A Correlational Study between Learning Strategy, Learning Anxiety, and Learning Motivation -- based on Chinese Junior High School English Learning

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Abstract

As the focus of foreign language teaching switches from teachers to students, individual learner differences, especially learning strategy, learning anxiety, and learning motivation have received considerable attention from scholars. There are plenty of studies concentrating on the relationships of each two variables, few studies have examined the three variables together. Therefore, the purpose of this study was to investigate the current use of learning strategies, learning anxiety levels, and types of learning motivation in which MOE requires teachers to help students; moreover, to explore correlations among these three variables.

A sample of 269 students employing a correlational survey design, was taken from a junior high school located in Anyang, Henan, China. The results show that, first, students employ learning strategies with medium frequency. There are grade and gender differences in the students' use of strategies. Second, the majority of the students experience medium anxiety. Third, the students are motivated neutrally in English learning, and they have more deep motivation than surface motivation. Moreover, there are significant differences according to the types of motivation they have by gender. Fourth, the correlations between learning strategy, learning anxiety level, and learning motivation are significantly positively correlated to one another. Lastly, Structural Equation Modeling proves that students who use deep motivation more will apply memory, cognitive, and metacognitive strategies more while learning English.

This study provided insights into students' current situation while learning English in the context of China. The results indicate that teachers may want to consider cultivating students' use of learning strategies and learning motivation. And the way of fostering the use of memory, cognitive, and metacognitive strategies will help students to generate deep motivation which could fulfill the requirements of learning independently from MOE.

Keywords: *English learning strategy, English learning anxiety, English learning motivation, grade difference, gender difference, correlation*

1. Introduction

Since the focus of English learning has shifted from concentrating on teachers to students (Ni, 2008; Wang, 2014) individual differences in learning have received more and more attention (Gardner & MacIntyre, 1993; Ellis, 1994). Therefore, in the Chinese education context, the latest version of the Compulsory Education English Curriculum Standard (2011 Edition) requires teachers to consciously and purposefully help students to form their own learning strategies at the junior high school level. On this basis, teachers are expected to reduce students' learning anxiety, improve students' learning efficiency and develop their ability to learn independently (2011, p.8). This study has been conducted given these important considerations and will provide insights that could contribute to more effective practice in the area of English language learning.

Learning strategy is "the actions, behaviors or techniques that students use to promote second-language learning and that learners are conscious of in most situations" (Oxford, 1993). The choice of strategies depends on individual learner differences as well as situational and contextual factors (Ellis, 1994). The former includes beliefs about language learning, emotional states, learning experiences, and learner factors such as age, ability, learning style, and motivation. The later factors include task performance, the environment, and the target language. Gender is another factor investigated in reference to the use of learning strategies. Several studies have revealed that males use fewer strategies than females (Green & Oxford, 1995; Ghee, Ismal, & Kabilan, 2010; Hashemi, 2011); However, other findings do not

confirm significant differences in the number of learning strategies used by males or females (Griffiths, 2003) or even state that males use language-learning strategies more frequently than females (Tercanlioglu, 2004).

Horwitz (1986, p.128) promoted that learning anxiety is complex and involves both emotion and behavior in relation to the language learning process. It can be derived from the inside and outside of the learner (Ohata, 2005; Piechurska-Kuciel, 2008). For instance, internal anxiety may originate from language learners' beliefs about language learning (Bernat & Gvozdenko, 2005, p. 1) or how a learner perceives himself or herself, either in a language learning context or in the face of other learners or a teacher; moreover, competitiveness and perfectionism are also reported to cause language anxiety (Gregersen & Horwitz, 2002). External anxiety comes from how learners perceive their teachers (Piechurska-Kuciel, 2008, p. 69), teacher's teaching methods (Von Worde, 2003; Pswlak, 2014), and tests (Gkonou, 2013). At the same time, most scholars have found that anxiety can hinder the ability to learn (Saito, Horwitz & Garza, 1999; Lv, 2010; Wei, 2017; Bollinger, 2017); however, there is also a positive effect on English learning processes, that proper specific learning anxiety will enhance learning (Scovel, 1978; Oxford, 1999).

Later, Ellis' (1993) stated that learning motivation is the degree of effort in the process of learning a foreign language when people are willing to promote themselves by utilizing learning knowledge. In the fields of pedagogy and psychology, there are some controversies on learning motivation and English learning. Some think learning motivation can directly promote academic achievement, but some disagree. However, most psychologists hold that the relationship is not direct but positively dependent on the learning behaviors (Atkinson, 1975; Dashtizadeh & Farvardin, 2016; Tsai et al., 2017). Regarding gender differences in learning motivation, some scholars have found that male learners have a relatively higher motivation than females; however, in some studies, the results are opposed to the former findings (Mori & Gobel, 2006; Kim & Kim, 2011; Sung & Tsai, 2014; Shahbaz, Islam & Malik, 2017).

A large number of empirical studies examined the relationships of learning strategies with learning anxiety and learning motivation. In regards to the relationship between learning strategies and learning anxiety, the results consistently indicate a negative relationship between them. However, little research has been conducted in junior high schools, which is worth enriching the data at the junior high stage. The results for the relationship between learning strategy and learning motivation even is positive, the findings indicate that in diverse situations, different types of strategies can have different relationships with motivation (Oxford & Nikos, 1989; Peng, 2001; Chang & Liu, 2013). It is also worth conducting a further study on the relationship between the two variables in language learning, therefore, enriching the pool of empirical research within the Chinese context.

2. Objectives

This research aims to conduct an empirical study to explore the relationships between English learning strategy, learning anxiety, and learning motivation. The objectives that underpin this study are as follows:

1) To identify the English learning strategy that students use
2) To identify the level of students' learning anxiety
3) To identify the types of students' learning motivation
4) To identify the differences in learning strategy, learning anxiety, and learning motivation by grade level and gender
5) To identify the relationship between learning strategy, learning motivation, and learning anxiety

3. Materials and Methods

3.1 Participants

The participants of the current study were the Grade 7 to Grade 9 students in a private school in Anyang, China. Participants were selected using the clustered sampling method and a total of 269 students took part in the research, filling in the questionnaire. With regards to grade level, 35.7% were 7th graders,

25.3% were 8th graders, and 39% were 9th graders. In terms of gender, 61% were male students and 39% were female students.

3.2 Instrument

This study will employ a cross-sectional survey design. Three questionnaires were selected for collecting data, namely Strategies Inventory for Language Learning (SILL), Foreign Language Classroom Anxiety Scale (FLCAS), and Learning Motivation Questionnaire (LMQ). To make it easier for the students to answer, Chinese versions of these questionnaires were used.

The SILL was developed by Oxford (1990). It consists of 50 items, the sub-scales are memory strategies, cognitive strategies, compensation strategies, metacognitive strategies, affective strategies, and social strategies. Students respond on a five-point Likert scale ranging from 1 ("Never true of me") to 5 ("Always true of me").

The instrument for foreign language anxiety used in this study was FLCAS developed by Horwitz (1986). The FLCAS is a self-report measure with a total of 33 items, with three sub-scales, communication apprehension, test anxiety, and fear of negative evaluation. Specifically, communication apprehension (marked as CA hereafter); test anxiety (marked as TA hereafter); fear of negative evaluation (Marked as FNE hereafter). It is scored by a five-point Likert scale, which ranges from 1 ("strongly disagree") to 5 ("strongly agree").

The LMQ is a revised version of R-SPQ-2F which was developed by Biggs et al. (2001). The self-report R-SPQ-2F contains 20 items on two scales: the deep learning approach (DA) and the surface learning approach (SA) scales. Each scale is comprised of the subscales of learning motivation and learning strategy. For this study, only the learning motivation items were selected, which contain two subscales and 10 items in total. The two subscales are deep learning motivation (DM) and surface learning motivation (SM). Each scale contains five items. A five-point Likert scale (from "never or only rarely true of me" to "always or almost true of me") is used for scoring.

3.3 Data Collection and Analysis

Before collecting the data, the researcher obtained two permissions. One is from the institution's internal review board (IRB); another is from the principal of the target school. The author met the English teachers of selected classes individually, explained the purpose of this study, and asked for their cooperation in collecting data. Also, the teachers briefly explained the nature of the study to the students and asked for their sincere and honest responses to the survey. At the same time, students are informed that if they do not want to participate, they are free to refuse. Finally, after the questionnaire was completed, they were collected immediately. Questionnaires were distributed at the same time to the students, 281 questionnaires were distributed and 269 of them are valid.

The collected data were submitted to the statistical analysis software SPSS. Descriptive data were analyzed by the calculation of the Mean and Standard Deviation for the items on the survey. One-way ANOVA was used to determine if there were differences based on grade level, and a T-test was conducted to determine if there were differences based on gender for the variables of this study. Lastly, Person correlation was used to assess the bivariate relationship between learning strategy, learning motivation, and learning anxiety. For testing the conceptual framework of the study, AMOS was employed.

4. Results and Discussion

4.1 Results

4.1.1 English Learning Strategy Use

Table 1 shows that the Mean for learning strategy is 2.92. According to Oxford (1990), the average ranges from 2.5 to 3.4, this, therefore, indicates that students "sometimes use the English learning strategies." The average of the six specific strategies concerning the frequency of use ranges from 2.80 to 3.11, see Table 1. This means that students use each of the strategies sometimes.

The Mean of the use of compensation strategies is 3.11, which is the highest among the six strategies, suggesting that compensation strategies are most commonly used by students. On the contrary, affective strategies are the lowest one with an average of 2.80, which indicates that students use affective strategies least frequently. Overall, there is not much difference between the frequency of the use of each strategy.

Table 1 Descriptive Statistics of Sub-variables in SILL

	N	Mean	Std. Deviation
Strategy	269	2.92	0.65
Compensation	269	3.11	0.79
Cognitive	269	2.97	0.73
Social	269	2.94	0.92
Metacognitive	269	2.90	0.88
Memory	269	2.82	0.79
Affective	269	2.80	0.88

Table 2 Multiple Comparisons of the Specific Learning Strategies Use by Grade Level

Dependent Variable	(I) Grade	(J) Grade	Sig.
Compensation	7	8	.374
		9	.000
	8	7	.374
		9	.015
	9	7	.000
		8	.015

After a one-way ANOVA analysis, the author found that only compensation strategies have a difference by grade level; therefore a post hoc test was conducted to further clarify the differences between each grade group and the other two groups, See Table 2. The p-value between Grade 7 and Grade 9 is 0.000, which indicates that there is a significant difference between Grade 7 and Grade 9. Except for the differences mentioned above, the rest of the p-value between each grade level among the six specific learning strategies is higher than 0.01, indicating that there are no significant differences. Overall, it is revealed that there are few significant differences among the sub-variables of learning strategy by grade level.

Table 3 Descriptive Statistics & Independent T-test of the Specific Learning Strategies Use by Gender

	Gender	Mean	Std. Deviation	Sig (2-tailed)
Memory	Male	2.86	0.77	.234
	Female	2.74	0.82	
Cognitive	Male	3.04	0.70	.043
	Female	2.85	0.77	
Compensation	Male	3.01	0.76	.008
	Female	3.26	0.82	
Metacognitive	Male	2.98	0.87	.060
	Female	2.77	0.90	
Affective	Male	2.87	0.88	.117
	Female	2.69	0.89	
Social	Male	3.07	0.94	.006
	Female	2.75	0.87	

The results of independent T-test analysis reveal that the t value in compensation strategy and social strategy are 0.008 and 0.006, which are lower than 0.01 (see Table 3), indicating that there is a significant difference between male students and female students in the use of compensation strategy and social strategy.

4.1.2 Levels of English learning anxiety

In terms of the scores of FLCAS, participants have been divided into three groups, see Table 4. Students whose overall score is between 33 and 66 were categorized as having a low level of anxiety; those with scores between 133 and 165 indicated high levels of anxiety; and the rest were categorized as having medium anxiety (Hasenan & Ghani, 2017).

Table 4 Descriptive Statistics of Anxiety Level

Anxiety level	N	Percentage	Mean	Std. Deviation
High anxiety	7	2.60%	141.14	6.18
Medium anxiety	239	88.85%	95.49	14.76
Low anxiety	23	8.55%	59.52	7.06
Total	269	100%	93.60	18.98

One-way ANOVA was employed to explore the differences among specific types of learning anxiety and anxiety levels in different grade levels. Table 5 shows that the p-value in all columns is higher than 0.01, revealing that in terms of students' specific learning anxiety and anxiety levels, there are no differences by grade level. In other words, students at the distribution of types of learning anxiety were similar for each grade level and anxiety levels were also alike.

Table 5 ANOVA of the Specific Learning Anxiety & Learning Anxiety Level by Grade Level

	df	F	Sig.
CA	2	0.43	.653
FNE	2	1.50	.225
TA	2	0.39	.677
Anxiety Level	2	0.96	.385

Table 6 Descriptive Statistics & Independent T-test of the Specific Learning Anxiety & Anxiety Level by Gender

	Gender	Mean	Std. Deviation	Sig (2-tailed)
CA	Male	2.99	0.52	.794
	Female	2.89	0.52	
FNE	Male	2.74	0.68	.554
	Female	2.79	0.68	
TA	Male	2.88	0.77	.065
	Female	3.07	0.88	
Anxiety Level	Male	92.58	18.38	.270
	Female	95.20	19.87	

Independent T-test analysis reveals that the t value in all columns is higher than 0.01, indicating that there is no difference between male students and female students in specific learning anxiety and overall anxiety level.

4.1.3 Types of English Learning Motivation

Table 7 shows that the Mean of learning motivation is 2.88 which indicates that the student's overall level of learning motivation is neutral.

Table 7 Descriptive Statistics of Sub-variable in LMQ

	N	Mean	Std. Deviation
Motivation	269	2.88	0.72
Deep Motivation	269	3.12	1.03
Surface Motivation	269	2.65	0.83

From Table 7, it can also be seen that students employ deep motivation and surface motivation at the medium level. Comparing the two sub-variables of motivation, the Mean of deep motivation is significantly higher than that of surface motivation, which suggests that in the junior education environment, students learn English due to their interest in the language rather than just having to learn English as an academic subject.

Table 8 ANOVA of the Specific Types of Learning Motivation

	df	F	Sig.
Deep Motivation	2	0.43	.653
Surface Motivation	2	0.66	.517

A One-way ANOVA was used to explore the differences between deep motivation and surface motivation in each grade, see Table 8. It shows that the p-value in all columns is higher than 0.01, revealing that students' deep motivation and surface motivation have no differences in terms of grade level.

To identify the difference between males and females, an independent T-test analysis was adopted. From Table 9, the results show that the t value for surface motivation is about 0.01, indicating that there is a significant difference between male students and female students in terms of the prevalence of surface motivation.

Table 9 Descriptive Statistics & Independent T-test of the Specific Types of Learning Motivation

	Gender	N	Mean	Std. Deviation	F	Sig (2-tailed)
Deep Motiv	Male	164	3.26	1.00	1.69	.087
	Female	105	3.04	1.06		
Surface Motiv	Male	164	2.65	0.92	1.77	.011
	Female	105	2.37	0.82		

4.1.4 Correlations of Learning Strategy, Learning Anxiety, and Learning Motivation

Table 10 shows that learning anxiety level is positively related to learning strategy and at a significant level ($P<0.01$). Table 11 also presents the correlation between specific learning strategies and learning anxiety.

Table 10 Pearson Correlations between Learning Strategy and Learning Anxiety Level

	Strategy	Anxiety Level
Strategy	1	
Anxiety Level	.159**	1

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

Table 11 Pearson Correlations between Learning Strategies and Learning Anxieties

	Memory	Cognitive	Compensation	Metacognitive	Affective	Social
CA	.261**	.268**	.254**	.250**	.287**	.222**
FNE	.109	.083	.127*	.083	.145*	.039
TA	.034	.033	.118	.029	.121*	-.017
Anxiety Level	.115	.101	.163**	.081	.164**	.056

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The correlations between communication apprehension anxiety and memory/cognitive/ compensation/meta-cognitive/affective/social strategies are significant at 0.01 level. Of all the anxiety types, communication anxiety has the most significant positive correlation with affective strategy and it has the least significantly positive correlation with social strategy.

Fear of negative evaluation anxiety has significantly positive correlations with compensation and affective strategies and correlation coefficients are statistically significant. The correlation between fear of negative evaluation anxiety and affective strategy is the strongest ($r = 0.145$, $P < .05$), followed by compensation strategies ($r = 0.127$, $P < .05$). These results indicate that students with higher fear of negative evaluation anxiety use affective strategies and compensation strategies more often than students with a lower fear of negative evaluation anxiety.

Test anxiety is significantly correlated with affective strategies ($r = 0.121$, $P < .05$). It is positively correlated with test anxiety, indicating that the more anxious the students feel about the test, the more affective strategies will be used in English learning.

Overall anxiety level has the same results as fear of negative evaluation, in that both are positively correlated with compensation and affective strategies; the correlations are significant at 0.01 level. It is suggested that students with a higher level of learning anxiety prefer to use compensation strategies and affective strategies more in school.

Table 12 Pearson Correlations between Learning Strategy and Learning Motivation

	Strategy	Motivation
Strategy	1	
Motivation	.557**	1

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

Table 13 Pearson Correlations between Learning Strategies and Learning Motivation

	Memory	Cognitive	Compensation	Metacognitive	Affective	Social
Deep Motivation	.553**	.581**	.274**	.600**	.491**	.507**
Surface Motivation	.048	.111	.151*	.118	.176**	.148*

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 12 shows that there is a significant positive correlation between learning strategy and learning motivation. At the same time, Table 13 reveals the correlations between learning strategies and learning motivation in detail.

The correlations between deep motivation and memory/cognitive/compensation/metacognitive/ affective/social strategies are significant at 0.01 level. Among them, deep motivation has the most significant positive correlation with metacognitive strategies and it has the least significantly positive correlation with compensation strategies.

Surface motivation is significantly correlated with three dimensions of learning strategies. They are compensation strategy ($r = 0.151$, $P < .05$), affective strategy ($r = 0.176$, $P < .01$), and social strategy (r

=0.148, P＜.05), all of which are positively correlated with surface motivation. Of them, affective strategy has the strongest correlation with surface motivation, as well as the social strategy has the lowest correlation with surface motivation.

Table 14 Pearson Correlations between Learning Motivation and Learning Anxiety Level

	Motivation	Anxiety Level
Motivation	1	
Anxiety Level	.266**	1

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

Table 15 Pearson Correlations between Learning Motivation and Learning Anxieties

	CA	FNE	TA	Anxiety Level
Deep Motivation	.241**	.046	.051	.133*
Surface Motivation	.342**	.357**	.291**	.375**

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

After analysis using Pearson Correlation, the data, See Table 14, shows that the correlation between learning anxiety level and learning motivation is positive and significant. Table 15 displays the correlations between learning anxieties and learning motivation in detail. All dimensions of learning anxiety have significantly positive correlations with surface motivation. Only two dimensions of learning anxiety have significantly positive correlations with deep motivation.

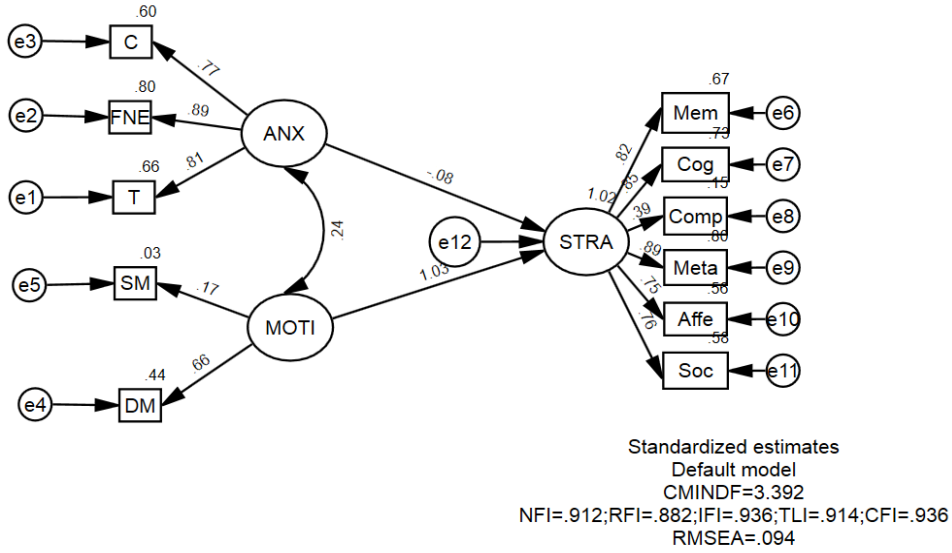

Figure 1 SEM of Learning Strategy, Learning Anxiety, and Learning Motivation

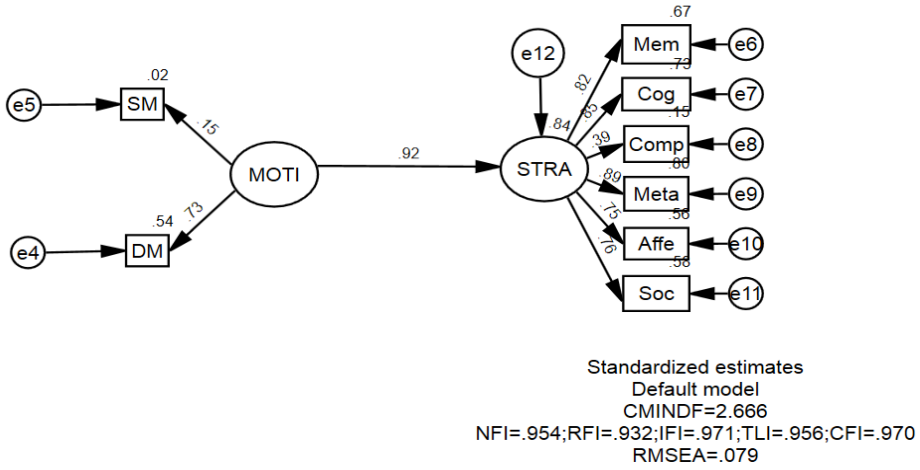

Figure 2 Revised SEM of Learning Strategy, Learning Anxiety, and Learning Motivation

Based on the analysis above, it can be concluded that learning strategy, learning anxiety, and learning motivation are positively related to each other; therefore, a Structural Equation Modeling (SEM) was tested and drawn, see Figure 1. However, the model fit is not acceptable. By concerning the estimates of the model, it is best to erase the paths between anxiety and strategy(b=-.08), at the same time anxiety and motivation(b=.24), because the correlation between the two paths is not significant. After revising the previous model, Figure 2 is shown after Figure 1.

4.2 Discussion

First, the study found that junior high students employ learning strategies with a neutral level. In the Chinese context, most scholars agree that the frequency of students' language learning strategies use is not high. It is likely to be due to certain limitations such as lack of strategy awareness and improper use of strategies, which is especially the case with students who are poor at using social and affective strategies (Li, 2002; Jiang, 2003; Hou, 2004; Niu, 2013). Regarding the gender difference, male students use learning strategies more frequently than female students. This finding is inconsistent with the conclusion of almost all previous studies (Green & Oxford, 1995; Niu, 2013; Jiang, 2013). Through investigation, the male students have relatively higher achievement in English than female students; thus, they might use more learning strategies often.

Second, students have experienced medium anxiety in English learning. The result is the same as the findings from Du (2021), however, there is a difference from the results obtained by Wang (2020). The result shows that students' English anxiety level is relatively high, and anxiety is common in English learning. The different results may be due to different sampling. The sample in the current study was taken from a junior high school in Anyang, and only one school was selected, as a result, the data is relatively closed. Moreover, the school is a top-ranked private school in the local area, which has its own foreign teachers on campus, and the students' family financial background is relatively superior. In another word, the students have more opportunities to contact foreigners, foreign cultures, and English earlier, which has no doubt reduced the pressure of learning English.

Third, the overall level of learning motivation is neutral in the junior high stage. In Wang's (2018) research, it was also found that junior high students had a medium motivated status. However, this kind of result is inconsistent with Wang (2017) whose findings indicate the students have a relatively high level of learning motivation. This phenomenon may be explained by looking at the locations where the studies were carried out. Wang's (2018) samples were from big cities where students have relatively higher pressure of

competition. To enter the top-ranked high school, students have no option but to study hard; therefore, they are relatively highly motivated compared to those who study in the smaller cities in China. Meanwhile, students employ more deep motivation in the current study, which contrasts with most studies (Wang, 2017; Wang, 2018) in China, recent research found that the extrinsic (surface) motivation of students is stronger than intrinsic (deep) motivation. This may be also explained by students' family financial backgrounds and medium anxiety levels in the present study.

Fourth, Pearson correlation analysis shows that there are positive correlations between learning strategy, learning anxiety, and learning motivation. The result of the current study on the relationship between learning strategy and learning anxiety is inconsistent with most of the findings (Jiang, 2013; Peng, 2018; Luo, 2018; Liu, 2020). One possible reason is that in the current study, most of the students are at the medium level of learning anxiety, which proves the findings of Scovel (1978) and Oxford (1999) that proper anxiety will facilitate the learning, as well as the use of learning strategies. Regarding the specific sub-scale of variables, there is a positively strong correlation between learning strategy and learning motivation, which could explain 92% of the total effect. To be more specific, the students who use deep motivation more will apply memory, cognitive, and metacognitive strategies more while learning English.

5. Conclusion

Based on the findings, students sometimes use learning strategies. As for guiding students to make efficient use of related strategies in English learning, teachers could raise students' awareness of the importance and effect of English learning strategies and integrate learning strategies into the class. To sum up, one thing to be emphasized is that learning strategies can be adjusted and amended in accordance with different tasks. Meanwhile, female students need more support in the use of learning strategies. Concerning learning anxiety, most students are moderate, that is to say, the current teaching methods and environment are adequate for students to learn English. In terms of medium learning motivation, English teachers should be aware that they should help students to set up achievable learning goals at the junior stage, especially for female students, so that students will have lasting motivation to learn. At the same time, by enhancing the interest in the classroom, students probably will have a great interest in English learning and promote the production of autonomous learning which is the ultimate goal of education. Lastly, fostering the use of memory, cognitive, and metacognitive strategies will help students to generate deep motivation which could fulfill the requirements of learning independently from MOE.

Due to the limitations of the current study, further investigations are needed. Firstly, the influence of test grades, education, and family background can be taken into account to examine correlations between the use of learning strategies, the level of learning anxiety, and the types of learning motivation, to establish a comprehensive and concrete understanding of the relationship between the three variables. Secondly, more research studies are needed to probe into the exact effects of English learning anxiety on learning strategy use and learning motivation type because the relationship between them may vary due to variations in language skills with regards to reading, listening, speaking, and writing. The effects of other affective factors apart from anxiety, such as self-esteem, self-concept, and risk-taking on strategy use and motivation type are also worth studying. Thirdly, as internet teaching has been prevalent in Chinese education, future research can be directed to the analysis of the relationship among the three variables in the context of the internet teaching environment. Finally, a crosswise approach can be adopted to identify exact changes in, the use of learning strategies, the level of learning anxiety, and the types of learning motivation, throughout the three years in the junior high schools. And further experiments can be performed to examine whether the methods of guiding students to using certain strategies, reducing severe anxiety, and enhancing learning motivation are effective or not.

6. Acknowledgements

My special gratitude goes to my family. My parents, who mentally and financially supported my study abroad in Thailand, always prayed for my success and offered me their best wishes. My wife also

deserves a special mention for always standing by my side, encouraging and supporting me in achieving my goal.

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