A Descriptive Statistics and Spearman Correlation Study on the Relationship Between Chinese Achievement and Metacognitive Strategies and Learning Anxiety of Cambodian Students

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Abstract. By adopting the theories of metacognitive strategies and learning anxiety and the empirical quantitative questionnaire survey, this paper explores the correlation between Chinese achievement and metacognitive strategies and learning anxiety of 312 Cambodian middle school and university students. The data collected are treated with SPSS 22.0. The conclusion is reached that the Cambodian students surveyed sometimes use metacognitive strategies and sometimes have anxiety in the process of learning Chinese; there is no significant correlation between metacognitive strategies and their Chinese language performance, but their learning anxiety was significantly and negatively correlated with their Chinese language performance. Learning anxiety is the important predictor of the students' Chinese achievement. The results show that: first, Cambodian students sometimes use metacognitive strategies and have learning anxiety, but their anxiety is not high. Second, there is no significant correlation between their Chinese performance and metacognitive strategies, and a significant negative correlation emerges between their Chinese performance and learning anxiety. Third, the factor affecting their Chinese performance is one of the learning anxiety factors, that is, language learning anxiety. Fourth, gender and Overseas Chinese identity have no significant difference in the use of metacognitive strategies among the Cambodian students, but differences are spotted in learning anxiety; there are differences in metacognitive strategies and learning anxiety between junior high school students and college students at different ages, and no differences are found in metacognitive strategies and learning anxiety between junior high school students at different grades, but there are differences in metacognitive strategies and learning anxiety between college students at different grades.

Keywords: Correlation, Chinese Achievement, Metacognitive Strategies, Learning Anxiety, Cambodian Students.

1   INTRODUCTION

Oxford (1990) [1]. stated that a metacognitive strategy is a behavior used to focus, schedule, plan, and evaluate learning activities Metacognitive strategies are considered as a

type of learning strategy (O'Malley & Chamot, 1990)[2] and are deep cognitive activities in which learners plan, monitor, regulate, reflect on, or evaluate their actual cognitive activities. Horwitz (1986)[3], who first studied foreign language learning anxiety as an independent linguistic phenomenon, considered foreign language learning anxiety as the learner's own emotional and behavioral apprehensions and fears that arise in a specific foreign language learning situation, which are related to classroom language learning, and emerge during its learning process, and classified anxiety into communicative anxiety, test anxiety, and anxiety about (others') negative evaluation of their language ability. (Horwitz, 1986)[4] The study of foreign language metacognitive strategy first began in the 1930s and reached a relatively mature stage in the 1990s.

1.1   REVIEW OF THE LITERATURE

Compared with the situation of foreign research on metacognitive strategies, domestic research mainly emphasizes the learning process of English, listening performance, reading performance, etc., and exploring the correlation between metacognitive strategies and English learning (Zhang, 2001[5], Cui, 2008[6]). However, there is only one article on Cambodian students' learning anxiety, "A Study on Chinese Learning Anxiety and Countermeasures of Chinese Language Students in Royal University of Cambodia Phnom Penh" (Feng, 2018)[7]. There is no research on the correlation between learning anxiety, metacognitive strategies and Chinese language performance related to Cambodia students.

2   RESEARCH METHODOLOGY

This paper uses an empirical quantitative questionnaire survey.

2.1   Research Questions

(1) What is the overall situation of Cambodian students' metacognitive strategies and learning anxiety in Chinese language learning?

(2) Are there any relationships between Cambodian students' metacognitive strategies and learning anxiety and their Chinese language performance?

2.2   Sampling and Samples

Convenient sampling was used in this paper. The total samples were 312, among whom 212 secondary school students came from seven Chinese language schools and 100 college students were enrolled in five Confucius Institutes. A total of 124 of the participants were male and 188 were female; there were 175 Cambodian Chinese and 137 native Cambodians. Most of the surveyed students were aged 13-27, and only 3 students were over 30 years old.

2.3   Instruments

Chinese Language Proficiency.

(1) The Chinese test results were obtained from the final exam results of the previous semester (mid-January 2019). The content of the test papers of both the Chinese language school and Confucius Institutes and their teaching sites is more similar to the HSK test, including reading and writing, mainly writing words in sentences and Chinese characters.

(2) Questionnaire

The questionnaire consists of a 42 five-point Likert scale question items as "1 very non-conforming, 2 non-conforming, 3 sometimes conforming, 4 conforming, and 5 very conforming". The metacognitive strategies scale is based on Cheng and Zheng's (2002)[8], with the ten questions classified into three factors, namely, metacognitive learning plan, metacognitive self-monitoring, and metacognitive regulation. The English learning anxiety scale adopted Wang (2003) [9] and the 32 questions were divided into four factors, i.e., classroom nervousness, communicative panic, fear of asking questions, and language learning anxiety. The reliability of the questionnaire is 0.843, which is regarded as high reliability.

2.4   Data Analysis

SPSS22.0 (Statistical Package for Social Sciences) was used to analyze the questionnaires data.

(1)The descriptive statistics were conducted to find out the overall situation of metacognitive strategies use and learning anxiety of the participants' Chinese learning.

(2)The correlations between metacognitive strategies and learning anxiety and Chinese language performance were analyzed using Pearson Correlation Coefficients.

3   RESULTS AND DISCUSSION

3.1   Overall Situation of Metacognitive Strategies and Learning Anxiety of The Cambodian Students Surveyed

The following table shows the overall situation of metacognitive strategies and learning anxiety of the Cambodian students, presented as the mean value with standard deviation.

Table 1. Descriptive statistics of metacognitive strategies

Factor	Items				
	N	Min.	Max.	Mean	Std D
Metacognitive learning plan	312	1.00	5.00	3.4968	.8864
Metacognitive self-monitoring	312	1.33	5.00	3.5556	.72206
Metacognitive regulation	312	1.20	5.00	3.4256	.67978
Valid N (listwise)	312				

Table 1 displays the mean value and standard deviation of the three factors of meta-cognitive strategies. The mean values of these three factors are 3.50, 3.56, and 3.43 respectively, and the highest mean value was metacognitive self-monitoring, followed by metacognitive learning plan, and finally metacognitive regulation, which means that Cambodian students sometimes use metacognitive learning strategies in Chinese language learning and metacognitive regulation is less used. This result is similar to the findings of Komatsu (2016)[10], that is, subjects are less likely to regulate their learning strategies after planning and monitoring their own learning.

Overall Situation of English Learning Anxiety of The Cambodian Students Surveyed.

The following table shows the basic profile of the subjects' Chinese learning anxiety, presented as the mean value with standard deviation.

Table 2. Descriptive statistics of Chinese learning anxiety

Factor	Items				
	N	Min.	Max.	Mean	Std D
Classroom nervousness	312	1.11	4.44	2.6492	.58004
Communicative panic	312	1.00	4.71	2.9418	.58084
Fear of asking questions	312	1.00	5.00	3.0403	.80042
Language learning anxiety	312	1.00	4.56	3.0043	.61898
Valid N (listwise)	312				

The scale used to measure learning anxiety was also a 5-point Likert scale, with a score of 1 indicating no anxiety at all, 2 low anxiety, 3 average anxiety, 4 anxiety, and 5 high anxieties. As Table 2 shows, the mean values of the four factors of Chinese learning anxiety were 2.65, 2.94, 3.04, and 3.00, respectively, and all the mean values were around the middle level of 3, which suggests that Cambodian students surveyed sometimes had anxiety in the process of learning Chinese, and their anxiety level was moderate. Among the four learning anxiety factors, "fear of asking questions" has the highest mean value of 3.04 with a standard deviation of .800, which means that most Cambodian Chinese learners are sometimes afraid of answering questions in Chinese class. The factor with the lowest anxiety was "classroom nervousness" (mean value 2.65, standard deviation .58). This is similar to the findings of Feng (2018) [11]who also studies Cambodian university students' Chinese learning anxiety, namely, those with low anxiety are 11.58%, with the average value of anxiety close to medium anxiety. In addition, Wang (2003)[12] proposed that "communicative panic" had the highest score among the four factors of foreign language learning anxiety in his investigation. According to Shi (2005)[13], students were most anxious about "oral expression in class" and "interacting with Chinese people". The Cambodian students' "communicative panic" with a mean of 2.94 and a standard deviation of .58 is the second lowest among the four factors in this survey, which may be related to the Chinese learning environment in Cambodia. As an internationalized country, Cambodia has many Chinese tourists, businessmen and entrepreneurs and so the students have many opportunities to communicate with Chinese native speakers.

3.2   The Relationship Between Metacognitive Strategies and Learning Anxiety and Chinese Language Performance of The Cambodian Students Surveyed

The Relationship Between Metacognitive Strategies and Chinese Language Performance.

Metacognitive learning strategies were not significantly correlated with Chinese language performance. The results of this study are inconsistent with those of Yang (2003)[14], Liu (2004)[15], and Tian (2013)[16], who all concluded that learners' use of metacognitive strategies is positively correlated with their language achievement.

Table 3. The Pearson correlation coefficient of metacognitive strategies and Chinese language performance

		Items				
		Chinese Language test	Classroom nervousness	Communicative panic	Fear of asking questions	Language learning anxiety
Chinese language test	Pearson Correlation Coefficient	1	-.228**	-.240**	-.221**	-.326**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	312	312	312	312	312

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4. Regression analysis of learning anxiety and Chinese achievement

Model	R	R square	Adjusted R square	Standard skew error
1	.326a	.107	.104	13.45836

a. Predicted value: (constant), language learning anxiety

Table 3 demonstrates the result of Pearson correlation coefficient of learning anxiety and Chinese language performance. Qiu (2013)[17] states that Pearson's correlation coefficient of 0.1-0.39 indicates weak correlation, 0.4-0.69 moderate correlation, 0.7-0.99 strong correlation, and 1 indicates perfect correlation. From Table 3, the Cambodian students' Chinese learning anxiety level was significantly, weakly, and negatively correlated with their Chinese language performance, specifically, learners' classroom nervousness (r=-.23, p=.00), communicative panic (r=-.24, p=.00), fear of asking questions (r=-.22, p=.00) and language learning anxiety (r=-.326, p=.00). It means the more nervous in class, the more panic in communication, the more fearful in asking questions and the more anxious in learning language, the lower their Chinese language performance is. This is consistent with the results of most previous studies (Yuan, 2009[18]; Zhang, 2019[19]).

3.3 The Important Predictive Factors Affecting the Chinese Achievement of Cambodian Students

Regression analysis of metacognitive strategies and Chinese language scores.
Regression analysis and correlation analysis are closely related to each other. In order to better understand the independent variables affecting the Chinese learning performance of Cambodian students, this paper conducted a linear stepwise regression analysis on the relationship between metacognitive strategies and learning anxiety and Chinese learning performance. However, regression analysis is based on correlation analysis. Because metacognitive strategies of Cambodian students are not significantly correlated with their Chinese scores, so it is impossible to measure the metacognitive strategies predicting factors affecting the students' Chinese achievement.

Regression Analysis of Learning Anxiety and Chinese Achievement.
Through linear stepwise regression analysis, this study identified important predictors of learning anxiety affecting the Chinese language performance of Cambodian students as shown in the Table 4.

In this study, four factors of learning anxiety were used as independent variables, namely, classroom stress, communication panic, fear of asking questions and language learning anxiety, to predict the factors affecting Chinese achievement. The results showed that classroom stress, communication panic and fear of asking questions could not predict the Chinese learning performance of Cambodian students, and the independent variable entering the model was only language anxiety. In other words, if the full score of Chinese is 100 points, language learning anxiety contributes 10.7 points (F=36.98, P=0.000), and 10.4 points after adjusting for R square. Compared with other factors, language learning anxiety is closely related to Chinese performance, and the above correlation research results show that the correlation between language learning anxiety and Chinese performance is negative, and the two research results correspondingly support each other. In conclusion, learning anxiety is the important predictor of the students' Chinese achievement, and reducing the language learning anxiety of Cambodian students can improve their Chinese performance.

4 Conclusion

The study found that firstly, Cambodian students sometimes use metacognitive strategies in the process of learning Chinese, metacognitive self-monitoring is used the most, and metacognitive regulation is used the least. In other words, Cambodian students plan and monitor their Chinese learning and then regulate it less; Cambodian students sometimes have anxiety in the process of learning Chinese, but their anxiety is not high; secondly, although Cambodian students sometimes use metacognitive strategies, there is no significant correlation between them and their Chinese language performance. This study enriches the study of learning anxiety and metacognitive strategies. It complements the relevant research on Chinese education in Cambodia, and has certain theoretical and practical significance for Chinese teaching in Cambodia, although the

results show that Cambodian students use metacognitive strategies, there is no significant correlation between metacognitive strategies and Chinese language scores.

Teachers should emphasize the importance of metacognitive strategies to students before introducing the process of metacognitive strategies, explain the value of the forthcoming metacognitive strategy training, and draw each student's attention. Teachers should try to use clear and understandable language in the introduction process to help students internalize and summarize the steps and methods of correctly using metacognitive strategies.

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