

# A Study on the Mechanism of the L2 Motivational Self System of Non-English Majors in English Learning

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## Abstract

**This study collects data by means of questionnaires and interviews. It was conducted by 206 graduate students from a university of science and engineering. The purpose of this study is to explore the relationship between non-English majors' L2 language motivational self-system, English academic achievement and the mediating effect of the learning experience. The results show that the L2 language motivational self-system of non-English majors generally affects English learning performance; in the L2 motivation self-system, Ideal L2 self and L2 learning experience have a direct impact on non-English majors' English learning achievement. There is no significant correlation between Ought-to L2 self and English learning scores; in the mediating effect, Ideal L2 self can best influence academic performance through L2 learning experience.**

## Keywords

**L2 motivational self-system; academic achievement; mediating effect.**

## 1. Introduction

In the study of second language acquisition, motivation has always been considered as an important factor affecting academic performance, and has become the object of many scholars. Learning motivation is the most dynamic factor in many factors of language learning, and it is also one of the most important factors in determining the success of language learning [1]. Since the 1950s, foreign countries have begun to explore the correlation between L2 motivation and L2 academic achievement. Among them, Gardner, Lambert and Dornyei are the most representative. Gardner and Lambert suggest that motivation can be divided into instrumental motivation and integrative motivation. Instrumental motivation refers to the motivation needed for the development of work and education. It is the desire of foreign language learners to master foreign languages for job hunting, personal improvement or improvement of their social status. Integral motivation is the motivation needed for integration and development. It means that foreign language learners can live and develop in the target language culture, and can communicate with and integrate into the culture of the target language community. There is a real interest in the way. Dornyei (2005) further revised and developed the theory of psychology and proposed a new conceptual framework, the L2 Motivational Self System.[2] This theory makes up for the limitations of "tool-type motivation" and "integrated motivation", making it more suitable for foreign language learning environments. The existing literature on the second language motivation self-system mainly focuses on motivation types, learning strategies, self-identification and learning effectiveness. Postgraduates' motivation to learn English is relatively weak, and the learning effect is not satisfactory [3]. Therefore, how to improve their English learning motivation self-system has become an urgent problem to be

solved. However, the existing research mostly focuses on undergraduates and there has little research on graduate students. Therefore, this study intends to explore how the L2 motivational self-system affects the mechanism of English learning effectiveness.

## 2. Research Background

In recent decades, the study of L2 motivation has focused on the two types of motivations: "integrated" and "instrumental", and then Dornyei has proposed a new concept L2 motivational self-system based on "self-inconsistency" and "self-directed" which is from social psychological. The second-language motivational self-system consists of three parts, Ideal L2 self, Ought-to L2 self, and L2 learning experience. "Ideal L2 self" refers to the learners in order to narrow the gap between ideal and reality. "Ought-to L2 self" refers to the external environment's requirements for learners, and the motivation of learners to avoid negative outcomes. "L2 learning experience" refers to motivations associated with specific learning situations, second language learners, second language learning feelings and experiences, in which teachers' teaching methods, learning environment and learning effects all affect the learning experience of L2 learners. Gao Yihong and Zhou Yan (2009) found that the L2 motivational self-system theory further developed the traditional language learning motivation theory and has more explanatory power[4]; Ge Nana (2013) also confirmed that the second-language motivational self-system is related to English learning achievement in undergraduate research[5]; Wang Lina's research shows that L2 learning motivation is influenced by learning strategies[6].

Reviewing the development of the L2 motivational self-system, we find that the study of the L2 motivational self-system is a gradual process. From the initial research on the internal structure of the system to the influence of the L2 motivational self-system on L2 learning, but the mechanism of the second-language motivational self-system has rarely been studied. Therefore, this paper specifically explores the mechanism of the second-language motivation self-system subsystem on the academic performance of non-English major graduate students.

## 3. Research Methods

### 3.1. Research Questions

This study answers the following three questions: (1) The L2 motivational self-system status of non-English majors in English? (2) What is the relationship between the L2 motivational self-system and English learning achievement; (3) The mediating effect of L2 learning experience in English learning.

### 3.2. Research Objects

The survey respondents were non-English majors from a key university in Jiangsu Province, 220 questionnaires were distributed and 206 questionnaires were collected, with a recovery rate of 93.6%. Fourteen incomplete invalid questionnaires (6.4%) were excluded. Among them, there are 150 boys and 56 girls. The average age of students is 24.6 years old. Subjects include eight major disciplines: Safety Engineering, Electrical Engineering and Automation, Civil Engineering, Mining Engineering, Materials Science and Engineering, Mathematics and Applied Mathematics, Public Administration, and Marx.

### 3.3. Research Tools

#### 3.3.1. Questionnaire

The data collection tool is a questionnaire, written in Chinese, and anonymously surveyed the subject information. The questionnaire is divided into two parts. The first part surveys personal information, including gender, age, major and the score of CET6. The second part measures students' L2 motivational self-system, including Ideal L2 self, Ought-to L2 self, L2 learning

experience and learning interest. All questions are based on the Likert six-level scale, ie: 1 = strongly disagree, 2 = disagree, 3 = slightly disagreement, 4 = slightly agree, 5 = agree, 6 = strongly agree.

The scale used in the study refers to the second language motivational self-system scale compiled by Dornyei and some of the items are deleted and modified to make it more in line with the actual situation of Chinese students' foreign language learning. Combined with Dornyei's L2 motivation self-system, the questionnaire items can be aggregated into four factors, named as Ideal L2 self, Ought-to L2 self, L2 learning experience, and L2 learning interest. The Ideal L2 self is the ideal self part related to the second language. For example, I can imagine that I live abroad and communicate with local people in English. I can imagine communicating with foreign friends or colleagues in English. The Ought-to L2 self refers to the goal which is set by others that the second language learner has to accomplish or to avoid certain negative outcomes. For example, studying English is important to me in order to bring honors to my family; the importance of learning English is that it can help me achieve a set goal, such as Obtain a diploma or scholarship. The L2 learning experience is the immediate experience and feelings of the second language learner. For example, I feel that I am trying my best to learn English. The L2 learning interest is the interest of English learners in learning English. For example, if an English course was offered in future, I would like to take it. The factor load of each of the four factors is above .506 and higher than the acceptable value of .40, explaining a total of 62.53% of the variance, a good explanation of the variance of the entire scale. Therefore, the L2 motivational self-system scale has good structural validity. The correlation of the four factor topics is greater than 0.3, the total correlation of the revised items is greater than 0.5, and the reliability coefficient of the total meter is .759, indicating that the reliability of the scale meets the test requirements and the internal consistency is good.

The Cronbach coefficient of the total scale is 0.824 greater than 0.8, indicating that the scale has a higher reliability. Next, the researchers performed a KMO test and a Barlett sphere test on the questionnaire. The results showed that the KMO value was .759, and the significance of the Barlett sphere test was close to 0, indicating that the structure of the scale was good.

### 3.3.2. Interview

According to the results of the questionnaire and the second language level of the subjects, a total of 8 subjects from each major and different second language levels were randomly selected to conduct semi-structured interviews to make up for the shortcomings of the questionnaire and to strengthen the explanatory power of the data. In order to facilitate communication, the interview was conducted in Chinese. The interview question consists of four questions: 1) Why do you think you should to learn English? 2) Do you think that English level has a great impact on your life? 3) Do you like English? why? 4) What do you think of the form of English class now? The design of these topics is open, there is no standard answer, students can answer according to their actual situation. In order to eliminate the students' nervousness, the researchers set soft background music and indicated to the subjects that the interview content was only used in this study. The personal identification information of the respondents was not exposed, and the interviews were conducted in a relaxed and pleasant atmosphere.

## 4. Research Results

All measurements were statistically analyzed using SPSS 22.0 and were performed in four steps. 1) Input and collation of raw data; 2) Descriptive statistical analysis of the subjects' self-system status; 3) Using Pearson correlation analysis to examine the relationship between the self-system of the L2 learning motivation and English achievement; 4) The mediating role of the L2 self -system in English learning.

#### 4.1. Science and Engineering Non-English Major Postgraduate English Learning Motivation Self-system Situation

The researchers used the mean and standard deviation in descriptive statistical analysis to reflect the self-system status of the English learning motivation of the subjects, as shown in Table 1.

**Table 1.** L2 motivational self-system sub-item scale (N=206)

	Number	Minimum(M)	Maximum(X)	Average (E)	Standard Deviation
Ideal L2 self	206	1	6	3.553	1.104
Ought-to L2 self	206	1	6	3.28	1.189
L2 learning interest	206	2	6	4.102	0.939
L2 learning experience	206	1	6	3.072	1.045

From Table 1, it can be seen that the average values of the Ideal L2 self, the Ought-to L2 self and the L2 learning experience in the English learning motivation of the students are 3.553, 3.280 and 3.072 respectively. The average of the three sub-items is greater than 3.0, which indicates that the three sub-items of the motivational self-system are ubiquitous in the English learning of non-English major. In the L2 motivational self-system, the average of the Ideal L2 self - is the largest, followed by the Ought-to L2 self, and the least mean is the L2 learning experience. This shows that non-English majors have a higher ideal second language self and the L2 learning experience is the lowest. At the same time, the average of L2 learning interest is the largest, indicating that non-English majors have a strong interest in English learning.

#### 4.2. Analysis of the Correlation between the L2 Motivational Self-System and English Learning Achievements

In order to measure the relationship between L2 motivational self-system, L2 learning interest and English learning achievement, the Pearson correlation coefficient was used for analysis. From Table 2, it can be seen that the Ideal L2 self, the Ought-to L2 self, L2 learning experience, the L2 learning interest and the English learning score are all positively correlated. Among them, the Ideal L2 self is highly correlated with English academic achievement ( $r=.484$ ,  $p<.001$ ); the second is the L2 interest ( $r=.214$ ,  $p<.001$ ); then the L2 learning experience ( $r=.213$ ,  $p<.001$ ); the lowest correlation coefficient is the Ought-to L2 self ( $r=.144$ ,  $p<.001$ ). The analysis results of this study are close to those of Ma Guanghui (2005). By studying the influence of learners' motivation and effort on foreign language learning scores, Ma Guanghui found that the majority of learning motivations have a positive correlation with foreign language learning scores but they have not reached statistically significant levels; they are based on tools for job hunting and other purposes. Motivation and learning environment motivation based on factors such as teachers, teaching materials and teaching classes have a certain degree of negative correlation with English learning scores; motivation

**Table 2.** Correlation coefficient between the second-language motivation self-system and English learning scores

	N	AVE	1	2	3	4	5
Ideal L2 self	206	0.574	0.758				
L2 learning interest	206	0.577	.330**	0.759			
Ought-to L2 self	206	0.602	.182**	.239**	0.776		
L2 learning experience	206	0.533	.396**	.258**	.395**	0.73	
academic achievement	206		.484**	.214**	.144**	.213**	1

Note: \*\*. When the confidence (double test) is 0.01, the correlation is significant.

variables have no direct impact on foreign language learning performance, but through foreign language learning scores Indirect effects.[7] The reason why the second-language self-relationship between English and academic performance should be low in the research results is that the school and the society have lower requirements for English majors in non-English majors in science and engineering.

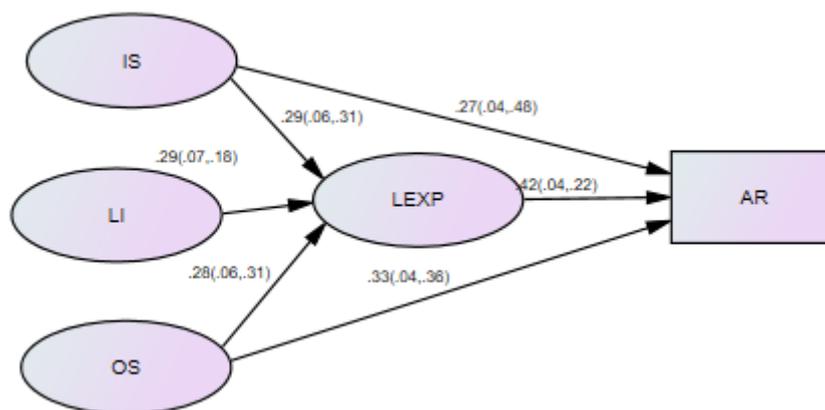
### 4.3. Mediating Effect Value of L2 Learning Experience

In order to explore the mediating effect of the L2 learning experience, there are three mediating effects in this study, namely:

IS-LEXP-AR (1)

LI-LEXP-AR (2)

OS-LEXP-AR (3)



**Figure 1.**

It can be seen from Table 3 that p is less than .05, and the correlation is significant, indicating that the assumptions are all true. For the L2 learning experience, the Ought-to L2 self have the greatest influence (Beta=.314), followed by the Ideal L2

**Table 3.** Test results of mediation effect parameters of L2 learning experience

Model		Non-standardized coefficient		U coefficient a		t	Significant	Collinear statistics			
		B	Standard error	Beta				Tolerance	VIF	R square	Durbin-Watson(U)
L2 learning experience	Ideal L2 self	0.294	0.061	0.312	4.839	0	0.88	1.137	0.385	2.36	
	L2 learning interest	0.29	0.073	0.18	1.923	0	0.854	1.171			
	Ought-to L2 self	0.278	0.055	0.314	5.019	0	0.929	1.077			
academic achievement	Ideal L2 self	0.267	0.038	0.472	7.053	0	0.843	1.186	0.487	1.904	
	L2 learning experience	0.423	0.043	0.216	1.083	0.015	0.739	1.354			
	Ought-to L2 self	0.33	0.035	0.36	0.944	0	0.847	1.181			

self (Beta=.312). For academic performance, Ideal L2 has the greatest impact (Beta=.472), followed by Ought-to L2 self (Beta=.360). The three indirect effects in the model are multiplied by non-normalized coefficients. According to Sobel Z test, the joint standard error is calculated. When  $Z > 1.96$ , it indicates that the indirect effect exists, and the three indirect effects are all greater than 1.96, so the indirect effect exists. As shown in Figure 1, among the three indirect effects, the Z value of the English learning achievement is the largest from the Ideal L2 self to the second language learning. It means that among the three indirect effects, the Ideal L2 self can best influence the second language learning achievement through the L2 learning experience. To influence the results of second language learning. For the non-English major graduates, the main factors affecting English learning are the English learners' expectations of themselves and their interest in English learning. This is not difficult to explain why the relationship between the Ought-to L2 self and second language learning is low related in non-English major graduate groups.

## 5. Discussion

### (1) Self-system Status of English Learning Motivation for Non-English Majors in Science and Engineering

The results of this study show that the three subsystems of the L2 motivational self-system generally affect the English learning scores of non-English majors. Among them, the Ideal L2 self has the greatest influence. This result is the same as that of Genna (2016), which shows that English learning for non-English majors is also generally influenced by the L2 motivational self-system.

### (2) The Relationship between L2 Motivational Self-system and English Learning Achievement

The results of the correlation coefficient between the L2 motivational self-system and English learning achievement show that the correlation coefficient between Ideal L2 self and English learning achievement is the highest, followed by L2 learning interest, and secondly, the L2 learning experience. The lowest correlation coefficient with English learning achievement should be the Ought-to L2 self. This is consistent with the findings of Csizer and Kormos [8]. The reason may be that the students of the Ideal L2 self has strong L2 learning motivation and the psychological desire to eliminate the gap between the reality L2 self and the possible L2 self. The non-English major graduates are required for professional and self-development (such as reading and Published international journals, etc.) have certain self-requirements for their English learning. Ideal L2 self-motivation has become the main driving force for non-English majors to learn English, which has a great impact on graduate English learning. In contrast, the Ought-to L2 self has little effect on the autonomous learning behavior (correlation coefficient

is .144), which is consistent with the findings of Genna (2016). The influence of the Ought-to L2 self on the L2 learners should be external, not the spontaneous generation of the learners, and thus the impact on the L2 learners is relatively weak. As Kormos et al pointed out, the recognition of the importance of foreign language learning by learners of the Ought-to L2 self is mainly influenced by the so-called "Significant Others" view [9]. Because these students learn the second language to meet the expectations of other people and avoid the negative results, they are more likely to take the second language as a responsibility, obligation and responsibility, and may take the second language learning as a certain degree of resistance, so their second language learning autonomy is relatively poor. When encountering problems in the process of second language learning, they are rarely able to actively reflect on problems and insist on completing foreign language learning tasks. For non-English major graduates, the employment requirements of schools and the whole society are more of a professional requirement. At this time, English is only used as a learning aid, so it should be less influenced by the second language.

At the same time, the research results show that the L2 learning experience of non-English major graduate students is relatively low, which is also a problem in the group's English learning. The L2 learning experience generally does not directly affect English learning performance, but affects English learning performance through Ideal L2 self, the Ought-to L2 self and L2 learning interest. According to Genna (2016), 61.7% of the subjects had a higher level of L2 learning experience, which indicated that the learning experience of this part of the students had a positive impact on English learning, and 38.3% of the students were affected by the past English learning experience and the negative impact of the learning environment. This is different from the results of this study, which may be due to different subjects. Genna (2016) was a freshman, and the subjects in this study were non-English majors. Some graduate students have stronger motivations, but they have not translated motivation into the actual motivation to learn English. Therefore, English learning scores have not reached the scores they deserve.

### (3) The Mediating Effect of the L2 Learning Experience

The results show that the mediating effect of the L2 learning experience exists, and the Ideal L2 self can influence the academic achievement through the L2 learning experience. This is consistent with the research results of Wei Xiaobao [10]. The influence of Ideal L2 on self-learning behavior is far greater than that of the Ought-to L2 self. The L2 learning experience plays an important role in regulating. The English learning scores of the non-English major graduates are influenced by the Ideal L2 self, and are also influenced by the mediating effect of the L2 learning experience. Although non-English major graduates have strong English learning motivation, but their English proficiency is generally low, the L2 learning experience is lower than average, so under the intermediary effect of L2 learning experience, English scores are generally not high.

## 6. Conclusions and Implications

This study, through a combination of qualitative and quantitative research, found that: 1) The three subsystems of the second-language motivational self-system Ideal L2 self, the Ought-to L2 self and the L2 learning experience are common in non-English majors' English learning; (2) Ideal L2 self, the Ought-to L2 self, L2 learning experience, L2 learning interest and English learning scores are positively correlated. Among them, the most significant influence on English learning achievement is Ideal L2 self; 3) The L2 learning experience has a mediating effect between the subsystems of the L2 motivational self-system and the English learning scores. Among them, the Ideal L2 self can best influence English scores through the L2 learning experience.

This study enlightens the second-language teaching of graduate students: on the one hand, it corrects the attitude of postgraduate English learning and guides graduate students to form a higher Ideal L2 self. Teachers in foreign language teaching should help students realize that learning English is not only to pass the exam, but more importantly, to cultivate humanistic qualities, improve cultural accomplishment, encourage students to focus on using English to participate in international affairs, obtain international information, and establish a global vision. On the other hand, in view of the significant mediation effect of L2 learning experience, teachers can take measures to improve students' L2 learning experience. For example, according to the non-English majors, the basics of English learning are different. Teachers should adopt stratified teaching according to different learning levels, so that graduate English learners at all levels can get a better L2 learning experience in the learning process. Thereby promoting the improvement of English learning performance; teachers update the teaching methods during the teaching process, enrich the classroom activities, and improve the students' instant classroom experience and feelings.

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