); and it had an indirect impact on students' performance via its influence on the use of cognitive strategies (Fang, 2003). Previous studies also revealed inconsistent findings regarding the relationship between students' motivational regulatory strategy use and their academic performance. For example, MaCann (1999) found no significant correlation between volition control (motivational and emotional control) strategy and students' academic performance, and Cheng (2002) also found that volition control strategy (attention, emotion, willpower and environment control) could not predict students' test performance, but students' use of intrinsic and extrinsic regulatory strategies could predict their test performance.

2. METHODS

2.1 Participants

Two independent samples were used. The participants for

scale development were year-three college English majors 243 students (male=61, female=182) who were enrolled in autumn 2004 from two universities. Among them, 235 students gave valid responses to the questionnaires and their data were used for exploratory factor analysis.

The participants in the main study were 678 year-two college English majors, among them, 617 gave valid responses to the questionnaires and their data were subjected to path analysis.

2.2 Instruments

The Self-Efficacy for EFL Writing Scale. The Self-efficacy for EFL Writing Scale for the current study was a six-item self-reported measurement using 5-point Likert format from 1 (not at all confident) to 5 (completely confident). The scale was constructed with reference to the Writing Self-efficacy Scale used in Pajares, Hartley and Valiante (2001) with modifications appropriate to the current study. The participants were required to rate to what extent they were confident to complete specific essay-writing tasks. A sample item is how confident they were to "provide relevant and convincing details to support key ideas".

Exploratory factor analysis was performed using the Maximum Likelihood extraction with Promax rotation. Results supported a single factor solution that accounted for 55.35% of the variance in the self-efficacy for writing scores ($KMO=.89$; $\chi^2=656.89$, $df=15$, $p<.001$). The Cronbach alpha coefficient for the scale was .88.

The Goal Orientation Scale. The Goal orientation Scale was an eight-item scale to assess the students' mastery goals and outcome goals. It was adapted from the goal orientation survey in Middleton and Midgley (1997), and the students were asked to judge their desires to acquire the knowledge or skills (mastery goals) or the desires to achieve good grades (outcome goals) in EFL writing ranging from 1 (not at all true of me) to 5 (completely true of me). Sample items are "The most important thing I want to get from English writing course is good grades", and "I like writing work best when it really makes me think".

Exploratory factor analysis was performed using the Maximum Likelihood extraction with Promax rotation. Results supported a two-factor solution for that accounted for 55.02% of the variance in the goal orientation scores ($KMO=.84$; $\chi^2=766.71$, $df=28$, $p<.001$). The first factor is consisted of five items accounting for 41.01% of the variance, and it is labelled mastery goal reflecting academic goals for mastery and learning. The second factor contained three items and accounted for 14.00% of the variance. It was labelled outcome goal reflecting academic goals for obtaining good grades or doing well in the EFL course. The Cronbach alpha coefficients were .84 for the whole scale, .82 for the mastery goal subscale and .85 for the outcome goal subscale.

The Motivational Awareness Scale. The Motivational

Awareness Scale was constructed based upon Chen's (1995) Metamotivational Strength Measure designed to assess metamotivation in second language learning, but was modified to be EFL writing-specific. It was a nineteen-item self-reported scale aimed to tap how often students purposefully and consciously reflect or make sense of their motivation in EFL writing. For example, how they evaluated their strengths or weaknesses (efficacy awareness), contemplated goal priorities or desired states they had for themselves in EFL writing (goal awareness), or reflected or interpreted the causes of their improvement or lack of progress in EFL writing (attribution awareness). The students were asked to rate how often they do what was stated in the scale by choosing from 1 (never do so) to 5 (always do so). Sample items are "I think about possible causes of my progress or failures in English writing" and "I think about the weak points in my EFL writing".

Exploratory factor analysis was performed using the Maximum Likelihood extraction with Promax rotation. Results supported a two-factor solution that accounted for 54.83% of the variance in the motivational awareness scores ($KMO=.90$; $\chi^2=835.53$, $df=55$, $p<.001$). The first factor was labelled Efficacy-attribution Awareness, which accounted for 39.26% of the variance. It measures individual's attempts to understand and make self-evaluation of one's writing ability and think about the causes of one's progress or lack of improvement in the process of learning EFL writing. The second factor was named Goal Awareness, which accounted for 5.79% of the variance. It refers to an individual thinking about particular goals to achieve or goal priority in EFL writing. The Cronbach alpha coefficients were .84 for the whole scale, .86 for the efficacy-attributional awareness subscale, .71 for the goal awareness subscale.

The Motivational Regulatory Strategy Scale. The Motivational Regulatory Strategy Scale was to assess the procedures or thoughts that the students applied purposefully to sustain or bolster their willingness and engagement in writing tasks. The scale was designed with reference to the scale by Wolters (1998, 1999). The items were modified so as to be EFL writing specific by using specific motivational problems that EFL writers would encounter in writing. The students were asked to give their responses on a scale ranging from 1 (never do so) to 5 (always do so). Sample items are "I tell myself to continue writing to see just how well I can write the composition", or "I choose to do the writing task when I'm in the mood".

Exploratory factor analysis was performed using the Maximum likelihood extraction with Promax rotation. Results supported a five-factor solution that accounted for 56.12% of the variance in the scale scores ($KMO=.88$; $\chi^2=2255.36$, $df=210$, $p<.001$). The first factor consisted four items accounting for 31.74% of the variance, and it is labelled Performance Talk. It reflects thoughts or self-talk related to performance goal by emphasizing the importance

to achieve good grades or outperforming others as a means to boost persistence in the writing task completion. The second factor contained four items and accounted for 9.46% of the variance. It was labelled Interest-enhancing. It refers to the actions or thoughts that an individual takes to increase the immediate enjoyment or personal relevance of the writing tasks especially when the tasks are boring or a must-do. The third factor contained three items and accounted for 6.63% of the variance. It was labelled Self-Consequencing. It reflects an individual's self-providing consequences such as external rewards for achieving particular goals. The fourth factor contained four items and accounted for 4.95% of the variance. It was labelled Mastery Talk. It measures individual's use of thoughts or verbal statements related to mastery goal, especially to emphasize continuing the writing task at hand for the sake of learning or mastery. The fifth factor containing four items, accounted for 3.33% of the variance, and was labelled Environmental Structuring. It measures individual's actions to reduce distractions in the writing environment or purposefully make oneself physically ready for a writing task. The Cronbach alpha coefficients for the whole scale and subscales were .90 for the whole scale, .88 for the self-consequating subscale, .85 for the performance talk subscale, .81 for the interest enhancing subscale, .80 for mastery talk subscale, and .74 for the environmental structuring subscale.

The Writing Strategy Scale. The Writing Strategy Scale was a 15-item scale in 5-point Likert format aiming to tap the strategies to sustain their cognitive engagement in EFL writing including planning, monitoring and revising. The students were asked to rate how often they use the strategies stated in the scale by choosing from 1 (never do so) to 5 (always do so). Sample items include "Make an outline to help structure the composition before drafting", or "Check if the paragraphs contain necessary and appropriate details".

Exploratory factor analysis was performed using the Maximum Likelihood extraction with Promax rotation. Results of exploratory factor analysis supported three-factor solution that accounted for 53.06% of the variance in the scale scores ($KMO=.90$; $\chi^2=1263.69$, $df=78$, $p<.001$). The first factor consisted five items accounting for 39.96% of the variance, and was labelled Revising. It reflects student writers' rewriting unclear parts, adding details, or deleting redundancy for the purpose of improving the quality of the written products. The second factor contained four items accounting for 6.78% of the variance, and was labelled Monitoring. It refers to attempts that student writer takes to check the quality of the written product in terms of coverage, relevance and convincingness of supporting details, and clarity and consistency of key ideas. The third factor contained four items accounting for 6.32% of the variance, and was labelled Planning. It reflects the pre-writing strategies that a student writer uses such as outlining, drafting, listing

ideas or thinking about the goals to achieve in a particular writing. The Cronbach alpha coefficients for .89 for the whole scale and subscales were the whole scale, .82 for revising subscale, .77 for the planning subscale, and .82 monitoring subscale.

EFL Writing Performance. The participants' EFL writing performance was measured using the scores that the students received from the short essays that they wrote in their end-of-semester EFL writing examination. The students' essays were rated using the Essay Scoring Guide developed by Butcaris (2002) with necessary modification by the researcher. Two experienced teachers reviewed and graded the students' essays. The evaluators assessed the student essays according to the evaluative criteria in terms of three features of student essays--organization, development and clarity of expression, but only one holistic score was given to each essay on an ordinal scale ranging from 1 (lowest possible rating) to 5 (highest possible rating). The inter-rater reliability achieved .74.

2.3 Hypotheses

This research aimed to examine a model of self-regulated EFL writing that involved motivational beliefs (self-efficacy and goal orientations), motivational awareness, motivational regulatory strategy use, writing strategy use and the students' performance in EFL writing using path analysis via AMOS 5.0. Figure 1 illustrates the hypothesized path model. The path flows were hypothesized reflecting findings in previous empirical studies. We hypothesized that self-efficacy and goal orientation would lead to increase in motivational awareness, which in turn, would impact the use of motivational regulatory strategies and writing strategies positively. Self-efficacy would impact writing performance both directly and indirectly via the use of writing strategies. Goal orientation would also have positive impact motivational strategy use, which would lead to increase in writing strategy use. Figure 1 illustrates the hypothesized path model.

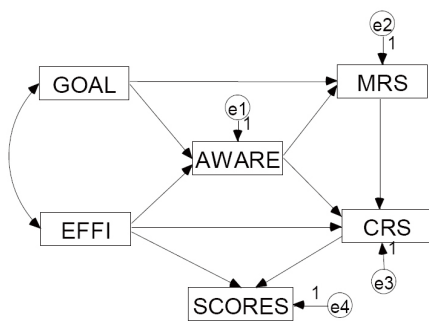


Figure 1
The Hypothesized Model of Self-Regulated EFL Writing

Note. EFFI=self-efficacy for EFL writing; GOAL= Mastery-outcome goals; AWARE=motivational awareness; MRS=motivational regulatory strategies; CRS=writing strategies

3. RESULTS

To explore the interactions among self-efficacy, goal orientations, motivational awareness, the use of motivational and writing strategies, and performance in EFL writing, the self-regulated EFL writing model's causal sequence (Figure 1) was tested using path analysis via AMOS 5.0. Correlations between the variables are presented in Table 1. Because the data were collected using a correlational design, it would be inappropriate to infer a causal relationship between the components in the proposed model.

Given that the sample in the study was small (N=617), Good fit is indicated by the Comparative Fit Index (CFI) at the acceptable cutoff point of .95 , and the root mean square error of approximation (RMSEA) between .05 and .08 (Browne & Cudeeck, 1993) with C.I. < .08 (Byrne, 2000). The initial test of the model (Model 0) did not generate a good fit of the model to the data. Respecification was conducted by deleting the path from self-efficacy to scores ($\beta=.10$, n.s). The respecification of the model improved the fitness of the model (Model 1) to the data, but failed to achieve an acceptable fit. Re-examination of necessary restrictions indicated that the data would be better described by adding a path from goal to scores. The final model (Figure 2) indicated a good fit to the data with $\chi^2=1.20$, $df= 5$, $p= .95$; $\chi^2/df = .24$; CFI=.98; RMSEA=.02 (CI=.01-.02)) indicating the final model fitted the data well.

Table 1
Correlations Between the Variables

	EFFI	GOAL	AWARE	MRS	WS	SCORE
EFFI	1	.343**	.319**	.206**	.447**	.284**
GOAL		1	.506**	.457**	.363**	.485**
AWARE			1	.436**	.462**	.342**
MRS				1	.395**	.311**
WS					1	.469**

** p<.01

Note. EFFI=self-efficacy for EFL writing; GOAL= Mastery-outcome goals; AWARE=motivational awareness; MRS=motivational regulatory strategies; CRS=writing strategies

Table 2
Summary of Fit Statistics for the Model of Self-Regulated EFL Writing

Model	χ^2	df	CFI	RMSEA	C.I.
Model 0: Hypothesized model	18.43	5	.91	.16	.14-.20
Model 1: Model 0 with EFFI→SCORES deleted	16.27	6	.91	.16	.12-.18
Model 2: Model 1 with GOAL → SCORES added	.24	5	.97	.02	.02-.03

*p<.001, good fit is indicated by CFI>=.95, RMSEA<.08 (C.I.<.08)

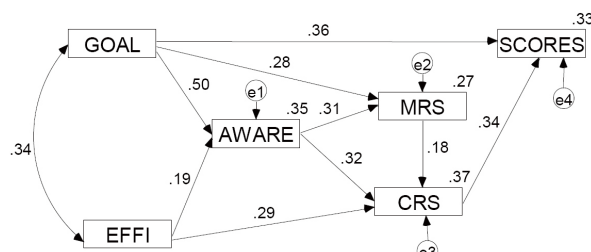


Figure 2
Standardized Path Coefficients and Standardized Regression Weights of the Best-Fit Model

Note. EFFI=self-efficacy for EFL writing; GOAL= Mastery-outcome goals; AWARE=motivational awareness; MRS=motivational regulatory strategies; CRS=writing strategies

Results indicated that self-efficacy for EFL writing had a direct effect on both motivational awareness ($\beta=.19$, $p<.001$) and writing strategy use ($\beta=.29$, $p<.001$). Mastery-outcome goals had a direct influence on motivational awareness ($\beta=.50$, $p<.001$), the use of motivational regulatory strategies ($\beta=.28$, $p<.001$) and EFL writing performance ($\beta=.36$, $p<.001$). Motivational awareness had a direct impact on the use of both motivational regulatory strategies ($\beta=.31$, $p<.001$) and writing strategies ($\beta=.32$, $p<.001$). The use of motivational regulatory strategies has a direct influence on writing strategy use ($\beta=.18$, $p<.001$), which in turn influenced writing performance directly ($\beta=.34$, $p<.001$).

Mastery-outcome goals and writing strategy use together accounted for 33% of the variance in writing performance ($R^2=.33$). The combined effects of self-efficacy and mastery goal accounted for 35% of the variance in motivational awareness ($R^2=.35$). The variance in motivational regulatory strategies explained by the combined effects of motivational awareness and mastery-outcome goal was 27% ($R^2=.27$). 37% of the variance in writing strategy use was explained by the effects of self-efficacy, motivational regulatory strategies and motivational awareness combined ($R^2=.37$).

DISCUSSION

This study aimed to test a model that integrated variables from different components of self-regulated writing to predict students' EFL writing performance. These variables were self-efficacy for EFL writing, goal orientations, motivational awareness, use of motivational regulatory strategies, and use of writing strategies. The results generally supported a model in which students' motivational beliefs (self-efficacy, mastery-outcome goals) impacted their motivational regulation (motivational awareness and the use of motivational regulatory strategies) which, in turn, influenced their use of cognitive writing strategies. Students' cognitive writing strategy use and mastery-outcome goals had a direct impact on their

writing performance.

Results tended to confirm social cognitive theory of SRL and previous studies (e.g., Hsieh, & Schallert, 2008; Pajares & Valiante, 1997; Ushioda, 2001; Zimmerman & Bandura, 1994) in that students' self-regulation in academic learning demanded motivational support. In a sense, adaptive motivational beliefs such as self-efficacy for EFL writing and goal orientations tended to provide motivational support for students' motivational self-regulation such as their motivational awareness and the use of motivational regulatory strategies. This provided empirical support for Wolters' (2003) contention that individual's motivational regulation also demanded motivational support. In a narrow sense, motivational awareness, that is, how students reflected and interpreted their own motivation tended to have direct impact on their use of strategies to regulate their motivation in face of motivational setbacks. This seemed to echo that higher-level motivation was a prerequisite for students' use of motivational regulatory strategies (Kuhl, 1984). In a sense, the results of the model suggested that both adaptive motivational beliefs and students' motivational regulation provided a motivational base for students' effective cognitive engagement in academic learning, particularly their use of cognitive strategies. Students' motivation and motivational regulation also impacted their writing performance indirectly through their influences on students' cognitive engagement.

Majority of the previous studies that explored the role of motivation in self-regulated learning tended to relate motivational beliefs directly to components of cognitive engagement, (e.g. Shell & Husman, 2008; Wolters, 1999; Zimmerman & Bandura, 1994) excluding variables of motivational regulation such as motivational awareness or motivational regulatory strategy use. Only a limited number of studies have attempted to examine the relationship between motivational regulatory strategy use and other SRL components (e.g., Fang, 2003; Su & Cheng, 2005; Wolters, 1999; Wolters & Rosenthal, 2000). The findings in the current study indicated that the impact of motivational belief variables on students' cognitive engagement tended to function via the mechanism of motivational regulation. It seems that adaptive motivational beliefs such as self-efficacy, mastery and outcome goals could provide motivational support and trigger students' overall mechanisms for motivational regulation during learning process. Students with adaptive motivational beliefs were more likely to monitor, reflect and interpret inward and self-referenced aspects of their motivation, and informed by such self-evaluation and self-monitoring, they tended to use a variety of motivational regulatory strategies to sustain effort or persistence as well as mastery intention and cognitive engagement even in face of problems or difficulties in learning.

A few previous studies (e.g., Fang, 2003; McCann, 1999) had similar findings revealing that students' use of

motivational regulatory strategies played a role between motivational constructs and their use of learning strategies, but motivational awareness was not a component assessed in these studies. Thus, further clarification of the role of motivational regulation in the whole self-regulated learning system demands future studies that include motivational regulation variables, especially motivational awareness, together with cognitive variables and academic performance in one single model.

Self-efficacy for EFL writing was not a significant predictor of EFL writing performance in the current study as indicated by lack of a significant path between them in the current study. Self-efficacy influenced writing performance only indirectly through students' use of cognitive strategies. This finding was unexpected given that prior studies repeatedly indicated that self-efficacy for EFL writing was predictive of writing performance (e.g., Pajares & Johnson, 1994; Pajares & Valiante, 1997; Zimmerman & Bandura, 1994). The effect sizes between self-efficacy for EFL writing and writing outcomes in multiple regression and path analysis that control for pre-performance ranged from .19 to .40 (Pajares, 2003). One point worth of consideration was that few prior studies have involved the assessment of motivational regulation components in their models when interpreting the role of self-efficacy. The findings in Fang (2003) indicated that the presence of motivational regulation component might make a difference in interpreting the role of self-efficacy. With the inclusion of motivational regulatory strategy use in his structural equation model, Fang (2003) found that self-efficacy did not predict academic performance directly. Rather self-efficacy exerted a direct effect on students' motivational regulatory strategy use and the influence of self-efficacy on performance was achieved through students' use of metacognitive and cognitive strategies. The current finding and those of Fang (2003) seemed to point to the plausibility that with the involvement of motivational regulation components such as motivational awareness and/or the use of motivational regulatory strategies, self-efficacy tended to influence academic performance indirectly through its impact on both motivational and cognitive regulation. As previous studies that involved both self-efficacy and motivational regulation has been lacking, such a speculation demands replication in future studies.

Another plausible explanation of the failure of self-efficacy to predict writing performance in the current study might be related to the cultural factors. Less predictive power of self-efficacy for Asian students' performance may be due to that 1) Asian students were more likely to link high performance to internal and controllable effort than ability (Skinner, Wellborn & Connell, 1990), and thus they tended to de-emphasized ability (i.e. self-efficacy) in academic learning. They focused less on perceived capacity (i.e., efficacy) and more on the importance of

doing well on tasks. That mastery-outcome goal was found to predict the students' EFL writing performance in the current study seemed to support this ; 2) Asian students tended to set higher goals for themselves and evaluate their performance against higher standards than non-Asians, thus they were more likely to underestimate their ability (Eaton & Dembo, 1997). Some factors, for example, fear for failure was found to be better predictors for Asian students' performance than self-efficacy (Eaton & Dembo, 1997; Steinberg et al., 1992). Future research should include factors such as fear for failure, outcome goals and effort attribution in the model to explain the role of self-efficacy in Asian students' self-regulated learning.

CONCLUSIONS

The results of the current study generally supported a model in which students' motivational beliefs impacted their motivational regulation which, in turn, influenced their use of writing strategies. Students' writing strategy use and mastery and outcome goals had a direct impact on their writing performance. More empirical studies are needed to explore the underlying constructs of higher-order motivation such as motivational awareness and monitoring, and the role of motivational regulation in the self-regulated learning system.

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