

Chinese College Students' Self Regulated Learning Strategies and Self-Efficacy Beliefs in  
Learning English as a Foreign Language

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Abstract

Chinese college students majoring in medicine participated in this study by completing two questionnaires about their use of self-regulated learning (SRL) strategies and self-efficacy beliefs in studying English as a foreign language. Data on participants' performance on two English written exams and one oral English test were also collected. Statistically significant relationships between the use of SRL strategies, self-efficacy beliefs, and achievement in learning English were noted, providing additional validity information for the scores from the two questionnaires developed in a previous study (Wang & Pape, 2005). Participants' self-ratings of self-efficacy and use of SRL strategies; however, were not high. Students who read articles before reading questions had better performance on English written exams than their counterparts. Implications of the results in a Chinese English instruction context are also discussed.

*Keywords:* self-regulated learning, self-efficacy, learning English as a foreign language

**Introduction**

In China, college students spend more time studying English than any other university subject in their spare time. Although they are required to take four hours of English courses each week during their first two years in a university, Chinese undergraduate students usually spend about 10 hours every week in after-class English learning. That is to say, these college students spend more than twice as much time studying English on their own than in learning English with their teachers. As a result, it is important to study these students' self-regulated learning (SRL) strategies learning English as a foreign language inside and outside of the classroom.

Students' academic performance is influenced by classroom teaching approaches (Delucchi, 2007; Diseth, 2007; Doherty, & Hilberg, 2007; Farkas, 2003; Malouff, Rooke, Schutte, Foster, & Bhullar, 2008; Trimble & Irvin, 2003), students' SRL strategies (Ainley & Patrick, 2006; Pape & Wang, 2003; Paris & Paris, 2001; Schunk, 1996; Schunk & Ertmer, 2000; Wood, Bandura, & Bailey, 1990; Zimmerman, 1998), and students' self efficacy beliefs (Pajares & Graham, 1999; Pajares & Valiante, 1997; Schunk, 1994; Shih & Alexander, 2000; Voss, 2001; Wang, Wang, Li, 2007). While teacher education researchers have investigated extensively on curriculum and instruction, the constructs of self-efficacy beliefs and SRL strategies have been the foci of educational psychologists (Zimmerman, 2008).

Self-efficacy and SRL strategies are closely related to each other and are predictive of students' academic achievement (Ellis, 1989; Schunk, 1990; Zimmerman & Martinez-Pons, 1990). Asian students are more accurate at calibrating their efficacy beliefs with subsequent performance in academic settings in comparison to students of western culture (Earley, 1999; Eaton & Dembo, 1997; Salili, Chiu, & Lai, 2001; Scholz, Gutierrez-Dona, Sud, & Schwarzer, 2002; Schwarzer & Born, 1997). The subject areas in previous studies about self-efficacy and self-regulation were mostly in the fields of mathematics and literacy (e.g., first language reading

and writing). Studies investigating these constructs in the context of studying English as a foreign language, however, are limited (Huang, Lloyd, & Mikulecky, 1999). Enhancing students' self-efficacy beliefs and SRL strategies may be crucial to their language learning process and should be included in classroom teaching approaches. This study therefore was designed to provide a description of the current levels of Chinese college students' self-efficacy beliefs and SRL strategies and to examine how these constructs are related to Chinese college students' achievement in learning of English as a foreign language.

### **Self-Regulation**

SRL strategies are measures that students use to develop study habits, to monitor or regulate their learning process, and to make adjustments to their own strategies based upon feedback. Zimmerman and Martinez-Pons (1986) reported that students' self-reported SRL strategies were positively correlated with their standardized testing performance. In another study, Zimmerman and Martinez-Pons (1988) noted that high achieving students used more learning strategies and were more likely to seek help from instructors than low achieving students. Students who needed help the most were least likely to seek help. Zimmerman and Martinez-Pons (1988) concluded that successful students tend to be aware of how well they have done on a test even before getting it back from the instructor, indicating their tendency to self-monitor performance.

Self-regulated learners also implement various motivational strategies, including orienting oneself before working on an assignment, collecting relevant resources, integrating various theoretical viewpoints, monitoring comprehension, and assessing progress (Boekaerts & Cascallar, 2006). Motivation strategies "set the scene for learning and assign value to the learning activity" (Boekaerts & Cascallar, 2006, p. 201). According to social cognitive theorists

(e.g., Schunk, 1994), students' learning behavior is closely related to their social experiences and to interactions with teachers. More specifically, students' past learning experiences "trigger expectations and beliefs, which might have a profound impact on their current perceptions, choices they make, and effort they are prepared to invest" (Boekaerts & Cascallar, 2006, p. 204). Students are more inclined to self-regulate if teachers promote student-centered learning (Abdullah, Bakar, Roslan, Luan & Rahman, 2006).

Chamot and El-Dinary (1999) investigated elementary school children's strategy use while learning a foreign language and noted a significant difference in the use of strategies depending on the context of learning tasks. The number of strategies used to complete reading tasks was twice as many as that used to complete writing tasks. Strategies favored in the context of reading were making inferences, predictions, elaborations, language knowledge, translating, and summarizing. The only strategy favored in the context of writing was planning.

Students who are less self-regulated have "difficulty gauging their learning strengths and weaknesses and how these interact with the demands of particular tasks" (Perry, Hutchinson, & Thauberger, 2007, p. 27). In response to the difficulty of regulating their learning, these students will "avoid failure and damage their self-esteem by seeking easy tasks, procrastinating, or avoiding work altogether" (Perry et al., 2007, p. 27). As a result, teachers should consider how to help students develop SRL strategies as a part of classroom instruction.

SRL strategies can easily be incorporated into classroom instruction (Zimmerman, 1998). Previous studies have shown that instructional methods, including the type of task in which teachers ask students to engage, influence the motivational goals that students adopt for their learning as well as their SRL strategies (Ames, 1992; Cohen, 1994; Doyle, 1983; Maehr & Midgley, 1991; Meece, Blumenfeld & Hoyle, 1988; Wolters & Pintrich, 1998). Boekaerts and

Cascallar (2006) posit that a teacher's clarity and pace of instruction, degree of structure, autonomy granted, enthusiasm, humor, fairness, and expectations have an effect on students' SRL.

Zimmerman (1998) argued that successful learners maintain motivation and intrinsic interest as they control their choosing and planning of academic tasks. Earlier studies had shown that students who realized the importance of the assigned tasks were prepared to use effective learning strategies (e.g., Pintrich & DeGroot, 1990) and were more likely to have strong self-efficacy beliefs (e.g., Schunk, 1990; Zimmerman & Martinez-Pons, 1990).

### **Self-Efficacy**

Self-efficacy is defined as a person's judgment of his/her capabilities to complete a specific task with the skills he/she possesses (Bandura, 1997) and is usually described as being task-specific (Bandura, 1986; Schunk, 1989, 1991). Self-efficacy is a vital process involved in self-regulation and is affected by the features of the classroom (Schunk, 1994). Students generate self-efficacy judgments for specific classroom tasks, and these beliefs vary as a function of tasks or classroom features (Pintrich & Schunk, 1996). Salili and Lai's (2003) study of Chinese students' learning and motivation noted that the implementation of a variety of instructional strategies was correlated with higher levels of self-efficacy.

### **Test-Taking Strategies**

College students in Chinese universities are required to take English courses for two years. The instruction time amounts to 280 hours, which is a large number of hours compared to other subjects. The Chinese Ministry of Education requires that all undergraduates pass the College English Test Band 4 (CET-4) in order to get their diplomas. English is therefore

regarded as one of the most important subjects in the university. Under a pressure to pass CET-4, Chinese college students are very interested in test-taking strategies.

One of the test-taking strategies is whether to read a passage before answering questions about the passage or to read the questions and then find the answer in the passage. In a study of test-taking strategies in the United States, 210 fourth grade students were randomly put into two groups and given the Level 9 reading Comprehension Test of the Iowa Test of Basic Skills (Perlman, Borger, Gonzalez, & Junker, 1998). Students in one group were advised to read the test questions before reading the passage while students in another group were advised to read the passage before reading the test questions. No statistically significant difference was noticed in their performance; however, higher ability students performed better on generalization items in the group who read the passage first, and lower ability students did worse using this test-taking strategy (Perlman et al., 1998).

Some qualitative studies of college students' test-taking strategies have noted that in order to save time, some students read the test questions before reading the passage while other students read the passage before reading the test questions. These studies did not report statistically significant differences in the students' performance on the tests (Farr, Pritchard, & Smitten, 1990; Rupp, Ferne, & Choi, 2006).

In order to help students pass CET-4, English teachers in Chinese universities divide their instruction time into four parts: intensive reading (50%), listening (15%), extensive reading (20%), and writing (15%). Intensive reading aims to help students increase their recognition of vocabulary and phrases that appear in the textbook. The instruction is mainly teacher-centered. Teachers teach vocabulary, phrases, and grammar, and provide cultural notes related to the texts. Students are asked to do several exercises designed based on the text. Listening aims to help

students understand major listening tasks such as daily conversations, functional dialogues, and short lectures. Teachers teach some listening strategies or note-taking skills to help students understand the materials. Extensive reading aims to help students comprehend the general idea of an article. In teaching extensive reading, teachers do not focus on explaining each word or phrase; instead, they help students develop skills in grasping the main idea of an article. The major task is to understand the context and structure of the article. Writing aims to teach skills to organize thoughts. Students are often asked to write a short article (about 150 words) in class. All these teaching methods focus on knowledge mastery as well as the development of language skills.

The literature review suggests that it is important to examine Chinese students' SRL strategies and self-efficacy beliefs as factors that may influence their English language learning and performance on English tests. Therefore, this study was designed to answer the following research questions:

1. At what level do Chinese college students endorse specific SRL strategies and self-efficacy beliefs?
2. Are Chinese college students' SRL strategies and self-efficacy beliefs related to each other? Are they related to these students' performance on standardized tests in English and oral English test?
3. Are there significant differences in reading achievement between Chinese college students who read a passage before answering questions about the passage or their counterparts who read the questions and then find the answer in the passage?

## **Method**

### **Participants**

Participants in the study were 517 sophomore students in a Chinese university in the southeastern region of China. All of the participants were majoring in medicine. Unlike the case in the United States, medical school students are representative of college students in other academic areas with respect to academic achievement and demographic background. The participants were mostly (81%) males, and their ages ranged from 17 to 25 years, with an overall mean age of 20.6 years and a standard deviation of 1.08 years.

### **Measures**

In order to investigate whether or not these strategies apply to second language learning and to students with Chinese cultural background, Wang and Pape (2005) developed two surveys to measure Chinese students' self-efficacy beliefs and their use of SRL strategies studying English as a second language in American classrooms through multiple interviews and observations. When developing these scales, Wang and Pape (2005) referenced Bandura's (1997) theoretical framework of self-efficacy, Zimmerman and Martinez-Pons' (1986) self-regulated learning interview scale, and Oxford's (1990) Strategy Inventory for Language Learning (SILL). During the structured interview in Zimmerman and Martinez-Pons' (1986) study, middle school students were asked to respond to six problem contexts such as preparing for a test or writing an essay. Responses to these open-ended questions were transcribed and coded into 14 SRL categories that focused on motivation, metacognition, and behavior. The motivation category includes SRL strategies such as self-evaluation and self-consequences. The metacognitive category includes SRL strategies such as goal-setting and planning, organizing and transforming, seeking information, and rehearsing and memorizing. The behavioral category includes SRL strategies such as environmental structuring, keeping records and monitoring, reviewing records, and seeking social assistance.

The Questionnaire of English Self-regulated Learning Strategies (QESRLS) includes 68 items (Appendix A). Each item describes an SRL strategy commonly used in studying English. Based upon the 11 categories of SRL strategies in the context of mathematical problem solving (Pape & Wang, 2003), 11 categories of SRL strategies in the context of learning English as a foreign language were used in the study: (1) Self-evaluation (Items 8, 30, 58, and 66); (b) Organization and transformation (Items 2, 13, 16, 18, 26, 33, 38, 40, 41, 44, 45, 47, 49, 55, 60, and 68); (c) Rehearsal and memorization (Items 14, 22, 24, 28, 42, and 43); (d) Seeking social assistance (Items 6 and 19); (e) Persistence when faced with challenges (Items 5, 9, 12, and 20); (f) Seeking opportunities to practice English (Items 23, 29, 39, 46, 48, 52, 54, and 67); (g) Record keeping and monitoring (Items 1 and 4); (h) Self-consequences (Items 15 and 53); (i) Goal setting and planning (Items 7, 10, 11, and 17); (J) Review of records (Items 3 and 51); and (k) Interpretation skills (Items 21, 25, 27, 32, 34, 35, 36, 37, 50, 56, 57, 59, 64, and 65). Items 31, 61, 62, and 63 did not fall into any of these categories in factor analysis, so they were treated separately in the data analyses.

Validity ensures that the interpretation of a survey outcome is accurate, the intended theoretical constructs are supported, and conclusions drawn from the survey are accurate and reliable (Messick, 1995). According to Wang et al., (2007), internal consistency (Cronbach's alpha) was .96, test-retest reliability was .88 (the interval between the two measurements was three weeks), concurrent validity was .62, with SILL developed by Oxford (1990), and predictive validity was .57 (for English proficiency test performance). Students were asked to respond by circling one of the choices that matched their use of these strategies the most: 0 = "I never use it," 1 = "I seldom use it," 2 = "I sometimes use it," and 3 = "I often use it."

The Questionnaire of English Self-Efficacy (QESE) includes 32 items (Appendix B). Each item asks students to make judgments about their capabilities to accomplish certain tasks using English as a foreign language. Four subscales were also analyzed: (a) Self-efficacy for listening (Items 1, 3, 9, 10, 15, 22, 24, and 27); (b) self-efficacy for speaking (Items 4, 6, 8, 17, 19, 20, 23, and 30); (c) self-efficacy for reading (Items 2, 12, 16, 21, 25, 26, 29, and 32); and (d) self-efficacy for writing (Items 5, 7, 11, 13, 14, 18, 28, and 31). According to Wang et al. (2007), the internal consistency (Cronbach's alpha) was .96, test-retest reliability was .82 (the interval between the two measurements was three weeks), the concurrent validity was .55, with the scale of "Self-Efficacy for Learning and Performance" which consisted of eight items from Motivated Strategies for Learning Questionnaire developed by Pintrich and DeGroot (1990), and the predictive validity was .41 (for English proficiency test performance). Students were asked to rate their capabilities on a 7-point Likert scale from 1 (I cannot do it at all) to 7 (I can do it very well).

In order to make sure that students understand the items correctly, both questionnaires were in English and Chinese. An iterative process of repeated independent translation and blind back-translation recommended by Brislin (1970) was used to ensure the congruence of meaning between the English and Chinese versions of items in the questionnaires.

Two English written examinations (Exam 1 and Exam 2) and one oral English test were also used as outcome measures. Both English written examinations were combinations of criterion-referenced tests and aptitude tests, each of which consists of 60% of what was covered in the English class and 40% of English proficiency skills. Each of these two English written examinations included listening comprehension (20%), reading comprehension (35%), vocabulary and grammar (30%), and writing (15%). Due to the concern over the validity of

responses to multiple-choice questions, the ratio between multiple choice items and opened-ended questions changed from the traditional 7:3 to 4:6. Scores from both exams can be interpreted with a high degree of validity. The scores range from 0 to 100. A score below 60 is considered failure to master the skills, a score between 60 and 69 is considered “pass,” a score between 70 and 79 is considered “good,” a score between 80 and 89 is considered “very good,” and a score between 90 and 100 is considered “excellent.” The raw scores were used in this study, and the variable to represent students’ performance on these two English examinations was treated as an interval scale of measurement in the data analyses.

The procedure for administering the oral English test was as follows: (1) Groups of three or four students were created (2) Two teachers conducted an interview with each of the groups (3) The groups participated in a discussion on a particular topic related to their studies or daily life (4) the teachers followed the discussion by questioning students one by one. The four steps of this procedure were completed in 10-15 minutes. The two teachers evaluated the students’ participation in the procedure and from their evaluation the students received an A, B, C, or D. The mean score of the scores provided by both teachers was used as the final grade for each student. The topics and preparation guidelines were given to students beforehand; however a substantial amount of effort was exerted to ensure the administered activities elicited spontaneous responses rather than prepared recited responses. The objective of the exam was to test how well students could speak English spontaneously. The letter grades were converted to numerical values (1=D, 2=C, 3=B, and 4=A) for data analysis.

## **Procedures**

Participants completed two questionnaires, QESRLS and QESE, at the beginning of the semester. Participants took two English written examinations at the end of the semester in Year

One and Year Two, respectively. In addition, one oral examination record was also included. A letter-grading system (A, B, C, D) was used to grade each student according to their oral English competence. Descriptive statistics were employed to report the participants' levels for the use of SRL strategies and self-efficacy beliefs. Pearson product-moment correlation was employed to examine possible relationships between self-efficacy, SRL strategies, and students' performance on two English exams as well as the oral English test. Since there are 51 possible relationships to be tested (3 tests by 17 constructs and sub-constructs of self-efficacy and SRL strategies), a Bonferroni type adjustment was made for inflated Type I error. The significance level for these Pearson product-moment correlation tests was adjusted to .001.

In addition, participants were put into two groups by one of their SRL strategies (Items 62-63) about whether they read questions before reading articles or read articles before reading questions during English reading comprehension examinations. Only students who reported using this strategy often were selected for this analysis ( $n = 245$ ). Of these students, 86 (35%) often read articles before reading questions and 159 (65%) often read questions before reading articles. Two-way repeated measures analysis of variance (ANOVA) was used to examine the interaction effect of time (two English written exams) and group membership as well as the main effect of time and group membership.

## **Results**

Responses to both questionnaires were found to be reliable using total scores. Cronbach's alpha (internal consistency) was .94 for QESRLS and .97 for QESE. Descriptive statistics and inter-correlation coefficients between the outcome measures were presented in Table 1 as follows:

**Insert Table 1 about here**

Participants' performance on the two English exams were comparable ( $M = 66.56$ ,  $SD = 8.65$  for Exam 1 and  $M = 66.58$ ,  $SD = 12.90$  for Exam 2) except that their scores were more spread out in Exam 2, suggesting that students' overall achievement in English remained the same from Year One to Year Two but the range of scores was larger. On average, participants' use of SRL strategies was 1.76 with a standard deviation of 0.38, indicating that most participants only occasionally use these strategies. Participants' mean self-efficacy in completing English tasks ( $M = 4.62$ ,  $SD = 0.85$ ) was not very strong.

Statistically significant relationships were identified between participants' use of SRL strategies and self-efficacy beliefs for completing English language tasks ( $r = .52$ ). Furthermore, a statistically significant positive relationship was noticed between students' self-efficacy beliefs and all subscales of SRL strategies: self-evaluation ( $r = .37$ ), organizing and transforming ( $r = .32$ ); rehearsing and memorizing ( $r = .28$ ); seeking social assistance ( $r = .22$ ); persistence when faced with challenges ( $r = .46$ ), seeking opportunities to practice English ( $r = .48$ ), keeping records and monitoring ( $r = .32$ ), self-consequences ( $r = .24$ ), goal-setting and planning ( $r = .39$ ), reviewing records ( $r = .29$ ), and interpreting skills ( $r = .51$ ). Student's self-efficacy beliefs were also significantly related to their performance on English exams, and significant relationships were also noted between participants' performance on English written exams and their oral English proficiency (See Table 1). Participants' use of SRL strategies, however, was not statistically significantly related to their performance on English exams.

When participants' responses to each subscale of the self-efficacy questionnaire and the SRL strategies questionnaire were correlated to their performance on the three English exams, findings were mixed (See Table 2). Participants' responses to all four self-efficacy subscales were significantly correlated with their performance on all three English exams, suggesting a

strong correlation between self-efficacy beliefs in English listening, speaking, reading, and writing tasks and English achievement. As for SRL strategies, self-evaluation, persistence when faced with challenges, and interpretation skills were all significantly correlated with students' performance on the three English exams. Keeping records and monitoring was significantly correlated with students' performance on oral English test, and reviewing records was significantly correlated with students' performance on the first English written exam. Other Subcategories of SRL strategies (organizing and transforming; rehearsing and memorizing; seeking social assistance; seeking opportunities to practice English, self-consequences, and goal-setting and planning) were not statistically significantly correlated with any one of the three English exams.

#### **Insert Table 2 about here**

The 2x2 ANOVA suggested that the interaction effect between time and group membership was insignificant,  $F(1, 241) = 0.01, p = .92, \text{partial } \eta^2 < .001$ . The main effect of time was also minimal,  $F(1, 241) = 0.02, p = .90, \text{partial } \eta^2 < .001$ , indicating no significant change of students' performance on English exams from Year One to Year Two. The main effect of group membership, however, was significant,  $F(1, 241) = 12.591, p < .001, \text{partial } \eta^2 = .05$ . This means that the students who read articles before reading questions had significantly higher scores on the average of the two English exams ( $M = 70.97, SD = 15.87$ ) than students who read questions before reading articles ( $M = 66.49, SD = 11.65$ ). Specifically, the students who read articles before reading questions did better than students who read questions before reading articles on English Exam 1 ( $M = 70.66$  and  $SD = 8.41$  versus  $M = 66.51$  and  $SD = 8.02$ ) and English Exam 2 ( $M = 70.90$  and  $SD = 10.89$  versus  $M = 65.78$  and  $SD = 14.42$ ).

#### **Discussion**

Many of the findings from this study in the domain of learning English as a foreign language are consistent with the results from previous studies in the domain of first language English reading and writing and mathematics education. For example, self-efficacy, SRL strategies, and academic achievement were positively correlated with each other (Ainley & Patrick, 2006; Pape & Wang, 2003; Shih & Alexander, 2000; Wang et al., 2007). Specifically, students who had strong self-efficacy beliefs were persistent when faced with challenges and were more successful in academic achievement (Schunk, 1990; Wang et al., 2007).

The average use of SRL strategies by participants in this study was not satisfactory, indicating a lack of integration of SRL strategies in Chinese college English instruction context. Learning is influenced by a variety of contexts, one of which includes a societal level of learning established by cultural values and societal norms which is reflected in students' socialization and parents' expectations (Salili & Lai, 2003).

School and classroom environment impacts student learning (Maehr & Midgley, 1996). The dominant English classroom instruction pedagogy in China is still teacher-centered where students are not encouraged to develop their own strategies but instead to follow teacher's words. This way of pedagogy might be beneficial for students to gain knowledge and have good performance on English examinations which focus on content knowledge (e.g., vocabulary, grammar, and sentence structure); however, it is not good for students to discover the freedom they might have in developing their own ways of learning. This could also explain the small effect sizes of the relationships between participants' use of SRL strategies and their performance on English exams. Although a trend was noted that the more SRL strategies were used the higher scores participants gained in English exams, this connection was weak. This was because, on average, these participants only used these SRL strategies occasionally. The

distinction of the use of SRL strategies among the participants was small. This was also reflected by the small variance (0.14 on a four-point response key) of SRL strategies.

Students' SRL strategies are very important to their acquisition of the competence and knowledge in general and their acquisition of the English language in particular. This study suggests that English teachers should consider incorporating SRL strategies in classroom teaching and facilitate the student's development of their own SRL strategies. One example is to have more group work instead of lectures since small group collaboration and a social constructivist's learning environment enhance students' use of SRL strategies (Boekaerts & Cascallar, 2006).

It was not surprising that participants' report of self-efficacy beliefs were not strong either. This might be partially due to the humble Chinese culture. Chinese students were, generally speaking, more likely to report lower self-efficacy beliefs in comparison to students from European and American cultures (Earley, 1999; Eaton & Dembo, 1997; Salili et al., 2001; Scholz et al., 2002; Schwarzer & Born, 1997). Some researchers claimed that complying with societies' demands involves the restriction of student's personal wishes, interests, and expectations (Kuhl, 2000). Chinese classroom instructional context may also explain the participants' report of self-efficacy to complete English language tasks. There was such a strong focus on passing CET-4 in college English curriculum that most teachers only teach students knowledge and skills to do well in this test and ignore the practical use of English as a communication tool. As a result, participants in this study did not feel that they could use English well in real-life situations, as reflected in the self-efficacy questionnaires.

Students who read the articles before reading questions did better than students who read the questions before reading articles on English exams. Although many other factors could

influence this result, for example, students' IQ, confidence in memory, and ability to avoid being distracted by misleading information, these results reinforced the argument for teaching practical reading skills versus teaching for the tests. Some students in China thought reading the questions before reading the article could save them time in the test because they would only have to locate the answers to the questions in the article. This study suggests that reading questions before reading the article might not help the students to get a better understanding of the article and to obtain more accurate answers to the questions.

Although this study is significant in that it reports the current levels of Chinese college students' use of SRL strategies and self-efficacy beliefs in studying English and extended previous findings that these constructs are related to each other and to academic achievement in the context of learning English as a foreign language (Ainley & Patrick, 2006; Paris & Paris, 2001; Schunk, 1996; Shih & Alexander, 2000; Zimmerman, 1998), generalizations to the population of Chinese college students are limited. Participants in this study were all majored in medicine and were predominantly male. In China, medicine studies are open to college students of all ability levels, and the tuition is also the same as in other fields of study. As a result, college students majoring in medicine are not different from college students majoring in other fields with regard to IQ, family background, ability level, and so for. In addition, college graduates majoring in medicine can work as doctors in hospitals immediately after their graduation. Their income is also comparable to other college graduates majoring in other subject areas. However, gender is not balanced in this field as more males than females choose medicine as their major. Future studies should recruit college students in other fields of study and use random sampling method to find a closer match between research participants and the target population.

Another contribution of this study is that it provided further reliability and validity information about the two questionnaires developed in a previous study (Wang & Pape, 2005). The significant relationships between self-efficacy, SRL strategy use, and achievement in learning English are indicators of construct validity for the scores obtained from these questionnaires. QESRLS was designed to measure the total number of SRL strategies used by students (Wang & Pape, 2005). The reliability of scores from some subscales of this measure (e.g., Seeking Social Assistance) was low, which might be related to non-significant findings related to these subscales. Future research should consider validating the scores from subscales of QESRLS.

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Table 1

*Descriptive Statistics and Intercorrelation Coefficients of Outcome Measures*

	Exam 1	Exam 2	Oral English	SRL Strategies	Self- efficacy
Exam 1 ( <i>n</i> = 474)	--	.58*	.62*	.13	.38*
Exam 2 ( <i>n</i> = 505)		--	.45*	.11	.26*
Oral English ( <i>n</i> = 476)			--	.14	.36*
SRL Strategies ( <i>n</i> = 501)				--	.52*
Self-Efficacy ( <i>n</i> = 501)					--
<i>M</i> ( <i>SD</i> )	66.56 (8.65)	66.58 (12.90)	2.44 (0.99)	1.76 (0.38)	4.62 (0.84)
Range	0-100	0-100	1-4	0-3	1-7

*Note.* Numbers in parentheses are standard deviations; \*  $p < .001$ . Table 2

*Means and Standard Deviations of Each Subscale of Self-Efficacy and SRL Strategies and the Relationships between these Subscales to English Exam Scores*

	<i>Alpha</i>	<i>M</i>	<i>SD</i>	Exam 1	Exam 2	Oral English
Self-Efficacy for Listening	.88	4.33	0.87	.27*	.18*	.29*
Self-Efficacy for Speaking	.92	4.76	0.94	.35*	.26*	.37*
Self-Efficacy for Reading	.88	4.70	0.85	.37*	.26*	.36*
Self-Efficacy for Writing	.89	4.67	0.93	.38*	.24*	.34*
Self-Evaluation	.69	1.86	0.64	.21*	.16*	.21*
Organizing and Transforming	.81	1.61	0.45	-.06	-.06	-.03
Rehearsing and memorizing	.62	1.67	0.50	-.06	-.04	.01
Seeking Social Assistance	.43	1.67	0.62	.08	.04	.06
Persistence with challenges	.64	2.15	0.55	.28*	.24*	.24*
Seeking Opportunities	.81	1.37	0.58	.13	.14	.13
Keeping Records and Monitoring	.34	1.71	0.67	.15	.12	.16*
Self-Consequences	.37	1.85	0.70	.06	-.04	.07
Goal-Setting and Planning	.62	1.80	0.62	.11	.09	.12
Reviewing Records	.48	1.83	0.74	.17*	.07	.14
Interpretation Skills	.86	2.03	0.50	.22*	.20*	.21*

*Note.* \*  $p < .001$ .

## Appendix A: Questionnaire of English Self-regulated Learning Strategies

**Notes:** Please choose answers from the following study methods according to your actual situation. Please notice that this is not a test, so there are no right or wrong answers. Not all the methods listed here are good methods, and everyone has his/her own methods. We intend to know which methods are those you actually use and the frequency of using them. Please do not write your name, but you should answer all of the questions and write down your student number.

0	1	2	3
I never use it.	I seldom use it.	I use it sometimes.	I often use it.

The Statement of Self-Regulated Learning Strategies				
1. Write down the mistakes I often make in the process of studying English.	0	1	2	3
2. Write an outline before writing English compositions.	0	1	2	3
3. Review English texts I have learned.	0	1	2	3
4. Take notes in English classes.	0	1	2	3
5. Keep reading when I encounter difficulties in English reading.	0	1	2	3
6. Consult teachers when I encounter difficulties in the process of studying English.	0	1	2	3
7. When a friend wants to play with me but I have not finished my homework yet, I do not play until I finish my homework.	0	1	2	3
8. Check my English homework before turning them in.	0	1	2	3
9. I read an English article several times if I don't understand it at the first time.	0	1	2	3
10. Make a study plan in the process of studying English	0	1	2	3
11. Set a goal to study English.	0	1	2	3
12. I search related documents when I have difficulties in the process of studying English.	0	1	2	3
13. Write an outline after reading an English article.	0	1	2	3
14. Recite English texts in the process of studying English.	0	1	2	3
15. Reward myself when I make a progress in studying English.	0	1	2	3

16. Summarize the main idea of each paragraph when reading.	0	1	2	3
17. Find a quiet place when the environment is disturbing.	0	1	2	3
18. Summarize the theme of an English article when I read it.	0	1	2	3
19. Ask classmates when I have questions in my English study.	0	1	2	3
20. I listen to tape-recorded English several times if I cannot understand it for the first time.	0	1	2	3
21. Pay attention to what pronouns refer to during reading.	0	1	2	3
22. Review the cards of new words in order to memorize them.	0	1	2	3
23. Listen to American or British broadcasts to improve my pronunciation.	0	1	2	3
24. Read texts I have learnt again and again in order to recite them.	0	1	2	3
25. Guess the meaning of new words by considering their contexts.	0	1	2	3
26. Classify news words in order to memorize them.	0	1	2	3
27. Guess what people mean by reading their expressions and movements when watching an English movie.	0	1	2	3
28. Write new words many times in order to memorize the spellings.	0	1	2	3
29. Use sentence patterns just learned to make new sentences for practice.	0	1	2	3
30. Proofread my English composition when I completed writing.	0	1	2	3
31. When I come across a new word which doesn't hinder my comprehension, I will skip it.	0	1	2	3
32. When I listen to English, I pay attention to the stressed words or phrases in order to comprehend the sentence.	0	1	2	3
33. Use Chinese phrases which are similar to English words in pronunciation to memorize the pronunciation of these words.	0	1	2	3
34. Use the title of an English article to help understand that article.	0	1	2	3
35. When somebody speaks English, I guess what he/she will say according to what he/ she has said.	0	1	2	3
36. When I talk with somebody in English, I pay attention to his/ her expressions to check if he/she can follow me.	0	1	2	3

37. When I read an English article, I imagine the scene described in the article in order to memorize what I have read.	0	1	2	3
38. Make a chart to summarize the grammatical points learned.	0	1	2	3
39. Send emails to friends in English on my initiative.	0	1	2	3
40. Recite similar words altogether.	0	1	2	3
41. Compare the similarities and differences between English and Chinese.	0	1	2	3
42. If I cannot follow somebody's English, I let him speak slowly.	0	1	2	3
43. Read new words repeatedly in order to memorize them.	0	1	2	3
44. Memorize English words whose pronunciations are similar.	0	1	2	3
45. Memorize a new word by memorizing where I learn it.	0	1	2	3
46. Try my best to find opportunities to practice my oral English.	0	1	2	3
47. Consider how to say something in English in my mind before saying it out loud.	0	1	2	3
48. Watch English TV programs on my initiative.	0	1	2	3
49. When I listen to English, I translate it into Chinese to help me understand it.	0	1	2	3
50. Memorize meanings of words by using prefixes and suffixes.	0	1	2	3
51. Review my notes of English class before examinations.	0	1	2	3
52. Listen to English radio programs on my initiative.	0	1	2	3
53. Have a break when I am tired during my English study.	0	1	2	3
54. Try to use various English expressions to express the same meaning.	0	1	2	3
55. Translate what I have read in English into Chinese to help me understand it.	0	1	2	3
56. Pay attention to English speaker's tones.	0	1	2	3
57. Pay attention to the beginning and end of each paragraph in my English reading.	0	1	2	3
58. Adjust my reading speed according to the difficulty of the article.	0	1	2	3

59. Use my background knowledge to comprehend English articles.	0	1	2	3
60. Underline key points during my English reading.	0	1	2	3
61. Point at what I am reading with figures or pens.	0	1	2	3
62. Read questions before reading articles during English reading comprehension examinations.	0	1	2	3
63. Read articles before reading questions during English reading comprehension examinations.	0	1	2	3
64. Make sure to write a topic sentence in each paragraph in writing.	0	1	2	3
65. Make sure that the content of each paragraph supports its topic sentence in English writing.	0	1	2	3
66. When I finish my English composition, I have a rest and then read it again to check whether it should be revised.	0	1	2	3
67. Use words just learned to make new sentences on my initiative.	0	1	2	3
68. Think out a composition in Chinese before writing it in English.	0	1	2	3

## Appendix B: English Self-Efficacy Questionnaire

**Notes:** Please read the following questions carefully and make an accurate evaluation of your current command of English no matter whether you are doing it or not. These questions are designed to measure your judgment of your capabilities, so there are no right or wrong answers. Please do not write your name, but you should answer all of the questions and write down your student number.

Please use the following scales to answer these questions accordingly. Please choose the number accurately representing your capabilities.						
1	2	3	4	5	6	7
I cannot do it at all	I cannot do it.	Maybe I cannot do it.	Maybe I can do it.	I basically can do it.	I can do it.	I can do it well.

1. Can you understand stories told in English?	1	2	3	4	5	6	7
2. Can you finish your homework of English reading independently?	1	2	3	4	5	6	7
3. Can you understand American English TV programs?	1	2	3	4	5	6	7
4. Can you introduce your school in English?	1	2	3	4	5	6	7
5. Can you compose messages in English on the internet (face book, twitter, blogs, etc.)?	1	2	3	4	5	6	7
6. Can you give directions from your classroom to your home in English?	1	2	3	4	5	6	7
7. Can you write English compositions assigned by your teachers?	1	2	3	4	5	6	7
8. Can you tell a story in English?	1	2	3	4	5	6	7
9. Can you understand radio programs in English speaking countries?	1	2	3	4	5	6	7
10. Can you understand English TV programs made in China?	1	2	3	4	5	6	7
11. Can you leave a message to your classmates in English?	1	2	3	4	5	6	7
12. When you read English articles, can you guess the meaning of unknown words?	1	2	3	4	5	6	7
13. Can you make new sentences with the words just learned?	1	2	3	4	5	6	7
14. Can you write email messages in English?	1	2	3	4	5	6	7

15. If your teacher gives you a tape-recorded English dialogue about school life, can you understand it?	1	2	3	4	5	6	7
16. Can you understand the English news on the Internet?	1	2	3	4	5	6	7
17. Can you ask questions to your teachers in English?	1	2	3	4	5	6	7
18. Can you make sentences with English phrases?	1	2	3	4	5	6	7
19. Can you introduce your English teacher in English?	1	2	3	4	5	6	7
20. Can you discuss in English with your classmates some topics in which all of you are interested?	1	2	3	4	5	6	7
21. Can you read English short novels?	1	2	3	4	5	6	7
22. Can you understand English movies without Chinese subtitles?	1	2	3	4	5	6	7
23. Can you answer your teachers' questions in English?	1	2	3	4	5	6	7
24. Can you understand English songs?	1	2	3	4	5	6	7
25. Can you read English newspapers?	1	2	3	4	5	6	7
26. Can you find the meaning of new words by using English-English dictionaries?	1	2	3	4	5	6	7
27. Can you understand numbers spoken in English?	1	2	3	4	5	6	7
28. Can you write diaries in English?	1	2	3	4	5	6	7
29. Can you understand English articles about Chinese culture?	1	2	3	4	5	6	7
30. Can you introduce yourself in English?	1	2	3	4	5	6	7
31. Can you write an article about your English teacher in English?	1	2	3	4	5	6	7
32. Can you understand new lessons in your English book?	1	2	3	4	5	6	7

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