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Relative Contribution of Self-efficacy and Motivation to Chinese Learners' Autonomous English Learning

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The present study aims to explore the relationships among self-efficacy, motivation, and autonomous English learning for Chinese learners. Questionnaires were administered to collect data on self-efficacy, motivation, autonomous English learning, and the English proficiency of 1,605 university students from eight universities in southern and northern China. The participants were divided into groups according to their scores of autonomous English learning: low scores group (LSG), medium scores group (MSG), and high scores group (HSG). Descriptive statistics, one-way ANOVA, MANOVA, correlation analysis, and regression analysis were used to analyze the data. The results of the analyses showed that autonomous English learning was strongly correlated with both self-efficacy and motivation. Among the motivational components, L2 learning experience and ideal L2 self were more closely correlated to autonomous English learning. In addition, the results of regression analysis confirmed that self-efficacy, L2 learning experience, ideal L2 self, and integrativeness had positively predictive effects on autonomous English learning, and that autonomous English learning had a significant predictive power on the English proficiency of Chinese learners. Finally, some implications to effectively enhance autonomous English learning and the English proficiency of Chinese learners are provided and some suggestions for future research are given.

Keywords: self-efficacy, motivation, autonomous English learning, English proficiency, Chinese learners

1 Introduction

Recently, with the in-depth study of the second/foreign language learning processes, more attention has been paid to learners' autonomous ability. Language researchers and educators have realized the importance of applying learner autonomy theory to language practice (Holec, 1981; Little, 1991). The

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concept of learner autonomy was first introduced into foreign language teaching (FLT) by Holec at the Council of Europe's Modern Language Project seminar, in which Holec (1981) described learner autonomy as "the ability to take charge of one's own learning" (p. 3). Since then, the study of learner autonomy has attracted researchers worldwide (Benson & Voller, 2014; Cotterall, 1999; Dickinson, 1995; Esch, 1996; Lee, 1998). And this research upsurge has driven a shift in language teaching practice from teacher-centered to learner-centered, emphasizing that successful English learners should be autonomous and motivated (Lee, 2000).

Among many influencing factors of autonomous English learning, learning motivation and self-efficacy have drawn more attention. However, at present, there are no unified conclusions on the internal relationships and interactions between learning motivation and autonomous English learning (Littlewood, 1999; Spratt et al., 2002; Tabassam, 2021). Moreover, the research in this field in China is still insufficient, and there is even less literature on the comprehensive analysis of autonomous English learning through combining learning motivation and self-efficacy. Therefore, more research on the relationships between self-efficacy, learning motivation, and autonomous English learning of Chinese learners of English is needed.

Dickinson (1987) argues that learners' autonomous learning ability is not innate but is acquired through "continuous" practice. The cultivation of learners' autonomous English learning ability has its own characteristics in different cultural contexts, stages, and teaching environments. Therefore, exploring the relationships between autonomous English learning and its influencing factors can help ELT scholars and teachers understand the learning process of Chinese learners of English as well as help them maximize their teaching practice in cultivating and developing learners' autonomous English learning abilities, which can ultimately lead to successful learning of English. Given the above background, this study aims to investigate the relationships between self-efficacy, learning motivation, and autonomous English learning, and to explore the influence of autonomous English learning on learners' English proficiency, thus revealing the effective ways to improve learners' English learning.

2 Literature Review

2.1 Learner autonomy

Holec (1981) defines learner autonomy as "the ability to take charge of one's own learning" (p. 3) and further explains that being responsible for one's own means taking on the following responsibilities: making learning decisions, setting learning goals, create learning opportunities, determining learning contents, and choosing learning methods and techniques to achieve the desired

results. Other scholars also claim similar definitions on learner autonomy. Knowles (1975) assumes that learner autonomy is a long-term learning process in which learners take the initiative to diagnose learning needs, set learning goals, choose and implement appropriate learning strategies and evaluate learning achievements. Dickinson (1987) describes it as a particular learning attitude in which learners accept decisions related to learning. Esch (1994) regards it as a way of learning in which learners can use available resources and technologies for learning.

Compared with abroad studies, learner autonomy research in China began in the late 1990s (Liu & Dong, 2012). Chinese scholars generally regard autonomous learning as a kind of learning ability or learning behavior. Pang (2003) proposes that the concept of autonomous learning can be regarded as not only a learning process, but also a learning ability. As a learning process, learner autonomy needs both intrinsic and extrinsic conditions; as learning ability, learner autonomy is the result of long-term interaction between learners and the extrinsic environment. Thus, the realization of autonomy is a complex process (Sionis, 1990). As David and Lamb (1996) stated, any form of educational behavior should guide learners to achieve autonomous learning.

In recent years, many scholars have explored and analyzed learner autonomy in China (Gao, 2005, 2006; Liu & Dong, 2012; Wang, 2013; Yin, 2014). Gao (2005, 2006) summarized Chinese autonomous learning research into three stages. The budding stage (1991-2000), the slow development stage (2001-2003), and the all-around start-up stage (2004 -2006). Liu and Dong (2012) point out that learner autonomy research in China focuses on theoretical, micro research, and assessment results, while neglecting empirical, macro research, and evaluation processes. Wang (2013) reveals that from 1998 to 2012, learner autonomy research of China has made some progress in the number of published papers and the diversity of research methods. Other researchers have investigated the relationship between the success of L2 learning, learner autonomy, and the influencing factors of learner autonomy. Ou (2017) found that self-efficacy and motivation are the most frequently investigated factors affecting English learners' autonomy. Moreover, self-efficacy has been proved to be the critical factor affecting L2 learning (Elias & Loomis, 2002; Vrugt et al., 1997; Wood & Locke, 1987). Therefore, self-efficacy and motivation are both critical factors influencing learners' autonomy. In view of this, this study discusses and analyzes the relationship between self-efficacy, motivation, and English autonomous learning.

2.2 Self-efficacy

Self-efficacy is the central concept of social cognitive theory, which was first put forward by Bandura (1977), a famous American psychologist and social learning theory founder. Bandura (1977) found that the expectation of self-efficacy mainly includes four sources of information: "performance

accomplishment, vicarious experience, verbal persuasion, and physiological state" (p. 191). Performance accomplishment is considered to be the most effective sense of self-efficacy (Bandura, 1995) that affects behavior, and it is based on personal experience. Success builds a sense of self-efficacy, while repeated failure weakens it; vicarious experience means that individuals infer their own self-efficacy by observing others' successes and failures; verbal persuasion refers to competent, credible people with professional knowledge and attractiveness can influence self-efficacy through positive verbal persuasion. Physiological state means that one's physical and emotional response will affect the judgment of self-efficacy.

Self-efficacy, according to Bandura (1982), is a judgment about "how well one can execute courses of action required to deal with prospective situations" (p. 3). It reflects an individual's confidence or belief in his or her ability to achieve behavioral goals in a particular field. Self-efficacy not only directly influences the choice of activities and circumstances, but also affects the degree of effort through expectations of ultimate success. Stajkovic and Luthans (1998) regarded self-efficacy as an individual's confidence in one's own ability to mobilize the motivation, cognitive resources, and action processes needed to successfully complete a particular task in a given situation. They point out that people with high self-efficacy would exert sufficient efforts and, if implemented properly, would produce successful results. On the contrary, people with low self-efficacy, are more likely to cease trying prematurely and fail in the task. To sum up, although the definition of self-efficacy varies by different domains, scholars hold a similar understanding of self-efficacy, which reflects an individual's evaluation of self-ability.

Research has highlighted the vital role of self-efficacy in language learning (Fukuda, 2017; Qin & Wen, 2002; Woodrow, 2011; Xu, 2007). Qin and Wen (2002) identified self-efficacy as students' expectations of English proficiency, which is an essential component of self-confidence. They noted that students with high self-efficacy also tended to set higher learning goals and had the confidence to achieve the goals through their own efforts. Similarly, Woodrow (2011) argues that self-efficacy is an important motivational variable for English learning, claiming that learners with high self-efficacy are more likely to have higher perceptions of effort and may spend a longer time learning English. Xu (2007) found that self-efficacy affects the development of students' English autonomous learning ability in the following ways: the choice of learning tasks, the setting of learning goals, the effort made for learning tasks, the tension and anxiety experienced while engaging in learning tasks, and the use of autonomous learning strategies.

Many studies have confirmed that self-efficacy is closely related to autonomous learning (Elias & Loomis, 2002; Schunk, 1985; Vrugt et al., 1997; Wood & Locke, 1987). It was found that self-efficacy and self-regulated learning are the best predictors of learners' academic performance (Pintrich & Groot, 1990), and it was further affirmed that self-efficacy is significantly and

positively related to both academic performance and self-regulation (Schunk & Ertmer, 1999). Zimmerman (2000) also found that self-efficacy interacts with self-regulated learning processes and affects learners' motivation through autonomous learning processes such as goal setting.

Similarly, in China, scholars have found a significantly positive correlation between self-efficacy and learner autonomy (Chen & Chen, 2007; Li & Yu, 2008; Liu, 2014; Wu & Zhang, 2009). For example, Li (2016) surveyed 239 non-English majors and found a significant positive correlation between learners' self-efficacy and their autonomous learning processes, such as setting learning goals, using learning strategies, and monitoring learning processes. Xu (2007) analyzed the influencing factors of Chinese university students' English autonomous learning and affirmed that self-efficacy was an important intrinsic factor affecting autonomous learning, summarizing the effects of self-efficacy on developing learners' English autonomous learning in the following five aspects: Selecting learning tasks, setting learning goals, implementing learning tasks, managing learning emotions, and using learning strategies.

2.3 Motivation

Motivation is a concept of educational psychology, mainly related to the activation and persistence of behavior (Bandura, 1977), and profoundly impacts human behavior. It is "the driving force to sustain the long and often tedious learning process" (Dörnyei, 2005, p. 65). Maehr and Meyer (1997) believe that motivation explains goal-oriented behaviors, especially the stimulation, goal, intensity, persistence, and influence of these behaviors. According to Ushioda and Dörnyei (2011), motivation is "what moves a person to make certain choices, to engage in action, to expend effort and persist in action" (p. 3). As argued by McMeniman (1989), motivation is the driving force that motivates and guides individuals towards their own goals. It can be seen that motivation determines the direction, intensity, and persistence of individual efforts.

Some scholars regard motivation as a psychological process or an emotional factor. As Houston (1985) points out, motivation is an emotional factor that can stimulate and guide behavior and determine the intensity and duration of behavior. According to Williams and Burden (1997), motivation is a state of cognitive and emotional stimulation in which individuals consciously make decisions, take actions, and make sustained physical and psychological efforts toward established goals. In a similar vein, Pintrich and Schunk (2002) regard motivation as a psychological process in which goals trigger and maintain individual efforts.

Other scholars view motivation as the goal or cause of language learning (Ellis, 1994; Skehan, 1991). Corder (1967) assumes that motivation and environment are the reasons for a second foreign language occurrence.

According to Gardner (1985), learning motivation is a combination of effort and the desire to reach language learning goals and a good language learning attitude. As stated by Dörnyei (1994), "motivation is one of the main determinants of second/foreign language (L2) learning achievement" (p. 273). This view is consistent with the findings of many studies, that is, motivation is one of the critical factors influencing learning (Gardner & Lambert, 1972; Ortega, 2014; Sternberg, 2002).

With the in-depth studies of autonomous learning, researchers are increasingly aware of the important influence of motivation on learners' autonomy (Benson, 2007; Ushioda, 2006). Some studies have found a positive correlation between learners' motivation and autonomous language learning (Nenniger, 1999; Spratt et al., 2002), but no consensus has been reached yet. Littlewood (1999) argues that motivation is a prerequisite for learners' autonomous learning. Spratt et al. (2002) studied the relationship between learners' autonomy and their learning motivation of Hong Kong university students. The study found that the relationship between learners' motivation and autonomous learning may be bidirectional, changing directions with learners' progress and their different stages of lives.

In China, learners' motivation has been proved to be a crucial factor affecting their English autonomous learning (Hua & Leng, 2017; Li & Yu, 2008; Wang & Wu, 2017; Wei, 2013). Learners' motivation is positively and directly correlated with their autonomy. Xu and Li (2014) classified English learning motivation into six categories: intrinsic interest, information media, achievement, personal development, social responsibility, and going abroad. They found that, in addition to achievement, there is a significant positive correlation between all the other motivational categories and learners' autonomous learning ability. Accordingly, it can be drawn that learning motivation is the premise of autonomous learning, and learners' willingness to learn independently depends on their motivation and confidence.

On the other hand, comparing Chinese and Western European learners' autonomous learning ability, Zhang and Li (2004) revealed that Chinese learners put too much emphasis on the knowledge of language while neglecting the culture of language. Chinese learners, compared with Western European learners, showed stronger instrumental motivation and higher initiative in participating in classroom activities, choosing learning strategies, and self-evaluating their own learning. However, Chinese learners showed lower integrative motivation and autonomy, showing a general lack of communicating with teachers, exploring knowledge, and choosing learning materials.

Unlike the above study, Wei (2013) used Dornyei's L2 Motivational Self System (L2MSS), including three dimensions, ideal L2 self, ought-to L2 self, and L2 learning experience, to investigate the relationship between motivation and autonomous learning of 316 non-English first-year students in China. The results showed that ideal L2 self and L2 learning experience had a

significant influence on learner autonomy. Given this, Wei (2013) suggested that English teachers should pay attention to creating a good classroom teaching environment, guide learners to establish an ideal L2 self, and develop their positive English learning concepts, thus improving autonomy in their English learning.

2.4 Present study

To date, some previous studies have investigated the relationships between self-efficacy, motivation, and learner autonomy. However, there has been little research on how the three variables contribute to learners' English learning. With this in mind, the present study was designed to investigate the relationships of self-efficacy and motivation with Chinese learners' autonomous English learning and to probe how autonomous English learning affects Chinese learners' English proficiency.

In this context, the present study sought to address the following research questions:

1) Are there any differences in self-efficacy and motivation depending on the different levels of Chinese learners' autonomous English learning?

2) What are the relationships between self-efficacy and motivation with autonomous English learning?

3) What effects does learners' autonomous English learning have on their English proficiency?

3 Research Method

3.1 Participants

The participants all volunteered to take part in the study. They were composed of 1,605 university students of different grades and majors from eight universities in southern and northern cities in China. One thousand and thirty-six were females and five hundred and sixty-nine were males. Participants ranged in age from 19 to 21, with an average age of 20. Most of them began learning English in primary school. Only 14 out of 1605 students had the experience of studying or living abroad for less than a year.

3.2 Instruments

3.2.1 Questionnaires

The present study used three questionnaires (see Appendix) to collect data: the autonomous English learning questionnaire, the self-efficacy questionnaire, and the motivation questionnaire. All the questionnaires were made up of 40 five-point Likert scale items ranging from totally agree to totally disagree. As

shown in Table 1, Cronbach's Alpha coefficient for each questionnaire ranged from .87 to .94, indicating that these questionnaires have good internal consistency and high measurement reliability.

Table 1. Reliability Statistics of the Questionnaires

	Cronbach's Alpha	Items
Autonomous English learning	.94	15
Self-efficacy	.87	7
Motivation	.89	18

The autonomous English learning questionnaire was slightly modified from previous research (Xu, 2007), and it consisted of 15 items (Cronbach's α = .94). It was mainly concerned with learners taking responsibility for English learning, managing and monitoring their own English learning, making full use of learning resources and strategies, actively seeking learning opportunities, discovering and solving problems, updating and applying new knowledge, and self-evaluating learning outcomes.

The Self-efficacy questionnaire was adopted from Schwarzer et al. (1977) and slightly revised according to the research needs. It comprises seven items (Cronbach's α = .87), which mainly involves finding the ways and means to get what one wants, sticking to and achieving the goals, staying calm in the face of novel and demanding situations, and having the confidence to handle efficiently with problems.

The Motivation questionnaire was made up of 18 items (Cronbach's α = .89), which were selected and slightly modified from Dornyei's L2MSS (including ideal L2 self, ought-to L2 self, and L2 learning experience) and Gardner and Lambert's integrative motivation and instrumental motivation. Five motivational components were verified by conducting a factor analysis. Table 2 shows the KMO value is .90 (p < .001), indicating that the questionnaire had good validity.

Table 2. KMO and Bartlett's Test of Motivation Questionnaire

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.90
Bartlett's Test of Sphericity	Approx. Chi-Square	17402.85
	df	153.00
	Sig.	.00

According to Li and Park (2019), five components were defined as follows:

Ideal L2 self (Cronbach's α = .88): referring to "L2 learners' hopes, ambitions, and desires of what they would like to become" (p. 162);

Ought-to L2 self (Cronbach's α = .83): concerning "various duties, obligations, and responsibilities of the L2 learners to meet others' expectations" (p. 162);

L2 Learning experience (Cronbach's α = .89): focusing on "immediate learning experiences and environments, including teachers, learners' needs, class activities, the curriculum, and the experience of success" (p. 162);

Integrativeness (Cronbach's α = .75): relating to "L2 learners' personal growth and cultural enrichment through learning the target language" (p. 162);

Instrumentality (Cronbach's α = .93): involving "learning L2 for immediate or practical goals such as achieving high English proficiency to make more money or find a better job" (p. 162).

3.2.2 The College English Test in China

The College English Test (CET) is China's official national English proficiency test, which Chinese scholars widely have recognized as a test with high validity and reliability. It consists of College English Test 4 (CET4) and College English Test 6 (CET6). The total score of CET4 and CET6 is 710, including listening, reading, writing, and translation. The qualified score is set at 425. Learners with scores over 425 (including 425) in CET 4 can take CET 6 test. In the present study, participants' CET4 scores were used to examine their English proficiency.

3.3 Data collection

With English teachers' help, the questionnaires were distributed to 1,605 participants from different majors in class in May and June, 2020. To facilitate understanding, the questionnaires were written in Chinese language, which is the participants' L1. Before filling out the questionnaires, participants were told that their personal information would be kept confidential and that the results of the analyses of their responses would be used only for research purposes. Finally, all the participants filled out the questionnaires and there was no missing data. Participant's CET4 scores were also collected from the questionnaires. These scores provided an important reference for the participants' English proficiency.

3.4 Data analysis

The data analysis was performed using Statistical Package for Social Science (SPSS) 25.0. Cronbach's alpha coefficient (α) was used to assess the reliability of the questionnaires. To answer the research questions, descriptive statistics, ANOVA, MANOVA, and Pearson correlation were performed to see if there were any relationships between self-efficacy, motivation, and Chinese learners' autonomous English learning. Furthermore, regression was used to further examine the impacts of self-efficacy and motivation on autonomous English learning, and the effect of autonomous English learning on Chinese learners' English proficiency.

4 Results and Discussions

Focusing on the research questions, the section below critically examines the relationships between self-efficacy, motivation, autonomous English learning, and English proficiency of Chinese learners.

4.1 Overall characteristics of participants' English proficiency and autonomous English learning

The present study adopted CET4 scores to measure the participants' English proficiency. The CET4 scores ranged from 278 to 603 out of 710, with an average of 446. As Table 3 depicts, 449 participants (27.98% of the total) scored below 425, and 1,156 participants (72.02%) scored above 425.

Table 3. Distribution of the Participants' CET4 Scores

CET4 score range	Female	Male	*N*	Percent (%)
0-424	273	176	449	27.98
425-710	763	393	1156	72.02
Total	1036	569	1605	100

According to Qin's (2003) divisions, the scores of autonomous English learning were divided into three levels: Participants with mean scores below 2.73 were designated as low scores group of autonomous English learning (LSG); participants with mean scores between 2.73 and 3.27 were considered to be in medium scores group (MSG); and those with mean scores above 3.27 were classified into high scores group (HSG). Table 4 illustrates the grouping statistics of the participants' autonomous English learning. 497 participants (30.97% of the total) were in LSG (M = 2.32, SD = .29); 595 participants (37.07%) were divided into MSG (M = 3.01, SD = .16), accounting for 37.07%; and 513 participants (31.96%) were in HSG (M = 3.76, SD = .33).

Table 4. Distribution of the Participants at Different AEL Levels

Level	Female	Male	*N*	*M*	*SD*	Min	Max
LSG	298	199	497	2.32	.29	1.00	2.67
MSG	395	200	595	3.01	.16	2.73	3.27
HSG	343	170	513	3.76	.33	3.33	5.00
Total	1036	569	1605	3.04	.63	1.00	5.00

Note: AEL = autonomous English learning, LSG = low scores group, MSG = medium scores group, HSG = high scores group

4.2 Differences in self-efficacy and motivation depending on different levels of autonomous English learning

The first research question concerned the differences in self-efficacy and motivation depending on different levels of autonomous English learning. As

visible in Table 5, descriptive statistics were conducted on the participants' self-efficacy by different levels of autonomous English learning. The mean score of self-efficacy in HSG of autonomous English learning was 3.45 (*SD* = .53), and that of MSG is 2.97 (*SD* = .38), while that of LSG was 2.61 (*SD* = .48). This shows that L2 learners at high level of autonomous English learning have stronger self-efficacy than those at low level of autonomous English learning.

Table 5. Descriptive Statistics of Self-efficacy by Different AEL Levels

Subcategories	Group	*N*	*M*	*SD*
Self-efficacy	LSG	497	2.61	.48
	MSG	595	2.97	.38
	HSG	513	3.45	.53
	Total	1605	3.01	.57

Next, a one-way ANOVA was employed to investigate the differences in learners' self-efficacy by different levels of autonomous English learning. From Table 6, it can be seen that there is a significant difference in learners' self-efficacy according to their levels of autonomous English learning ($F = 408.76$, $p < .001$).

Table 6. Group Comparison of Self-efficacy at Different AEL Levels

	Source	SS	*df*	MS	*F*	Sig.
Self-efficacy	Between Groups	177.10	2	88.55	408.76	.00
	Within Groups	347.05	1602	.22		
	Total	524.16	1604			

$p < .05$

Table 7. Post-hoc Pairwise Comparison of Self-efficacy at Different AEL Levels

	AEL Levels		Mean Difference (I-J)	Std. Error	Sig.
Self-efficacy	LSG	MSG	-.36*	.03	.00
		HSG	-.83*	.03	.00
	MSG	LSG	.36*	.03	.00
		HSG	-.48*	.03	.00

* The mean difference is significant at the .05 level.

Moreover, a post hoc pairwise comparison was administrated to identify the differences accurately. Table 7 depicts that the mean difference between LSG and HSG (MD = -.83, $p < .001$) is the most significant, followed by MSG and HSG (MD = -.48*, $p < .001$), and LSG and MSG (MD = -.36, $p < .001$). This indicates that learners with stronger self-efficacy could participate in autonomous English learning more actively. This finding is consistent with that of Xu (2007), who emphasized that English learners with stronger self-efficacy tend to be more autonomous in learning English and better at their English proficiency.

Table 8 depicts the descriptive statistics of participants' motivational components by different autonomous English learning levels. Overall, the mean value of motivation in HSG of autonomous English learning (M = 3.47) was higher than that in MSG (M = 3.11) and LSG (M = 2.78), indicating that learners with higher autonomous English learning level had a stronger motivation and desire to learn L2.

Table 8. Descriptive Statistics of Motivational Components by AEL Levels

Subcategories	Group	*N*	*M*	*SD*
Ideal L2 Self	LSG	497	2.71	.78
	MSG	595	3.14	.71
	HSG	513	3.65	.73
	Total	1605	3.17	.83
Ought-to L2 Self	LSG	497	2.37	.75
	MSG	595	2.58	.68
	HSG	513	2.74	.92
	Total	1605	2.57	.80
Integrativeness	LSG	497	2.81	.82
	MSG	595	3.24	.71
	HSG	513	3.67	.77
	Total	1605	3.24	.84
Instrumentality	LSG	497	3.52	.87
	MSG	595	3.73	.77
	HSG	513	3.98	.76
	Total	1605	3.74	.82
L2 Learning Experience	LSG	497	2.71	.60
	MSG	595	3.09	.55
	HSG	513	3.51	.67
	Total	1605	3.10	.68
Motivation (Total)	LSG	497	2.78	.50
	MSG	595	3.11	.41
	HSG	513	3.47	.51
	Total	1605	3.12	.54

Regarding the motivational components, instrumentality generally showed the highest mean scores (Total, M = 3.74; HSG, M = 3.98; MSG, M = 3.73; LSG, M = 3.52). It can be interpreted that the participants tended to learn English mainly for clear practical purposes, such as finding a good job and making a lot of money. Integrative motivation had a mean value of 3.24 total, 3.67 in HSG, 3.24 in MSG, and 2.81 in LSG, revealing that learners with stronger autonomous English learning could be likely to learn English with higher integrativeness. Ideal L2 self showed the mean scores of 3.17 overall, 3.65 in HSG, 3.14 in MSG, and 2.71 in LSG. The mean scores of L2 learning experience are 3.10 overall, 3.51 in HSG, 3.09 in MSG, and 2.71 in LSG. Ought-to L2 self displayed the lowest means, 2.57 overall, 2.74 in HSG, 2.58 in MSG, and 2.37 in LSG, showing that the participants had a weak ought-to

L2 self, which refers to learning English to gain the approval of friends and other respectable people.

Next, a MANOVA was employed to discover the differences in motivational components by different autonomous English learning levels. The results in Table 9 and Table 10 showed that there were significant differences in all the motivational components depending on different autonomous English learning levels.

Table 9. MANOVA Results of Motivational Components by AEL Levels

Effect		Value	*F*	Hypothesis *df*	Error *df*	Sig
Intercept	Wilks' Lambda	.02	15000.33	5.00	1598.00	.00
AEL levels	Wilks' Lambda	.69	64.15	10.00	3196.00	.00

Table 10. Group Comparison of Motivation by AEL Levels

Subcategories	Source	Sum of squares	*df*	Mean square	*F*	Sig.	eta
Ideal L2 Self	Between Groups	227.36	2	113.68	207.62	.00	.21
	Within Groups	877.18	1602	.55			
	Total	1104.54	1604				
Ought-to L2 Self	Between Groups	35.72	2	17.86	28.88	.00	.04
	Within Groups	990.89	1602	.62			
	Total	1026.61	1604				
Integrativeness	Between Groups	184.46	2	92.23	157.39	.00	.16
	Within Groups	938.80	1602	.59			
	Total	1123.26	1604				
Instrumentality	Between Groups	53.33	2	26.67	41.71	.00	.05
	Within Groups	1024.14	1602	.64			
	Total	1077.47	1604				
L2 Learning Experience	Between Groups	162.01	2	81.00	220.65	.00	.22
	Within Groups	588.11	1602	.37			
	Total	750.12	1604				
Motivation (Total)	Between Groups	119.48	2	59.74	268.81	.00	.25
	Within Groups	356.01	1602	.22			
	Total	475.49	1604				

$p < .05$

Table 10 revealed the significant differences in motivation depending on three levels of autonomous English learning ($F = 268.81$, $\eta = .25$, $p < .001$). A higher F value indicates a greater difference in motivation among autonomous English learning levels. Among all the motivational components, L2 learning experience ($F = 220.65$, $\eta = .22$, $p < .001$) and ideal L2 self ($F = 207.62$, $\eta = .21$, $p < .001$) showed greater difference with autonomous English learning levels, followed by integrativeness ($F = 157.39$, $\eta = .16$, $p < .001$), instrumentality ($F = 41.71$, $\eta = .05$, $p < .001$), and ought-to L2 self ($F = 28.88$, $\eta = .04$, $p < .001$). In general, it can be inferred that learners with a high level of autonomous English learning seemed to have higher motivation including ideal L2 self, L2 learning experiences, integrativeness, instrumentality, and

ought-to L2 self than those with a low level of autonomous English learning. Moreover, from the results, L2 learning experiences and ideal L2 self are likely to have more connection with learners' autonomous English learning.

4.3 Relationships of self-efficacy and motivation with autonomous English learning

Referring to the second research question, the Pearson correlation was computed to investigate the correlations between self-efficacy and motivation with learners' autonomous English learning. As visible in Table 11, autonomous English learning was strongly correlated with both self-efficacy (r = .63, p < .001) and motivation (r = .55, p < .001). This indicates that the higher the learners' self-efficacy and motivation, the higher their autonomous English learning level, and vice versa.

Among all the motivational components, Table 11 displays that L2 learning experience (r = .51, p < .001) and ideal L2 self (r = .51, p < .001) were more closely correlated to autonomous English learning, followed by integrativeness (r = .46, p < .001), instrumentality (r = .23, p < .001), and ought-to L2 self (r = .19, p < .001).

Table 11. Correlations between Self-efficacy and Motivation with AEL

		Self-efficacy	Motivation (Total)	IS	OS	INTE	INS	LLE
AEL	Pearson Correlation	.63**	.55**	.51**	.19**	.46**	.23**	.51**
	Sig. (2-tailed)	.00	.00	.00	.00	.00	.00	.00

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

Note: IS = Ideal L2 Self, OS = Ought-to L2 Self, INTE = Integrativeness, INS = Instrumentality, LLE = L2 Learning Experience

L2 learning experience and ideal L2 self are related to learners' satisfaction with their English classes and learners' vision of what they would like to become in the future, while integrativeness reflects learners' inner desire for cultural enrichment and personal growth. On the contrary, instrumentality and ought-to L2 self represent the aspects of learning driven by external forces from the outside world. Therefore, it can be inferred that learners' autonomous English learning was more strongly associated with their satisfaction with English classes, ideal vision and cultural desire than practical goals and duties to meet others' expectations.

To examine the predictive effects of self-efficacy and motivational components on participants' autonomous English learning, a multiple linear regression was performed with autonomous English learning as a dependent variable, self-efficacy and all the motivational components as independent variables. The R square value was .51, with an F value of 278.74 (df = 1598,

p <.001), which indicated that 51% of the variance in participants' autonomous English learning was explained by the combination of self-efficacy, L2 learning experience, ideal L2 self, integrativeness, ought-to L2 self, and instrumentality. Table 12 further shows, self-efficacy (t = 20.75, B-value = .43, p < .001), L2 learning experience (t = 10.33, B-value = .22, p < .001), ideal L2 self (t = 7.26, B-value = .17, p < .001), and integrativeness (t = 5.68, B-value = .14, p < .001) had positively predictive effects on autonomous English learning, while ought-to L2 self and instrumentality had negatively predictive effects on autonomous English learning in the model. Regarding the collinearity statistics, the Variance Inflation Factor (VIF) was set from 1.36 to 1.97, and the tolerance ranged from .51 to .87, showing the absence of multicollinearity in the regression model.

Table 12. Regression Results[a] of Self-efficacy and Motivational Components on AEL

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	.52	.07		7.00	.00		
Self-efficacy	.48	.02	.43	20.75	.00	.70	1.43
Ideal L2 Self	.13	.02	.17	7.26	.00	.53	1.89
Ought-to L2 self	-.05	.01	-.06	-3.22	.00	.87	1.16
Integrativeness	.11	.02	.14	5.68	.00	.51	1.97
Instrumentality	-.05	.02	-.07	-3.21	.00	.74	1.36
L2 Learning Experience	.20	.02	.22	10.33	.00	.68	1.47

a. Dependent Variable: autonomous English learning

From the results, it can be drawn that self-efficacy, L2 learning experience, ideal L2 self, and integrativeness were strong predictors of Chinese learners' autonomous English learning, wherein self-efficacy was proved to be the strongest predictor. The results of the present study are consistent with the previous findings that self-efficacy has a direct impact on the autonomous English learning of Chinese college students (Li & Yu, 2008; Shang & Kou, 2015).

4.4 Effect of autonomous English learning on English proficiency

With regard to the third research question, a linear regression was conducted with learners' English proficiency as a dependent variable, autonomous English learning as an independent variable to examine the predictive effect of autonomous English learning on English proficiency.

The results are shown in Table 13 and Table 14. The R square was .28, with an F value of 626.17 (df = 1603, p < .001), indicating that autonomous English learning could explain 28% of the total variance in learners' English proficiency. The Beta weight and t value of autonomous English learning (t =

25.02, B-value = .53, $p < .001$) suggest that autonomous English learning was a significantly strong predictor of Chinese learners' English proficiency.

Table 13. Model Summary[b] of AEL and English Proficiency

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change
1	.53[a]	.28	.28	43.68	.28	626.17	1	1603	.00

a. Predictors: (Constant), autonomous English learning
b. Dependent Variable: English proficiency

Table 14. Effects[a] of AEL on English Proficiency

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	B	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
1 (Constant)	314.27	5.37		58.51	.00		
AEL	43.34	1.73	.53	25.02	.00	1.00	1.00

a. Dependent Variable: English proficiency

As aforementioned, English proficiency may be influenced by many factors. This study found that autonomous English learning significantly predicts English proficiency of Chinese learners. Furthermore, based on the results of the relationships between self-efficacy and motivation with autonomous English learning, it can be inferred that learners' self-efficacy, ideal L2 self and L2 learning experience indirectly contribute to improving their English proficiency through autonomous English learning.

5 Conclusion and Implications

The current study examined the relationships among self-efficacy, motivation, autonomous English learning, and English proficiency of Chinese learners. The results indicated that autonomous English learning was strongly correlated with both self-efficacy and motivation. Among the motivational components, L2 learning experience and ideal L2 self were more closely correlated to autonomous English learning than other motivational components. In addition, the results of regression analysis confirmed that self-efficacy, L2 learning experience, ideal L2 self, and integrativeness had positively predictive power on autonomous English learning, while ought-to L2 self and instrumentality had negative effects on autonomous English learning. Furthermore, it revealed that autonomous English learning had a significantly powerful effect on English proficiency of Chinese learners. Therefore, it can be drawn that learners with higher self-efficacy and stronger motivation tend to have higher

autonomous English learning, which can lead them to perform better in learning English.

These findings provide some implications for college English teachers to implement effective teaching in EFL context including Chinese learners of English. Firstly, English teachers should take measures to improve learners' self-efficacy and their learning motivation, in particular, ideal L2 self and integrativeness in order to promote their autonomous English learning. As stated earlier, Bandura (1977) proposes four main sources of self-efficacy expectations: "performance accomplishments, vicarious experience, verbal persuasion, and physiological states" (p. 191). Therefore, around these four sources, some specific teaching suggestions on effectively enhancing learners' self-efficacy are put forward:

1) Teachers should strive to create opportunities for learners to succeed in learning English. As argued by Xu (2007), the experience of success or failure in learning is a crucial factor that affects self-efficacy: Success enhances self-efficacy, whereas failure weakens it.

2) Let learners observe other people's continuous efforts and success with similar abilities and help learners build confidence that they can achieve the same success in similar situations.

3) Before teaching new knowledge, teachers can inform students that the implementation of some learning behaviors may enable them to obtain corresponding achievements in their English learning. This verbal persuasion by teachers may raise learners' outcome expectations, stimulate their actions, and indirectly improve their self-efficacy.

4) Teachers should observe the changes in learners' physical and mental state in the process of learning, praise and encourage learners promptly, and guide them to make correct attributions for academic success or failure, thus making learners have stable and sustainable learning motivation of English.

In addition to self-efficacy, more attention should be paid to learners' motivation. As Krashen (1982) claims, learners with strong motivation, a good self-image, better self-confidence, and low anxiety tend to perform better in language acquisition. Accordingly, some teaching suggestions for stimulating learners' motivation, especially in terms of L2 learning experience and ideal L2 self, are given as follows.

1) Teachers should create a pleasant English learning environment for learners. When learners study in a free and relaxed environment, they will feel safe, thus generating a good learning experience. A pleasant learning environment is also conducive to shaping an ideal L2 self, and ultimately promoting the development of autonomous English learning.

2) Teachers can share with learners personal learning experiences or other successful people's experiences to set a positive example for learners and provide strong motivation and spiritual support for learners' diligent learning. This can help learners gain a positive and ideal self-image related to English and make learners' attitudes toward language learning more positive.

Finally, teachers should attach importance to the cultivation of learners' autonomous English learning awareness. Specifically, teachers can guide learners to establish their own learning goals to help them build a correct view of learning and develop learning responsibility. Also, based on the teaching contents, teachers can lead learners to think actively and acquire new knowledge through multimedia learning resources such as audio, video, and YouTube. Furthermore, teachers can carry out classroom interactive activities to encourage learners to use the new knowledge in the activities, so that learners could experience the success of learning and increase their interest in learning.

This study also has some limitations. Firstly, questionnaires were distributed online. Although the online distribution was convenient for the collection of data, online self-reported answers might not fully reflect learners' actual learning behaviors and situations. Thus, it would be beneficial if future research could apply various data collection methods to obtain information on learners' self-efficacy, motivation, and autonomous English learning, such as follow-up interviews and classroom observations. Secondly, the language learning process is long-term, dynamic, and developmental, but the data collected was limited to the period of this study, which may not fully reflect learners' learning behaviors. Finally, it will lead to a better understanding to longitudinally observe the influences of self-efficacy, motivation, and autonomous English learning on learners' English proficiency, not just temporary effects. In addition, in-depth experimental studies are strongly recommended to track and validate the interactions among these variables.

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Appendix
University students' English learning questionnaire

1.Gender: 2. Age: 3. Grade: 4. University: 5. Major: 6.CET 4 Score: 7. Your expected Score:						
8. Do you have any experience of studying or living abroad? ① Yes ② No						
9. If YES in 8, then how long have you been studying or living abroad? ① Less than 6 months ② 6 months-1 year ③ 1-2 years ④ 2-3 years ⑤More than 3 years 10. When did you start learning English? ① Before primary school ② In grade 1-2 ③ In grade 3-4 ④ above grade 4						
11. How do you feel about learning English? ① curiosity or pleasure ② nervousness or pressure ③ no feeling at all						
Please read the following questions carefully and choose an option that best suits your real situation. The five options are: 5 = totally agree, 4 = moderately agree, 3 = basically agree, 2 = moderately disagree, and 1 = totally disagree.						
Autonomous English learning questionnaire						
12	I am responsible for my English learning — no one else is.	5	4	3	2	1
13	I can learn English on my own better than most people.	5	4	3	2	1
14	I am an effective English learner at school and on my own.	5	4	3	2	1
15	I can actively overcome the emotional factors that are not conducive to English learning (such as anxiety, inferiority, depression, shyness, etc.).	5	4	3	2	1
16	I can set English learning goals according to my own situation.	5	4	3	2	1
17	I can manage English study time well, make and adjust my study plan.	5	4	3	2	1
18	I can make good use of the learning resources around me (such as books, learning websites, English broadcasts, reference books, etc.).	5	4	3	2	1
19	I can make good use of English learning strategies and methods (e.g. exchange learning experience with successful English learners; write down English learning feelings in diaries or weekly notes; take the initiative to listen to English radio; read English newspapers. Magazines and novels; choose a suitable learning environment, etc.).	5	4	3	2	1
20	I can take the initiative to cooperate with others in learning (e.g. finding oral communication partners, exchanging learning experiences with other students, practicing and reviewing with others).	5	4	3	2	1
21	After class, I will actively look for various opportunities to practice English (e.g. English corner, English club activities, etc.).	5	4	3	2	1
22	I can realize the errors that may occur in my English learning, find out the causes of the errors (e.g. mother tongue interference, unfamiliarity with grammar rules, etc.) and take corresponding measures to correct them.	5	4	3	2	1
23	I can effectively manage and monitor my English learning process.	5	4	3	2	1
24	I can check and update my understanding of the previous knowledge after completing an English learning task.	5	4	3	2	1
25	I can evaluate my learning effect after completing an English learning task.	5	4	3	2	1
26	I can consciously apply the newly learned knowledge to language practice.	5	4	3	2	1
Self-efficacy questionnaire						
27	If someone opposes me, I can find the means and ways to get what I want.	5	4	3	2	1
28	It is easy for me to stick to my aims and accomplish my goals.	5	4	3	2	1
29	I am confident that I could efficiently deal with unexpected events.	5	4	3	2	1
30	I can solve most problems if I invest the necessary effort.	5	4	3	2	1
31	I can remain calm when facing difficulties because I can rely on my coping abilities.	5	4	3	2	1
32	When I am confronted with a problem, I can usually find several solutions.	5	4	3	2	1
33	No matter what comes in my way. I'm usually able to handle it.	5	4	3	2	1
Motivation questionnaire						
	Ideal L2 self					
34	I like to think of myself as someone who will be able to speak English.	5	4	3	2	1
35	Whenever I think of my future career, I imagine myself being able to speak English.	5	4	3	2	1
36	If my dreams come true, I will speak English fluently in the future.	5	4	3	2	1
37	I can imagine a time when I can speak English with native speakers from other countries.	5	4	3	2	1

	Ought-to L2 self					
38	I study English because close friends of mine think it is important.	5	4	3	2	1
39	My parents believe that I must study English to be an educated person.	5	4	3	2	1
40	I consider learning English important because the people that I respect think that I should do it.	5	4	3	2	1
41	If I fail to learn English, I'll be letting other people down.	5	4	3	2	1
	Integrativeness					
42	I think learning English is important because I want to learn more about the culture of its speakers.	5	4	3	2	1
43	I think learning English is important because I would like to become similar to the people who speak English (e.g. in terms of behavior, way of thinking, lifestyle, etc.).	5	4	3	2	1
	Instrumentality					
44	Studying English can be important to me because I think it will someday be useful in getting a good job.	5	4	3	2	1
45	Studying English is important because with a high level of English proficiency I will be able to make a lot of money.	5	4	3	2	1
46	Studying English is important to me in order to achieve a special goal (e.g. to enter a good graduate school or company).	5	4	3	2	1
	L2 learning experience					
47	I like the atmosphere of my English class.	5	4	3	2	1
48	I like English course and always look forward to English classes.	5	4	3	2	1
49	I like my English teacher because of his/her fun English class.	5	4	3	2	1
50	I like the activities done in my English classes.	5	4	3	2	1
51	The materials in my English class suit my needs.	5	4	3	2	1

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