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## **Do Academic Characteristics Predict Chinese Private University Students' Success in English Language Testing?**

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Do Academic Characteristics Predict Chinese Private University  
Students' Success in English Language Testing?

A Dissertation by

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Submitted in partial fulfillment of the requirements for the degree of

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July 2021

# Do Academic Characteristics Predict Chinese Private University Students' Success in English Language Testing?

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# **ABSTRACT**

Do Academic Characteristics Predict Chinese Private University Students' Success in English

Language Testing?

by Feijun Yu

Conventional language learning theory, which holds that learning outcomes are solely associated with learners' competencies, has begun to be disputed in the dynamic learning environment. This study used English learners' academic characteristics from the 2014 cohort in a private university in Shanghai, China, to explore the relationship between language learners' academic characteristics and their learning outcomes in a national standardized English examination. Via the collection of extant data, 3,580 cases were included for logistic and multiple regression analysis. Results showed factors associated with English learning are the NCEE English score, the number of tests taken by students, provincial origin, gender, and major. These indicators all affected the odds of students' passing the CET-4, as well as the highest scores they could receive. However, studies lent some support to indirect effect between English academic performance and some demographic factors. These findings suggest future Chinese researchers could focus on multidimensional measures to better describe the characteristics of students from the private sector, research designs that reveal more complex contexts and potential comparative studies, and further integration of interdisciplinary research.

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## **LIST OF ABBREVIATIONS**

CET: College English Test

CET-4: College English Test-Band Four

CET-6: College English Test-Band Six

EFL: English as Foreign Language

GPA: Grade point average

MoE: Ministry of Education

NCEE: National College Entrance Examination

SES: Socioeconomic status

SET: Spoken English Test

SIM: Student Integration Model

VIF: Variance Inflation Factor

## CHAPTER 1: INTRODUCTION

In the last few decades, China has experienced rapid economic development and an explosion in commercial, technological, and cultural exchanges with other parts of the world (J. Sun, 2019). This growth has given rise to a pressing demand for English proficiency (Wu, 2001). English language education is receiving increasing attention from linguists and language policymakers. Linguists and language policymakers have shifted their concerns to interdisciplinary studies like sociolinguistics, psycholinguistics, and neurocomputing linguistics; those subjects aim to improve the efficiency of language learning. However, as globalization has deepened, interaction and integration between countries are becoming more frequent.

On the national level, English has been perceived by the government as a vital way of supporting the opening of society. Despite different voices deemphasizing the importance of English education, the government is still investing a great number of resources in English learning. Opening society is a prized source for achieving its modernization process and is a necessary cornerstone of global competition (Cortazzi & Jin, 1996). On an individual level, English proficiency is seen as core to many events: to enroll and graduate from university, to ensure the attainment of preferred jobs in various organizations, to study abroad, and to be eligible for promotion to higher professional ranks (Jin, 2019). Consequently, English proficiency has accrued superior social, economic, and national prestige.

Looking back in the professional field of linguistics, Chomsky (1965) defined linguistic competence as a system of linguistic knowledge internalized by a native speaker, including phonetic, lexical, syntactic, and semantic rules. To be specific, linguistic competence refers to the ability to recognize and make grammatical sentences. Hymes (1972) offered an opposing concept of communicative competence, which included pragmatic knowledge and competence. In this concept, the two communicative parties should not only know whether the structure of communicative discourse is correct, but also the feasibility, appropriateness, and purpose of communicative discourse in a specific context. Dai (2002) further summarized language competence as an abstract declarative knowledge system, the skills of applying pragmatic knowledge, and practical use of language.

Along with the change of the meaning of language ability from traditional language skills to the comprehensive ability to integrate several factors, the language assessment also transformed the process of the recognition of language competence. Language is embedded in society and serves as a key human resource. Language learning and assessment are in a relationship of partnership because the measurement of learners' language competence is unavoidably in the form of language assessment (Ma & Bai, 2007). One important function of language tests is to measure test takers' language ability and determine whether they are qualified and eligible to enter higher-level education or engage in a job requiring high English proficiency. Due to an increasing practical need for language tests that can provide predictive information about the possible success of a candidate in language learning,



language assessment has recently aroused immense interest in the field of language testing (Zhou & Liu, 2011).

Among the various English as Foreign Language (EFL) outcomes and certificates in China, the College English Test – Band 4 (CET-4) and Band 6 (CET-6) have a large social influence. In modern China, the test is now used as an instrument of policy more than any other time in history (Jin, 2019). The CET aims at measuring the English proficiency of university undergraduate students in accordance with the College English Teaching Syllabus. The CET is a large-scale standardized English test. The number of test-takers has grown from around 100,000 people during its first exam in 1987, to more than 10,000,000 test takers per year (Zhou & Liu, 2011). With its continuous development, the CET is loaded with extremely high stakes. In many universities, passing the CET-4 is a prerequisite for students to acquire their degree diplomas. What is more, in some universities, students' performances on the CET-4 and CET-6 are linked with the evaluation of their teachers and can exert direct influence on the prestige of the university. In job markets, earning the certificate of the CET-4 and CET-6 is an asset to job-hunters. For those university graduates whose hometowns are not in Beijing, Shanghai, Shenzhen, or other big cities, the CET-4 certificate is a necessary requirement for them to apply for a permanent residence (*hukou*) permit in these cities. The *hukou* will also affect their children's future educational opportunities. Therefore, colleges and universities have combined more and more characteristic application-oriented activities in the College English course to meet the needs of students from different majors and levels (Jin, 2019).

As the country with the largest population in the world, the proportion of ethnic minorities in China has reached 8.49% (2018 Statistical Bulletin on National Economic and Social Development, 2019). The 55 Ethnic minorities were identified by the Chinese government. Besides the relatively small population, the color, religion, language, race, and culture of minority groups differ from the Han nationality (Yang, 2015).

The use of language assessments has significant consequences for individuals' material life and personal fates. Accordingly, language assessments have inevitably become a means for resource management and social control exploited by governments. For example, elite students could distinguish themselves with high scores in various assessments (Cheng, 2008). Both governments and employers are inclined to select people with certificates because of their trust in certificate authority (Chang, 2006). In addition, Chinese universities are making English a priority to improve global standings through research and partnerships (Allen, 2019). This research is used to explore the lens of social resources, the relationship between private university students with diverse attributes and student success in English language, the predictive role of college students' academic characteristics, and higher education management and marketization.

### **Statement of the Problem**

It is commonly acknowledged that an entity inextricably interweaved with social and cultural life as language must not be studied in a social vacuum. The construct, meaning, and use of language have already been studied as social aspects, and specific research methods such as discourse analysis (D. Liu & Yun, 2020) and ethnographic study

(Han, 2017) have been used to probe the complex relationship between language and society. In this sense, the assessment of language is lagging. Language assessment is mostly researched in the theoretical “psychometric tube,” with validity and reliability of the testing as its focus. Rarely have scholars explored the function of learner’s academic condition within the social context in research on China (D. Tian, 2020).

Language assessment is deeply rooted in social life as well, with the testing construct influenced by social factors, testing practice conducted in the social environment, and testing results used by social institutions. Language tests are ubiquitous in their function as gatekeeping devices for education, employment, and career advancement in China. Studying language assessment without reference to society would hardly be feasible, let alone profitable. Little research has explored the social dimension of language testing in China’s higher educational context (L. Wang, 2020), not to mention the study of a high-stakes English as a foreign language (EFL) test in vulnerable private sectors (J. Sun, 2019). This study is important because private universities in China have not been fully explored, and most studies are set in public institutions. In fact, private institutions have been thriving in China for the past two decades (Zhang et al., 2012), which warrants more attention in academia.

J University, a private institution, was upgraded to an application-oriented undergraduate college in 2005. In recent years, the size of the institution is expanding quickly, and the enrollment is 6,000 students each year. To achieve the goal of sustainable development, the college must improve education quality and the English language

proficiency of graduates. However, judging from the academic performance of students on the National College Entrance Examination (NCEE), also known as “*Gaokao*,” it is undeniable private university students in China have low academic achievement and performed less satisfactorily on their NCEE (Hu & Xie, 2014). Compared with students in public universities, there is a large knowledge and aptitude gap in basic subjects such as English, Chinese, and mathematics. Therefore, the topic of how to understand students’ special needs in English learning and to provide specific support must be raised.

### **Purpose of the Present Study**

Through examining the use of language assessments from the perspective of individual background differences, this study attempts to identify the attributes of various levels of language learners under the social dimension, thus providing Chinese audiences with a new perspective for understanding academic success in the English language. By further unraveling the very nature underlying the social dimensions of language assessments, schools could explore implications from successful English learners and enhance teaching quality for Chinese EFL researchers and practitioners.

This study used existing data from the 2014 cohort collected throughout students’ 4 years of study until graduation from a private university in Shanghai, China. The main goal of this study is to identify factors that either facilitate or impede private university students’ performance on the nationwide English assessment known as the CET-4. First, data were analyzed to identify the demography of the test takers. According to the most recently published College English Curriculum Requirements (2020), students with a CET-4 score

of 425 or above can apply for CET-6. Under the guidance of this official document, colleges and universities usually set 425 as the passing score in China. Then, students with scores of 425 or above were compared to those with scores below 425 to determine if there was a significant difference according to their social and academic backgrounds. Next, data were analyzed to understand what types of which predictive factors, if any, are shared between groups. From these data, educators and leaders in education can learn whether these factors or the time students take in CET-4 could have an impact on test consequences.

### **A Brief Introduction of Theoretical Framework**

Based on a succinct review of the international literature on the developing trajectory of language testing and academic achievement, this study will first show two milestone changes that occurred in the theories of the language testing study—a shift of focus from measuring linguistic knowledge and language forms of test takers to their academic characteristics and learning settings, and a shift of concern from the objectivity and accuracy of validity of the test battery to the predictive factors of the test results upon learners' individual social and academic backgrounds. My framework builds upon an investigation of the international literature about social applications of student academic success and retention. I then identified and discussed a series of components of how learners' academic characteristics were being used in the EFL field to predict their educational outcomes.

## **Research Background**

This study was conducted in China. Within the Chinese context, it is necessary to understand the historic and cultural background of the examinations. In a country with a dense examination atmosphere and a comprehensive testing system, Chinese people value professional certificates. The term “certificate craze” (C. Jin, 2019) is used to depict this phenomenon. Thus, this study hopes to offer some rational understanding of this trend. Moreover, since their emergence during the 1970s, private education institutions in China have grown rapidly. The progress of private sectors reflects the economic development in China. An explanation of the background about the examination tradition and the private education in China is necessary before the conduction of this research. In this section, I discuss the examination tradition, as well as the status quo of private education institutions in China.

### **Examination Tradition in China**

As the internationally acknowledged birthplace of standardized tests (C. T. Hu, 1984; Lai, 1970), China has nearly 2,000 years of testing history and a pronounced examination atmosphere. Scholars were at the top of the social classes in ancient China. The first national exam, dating back to 605 C. E., was held to select civil servants (X. B. Wang, 2006). Throughout their testing history, the Chinese government mainly applied testing to a limited selection of high ranked officials. At that time, the tests administrated by the central government were the only equal opportunity for ordinary people to be successful in terms of social status. As long as the diligent studied, unprivileged commoners

participated in the imperial examination with the vision to obtain fame, enter an official career, and access social mobility (C. Feng, 2020).

For most Chinese people, testing is an administrative tool and the chance to change their destiny, rather than a measure of test takers' knowledge and intelligence. People's implicit faith in the potential usefulness of testing does not abate in modern society, where human resources are cultivated and screened through fierce competition. To make themselves more competitive in the social filter, many people choose to take tests and earn certifications granted by government and academic associations. Such a blind belief in testing and certificates leads to a paradox. A test with higher validity and reliability has more chances to be selected by the official examination system. Therefore, it will be laden with more trust by the public and the test results will be used in many irrelevant fields (H. Du, 2011). Test scores could play a critical role in pay increases or promotion. As it gains popularity, a high-quality test is more likely to be loaded with high stakes and result in severe social consequences that test developers cannot control. This phenomenon is especially true in EFL testing in China, as evidenced by the "certificate craze."

Chinese society is involved in a foreign language, especially English (H. Du, 2011). Considerable numbers of people experience unwarranted pressures to take EFL tests. English is an obligatory academic requirement throughout different periods of education (C. Feng, 2020). English skills are also tested for those seeking promotion in governmental, educational, scientific research, medical, financial, business, and other governments'

supported institutions (Chang, 2006). For many Chinese, doing well in various English testing and examination is the key to success (Cheng, 2008).

Among the various EFL testing options in China, the CET has much social influence. The test itself is a large-scale standardized English test, with the number of its test takers growing from around 100,000 in 1987 to more than 10,000,000 per year. With its continuous development, the CET is loaded with extremely high stakes. The test contains two levels, the basic CET-4 and an advanced level of CET-6. In many universities, passing the CET-4 is a prerequisite for students to acquire their degree diplomas. Student performance on the CET-4 and CET-6 are linked with the evaluation of their teachers in some universities and influence the university's prestige. In job markets, the certificate of a CET-4 and CET-6 is an asset to those job hunters. For university graduates whose hometowns are not in Beijing, Shanghai, Shenzhen, and other big cities, a certificate of CET-4 is a requirement for them to apply for a permanent residence permit (*hukou*) in these cities. *Hukou* status could assure people the rights of social affairs, such as a house purchase, children's enrollment, and car license plate auction.

### **Private Education in China**

Private higher education is an important component of higher education; it came into existence along with China's reform and opening-up policy (Zhang et al., 2012). The progress of society, the booming economy, and the increasing function of higher education have not only challenged the way society considers private educational institutions but has also actively responded to the requirements of social change. It is also changing the talent



training model. The roles of producers, supervisors, and controllers have gradually transformed into the functions and roles of society and the public in providing public services (Abouchedid & Nasser, 2002; Buckner, 2017). The emergence and development of China's private higher education are in a large social development pattern, not to mention language assessment in this context. Private colleges and universities are a special representative of schooling marketization (Abouchedid & Nasser, 2002). As special representatives, private colleges and universities are witnesses and beneficiaries of the changing role of government. Each change in the role of the government has to some extent, promoted social development. The constant change of society also means non-stop improvement of the role of educators. Educators from private institutions are duty-bound to push social progress in the education field.

From a global perspective, these decades of private higher education have developed rapidly around the world, and they have become increasingly influential in the world's higher education system (Abouchedid & Nasser, 2002; Buckner, 2017). Private higher education is the fastest growing part of higher education across the world (Buckner, 2017). Private colleges and universities have expanded the space for more studies and provided many necessary intellectual and technical forces for the economic development of countries around the world. The contribution rate of private higher education to the gross enrollment rate in higher education continues to increase, especially after it has reached higher education. In many other countries, the contribution rate of private higher education has shown high growth.

In Asian countries such as Japan and South Korea, private higher education accounts for up to 80% of the higher education system (Gordon et al., 2002). The most substantial development has been in regions that previously had few private education institutions. This region of the world with few private education institutions includes the Middle East and North Africa, South Asia, Europe, and Sub-Saharan Africa (Buckner, 2017). Private colleges and universities are playing an increasingly important role in the higher education system; they are gradually entering the center of the world's higher education system. Their social responsibility will become more important, and people are full of expectations for the development of private higher education.

Along with the expectation of the development of private higher education, there are more realistic challenges. Government, schools, and society jointly think or directly ask questions regarding the (a) role of the government in enrollment of private universities, (b) differences between students in public and private universities, (c) how interactive links can be established, and (d) whether the development of private higher education needs or can be assisted by public funds. The European University Association's Glasgow Declaration (2005) emphasized trust and empowerment of the relationship between the government and universities, playing the role of supervisor rather than regulator, and providing support and guidance for the field of higher education.

With the first step of entering private sectors, millions of high school seniors take China's NCEE (Gaokao) each year. The NCEE is offered once a year, and for most students, the score they receive on the Gaokao is the sole determinant of whether they will

be admitted to college and which college they may attend (Bai & Chi, 2011). Every year, for 3 days in June, the area around schools hosting the Gaokao is quiet, with traffic diverted and construction sites closed. Parents wait outside schools' gates, awaiting the news on how their children performed on the test. Some Chinese people refer to the Gaokao as the most demanding experience of a lifetime.

In the process of college applications, Chinese students must choose their top choices of universities they wish to attend. This university selection section consists of four parts, according to the type and status of schools. The first section is for special universities, such as army and police academies; the second section is for prestigious universities and others authorized by the China Ministry of Education (MoE; usually designated as Tier 1 schools). Section 3 is for the remaining, less prestigious universities (Tier 2 schools). The fourth section is for lower level universities that only offer undergraduate diplomas or private universities (Tier 3 schools). Students are permitted to choose universities from each section. Within each college, students may choose three to five departments or subjects in which they wish to enroll (Davey et al., 2007).

Due to its newness in the sector, private universities have been considered only in the lower tiers, thus affecting the quality of academic performances. Based on the deficiency of talent screening and the increasing enrollment of college students, the poor English performance of students from private universities has drawn great attention (J. Liu, 2020). As a different education group from public education institutions, private college students have their particularity in English learning. Considering their English scores of

Gaokao, most students not only lack learning enthusiasm or have abandoned the English subject, but some also even hold a sense of fear in learning English when they enter college (J. Liu, 2020).

Many students lack the perseverance and willpower to learn English; some first-year students doubt their ability to learn English due to their failure to be admitted to public universities (J. Sun, 2019). They hold the opinion students of private institutions are not competitive in the workplace; because of this low self-esteem, they have a negative attitude towards English learning (J. Sun, 2019). Some students believe English is not important and will have little effect on their future; as a result, it is hard for them to gain motivation to learn. These psychological barriers affect their learning and make teachers engaged in English teaching face many problems (J. Liu, 2021). This research hopes to push back against some of these stereotypes harmful to the students and sector.

### **Preliminary Data**

The extant data for the 2014 cohort issued by the office of educational administration from J University in Shanghai were analyzed to understand demographic data related to academic performance on the CET-4. The results of the demographic analysis were a significant factor in the decision to pursue the topic of the present study. The results of the archival data were computed based on various variables to get a better understanding of the prevalence of the issues facing EFL learners.

## **Research Questions and Hypotheses**

The research questions of this study are framed as hypotheses; therefore, the questions can be statistically analyzed using a null hypothesis ( $H_0$ ) and alternative hypothesis ( $H_a$ ) for each question. The questions and hypotheses regarding Chinese students enrolling at a Shanghai private university in 2014 include:

### **Research Question 1**

What is the relationship between high school academic achievement and the likelihood of passing CET-4?

$H_0$  (1a): There is no relationship between the Gaokao total score and passing CET-4.

$H_a$  (1a): There is a relationship between the Gaokao total score and passing CET-4.

$H_0$  (1b): There is no relationship between the Gaokao English score and passing CET-4.

$H_a$  (1b): There is a relationship between the Gaokao English score and passing CET-4.

### **Research Question 2**

What is the relationship between social engagement and the likelihood of passing CET-4?

$H_0$  (2): There is no relationship between awards and passing CET-4.

$H_a$  (2): There is a relationship between awards and passing CET-4.

### **Research Question 3**

What is the relationship between the times of test taken and the likelihood of passing CET-4?

$H_0$  (3): There is no relationship between the times of test taken and passing CET-4.

$H_a$  (3): There is a relationship between the times of test taken and passing CET-4.

### **Research Question 4**

What is the relationship between family background and the likelihood of passing CET-4?

$H_0$  (4a): There is no relationship between registered permanent residence (hukou) and passing CET-4.

- H<sub>a</sub> (4a): There is a relationship between registered permanent residence (hukou) and passing CET-4.  
H<sub>0</sub> (4b): There is no relationship between province of origin and passing CET-4.  
H<sub>a</sub> (4b): There is a relationship between province of origin and passing CET-4.

### **Research Question 5**

What is the relationship between high school academic achievement and students' top score of CET-4?

- H<sub>0</sub> (5a): There is no relationship between Gaokao total score and students' top score on CET-4.  
H<sub>a</sub> (5a): There is a relationship between the Gaokao total score and students' top score of CET-4.  
H<sub>0</sub> (5b): There is no relationship between the Gaokao English score and students' top score of CET-4.  
H<sub>a</sub> (5b): There is a relationship between the Gaokao English score and students' top score of CET-4.

### **Research Question 6**

What is the relationship between social engagement and students' top score of CET-4?

- H<sub>0</sub> (6): There is no relationship between awards and students' top score of CET-4.  
H<sub>a</sub> (6): There is a relationship between awards and students' top score of CET-4.

### **Research Question 7**

What is the relationship between the times of test taken and students' top score of CET-4?

- H<sub>0</sub> (7): There is no relationship between the times of test taken and students' top score of CET-4.  
H<sub>a</sub> (7): There is a relationship between the times of test taken and student's top score of CET-4.

### **Research Question 8**

What is the relationship between family background and students' top score of CET-4?

- H<sub>0</sub> (8a): There is no relationship between registered permanent residence (hukou) and students' top score of CET-4.  
H<sub>a</sub> (8a): There is a relationship between registered permanent residence (hukou) and students' top score of CET-4.  
H<sub>0</sub> (8b): There is no relationship between province of origin and students' top score of CET-4.  
H<sub>a</sub> (8b): There is a relationship between province of origin and students' top score of CET-4.

## **Summary**

In China's higher education, the CET-4 is an important test to measure the English proficiency of college students. It is also the largest national unified test for college students. The passing rate of the CET-4 can reflect a university's multidimensional teaching status, which naturally attracts attention from both external and internal organizations. The more people speak English, the more likely they could achieve success. Similarly, the association of English with modernity, money, and technology plays an important role in making English language learning popular.

This study hopes to add to the knowledge base about the academic achievement of English learning for Chinese private university students. Chapter 2 follows, which includes a review of current research as it pertains to the research questions, including the history of the theoretical foundation of the study. Chapters 3 and 4 focus on the methodology and analysis of the extant data to illustrate the academic characteristics of successful English learners while answering these research questions. Finally, Chapter 5 will summarize all findings, discuss the strengths and limitations of the study, and offer suggestions to the stakeholders regarding College English education in private institutions in China.

## **CHAPTER 2: REVIEW OF LITERATURE**

This chapter is used to explain the theoretical underpinnings of the present study, including Tinto's interactionalist theory, theories from the social dimension perspective, such as motivation, Bourdieu's capital theory, and so on. Tinto's theory has shaped and guided this study about predictive factors of learners' academic success and performance in English language learning. After an explanation of Tinto's theory, the review of the available literature about the social dimension of language testing was divided into two parts. On the one hand, language assessment is part of the natural ongoing process of the evolution of the field of language acquisition (McNamara, 2001), which is embodied in research about motivation. Motivation could be regarded as the intrinsic quality that drives students to pursue higher education and find a good job after graduation. On the other hand, social aspects of language acquisition and testing become the new concerns of other social sciences, such as cultural capital, social capital, and their conversion, human and relational capital in China (Yan W. et al., 2019). In particular, this chapter employed Tinto's student integration model as a conceptual framework and then unraveled a philosophical level of two theories (motivation and capital) to underpin this model. Based on these theoretical foundations, I identified four key predictors of student success in college English learning, as well as demographic information.

### **Conceptual Framework of Student Success**

The purpose of this study is to identify which students are at most risk of not succeeding—in the study, of passing CET-4 or not—which would allow the university to



intervene early and target their interventions. Education researchers have developed comprehensive models on general college student persistence. The more complete and discussed models include Tinto's interactionalist theory, Bean's theory of student attrition, and Astin's theory of involvement model (Veenstra et al., 2009). Drawn upon Berger and Milem's (1999) note, a summary of these models is presented in Table 1. These models tend not to differentiate among majors and programs; the same theory or model is used for all. These models explaining why students leave college without a degree are extensive and are based on theories in four disciplines: economics, psychology, sociology, and organizational models (J. M. Braxton & Hirschy, 2005). Therefore, they provide a theoretical basis for the research model of this study.

Among education researchers, Tinto's theory and model have been the most empirically tested, the most accepted, and have reached paradigmatic stature (Bijl & Lawrence, 2019; R. J. Braxton, 1999). Tinto's (1975) student integration model (SIM) postulated the students who persist and succeed in college are those who can integrate successfully into an institution's social and academic environment. The SIM identified a variety of external or precollege factors that play a role in college student integration, including past academic performance (prior qualifications), family background (family attributes), and personal goals (individual attributes), as well as experiences at the institution (inside and outside of the classroom). Tinto's model and these external factors provided the theoretical framework for the study.

**Table 1***Summary of Education Models on Retention*

Researcher	Name of model	Main points
Alexander Astin (1993)	Theory of involvement	Empirical based on the UCLA/ Higher Education Research Institute (HERI) longitudinal study Persistence related to student involvement Behavioral model
John Bean (1982)	Theory of student attrition	Importance of interaction with faculty Working off-campus leads to attrition
Vincent Tinto (1975)	Interactionalist theory of student departure	Separation from home environment and integration into college environment Importance of integration into environment both academically and socially Persistence related to student involvement, including interaction with faculty and other students Based on experiences, student changes goals Student Integration Model (SIM)

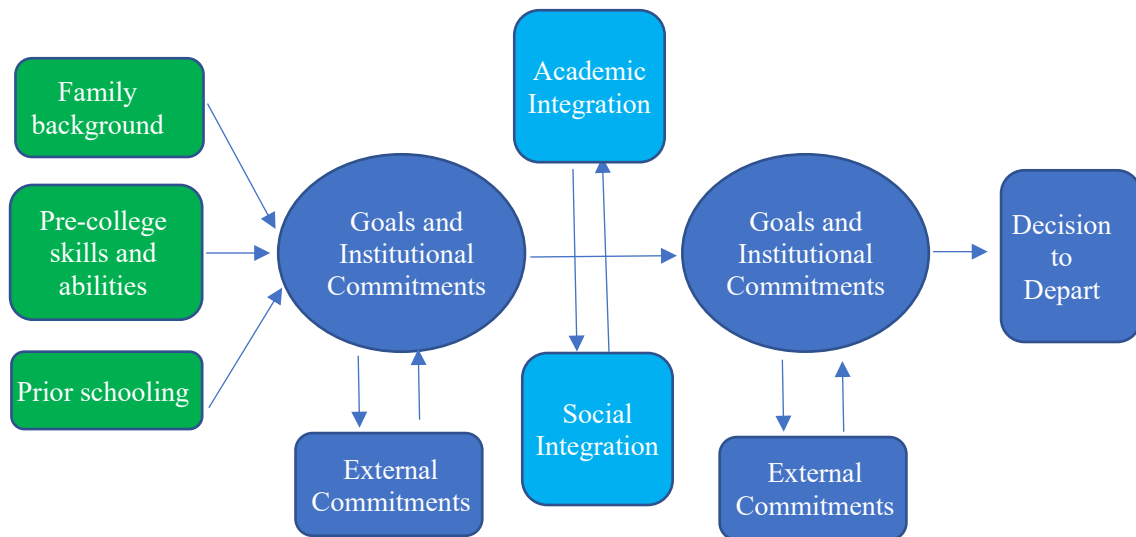
Borrowing from Van Gennep's (2019) anthropological concept of rites of passage, Tinto (1988) defined three stages of student departure: separation, transition, and incorporation. At each of these three abstract stages, students decide whether to remain in college. Tinto (1988) argued the first semester of college is particularly crucial to helping students make a successful social and academic transition that leads to persistence and graduation.

Over the past several decades, Tinto's emphasis on the first semester of college has been supported and enhanced by numerous studies attempting to predict first-semester grade point average (GPA) and retention using a multitude of variables (Glynn et al., 2003; Kahn & Nauta, 2001; Kuh et al., 2008; Miller & Herreid, 2009; Nora et al., 1996; Snyder et al., 2002; Voorhees, 1987; Wetzel et al., 1999). Tinto's model has also helped to bring students' background and academic characteristics to the forefront of research in higher education as an intervention to assist students in making successful social and academic transitions to higher education.

Tinto developed his interactionalist model in the 1970s. It was later revised to consider the results of empirical studies. Based on Tinto's (1993) conceptual model, I adapted and reframed the figure as the process shown in Figure 1.

**Figure 1**

*Tinto's Interactionalist Theory of Student Departure*



Precollege characteristics, including family background, skills and abilities, and prior schooling, are important predictors of success in college (see Figure 1). Family background includes social status, the education of the parents, and community size. Skills and abilities include intellectual and social skills, financial resources, motivation, and political preferences. Prior schooling includes educational preparation and experiences (Tinto, 1993). Later in 2006, Tinto recognized recent empirical research that demonstrates the importance of family support in encouraging students to continue in college.

According to Tinto's (1993) model, a student transitions from the family environment and then adjusts to the college culture. As the student adjusts to college, a process of both academic and social integration is needed for successful integration. Academic integration is defined broadly as doing well in courses, and social integration includes social relationships

with other students and discussions with faculty (Adams-Ojugbele & Mashiya, 2020). As academic and social integration occurs, a student reaches a new level of learning. Of major controversy in the Tinto model is whether both academic integration and social integration are supported in the model by empirical studies. In a review of Tinto's model with current empirical studies, R. J. Braxton (1999) found little support for academic integration but great support for social integration. Braxton's conclusion is consistent with Astin's (1984) model on the importance of the involvement of the student in college activities. Other empirical studies have found support for academic integration (Allen, 1999; Getzlaf et al., 1984; Munro, 1981; Scalise et al., 2000). It is reasonable to say a degree of both academic and social integration occurs. The new model is based on precollege characteristics, so the controversy presented here is not of significant concern to this research.

Tinto's (1975, 1997) SIM is particularly salient to the prediction of outcomes such as passing rates because it provides a framework for identifying and categorizing the types of incoming variables related to student success. According to the SIM, student persistence is a function of several factors—past academic performance, personal and family background, personality and goals, and college experiences—each of which plays a role in explaining the result. If these factors could each be measured, then it would be possible to use statistical models to predict whether a given student would be successful. However, limited in type of archival data, in this study, I could only focus on student's academic characteristics predicting the result of the CET-4.

However, there are also critiques of Tinto's model. The central critique is that Tinto hypothesized the acculturation/assimilation framework (J. M. Braxton, 2000). Tinto employed a concept of dominant culture to explain the transition of students from a minority culture to a majority world. To be specific, to succeed, minority students must separate from their own culture and merge into the educational, academic fabric (J. M. Braxton, 2000). The purpose of discussing the critique is not to discredit Tinto's work on how students are engaged in school. Rather, this study sought a similar aim with alternative viewpoints to (a) take students' individual differences into consideration, (b) understand college student retention more deeply in English learning in China, and (c) offer different contexts to the sector Tinto was considering.

### **Tinto's Model to Identify Academic Characteristics**

Inspired by a review (Veenstra et al., 2009) of the literature on Tinto's interactionalist model, academic characteristics were found significant for first-year student success. Combined with this study, I summarize a series of academic characteristics, as shown in Table 2. These characteristics are broadly conceptualized and categorized into seven basic groups of student success.

**Table 2***Academic Characteristics Important for Student Academic Success*

Academic characteristics	Typical indicator	Findings
High School Academic Achievement	High School GPA or High School Rank; ACT Composite or SAT Total	Indicator of academic preparedness; can also indicate the ability of the student to take a full course load in college
Study Habits	Hours/week studied in high school	Indicator of whether the student is an independent learner
Commitment to Career and Educational Goals	Expected degree and career	Research has shown that an early goal significantly increases retention.
Commitment to Enrolled College	Choice of college, reason for choosing this college, satisfaction with choosing this college	In education research, significant for retention
Financial Needs	Amount of loans, percent of financial needs that are not met	Typically, does not affect 1 <sup>st</sup> year retention, but can affect graduation
Family Background	Educational level of parents, Income level of parents	Very important for at risk students
Social Engagement	Social Involvement; Connectedness with teachers and other students	Significant in general college retention studies

*Note.* Adapted from “A Model for Freshman Engineering Retention,” by C. P. Veenstra, E. L. Dey, & G. D. Herrin, 2009, *Advances in Engineering Education*, 1(3), p. 9.

### **Theoretical Framework Contained in Academic Characteristics**

Student success is a much broader topic to discuss. When narrowed to the English language in a modern city, Shanghai, contextual adaptations to the local setting are quite necessary. Thus, it is unwise to imitate Tinto's model without adjustments. Based on the academic characteristics listed in Table 2, it was difficult to calculate students' study habits by the time they spent in a College English course; this is a limitation of this study. Because this study is limited to a single private university, the commitment to enrolled college is not significantly different among participants. Meanwhile, in China's context, student loans are not as common as in Western countries. Usually, only poor students apply for government loans. Information about this group of students is confidential and hard to obtain. Thus, financial needs were excluded from this study. In summary, the possible predictive characteristics of English academic success in this study include high school academic achievement, social engagement, and family background. Student motivation is closely linked with advanced grades, better test scores, and active learning behaviors (Dalton, 2010). Students who are confident in their academic performance (Rosen, 2010) and persist in their academic goals (Duckworth & Quinn, 2009) tend to fulfill higher achievement. On the other hand, either social engagement (B. Hu, & X. Ji, 2020) or family background (Espinoza et al., 2018) can reflect the social capital of a student's family.

### **Motivation From a Language Acquisition Perspective**

The field of language acquisition is traditionally individual and cognitive oriented, restricting the learning process to a technically psychometric tube. Only because the



interpretations based on the learning itself should be validly supported, did issues of language learning related to social factors draw people's attention. Included in this section is a review of research about motivations for English language learning.

When considering the motivations of English language learners, it must be mentioned that Gardner and Lambert (1972) designed the Attitude/Motivation Test Battery (AMTB) and introduced a new field that analyzes motivation using the framework of social psychology (Dörnyei, 2014; Gardner, 1985; Gardner & Lambert, 1972). In addition to social psychology, sociocultural theory is also used to examine motivation. The research from Lantolf and Genung (2002) is representative of this shift. However, a great number of studies have been conducted from the perspective of social psychology in China to measure learner's aptitude (Du, 2011), field independence (Dai, 2002), and anxiety (Lin, 2007).

Motivation is not a new area of research. There have been many studies on English language learning motivations in China (Gao, Cheng, et al., 2003; Qin & Wen, 2002; Y. Sun & Lei, 2013; Zhou & Gao, 2009), and several issues have been frequently explored. First, the conceptualization and the classification of motivation have been explored by a group of scholars. For example, Gao, Cheng, et al. (2003) used 2,278 undergraduates from 30 Chinese public universities to examine the relationship between Chinese college undergraduates' English learning motivational intensity and their self-identity changes, as well as the effect of demographic features on motivational intensity. Students with higher motivational intensity demonstrated more self-confidence, productive, and additive changes. Results also showed

year in college, English proficiency, and field of study had significant effects on motivational intensity.

Qin and Wen (2002) concentrated on the motivation of 500 non-English majors of sophomore students from five universities and identified seven direct and indirect influential variables, among which interest was the most significant variable. Moreover, many scholars completed a series of studies to discuss the importance of college students' motivation and changes in motivation when students are in different grades and advocated educators to motivate students (Gao, Cheng, et al., 2003; Gao et al., 2008; Zhou et al., 2011; Zhou & Gao, 2009).

Apart from motivation itself, strategies for promoting motivation are examined and developed to improve the learning outcomes. Three scholars discussed how to improve adult learners' interest in learning English over two decades ago (Cai et al., 1994), but their discussion was too general and did not define participants' adult learning precisely. Pan (2004) emphasized group cooperation can have an impact on motivating students. In addition, motivational strategies are discussed, which aimed at improving students' English language learning (Gao, 2015; Liao, 2007). Based on survey results from 1,446 first and second-year non-English majors from six tertiary institutions, Gao (2015) found a significantly positive correlation of motivational regulation strategies with learning motivation. Likewise, Gao (2015) claimed motivational regulation strategies benefited cultivation of English language learning intentions and self-learning.

The motivation for learning English in ethnic minority areas were also discussed. The motivation of students from Xinjiang Normal University was summarized and classified based on a survey, and the difference between male students and female students was examined (Wu & Talifu, 2004). Li (2010) raised four types of motivation with a case study of ethnic minority students in the Qinghai province and offered advice to emphasize minority students' cultural needs. M. Liu (2010) used both questionnaires and interviews to study Mongolian students' motivation to learn English. Zhao (2014) found Mongolian students tended to have instrumental motivation for learning English. Ethnic minority students from the Yunnan province were also used as participants, and Hao (2009) summarized their motivations. Xinjiang, Yunnan, Qinghai, and Inner Mongolia are all important ethnic minority areas.

A recent series of studies have been conducted to connect English language learning motivation and identity (Gao, Cheng, et al., 2003; Gao, 2004; Gao, Li, & Li, 2003; L. Liu & Gao, 2008). One study focused on learners in New Oriental school, a famous English training agency, to explore their English learning and self-identities (Q. Huang et al., 2004). Concerning social-class identity, a case in point is a study examining "the link between social class and second-language learning in the Chinese context" by Gao (2015, p. 92), and claimed social-class identity and English learning influence each other.

In addition, the decline of English learning motivation is observed and explored. Y. Sun and Lei (2013) explored factors resulting in demotivation among college students and found that teachers should take responsibility. Based on interviews and questionnaires, a

model of demotivation has been established (W. Hu & Cai, 2010). H. Liu (2014) summarized 21 studies about demotivation and found the quantitative method used in these studies lacked reliability and validity. Although motivation has been studied thoroughly, new questions are put forward as English education is experiencing changes.

### **Cultural Capital and Social Capital by Bourdieu**

This study analyzed college students' English learning through the lens of cultural capital and social capital introduced by Bourdieu (1986), who coined three types of capital: economic capital, social capital, and cultural capital. Economic capital is related to assets. Social capital, resulting from membership, relationship, and community, can be used as a source of power in developing social positions. Cultural capital can be represented in three forms. First, it is "in the embodied state, i.e., in the form of long-lasting dispositions of the mind and body" (Bourdieu, 1986, p. 243), which can be shown by learners' attitudes and personalities. Different attitudes, tastes, and personalities, which can be influenced by many factors, such as education and parent's education level, may have different exchange values. Second, it can be "in the objectified state, in the form of cultural goods (pictures, books, dictionaries, instruments, machines, etc.), which are the trace or realization of theories or critiques of these theories, problematics, etc." (Bourdieu, 1986, p. 243). They are tangible and can be evaluated and exchanged with money easily. Third, cultural capital can be given by institutions; diplomas are an example of this cultural capital.

Bourdieu (1986) emphasized cultural capital can be transmitted among generations both directly and indirectly, which means parents can offer their children cultural capital in

some way. The cultural capital individuals gain can have an explicit or implicit impact on their daily life and even future development. In addition, cultural capital can be achieved through lived experience and education (Bao, 1997).

In addition, the conversion of capital is of importance to social life. Bourdieu (1986) contended both social capital and cultural capital can be derived from economic capital. Some goods and services can be exchanged by economic capital, and some can only be achieved under certain circumstances (Xue & Cao, 2005). Bourdieu's work (1977a) illustrated how capital is reproduced and transmitted through education, which aggravates social inequality. Apart from economic capital, social capital, and cultural capital, Bourdieu (1977b) also coined the term "symbolic capital." However, symbolic capital is not situated in the same classification framework as social capital and cultural capital. Symbolic capital can be generated by three forms of capital. Bourdieu (1986) interpreted symbolic capital as:

Symbolic capital, that is to say, capital-in whatever form – insofar as it is represented, i.e., apprehended symbolically, in a relationship of knowledge or, more precisely, of misrecognition and recognition, presupposes the intervention of the habitus, as a socially constituted cognitive capacity. (p. 255)

### **Capital From a Sociological Perspective**

Social factors are frequently employed in analyzing adult education in international academia. Bourdieu's capital theory has been widely applied, including to studies in China (C. Fu, 2012; Y. Han, 2019; Liu & Zhao, 2011; L. Ma, 2008; Q. Wang, 2014; Xue & Cao, 2005). For instance, Worthman (2008) demonstrated two different patterns: adult learners

used their experiences to empower themselves and adult learners appropriated their experience to emancipate themselves. Worthman thoroughly discussed how adult learners position themselves with their experience.

The relationship between adult education programs and social inclusion has also been studied using a quantitative method (De Greef et al., 2015). Warriner (2016) associated adult English language learning with ideologies of language and neoliberalism to interpret English popularity. In addition, Peirce (1995) drew on an analysis of immigrants learning English in Canada and raised the concept of *identity* and *investment* in English language learning from the sociological perspective. Peirce (1995) believed it is “investment” rather than “motivation” that captures “the complex relationship of language learners to the target language and their sometimes ambivalent desire to speak it” (p. 9). Norton and Gao (2008) explored Chinese learners of English with the help of the concepts of *identity* and *investment*, to identify different forms of capital. Informed by the work of Bourdieu, Darwin and Norton (2018) constructed a model of investment that recognizes how the skills, knowledge, and resources learners possess are valued differently in multiple spaces.

Like the situation in Western society, language in China is value-laden, from the access to learning resources to the results of language assessment. In a country with a profound testing history, people take various kinds of English testing with incomparable enthusiasm. The assessment results are associated with access to upward social mobility, as it serves as a gatekeeper for general employment, higher education, and occupational promotion. Millions of decisions are made upon language certificates, and millions of

people's fates are changed. Studies have already connected English language learning with sociological viewpoints, such as studies from Gao, Cheng, et al. (2003). Y. Liu and Zhao (2011) proposed studies of foreign language education are omit the sociological perspective in mainland China. The issue of cultural capital raised by Bourdieu can offer insight on the research about foreign language education (Bao, 1997). In this line of thought, the exploration between the motivations and experiences of private university English learners from the perspective of capital is worthwhile.

### **Studies Related to Social and Cultural Capital**

Several English, American, and Australian studies build the theoretical connection between social capital and adult education. For example, Coleman (1994) referred to social capital when studying educational issues and contended students' performance is associated with social capital. Putnam (2000), drawing on fieldwork, found social capital can reinforce community values and culture, and is likely to be disturbed by other factors such as class, profession, and hometown. Falk and Kilpatrick (2000) argued learning interactions, to an extent, can bring the accumulation of social capital. Balatti and Falk (2001) maintained social capital is not only used in the process of adult education, but also promoted through adult education; they concluded the connection between social capital and adult learning is reciprocal. These studies help analyze adults learning English in the framework of capital.

The connection between English learning performance and cultural capital is deeply explored in current Chinese literature. First, some scholars (Fu, 2012; Liang, 2013; Ma, 2008; Q. Wang, 2014) have found the shortage of cultural capital restricts the English performance

of students in rural areas, but these students can still achieve cultural capital through learning English. Ma (2008) discussed how the lack of cultural capital poses a negative relationship with students learning English from rural areas and gave advice aimed at improving the cultural capital of rural families based on the empirical study. Q. Wang (2014) explored the difficulty rural students had in learning English and why they had such difficulty from the perspective of the three forms of cultural capital. Q. Wang also highlighted two approaches that can be used to achieve cultural capital, calling on the government to invest more resources in cultural compensation, and schools to advocate the change of awareness of education philosophy. In addition, both Fu (2012), who employed questionnaires and semi-structured interviews, and Liang (2013), who used qualitative analysis, explored the relationship of cultural capital and college students learning English. These studies were conducted on the assumption cultural capital does influence English language learning, which can be enlightening in exploring the connection between learners' English success and cultural capital.

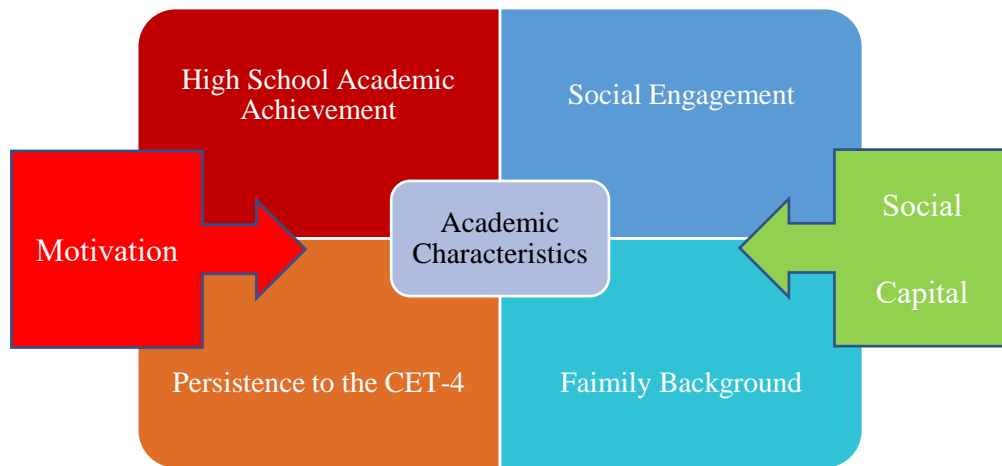
### **Key Predictive Variables**

Motivation and capital are too abstract to observe directly, so I measured these attributes by observing some key predictors as presented in Figure 2. High school academic achievement, social engagement, persistence to the CET-4, and family background are identified and discussed. These four characteristics could be further grouped into two theories underpinning student's performance: (1) motivation from language acquisition perspective and (2) external capital elements from the sociological lens.



**Figure 2**

*Key Predictive Variables*



**High School Academic Achievement and Gaokao**

There is consistently strong support for high school GPA and high school rank from empirical studies of 1st-year students and 4-year studies. There is also noticeably strong support for the ACT Composite and SAT total and academic-related skills. These standardized tests are well-known predictors of future academic performance in the literature (Gaertner & McClarty, 2015; Robbins et al., 2004). It is logical students who are well-prepared in academics will have a higher success rate in college.

According to traditional Chinese culture, education is the most important way to change a person's social position, and going to a university is the best way to change a person's position and secure a chance for future employment. Because the demand for a college education exceeds the availability of admission seats, there is immense pressure to do well on the test, and competition is extreme (Bai & Chi, 2011).

China held its first national examination as early as 605 C. E. (X. B. Wang, 2006).

This national exam was considered the world's first standardized educational examination and its purpose was to select civil service officials (X. B. Wang, 2006). The modern college entrance examination, now known as the NCEE, was introduced in China in the 1950s. The NCEE was not used during the Cultural Revolution (1965–1976) when education was disrupted and Chinese universities were closed. The Cultural Revolution ended with the death of Mao Zedong, then chairman of the Chinese Communist party. Deng Xiaoping came into office and reinstated the use of college entrance examinations and university education (X. B. Wang, 2006). The use of the Gaokao resumed in 1977 and still exists today as the main route to higher education in China (Davey et al., 2007). There is limited access to higher education in China, and the Gaokao system provides the most reasonable opportunity for all students to compete on an equal basis.

There is some inequality of opportunity between provinces, but the Gaokao is accepted as the only merit-based and transparent system for university admission. Although there are no near-future plans to remove the Gaokao as a primary criterion for university admission, “broader competencies are increasingly seen as important attributes for entry to university, and curriculum reform is being piloted to develop a more relevant framework for the future” (Australian Education International, 2009, p. 10). The Gaokao consists of three mandatory subjects—mathematics, Chinese, and a foreign language (usually English)—and optional subjects including chemistry, physics, biology, geography, history, and politics.

Except for the Han nationality, students from 55 other ethnic minority groups could add up to 20 extra points in the Gaokao, which is a national policy in China.

In research about testing in China, there is only a small proportion of published empirical research papers in English regarding the descriptive and explanatory power of the Gaokao to the future college career (Bai & Chi, 2011). Bai and Chi obtained and compared admission records (e.g., Gaokao total scores, Gaokao subject scores, demographics) of students who entered Tsinghua University in China from fall 1995 to fall 2005. They reported the NCEE total and subject test scores predicted undergraduate GPAs for all 4 years in college, including cumulative GPA. However, the coefficient estimates reported were low, with the Gaokao total score having the strongest correlation with first-year GPA ( $r = .258, p < .01$ ).

Bai and Chi (2011) also stated mathematics and foreign language test scores are stronger predictors of college academic performance than the Chinese test score. The liberal arts track students performed worse than science and engineering track students (Bai & Chi, 2011). Bai and Chi concluded the use of Gaokao scores is valid in the admissions process. However, they supported the recently implemented practice of admitting students by recommendation with an exemption of Gaokao score. Their results demonstrated those students admitted via recommendation had higher GPAs than did those students who entered by the Gaokao.

## **CET-4 Persistence**

Tinto (1975) argued the continuous changes of students' objectives and institutional commitment could strengthen their perseverance. In support of this idea, Besterfield-Sacre et al. (1997) found students who had a high impression of engineering and liked engineering as a career had a higher first-year retention rate. In addition, there is a higher probability of a student graduating in science if their peers are in science (Astin & Astin, 1992).

Academic persistence can be defined as the potential that students will complete a task to the best of their competence regardless of challenges and obstacles encountered (Farrington et al., 2012). In Bai and Chi's (2011) research, students who only took the NCEE one time had significantly higher GPAs than those who had to retake the NCEE. Tinto (1975) also asserted, "other things being equal, one would anticipate goal commitment to be directly related to persistence in college" (p. 93). From this perspective, if learners hold strong faith in the goal, it would be hard to stop them from participating in the activity. But it is difficult to find empirical studies about Chinese students' persistence to the CET-4, which refers to the times students take the CET-4. However, regarding the high demand for English proficiency in the job market, it is reasonable to assume students' determination and academic persistence to pass the CET-4, which was explored in this study.

## **Social Engagement**

In the education literature, there is a significant discussion of the importance of social engagement, both from Tinto (1993) and Astin (1984). Astin (1984), in the theory of involvement, stressed the importance of students becoming involved with activities within the

university, including clubs and volunteer activities. The more involvement, the more integrated the student becomes with the values of the institution. It can be hypothesized students who have a high degree of involvement in clubs and volunteer activities in high school will continue their involvement in college. In their meta-analysis, Lotkowski et al. (2004) found a moderate relationship between social involvement (defined as extent to which a student feels connected to the college environment, peers, faculty, and others in college, and is involved in campus activities) and college GPA and retention. Because of the broadness of social engagement, different researchers use different measures of social engagement; as a result, it is difficult to identify significant trends. In this study, awards were used as the indicator of social engagement for college students.

Language difficulties, adjusting to a new education system, and adjusting to social customs and norms are additional challenges college students must overcome. Language problems can contribute to problems of interpersonal relations in cultural encounters, such as those between people in the United States and Mexico (Sargent & Matthews, 1998) and Americans and Japanese (Shuter & Wiseman, 1994). Researchers demonstrated students who interact with individuals have fewer adjustment issues than students isolated from student clubs (Church, 1982).

Referring to the accessibility of social engagement, Bourdieu's (1986) capital theory explains the internal mechanism. An exception for entry to a university by recommendation exists. In 2001, for example, 3,408 students entered a university based on recommendation, whereas 4,535,000 entered via the entrance exam (Davey et al., 2007). Students entering the

university by recommendation have been awarded a provincial level of an outstanding student or winners of national competitions (Bai & Chi, 2011). In particular, the competition awards, patent certificates, and publication of academic papers become the bonus points for higher education admission in China, which are affected by the social capital of parents (Y. Han, 2019). This exception would potentially break the normal test-centric routine, so it could be seen as a backdoor for connected families. Therefore, the awards could reflect the power of family capital and resources.

### **Family Background**

Western scholars have long investigated how social class, economic status, and cultural background impact access to education which sheds light on topics related to learners' family background (Burstall et al., 1974; Musgrove, 1979; Stern, 1983), which is consistent with Bourdieu (1986). The experience and resources of the parents shape the opportunities of their offspring through the transmission of social and cultural capital (Medgyesi, 2018). A study by Li (2010) found the perceived importance of learning success to family had the most significant effect on students' academic achievements when considering factors, such as gender, age, English test score, learning preference, and effort.

Researchers have found students' academic performance differs by family background in various subjects such as mathematics and reading (Hartas, 2011; Omolade & Salomi, 2014; Toc & Gheba, 2015). Several scholars have shown achievement in language learning also varies (Fuligni, 1997; Deanda et al., 2016). However, the language investigated in these

studies was mainly carried out in the context of foreign language learning; few studies were conducted in China (e.g., Y. G. Butler, 2014; Liao, 2007; Wen & H. Wang, 1996).

Early in 1996, Wen and H. Wang (1996) investigated the relationship between learners' factors (including motivation, learning strategies) and college students' scores on the CET-4. They found maternal educational background was able to predict students' performance on the CET-4. The higher maternal education level was, the better students were likely to perform. Considering the result may be different in another social context, Liao (2007) conducted a similar study in the Hunan Province. The result also showed parents' education and income had an influence on students' English learning at the compulsory education stage.

The consistent results of these studies offer proof of the influence of family background on students' English achievement in China. Later in 2014, the study of Y. G. Butler added more weight to the finding with younger English learners involved. The survey conducted with younger English learners (fourth-, sixth- and eighth-grade students) aimed to examine how parents' socioeconomic status and their behaviors and beliefs about English education related to their children's English acquisition and how such relationships differ across grade levels (Y. G. Butler, 2014). Unlike previous studies, students' English proficiency was assessed from four aspects (listening, reading, writing, and speaking) to explore whether English performance varied by SES. Interestingly, the data showed parents' socioeconomic status influenced fourth-grade students' speaking but did not have much effect on listening, reading, and writing performance.

Another point worthy of note in the study of Y. G. Butler (2014) was the influence of family income on students' achievement declined along with the rise of grades, which corresponded with the finding of Duncan et al. (1994). A study carried out by Tao and Yang (2007) also found a significant relationship between family background (mainly father's occupation, educational level, and family income) and students' overall grades at the secondary stage. However, such relationships were not found in high schools. These three findings may indicate the influence of family background on students' achievement is dynamic instead of static. In this case, further studies are needed to make the relationship clear, which is a goal of the present study.

The exam results of NCEE (Gaokao) are available within 2- or 3-weeks following the exam. The MoE in China determines two-point levels for exam scores depending on the availability of university enrollment seats and the number of applications for each province in China. A one-point level is the minimum test score for entry into any university, and a higher point level is for consideration into a prestigious university. For example, in one province in 2010, of a total NCEE score of 750, the cutoff scores for the first-tier university were 511 (social science and humanities track) and 531 (natural science track; Y. Wang & Ross, 2010). The cutoff scores for second-tier colleges were 467 (social science and humanities track) and 481 (natural science track).

There are 22 provinces, four municipalities, five autonomous regions, and two special administrative regions (Hong Kong and Macau) in China. This study uses the term provinces to cover the 32 jurisdictions, excluding Hong Kong and Macau. Each province administers



their own version of the Gaokao under the guidelines, oversight, and approval of China's MoE (Australian Education International, 2009). The Gaokao in each province is designed to reflect the high school curriculum present in that province. Students who reside in provinces with a high number of available university seats have a greater chance of securing a spot in a higher education institution. For example, 82% of Shanghai residents have the possibility of finding a place in a university as opposed to 62% of students in Guangdong province (Australian Education International, 2009). Higher education institutions within provinces have available seat quotas for students within its province and students from external provinces. The Australian Education International (2009) reported, "A matrix of provincial quotas, university quotas, and subject quotas is negotiated annually between universities and national and provincial authorities" (p. 29). For example, China's most prestigious universities are in major cities, such as Beijing and Shanghai, and students who are residents in these cities are eligible to enter with lower exam scores than student residents in other areas (Davey et al., 2007).

In the context of China's society, the permanent residence permit (hukou) and provincial origin are two important measures of family background. Fang and Huang (2019) employed the model of probit regression with data from China Education Panel Survey 2013-2014. They compared the academic performance of middle school students with urban or rural household registration (hukou) and concluded students with urban household registration and from lower socioeconomic families are more likely to change negative emotions and study hard to improve academic performance. Wang (2018) claimed regional

difference not only influence the economic growth, but also led to educational inequality in China. These two factors have direct influence on academic performance by indirectly affecting family and school capital, which need to be researched deeper in this study.

### **Demographic Information of Gender, Ethnicity, and Major**

Interestingly, some policies allow students to enter colleges with lower scores (Chen, 2019). Ethnic minority groups, children of army members, and disabled students are some groups that may be able to attend universities with a lower score. The Gaokao is by far the primary means for most students to attend college. An exception for entry to a university by recommendation exists, but in 2001, for example, 3,408 students entered a university based on recommendations, whereas 4,535,000 entered via the entrance exam (Davey et al., 2007).

For science, mathematics, and engineering majors, Astin and Astin (1992) found disproportionate losses for minority students and women. The ratio of within-ethnicity graduation percentage to within-ethnicity percentage initially planning was .37 for Chicanos, .47 for African Americans, .51 for Native American, .61 for Whites, and .68 for Asians. Within-gender ratios were .63 for men and .48 for women. On the contrary, in social science fields, gender differences in strategy use have shown women are superior in verbal aptitude, so they give more attention to their pronunciation and accent when speaking. Moreover, because of socially based motivation, women are more likely to create opportunities to learn English (Green & Oxford, 1995).

In a patriarchal society, women are eager to succeed and fight for a voice or to prove their own ability. The male culture, bias, and obstacles stopped women from engaging in

social production and creation. The social environment provides men with opportunities and conditions to obtain honorary status and wealth. However, under the external pressure of being excluded for a long time, women are eager to seek equality (Z. Cao, 2009). Hence, their self-motivation motivates women to spend more time learning. Choosing a proper major is critical to graduation success for college-aged students (Ashraf et al., 2018). Ashraf et al. concluded students who try to select an appropriate major early in college graduate in a shorter time. Besides major, primary results also showed women are more likely to improve their academic performance than men.

Sue and Zane (1985) examined factors related to the academic success of 177 Chinese college students at the University of California Los Angeles. They indicated Chinese students were academically successful. The cumulative grade point average of the Chinese students was 2.99, which was higher than the university cumulative average of 2.87,  $t(176) = 3.07, p < .01$ . Science and engineering were the most popular choice of major, and the students reported that limited English proficiency was the main reason for their program choice.

In sum, Tinto's SIM model are used as a basis and expanded to explore the effect of predictive variables on student's English learning success. The block diagram in Figure 3 is the conceptual framework for student success in the English learning model.

**Figure 3**

*Student Success in English Learning Model*

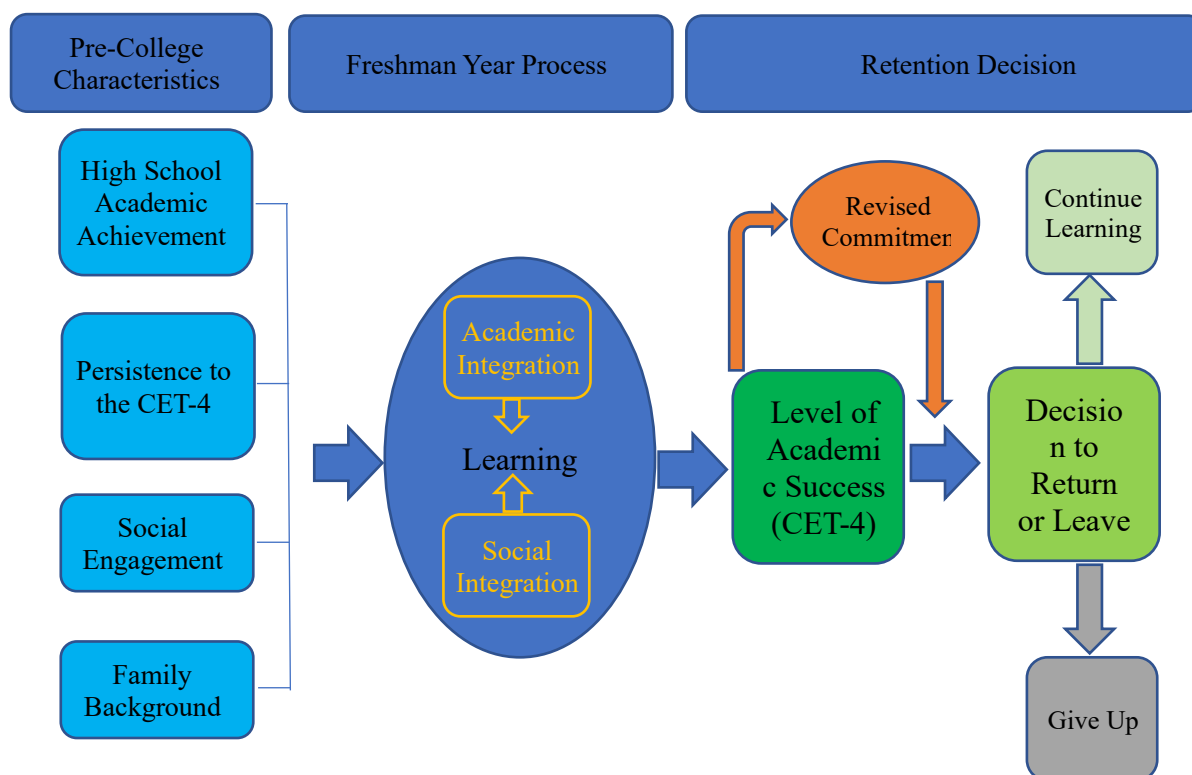


Figure 3 shows precollege characteristics a student brings to their first-year experience in higher education. Next in sequence is the first-year experience circle. This circle is envisioned to include both academic and social integration and is consistent with Tinto's model. As the student transitions through the first year, they achieve academic integration; that is, either do well and meet their expectations or may do poorly. In the diagram, both academic integration and social integration lead to learning, leading to a level of student success, measured by the score of the CET-4 for the first two semesters in this study. According to College English Curriculum Requirements (2020), if the score is below 425, the student must retake the test to pursue the CET-6. Otherwise, retention would be automatic for

students. The score contributes to the student's decision about retention (Veenstra et al., 2009). In this model, the score with the persistence to the CET-4 and this private university contributed to the student's final decision on persistence. Either the student decides to continue learning and try again next semester, or the student will give up.

### **Summary**

Most of these scholars either focus on students from the public education system (Gao, 2004; Gao, 2015; Gao, Cheng, et al., 2003; Gao, Li, & Li, 2003; Liang, 2013), part-time learners (Q. Huang et al., 2004; R. Huang, 2010), or ethnic minority students (Hao, 2009; Li, 2010; M. Liu, 2010; Wu & Talifu, 2004). There is a lack of attention on private university students, which is a creative point in this study. This light touch on private sectors might alter the structure in the education field. Moreover, although some studies connected English learning with cultural capital, most scholars (Ma, 2008; Norton & Gao, 2008; Q. Wang, 2014) only discussed how cultural capital affects the process and the result of English language learning. They did not answer whether any common characteristics appear in those successful English learners or why some students persist in enrolling for the CET-4 when others easily drop out. The connection between learners' academic characteristics and social support, and their influence on academic success, has not been studied thoroughly and leaves many questions unanswered.

## CHAPTER 3: METHODOLOGY

This chapter describes the methodology used to investigate the relationship between a series of predictive factors and the academic success of Chinese students in the four years of English learning in higher education. A diversity of learners' academic characteristics was synthesized into these possible predictors: NCEE (Gaokao) score, awards students received in high school, the total times students took part in CET-4 in four years of college life, registered permanent residence (*hukou*), and province of origin, as well as demographic information like gender, ethnicity, and major. This study statistically examined whether these variables are important predictors of English learning success and the associations between those factors and the academic achievement of English learners. Here, the result of passing or failing the CET-4 is a measure of learning success, and the highest CET-4 score is a measure of academic achievement. The following sections are presented in this chapter: (a) a description of the research design, (b) a description of the purpose of the study, (c) a summary of a predictive model about student success, (d) an explanation of measure CET-4 and the variables used, (e) a statement of the research questions and hypotheses, (f) a description of the site and population of the study, (g) details regarding the method of data collection, and (h) an explanation of the statistical methods and data analysis techniques.

### Research Design

This study uses a quantitative design methodology using extant data from J university in Shanghai, China. The design of this study was a correlational study. A correlational study design is appropriate for research investigating whether and to what extent a relationship

exists between independent and dependent variables (Gay et al., 2009). This study is designed as ex post facto because both the effect and the alleged cause or reason for differences in the behavior or status of groups or individuals have already occurred and must be studied in retrospect (Gay et al., 2009).

### **Purpose of the Study**

This study investigated extant academic records of the 2014 cohort from a private university; the cohort graduated in June 2018. This research could obtain the whole picture of the 4-year pathway the same cohort has experienced. Moreover, this study could also help to determine if there is a significant relationship between the previous academic performance and passing rate of CET-4, and the previous academic performance and scores of CET-4.

### **Predictive Model of Student Success and Retention**

Most recently, this research has involved precollege academic performance that requires students to integrate interdisciplinary content and skills (Huerta & Sperry, 2013; Lardner & Malnarich, 2009); the analysis of social connections and peer networks built within learning environments (Chamberlain, 2011; Smith, 2010; Stuart, 2008); and the creation of persistence to support developmental education (Hansen et al., 2013; Snyder et al., 2002).

**Figure 4**

*Statistical Model and Analysis Pathway*

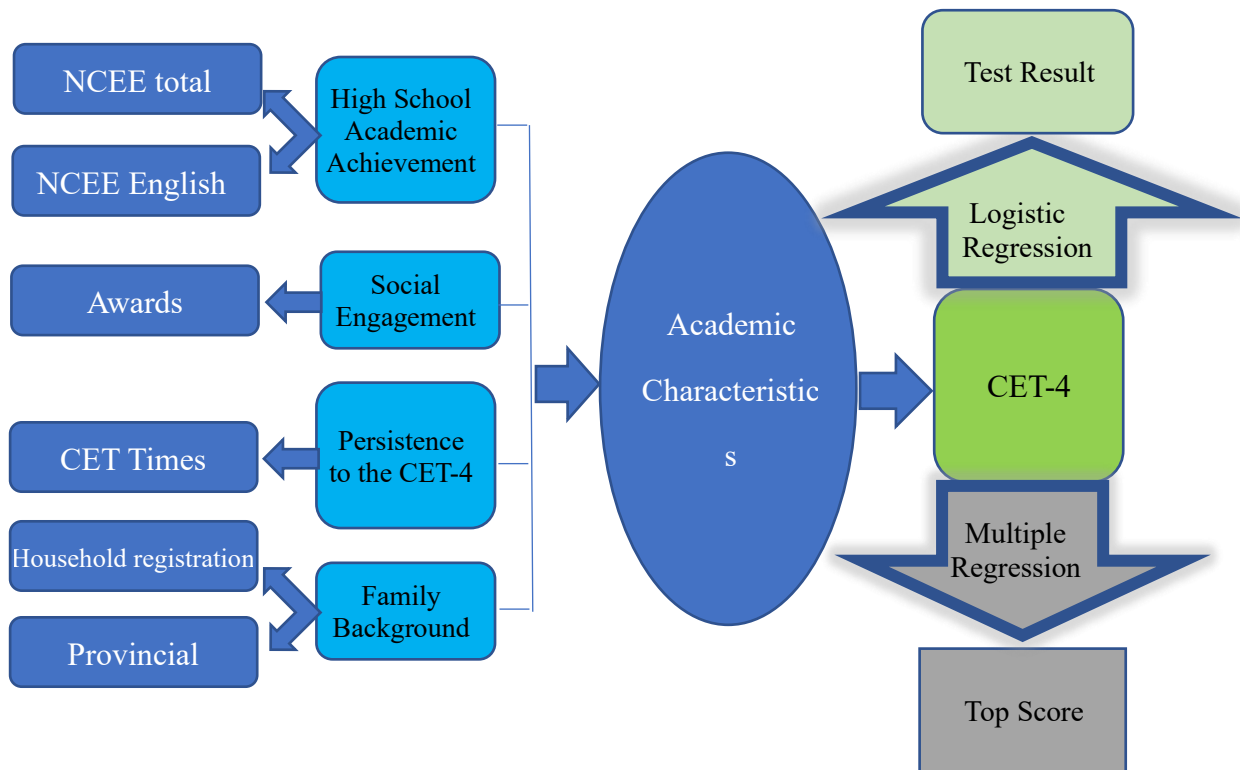


Figure 4 shows the statistical model to guide the analysis of this research. Four potential independent variables were identified as academic characteristics listed on the left to predict the outcome of results and the highest score of CET-4. There are indicators to measure every independent variable. The methods of logistical regression and multiple regression are employed to calculate the association of predictive factors with the two dependent variables.

**Measures: CET-4 and NCEE**

Two national standardized examinations, CET-4 and NCEE (Gaokao), are applied in this study. The former is used as the outcome of academic success in college, while the latter is the indicator of student academic performance in high school. The CET-4 is used to



measure student success in English subjects, while NECC refers to the previous academic performance in high school. These examinations are national standardized tests that are prepared, administered, and marked by MoE in China. The following section will elaborate on the two and discuss the reliability and validity of these high-stakes tests.

### ***Content and Construct of CET-4***

College English courses were introduced into the National College English Teaching Syllabus (NCETS) after the Chinese opening-up policy in 1980. The main purpose of CET is to assess the implementation of the College English Teaching Syllabus in China and the English proficiency of college/university undergraduate students. Later, CET was further divided into Band Four (CET-4) for undergraduate students and Band Six (CET-6) for graduates. It is compulsory for first-year students to participate in the CET-4, but not for students in other grades. Regardless of passing the CET-4 or not, first-year students could decide whether to continue the pursuit of the CET after the first two semesters. The CET-4 targets all college students in China, especially sophomore students who have finished the first 2 years' study are required to pass CET-4, and junior students who have already passed CET-4 are permitted to join CET-6, while the Spoken English Test (CET-SET 4, CET-SET 6) are separated as the other test since 2017. The National College English Testing Committee administers the CET on behalf of the higher education department and the MoE: P. R. China. Both CET-4 and CET-6 are held twice a year on the same day: the third Saturday in June and December. The total CET score has been changed into 710 points since June 2005; the score includes writing, listening, reading, and translation.

To better meet its goal, the CET has undergone numerous reforms over its 30 years of development, including test content, formats, scoring system, and score distribution (Zhou & Liu, 2011). The major reforms include: (a) remove the parts of grammar & vocabulary (blend into a reading section); (b) increase the proportion of listening and reading; (c) certificate has been abandoned and is replaced by a score report; (d) eliminate the threshold of CET-SET and make it available for all CET test takers. The structure of the new edition of CET mainly consists of four parts: writing, listening, reading, and translation. These parts of the CET are shown in Table 3 and the corresponding score distribution.

**Table 3**

*Details for the CET-4 Test*

Structure	Test Content	Test format	Score distribution	Testing time
Writing	Writing	Writing	15%, 107 points	30 min
Listening	Short News	Multiple choice	7%, 49 points	25 min
	Long Dialogues	Multiple choice	8%, 57 points	
	Passage	Multiple choice	20%, 142 points	
	Vocabulary	Gap filling	5%, 35 points	
Reading	Skimming and Scanning	Matching	10%, 71 points	40 min
	Reading in Depth	Multiple choice	20%, 142 points	
Translation	Paragraph Translation	Translation	15%, 107 points	30 min
Total			100%, 710 points	125 min

***Content and Construct of NCEE (Gaokao)***

The Gaokao has undergone several reforms, and the current format “3+X” began in 1998 (Feng, 2020). The “3” represents the three mandatory subjects required for all college applicants. The “X” component consists of a subject or group of subject tests that differ for

students depending on whether they pursue liberal arts or science and engineering majors in college. For example, for those pursuing liberal arts, the “X” component may consist of history, politics, and geography, and for those pursuing science and engineering, it may include physics, chemistry, and biology (Bai & Chi, 2011). The test is comprised of multiple choice and short answer questions covering each of the subjects, and total scores in most all provinces are out of 750. The total score of 750 is based on the 3+X, where each of the three required subjects is out of 150, and the comprehensive subject test can receive a score of 300 (Feng, 2020).

### ***Reliability and Validity in Language Testing***

The most important and widely studied concepts of a measuring instrument are reliability and validity (C. Butler, 1985; Kimberlin & Winterstein, 2008). Reliability and validity are the scientific basis for language testing and research, and they are also built based on statistics (Bachman, 2004). The reliability of a test indicates how free it is from random error (Pallant, 2016). The more reliable a test is, the more confidence one can have the scores obtained from the test are essentially the same scores that would be obtained if the test were re-administered to the same test takers at another time or by a different person (Gay et al., 2009). The validity of a test refers to the degree to which it measures what it is supposed to measure (Pallant, 2016).

### **Reliability**

Reliability reflects whether test results accurately and objectively reflect the actual level of test takers’ foreign language ability. The ideal way to estimate test reliability is in the

same conditions, applying the same examination paper to the same group of students several times and comparing differences between scores of the tests. The smaller the differences, the higher the reliability. It is difficult to achieve this target; certain coefficients can only estimate test reliability, and the most widely used is Cronbach's alpha (Kimberlin & Winterstein, 2008). Cronbach's alpha uses the associations among a set of items to indicate how well the items, as a group, hold together (Urdan, 2016). The measures of this study are all adopted from national standardized examination, so the reliabilities of certain sections of the tests were calculated with Cronbach's alpha by many scholars (C. Feng, 2020).

From the school perspective, as a measure of students reaching a certain level, the CET-4 will inevitably make an overall evaluation of the teaching effect of the school and the student's learning gains. After the test ends each year, there will naturally be a pass rate calculation. According to Brown & Abeywickrama (2010), sources that could affect test reliability are student-related reliability (fluctuations in the students), rater reliability in scoring, test administration reliability in test administration, and test reliability in the test itself. Several mathematical methods to verify the reliability value emerged, among which the KR-20 and KR-21 formulas are the most popular (Davies & Davies, 1990).

## **Validity**

Validity includes content validity, criterion validity, and construct validity. Content validity refers to "the extent to which a specific set of items reflects a content domain" (DeVellis, 2016, p. 86), and in language testing, it is to examine whether the test meets the syllabus requirements or to what extent the test can represent the test goals. Criterion validity

concerns the relationship between scale scores and specified measurable criterion (Pallant, 2016). One type of criterion validity is predictive validity. Predictive validity is the degree to which a test can predict how well an individual will do in a future situation (Gay et al., 2009). Construct validity involves testing a scale not against a single criterion but in terms of theoretically derived hypotheses concerning the nature of the underlying variable or construct (Pallant, 2016). In other words, construct validity asks a fundamental question about the content which test measures (Gay et al., 2009). Content validity depends on the judgment of experts due to the lack of a statistical test to determine whether a measure adequately covers a content area (Kimberlin & Winterstein, 2008).

The reliability and validity of the two high-stake examinations, CET-4 and Gaokao, have been poorly documented. Due to the high-stakes nature of the examinations, test security is of utmost importance to the Chinese government. All information related to the NCEE and CET-4 are considered a national secret, and test security is monitored closely (X. B. Wang, 2006). It is common practice for all personnel involved in these tests development to be sequestered from the beginning of test development until after the tests are administered (X. B. Wang, 2006).

The CET-4 is a nationwide examination organized by the MoE. To enhance the teaching quality of college English programs, the committees of CET-4 have been authorized by the MoE China to design, organize, manage, and implement the CET-4, to some extent, with great authority in China, aiming at testing nonmajored college learners' English comprehensive capacities in writing, listening, reading, and translating. Due to the difficulty

of obtaining data, Chinese scholars have conducted research either within certain regions or organizations or have focused on a particular section of the test. Although no official document has been released about the reliability and validity of the two exams, it is regarded as a criterion of fairness and reliability nationwide.

M. Liu (2010) reviewed empirical Chinese research regarding the predictive validity of the NCEE. According to M. Liu (2010), there are two consistent viewpoints of Gaokao validity studies in China: (1) the English exam portion has a relatively high validity, and it is one of the best subjects to help effectively select talented students; (2) the comprehensive exam has a relatively low validity and does not provide good assistance to higher education institutions in selecting successful students. M. Liu did offer critiques of reviewed studies, stating many research studies did not specify their statistical analysis, sample sizes were small, and samples were not highly representative. According to M. Liu, the largest sample, based on the research available, was 5,780 students. Liu concluded China must use the intensive research about the Scholastic Aptitude Test (SAT) in the United States as a model to improve the validity of studies of Gaokao. Specialized and trained researchers should be used, and specialized research institutes should be established. Then the established testing centers and higher education institutes should enhance cooperation to improve the validity studies of the Gaokao (M. Liu, 2010).

Except for the reference to the SAT in the United States, Australian Education International (2009) also described a relative work that is not in the public domain. According to Australian Education International, the University of Western Australia (UWA) examined

mathematics, physics, and chemistry Gaokao scores. The university compared the Gaokao subject scores with the Western Australian Tertiary Entrance Examinations (TEE) in the subject equivalents to determine if the Gaokao scores could satisfy subject requirements in lieu of the TEE. The UWA determined minimum scores of 100 (out of 150) were sufficient to replace the mathematics and calculus, chemistry, and physics portions of the TEE. The UWA, however, concluded the NCEE English subject test score did not satisfy UWA's English requirement. Because this study is not in the public domain, much important information is lacking. However, the study does indicate assessing Gaokao scores as equivalents of institution's requirements is accomplishable, and the scores can, in some cases, satisfy prerequisites (Australian Education International, 2009).

## **Variables**

In this study, I followed the 4-year progress of a sample cohort of over 3,000 students, from the time they began college life at J University in 2014 to the end in 2018. Variables for this study were acquired by examining archived data provided by the office of educational administration of the private university in which the author works. Table 4 outlines the independent (X) and dependent variables (Y) selected for the study.

**Table 4***Dependent and Independent Variables*

Variables		Type	Explanation
Commitment for Academic Success		Categorical(Y <sub>1</sub> )	0 = not pass CET-4 with a score < 425 1 = pass
Academic Achievement		Continuous (Y <sub>2</sub> )	the top score student achieved upon times participation in the test
High School Academic Achievement	NCEE total score	Continuous (X <sub>1</sub> )	raw score on a scale of 0 to 750
	NCEE English sub-score	Continuous (X <sub>2</sub> )	raw score on a scale of 0 to 150
Social Engagement		Categorical (X <sub>3</sub> )	0 = no awards student received precollege 1 = with awards
Persistence to the CET-4	Times of Test Taken	Categorical (X <sub>4</sub> )	Number of times student enroll for CET-4, from 1-5. Attempts more than 5 were all coded as 5+.
Family Background	Registered Permanent Residence	Categorical (X <sub>5</sub> )	0 = urban 1 = rural
	Province of Origin	Categorical (X <sub>6</sub> )	0 = Shanghai 1 = eastern China other than Shanghai 2 = central China 3 = western China
Gender		Categorical (X <sub>7</sub> )	0 = female 1 = male
Ethnicity		Categorical (X <sub>8</sub> )	0 = ethnic minorities 1 = ethnic Han
Major		Categorical (X <sub>9</sub> )	0 = Liberal Arts 1 = Fine Arts 2 = Economics 3 = Management 4 = Engineering 5 = Medicine



### ***Dependent Variables***

The dependent variable of passing CET-4 in a single test with a score no less than 425 was coded as (1), and the student did not pass was coded as (0), which could be identified from the students' records. The 425 cutoff score was based on the instruction from College English Curriculum Requirements (2020) issued by MoE in China. Successful passing was determined to be if a student graduated within 4 years from the time of enrollment into the university. The highest CET-4 score was a dependent variable of this study. All score data collected from student records were reported on a scale of 0 to 710.

### ***Independent Variables***

Gaokao total scores and the English section scores of Gaokao were obtained from archived records provided by J University. As discussed, the Gaokao is the national standardized test in China, which determines college admission. It includes three compulsory subject areas, Chinese, mathematics, and a foreign language, which is normally English. The Gaokao includes a fourth subject test based on the test takers' intended area of study. The total scores in Shanghai, Hainan, and Jiangsu were different from other areas. For that reason, I converted it to 750 points; with that change, the English test score is 150 points. For this study, I used the Gaokao total score (out of 750 possible points) and the individual English test score (out of 150 possible points).

Awards are used as an independent variable of social engagement, indicating whether a student performed well and showed leadership in the high school period. Students who were

leaders or outstanding have a chance to win awards and scholarships every semester from a general school level to national award. Awards were coded as (0) for no or (1) for yes.

Times, the indicator of student's persistence to the CET-4, are also adopted as another independent variable, which could reach the number of eight theoretically. The CET-4 is held twice a year and 75% of first-year students are permitted to join CET-4 during their second semester according to the final exam result of College English during the first semester. Except for the first year, college students could retake the test in the following three years. However, there are also students giving up all the chances for reasons that need further exploration in future research. Thus, the number of 0 has been excluded in this study. Meanwhile, the College English course is only offered to first- and second-year students; juniors and seniors could learn English by themselves. As a result, the number of times students repeated CET-4 more than 5, were all coded as 5+. The number of times ranged from 1–5.

Family background includes the registered permanent residence and the provincial origin in this study, which could partially indicate the socioeconomic status of every single family. The urban and rural dual household registration system (hukou) in China is attached to various political, economic, and social rights. This independent variable was coded as (0) urban or (1) rural to explore the relationship between hukou and CET-4 performance.

There are 32 provinces and municipalities in mainland China. Each province or municipality administers their Gaokao version based on the provincial education under the guidelines of China's MoE. Higher education institutions within provinces have available seat

quotas for students within its province and students from external provinces. According to Australian Education International (2009), “A matrix of provincial quotas, university quotas, and subject quotas is negotiated annually between universities and national and provincial authorities” (p. 29). Historically, the more geographical east in mainland China, the more developed and affluent, and vice versa. Moreover, owing to the location of the private university in this study, Shanghai native students make up most student groups. Therefore, for this study, students were classified into four groups and coded as (0) Shanghai, (1) other than Shanghai in eastern region, (2) central region, or (3) western region. Of the 32 provinces and administrative zones in China, three provinces and one municipality were not represented in this study: Shandong, Hunan, Tibet, and Beijing, which might be due to the 2014 enrollment policy.

Demographic information was used as an additional independent variable in this study. For this study, gender was coded as (0) female or (1) male, as identified from the student’s academic records. Gender was chosen to investigate the differences between male and female Chinese students in academic success.

Ethnicity was chosen to investigate the relationship between student success and former academic performance among different ethnic groups. For some ethnic minority groups whose native language is not Chinese, students have an extra burden of learning English as the third language. The culture and language difference with Han ethnicity could affect students’ learning of English.

Participants' majors at the time of enrollment into the university were recorded in categories to complete descriptive and inferential statistical analyses. Majors were coded according to the *Undergraduate Specialty Catalogue of Higher Institutions* newly edited by the MoE China in 2012.

Before the execution of data analysis, categorical variables (times of test taken, provincial origin, and major) were dummy coded as shown in Tables A1, A2, and A3, respectively. Dummy coding is a way to make the categorical variable into a series of dichotomous variables (variables that can have a value of zero or one only) in SPSS. For all but one level of the categorical variable, a new variable was created with a value of 1 for each observation at that level and 0 for all others. As shown in Tables A1, A2, and A3, the number of CET times was the reference level, and Shanghai and Liberal Arts, respectively.

### **Research Questions and Hypotheses**

The research questions of this study are framed as hypotheses. Therefore, the questions could be statistically analyzed using a null hypothesis ( $H_0$ ) and alternative hypothesis ( $H_a$ ) for each question. A null hypothesis corresponds to a default position and assumes relationships in a dataset are due to chance. An alternative hypothesis assumes that relationships in a data set are not due to random chance. The purpose of a hypothesis is not to prove it to be true but collect data that either supports or does not support it (Gay et al., 2009). The null hypotheses of this investigation were examined when controlling for or removing the effect of the other independent variables in the equations. The quantitative study design is appropriate in accomplishing the study's goal, which is to ascertain whether there is a

relationship between the dependent variables of English student success and the independent variables while controlling for the covariates of gender, ethnicity, and major. The questions and hypotheses regarding Chinese students enrolling at J University in 2014 include the following:

### **Research Question 1**

What is the relationship between high school academic achievement and the likelihood of passing CET-4?

H<sub>0</sub> (1a): There is no relationship between the Gaokao total score and passing CET-4.

H<sub>a</sub> (1a): There is a relationship between the Gaokao total score and passing CET-4.

H<sub>0</sub> (1b): There is no relationship between the Gaokao English score and passing CET-4.

H<sub>a</sub> (1b): There is a relationship between the Gaokao English score and passing CET-4.

### **Research Question 2**

What is the relationship between social engagement and the likelihood of passing CET-4?

H<sub>0</sub> (2): There is no relationship between awards and passing CET-4.

H<sub>a</sub> (2): There is a relationship between awards and passing CET-4.

### **Research Question 3**

What is the relationship between the times of test taken and the likelihood of passing CET-4?

H<sub>0</sub> (3): There is no relationship between the times of test taken and passing CET-4.

H<sub>a</sub> (3): There is a relationship between the times of test taken and passing CET-4.

### **Research Question 4**

What is the relationship between family background and the likelihood of passing CET-4?

H<sub>0</sub> (4a): There is no relationship between registered permanent residence (hukou) and passing CET-4.

H<sub>a</sub> (4a): There is a relationship between registered permanent residence (hukou) and passing CET-4.

H<sub>0</sub> (4b): There is no relationship between province of origin and passing CET-4.

H<sub>a</sub> (4b): There is a relationship between province of origin and passing CET-4.

### **Research Question 5**

What is the relationship between high school academic achievement and students' top score of CET-4?

H<sub>0</sub> (5a): There is no relationship between Gaokao total score and students' top score on CET-4.

H<sub>a</sub> (5a): There is a relationship between the Gaokao total score and students' top score of CET-4.

H<sub>0</sub> (5b): There is no relationship between the Gaokao English score and students' top score of CET-4.

H<sub>a</sub> (5b): There is a relationship between the Gaokao English score and students' top score of CET-4.

### **Research Question 6**

What is the relationship between social engagement and students' top score of CET-4?

H<sub>0</sub> (6): There is no relationship between awards and students' top score of CET-4.

H<sub>a</sub> (6): There is a relationship between awards and students' top score of CET-4.

### **Research Question 7**

What is the relationship between the times of test taken and students' top score of CET-4?

H<sub>0</sub> (7): There is no relationship between the times of test taken and students' top score of CET-4.

H<sub>a</sub> (7): There is a relationship between the times of test taken and student's top score of CET-4.

### **Research Question 8**

What is the relationship between family background and students' top score of CET-4?

H<sub>0</sub> (8a): There is no relationship between registered permanent residence (hukou) and students' top score of CET-4.

H<sub>a</sub> (8a): There is a relationship between registered permanent residence (hukou) and students' top score of CET-4.

H<sub>0</sub> (8b): There is no relationship between province of origin and students' top score of CET-4.

H<sub>a</sub> (8b): There is a relationship between province of origin and students' top score of CET-4.

### **Site Description**

This research was conducted at a large, private, 4-year university in Shanghai, China.

The total enrollment for the university in 2019 was 19,857. The average admission score for an incoming first-year student was below the average level among 4-year universities.

Approximately 4,000 first-year students enrolled in the fall semester of 2014.

### **Population of the Study**

The study population I chose was Chinese students who began their college education at a private university in Shanghai, China, in 2014, because their records were the only complete 4 years of data available from the office of educational administration. The total sample of this study consisted of 3,165 Chinese students (56.9% female, 43.1% male). Within the sample, 1,957 (61.9%) students registered in urban hukou, while 1,208 (38.1%) hold rural hukou. Ethnic minority students are still in a weakened situation and account for 4% in the population. Although the university does not have official records of the minority group, this data is representative. Over one third (38.1%) of students in this cohort are from the Shanghai municipality, regarded as the economic center of China. As an international city, the English proficiency of Shanghai citizens is generally recognized higher than people from other places in China. Among all participants, up to 13.6% (431) achieved awards in high school. For the CET-4, 66.3% of the population passed the test. Details of these variables are shown in Table 5.

**Table 5***Descriptive Statistics of Categorical Variables*

	Category	Frequency	%	Minimum	Maximum	Mean	SD
Awards		3165		0	1	.14	.343
	no	431	13.62%				
	yes	2734	86.38%				
CET times		3165		1	5	2.58	1.573
	1	1198	37.85%				
	2	611	19.31%				
	3	335	10.58%				
	4	367	11.60%				
	5+	654	20.66%				
Hukou		3165		0	1	.38	.486
	Urban	1957	61.83%				
	Rural	1208	38.17%				
Provincial Origin		3165		0	3	1.07	1.005
	Shanghai	1205	38.07%				
	Eastern China	845	26.70%				
	Central China	819	25.88%				
	Western China	296	9.35%				
Gender		3165		0	1	.43	.495
	Female	1801	56.91%				
	Male	1364	43.09%				
Ethnicity		3165		0	1	.96	.197
	Minority	128	4.04%				
	Han	3037	95.96%				
Major		3165		0	5	2.22	1.496
	Liberal Arts	635	20.06%				
	Fine Arts	555	17.54%				
	Economy	241	7.61%				
	Management	992	31.34%				
	Engineering	707	22.34%				
	Medicine	35	1.11%				
Test Result		3165		0	1	.66	.473
	Fail	1067	33.71%				
	Pass	2098	66.29%				
Valid N (listwise)		3165					



## **Data Collection**

This study used extant data available from this University. Demographic information was acquired about each student, as well as the Gaokao score and CET-4 score. Data were collected in 2018, after the graduation of students who entered the university in 2014.

## **Sample Size and Statistical Power**

Appropriate sample size was determined based on the formula provided by Tabachnick and Fidell (1996),  $N \geq 50 + 8m$ , where  $N$  is the sample size and  $m$  is the number of independent variables (p. 132). This study includes nine independent variables: Gaokao total score, Gaokao English score, awards, times of test taken, gender, hukou, ethnicity, major and provincial origin. Therefore,  $N$ , the sample size, must be at least  $50 + 8(9)$ , or 122. The sample size of this study was appropriate and consisted of approximately 4,000 Chinese college students.

## **Assumptions**

Due to the nature of the research questions, multiple regression analysis was the best means of statistically analyzing study data. Performing this type of analysis allows researchers to determine to what extent the independent variables can predict the dependent variables of retention and scores while controlling for the covariates of gender, ethnicity, and major. In this research, the primary procedures were multiple hierarchical regression and a logistic regression. According to Peng et al. (2002), each of these regression methods is suitable for estimating the relationships between variables, and each is a theoretically and statistically sound and valid means to examine research questions and hypotheses.

In this research, several assumptions are acceptable if categorized as methodological, theoretical, topic-specific, or a combination of these. Certain assumptions are accepted without proof, and other assumptions require testing of specific assumptions of the data. For this study, it is assumed the data collected from the Office of Educational Administration were accurate and show an unbiased assessment of students' academic performance. It is also assumed the students performed to the best of their abilities while taking the language tests. In addition, there are assumptions about the data which should be tested before analysis. As logistic regression and multiple regression were applied in the data analysis procedure, the assumptions should be conducted in advance. Logistic regression tends to be sensitive to multicollinearity and outliers rather than making assumptions about the distribution of predictor variables (Pallant, 2016). For standard multiple regression, multicollinearity, outliers, normality, linearity, and homoscedasticity should be checked (Pallant, 2016).

### ***Multicollinearity***

The absence of multicollinearity means the independent variables are not highly correlated with each other (Hair et al., 1995). This assumption should be tested by using variance inflation factors (VIF). The VIF measures how much the variance of the predictor variable is influenced by the other predictor variables and values over 10 suggest the presence of multicollinearity (Hair et al., 1995). Therefore, the VIF values higher than 10 indicates a correlation between the independent variables such as hukou, province of origin, high school Gaokao score, and Gaokao English sub-score.

### ***Outliers***

Outliers are the extreme cases that should be determined during the data cleaning process. Although this determination can be made before running any statistical analysis, procedures for identifying outliers are available in SPSS within the regression process. If a very high or very low score is identified, it should be removed from the dataset. Viewing a standardized residual plot (generated in the regression procedure) may help identify outliers (values  $> 3.3$ , or  $< -3.3$ ) on dependent variables (Tabachnick & Fidell, 2013). Meanwhile, datasets with large samples are not as sensitive to outliers.

### ***Normality***

The assumption of normality is the regression residuals would be normally distributed (Fields, 2014; Pallant, 2016). This assumption was tested through an examination of a normal probability plot. Skewness and kurtosis values indicate none of the variables are outside of the  $\pm 2$  range, which is considered the standard for normality (Fields, 2014; Pallant, 2016).

### ***Homoscedasticity***

The assumption of homoscedasticity means the variance around the regression line is the same across all values of the independent (predictor) variables; it is tested by examining a scatterplot of residuals versus the predicted values (Hair et al., 1995).

### ***Linearity***

Linearity is also visible in graphs and describes the relationship between a variable and a constant, where they are related by their closeness to a straight line. The assumption for

linearity is that the residuals should be linear (or have a straight-line) to the dependent variables (Pallant, 2016).

### **Data Analysis**

The statistical analyses conducted in this study were performed using IBM SPSS Statistics, version 25. Two different statistical techniques were used to examine the research questions of this study. Logistic regression was conducted to assess the relationship of several factors on the likelihood test-takers would pass the CET-4. Multiple regression was conducted to assess the ability of different predictors of the levels of student's top CET-4 score. To describe the sample quantitatively, I obtained frequency and percentage summaries for the categorical variables and calculated the measure of central tendencies of means, standard deviations, and minimum and maximum values for the continuous variables.

#### **Logistic Regression**

Logistic regression is a statistical technique used for predicting categorical outcomes based on one or more predictor variables (Pallant, 2016). In this study, the goal was to answer Research Questions 1 and 2 to correctly predict the probability of a student passing the CET-4 within 4 years of enrollment based on the independent variables. With logistic regression, the predictor variables, or independent variables, can be categorical, continuous, or a combination of both categorical and continuous in one model (Pallant, 2016). Tabachnick and Fidell (1996) stated logistic regression can test models and individual predictors. If a comparison between a constant-only model and a model with the constant and a group of predictors demonstrates an improvement when the predictors are added, then the predictors are related

to the outcome (Tabachnick & Fidell, 1996). For individual predictors, logistic regression indicates whether the independent variables are statistically significant predictors of the dependent variable (Tabachnick & Fidell, 1996). Logistic regression indicates effect size measured as an odds ratio, designated as  $\text{Exp}(B)$ .  $\text{Exp}(B)$  values are the odds ratios that represent the change “in odds of being in one outcome category when the value of the predictor increases by one unit” (Tabachnick & Fidell, 1996, p. 607).

The assumptions of logistic regression must be met to answer Research Questions 1 through 4 using logistic regression. A few assumptions must be met before running logistic regression (Pallant, 2016):

1. Adequate sample size must be used. Problems may occur when the sample size is small relative to the number of independent variables. Appropriate sample size was calculated using  $N \geq 50 + 8m$  (Tabachnick & Fidell, 1996). Regarding this study, participation (3,165) is theoretically adequate for the study.

2. No multicollinearity may occur between variables. Multicollinearity exists when independent variables are highly correlated. The variance inflation factors were assessed to test for this. Any VIF larger than 9 was deemed problematic (Fox, 2019).

3. No outliers should occur in the data. Too many outlying cases may indicate the model has a poor fit. For logistic regression, an outlier is a case that may be strongly predicted by the model to be in one category, but be classified in the other category. Outliers are identified by inspecting the residuals. Cases with values above 2.5 or less than -2.5 are considered clear outliers (Pallant, 2016).

Once data collection was completed, the data were transferred into IBM SPSS Statistics, version 25. After the tabulation of a profile of participants, multivariate analyses employed a binary logistic regression using SPSS. Logistic regression was used to estimate the probability of an event occurring—in the study, either passing the CET-4 or not—based on a set of predictor variables (Field, 2013). In binary logistic regression, a dichotomous outcome is transformed into a linear model by comparing each independent variable to the log odds of the event taking place. In this study, each independent variable was tested to determine its unique contribution to the prediction of the outcome, that is, its relationship to the log odds of the event to determine if it meets the inclusion criteria to be included in the final model. The model can then be used to estimate the probability of the event occurring as:

$$\text{Logit}(P) = \ln\left[\frac{P_i}{(1-P_i)}\right] = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \beta_6 X_{i6} + \beta_7 X_{i7} + \beta_8 X_{i8} + \beta_9 X_{i9} + \varepsilon_i \quad (1)$$

In this equation (1),  $P_i$  represents the probability of individual passing the CET-4, and  $\text{odds} = P_i/(1-P_i)$  stand for the ratio of individual's success probability versus failure probability (i.e., passing the CET-4). The  $X$  stands for the nine independent variables, which have been explained in Table 4. The  $\beta$  is an individual coefficient from the predictive variables of the binary outcome of success in CET-4. The constant and  $\beta$ s are coefficients obtained from the logistic regression. Finally,  $\varepsilon$  indicates the random disturbance term. This equation helps to understand the extent to which it could explain the influence of independent variables on the dependent variable of passing or not.

The Wald statistic tests whether the coefficient for each of the independent variables in the model would be reported; it has a chi-square distribution (Field, 2013; Hosmer et al., 2000). The Nagelkerke  $R^2$  (pseudo  $R^2$ ) and classification table were examined to evaluate the practical significance and power of the logistic regression models. Like other coefficients of determination, the Nagelkerke  $R^2$  represents the amount of variance in the outcome that is explained by the model's variables (Nagelkerke, 1991). The Hosmer and Lemeshow Test was used to examine the goodness-of-fit of the logistic regression model (Hosmer et al., 2000).

Finally, odds ratios were calculated and examined to interpret the variables in the models. Consequently, the odds ratio for a predictor variable in this context is the odds a student passes the test when the characteristic is present, divided by the odds a student passes when the characteristic is not present (Hosmer et al., 2000). If the odds ratio for a predictor variable is more than 1, then a student is more likely to pass if they possess that characteristic. If the odds ratio for a predictor variable is less than 1, then a student is more likely to pass if that attribute is not present. An odds ratio of 1 for a predictor variable indicates the variable does not appear to affect the probability a person succeeds.

### **Multiple Regression**

The statistical technique, standard multiple regression, was used in this study to answer Research Questions 5–8. Multiple regression is useful for determining how well a set of variables can predict a particular outcome (Pallant, 2016). Multiple regression is like logistic regression. Multiple regression assesses the relationship of the independent variables with a continuous dependent variable versus a categorical dependent variable of interest in

logistic regression (Pallant, 2016). Pallant described the types of research questions multiple regression addresses: (a) how well a set of variables can predict a particular outcome, (b) which variable in a set of variables is the best predictors of an outcome, and (c) whether a particular predictor variable is still able to predict an outcome when the effects of another variable are controlled for.

There are different types of multiple regression analyses. However, standard multiple regression is the most common and was used in this study (Pallant, 2016). All independent variables were entered simultaneously to determine the predictive power of the independent variables. Standard multiple regression also determines how much variance in the dependent variable each of the independent variables explains. Certain assumptions must be considered when conducting multiple regression to answer Research Questions 5–8 and  $H_0(5)$ – $H_0(8)$ .

There needs to be a linear relationship between the variables to include no significant outliers and the presence of normality. I assessed the linearity assumptions through scatter plots. These scatter plots also served as a visual aid in detecting unusual values (outliers) and outliers were removed. Outliers are extreme cases with values higher or lower than most other cases. The normality assumption through kurtosis and skewness statistics was assessed. The skewness and kurtosis statistics of the data of the study variables are to test whether the data are normally distributed. Skewness statistics greater than 3 indicate strong non-normality. Kurtosis statistics between 10 and 20 also indicate nonnormality (Kline, 2005). If there is a violation of the normality assumption, transformations need to be applied to the variables to correct this. However, these two assumptions are also dependent on sample size.



Multiple regression is based on correlation but is a more sophisticated technique to explore the relationship among variables. A correlation analysis describes the strength and direction of the relationship between two or more variables (Pallant, 2016). When two variables are correlated, the result is a correlation coefficient, which is a decimal that ranges from -1.00 to +1.00 (Gay et al., 2009). A coefficient near +1.00 represents a strong relationship and a positive direction (as one variable increases, the other increases). If a correlation coefficient is near .00, there is no relationship between variables. A correlation near -1.00 indicates a strong relationship and a negative direction (as one variable increases, the other decreases; Gay et al., 2009). Correlation coefficients are expressed as Pearson product-moment correlations (Gay et al., 2009). The coefficient of determination,  $R^2$ , is how much variance in the dependent variable is explained by the model (Pallant, 2016). Part correlation coefficients are used to express the specific portion of variance explained by one of the independent variables in multiple regression. Squaring the value gives an indication of the contribution of the variable to the total  $R^2$  (Pallant, 2016).

Statistical significance refers to the probability that the results would have occurred due to chance (Gay et al., 2009). A confidence level of .05 was used for all analyses. A statistically significant relationship does not indicate how large or small a relationship is, just that there is a relationship. To determine the size of a relationship, researchers examine the effect size. The effect size is a numerical way of expressing the strength or magnitude of a reported relationship (Gay et al., 2009). For multiple regression, the effect size is presented as

the squared part correlation coefficient. In this study, the following multiple regression model was tested:

$$\text{Top CET-4 Score} = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \beta_6 X_{i6} + \beta_7 X_{i7} + \beta_8 X_{i8} + \beta_9 X_{i9} + \varepsilon_i \quad (2)$$

I reported a corresponding  $p$ -value of each model and determined the variance explained by the model using the  $R^2$  (Klugh, 2013). Individual predictors were reported by the predictor's standardized beta weights ( $\beta$ ) and corresponding  $p$ -values less than or equal to 0.05.

### **Summary**

This chapter introduced the research methodology of this study. The purpose of this study was to investigate the relationship between a series of independent variables and higher education academic success in English subjects. In this chapter, I described the research design, the independent and dependent variables, the research questions, and the null hypotheses that are the basis for this study. I also explained the population from which the archival data were collected. The chapter concluded with a brief overview of the statistical techniques and data analysis completed in this study.

## **CHAPTER 4: RESULTS**

This chapter focuses on data analysis and explains the results of the computation.

Descriptive statistics were calculated according to the type of variables. This study used logistic regression and multiple regression in IBM SPSS Statistics 25 to address eight research questions. These procedures in this chapter followed this way: (1) a brief review of all the independent and dependent variables, as well as the sample size, (2) assumption checks before the running of data analysis, (3) descriptive analysis regarding categorical and continuous variables respectively, (4) logistic regression conducted to answer the first four research questions, and (5) multiple regression used for the next four questions.

### **Logistic and Multiple Regression**

I used IBM SPSS Statistics 25 to check for violations of the assumptions of logistic and multiple regression analysis. In this study, logistic and multiple regression analyses were used to test the eight hypotheses. Logistic regression was conducted to assess the relationship of several factors with the likelihood test-takers would pass the CET-4. Multiple regression was conducted to assess the ability of different predictors of the levels of student's top CET-4 score. The assumption analysis was expounded upon in this chapter. It was assumed no violations of assumptions occurred in these analyses.

### **Variables**

Variables for this study were acquired by examining archived data provided by the Office of Educational Administration of the private university. Table 6 is used to outline independent (X) and dependent variables (Y).

**Table 6***Dependent and Independent Variables*

<b>Variable</b>		<b>Type</b>	<b>Explanation</b>
<b>Commitment for Academic Success</b>		Categorical (Y <sub>1</sub> )	0 = not pass CET-4 with a score < 425 1 = pass
<b>Academic Achievement</b>		Continuous (Y <sub>2</sub> )	the top score student achieved upon times participation in the test
<b>High School Academic Achievement</b>	NCEE total score	Continuous (X <sub>1</sub> )	raw score on a scale of 0 to 750
	NCEE English sub-score	Continuous (X <sub>2</sub> )	raw score on a scale of 0 to 150
<b>Social Engagement</b>		Categorical (X <sub>3</sub> )	0 = no awards student received pre-college 1 = with awards
<b>Persistence to the CET-4</b>	Times of Test Taken	Categorical (X <sub>4</sub> )	Number of times student enroll for CET-4, from 1–5. Attempts more than 5 were all coded as 5+.
<b>Family Background</b>	Registered Permanent Residence	Categorical (X <sub>5</sub> )	0 = urban 1 = rural
	Province of Origin	Categorical (X <sub>6</sub> )	0 = Shanghai 1 = Eastern China other than Shanghai 2 = Central China 3 = Western China
<b>Gender</b>		Categorical (X <sub>7</sub> )	0 = female 1 = male
<b>Ethnicity</b>		Categorical (X <sub>8</sub> )	0 = ethnic minorities 1 = ethnic Han
<b>Major</b>		Categorical (X <sub>9</sub> )	0 = Liberal Arts 1 = Fine Arts 2 = Economics 3 = Management 4 = Engineering 5 = Medicine

## **Sample Size**

The sample used in this dissertation consisted of the 2014 cohort of a private university in Shanghai; the size of the sample was approximately 4,000 undergraduate students. After cleaning the data, only cases with data for all the variables of this study were included in this analysis. As a result, the sample size was 3,165 ( $N > 100$ ). The sample size is considered large for a quantitative study (Leavy, 2017).

## **Assumption Check**

As stated in Chapter 3, logistic regression and multiple linear regression require different techniques to check if assumptions are violated. Logistic regression tends to be sensitive to multicollinearity and outliers rather than making assumptions about the distribution of predictor variables (Pallant, 2016). For standard multiple regression, multicollinearity, outliers, normality, linearity, and homoscedasticity should be checked (Pallant, 2016). Preliminary analyses were conducted to check any violations of these assumptions.

### ***Multicollinearity***

Multicollinearity refers to the relationship among the independent variables (Pallant, 2016). Multicollinearity occurs when the correlation between the independent variables is highly correlated ( $r = .9$  and above; Pallant, 2016). The Spearman's rho across all variables has been checked in Table 7 to avoid multicollinearity in multiple regression.

**Table 7***Correlations Between All Variables*

		1	2	3	4	5	6	7	8	9	10	11
Spearman's rho	1 NCEE Total						**			**		
	2 NCEE English				**	**	**	**	**	*	**	**
	3 Awards						**					
	4 CET times		**			**	**	**	**	**	**	**
	5 Hukou		**		**		**			**	**	**
	6 Provincial Origin	**	**	**	**	**			**	**	**	**
	7 Gender		**		**					**	**	**
	8 Ethnicity		**		**		**				**	**
	9 Major	**	*		**	**	**	**			**	**
	10 Top Score of CET-4		**		**	**	**	**	**	**		**
	11 Test Result		**		**	**	**	**	**	**	**	

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

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

c. Listwise  $N = 3165$

d. For each variable, the first row is correlation coefficient, and the second row indicates the significance (2-tailed).

The tolerance and variance inflation factor (VIF) indicators were calculated again in Table 8 to avoid the possibility of multicollinearity between the NCEE (*Gaokao*) total score and the English score. The tolerance value was .999 (not less than .10), which indicated multiple correlations with other variables were very low (Pallant, 2016). This result was also supported by VIF, which was 1.001 and below the cut-off of 10. These results were not surprising given the Pearson correlation coefficient between the two independent variables was -.028. The tolerance and VIF indicators were also checked, among other variables.

**Table 8**

*Multicollinearity Coefficients*

	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
NCEE Total	0.91	1.099
NCEE English	0.884	1.132
Awards	0.986	1.014
CET Times2	0.739	1.353
CET Times3	0.767	1.303
CET Times4	0.735	1.361
CET Times5	0.61	1.639
Hukou	0.848	1.18
Eastern China	0.64	1.561
Central China	0.59	1.694
Western China	0.697	1.434
Gender	0.799	1.252
Ethnicity	0.922	1.085
Fine Arts	0.633	1.579
Economy	0.806	1.241
Management	0.609	1.641
Engineering	0.565	1.77
Medicine	0.921	1.086

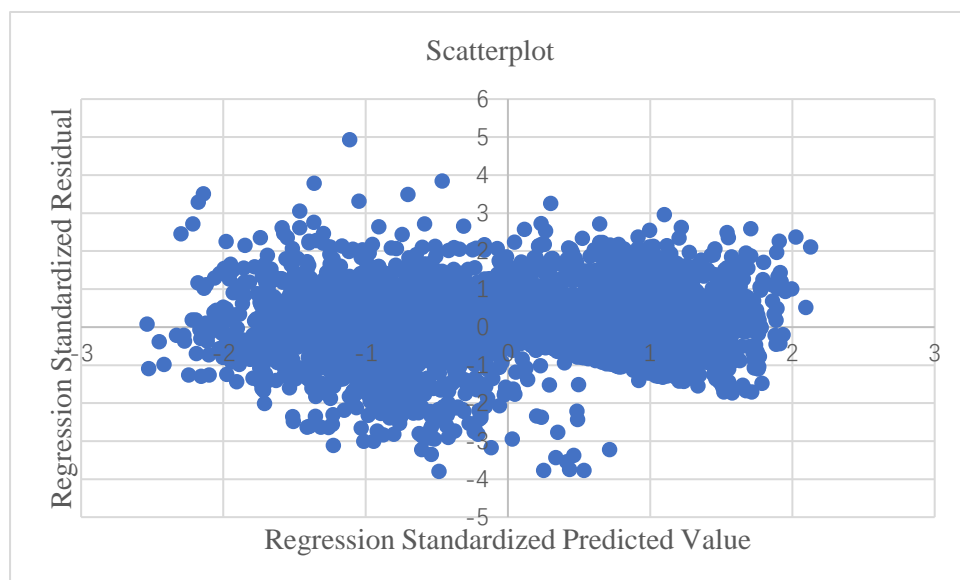
*Note.* Dependent variable: Top Score of CET-4

## ***Outliers***

Outliers are the extreme scores that should be deleted during the data cleaning process (Pallant, 2016). Before proceeding with logistic regression and standard multiple regression, the very high and very low scores (values above 3.3, or less than -3.3; Tabachnick & Fidell, 2013) were removed from the dataset to avoid violating this assumption of outliers (see Figure 5). Because of the large samples, there was no impact with and without the outlier after running the analysis.

**Figure 5**

*Standardized Residual Plot*



Residual scatterplots and normal probability plots (P-P) are useful in determining normality, linearity, and homoscedasticity (Pallant, 2016). A P-P Plot is a probability-probability used to determine if a given set of data follow a specified distribution. All points

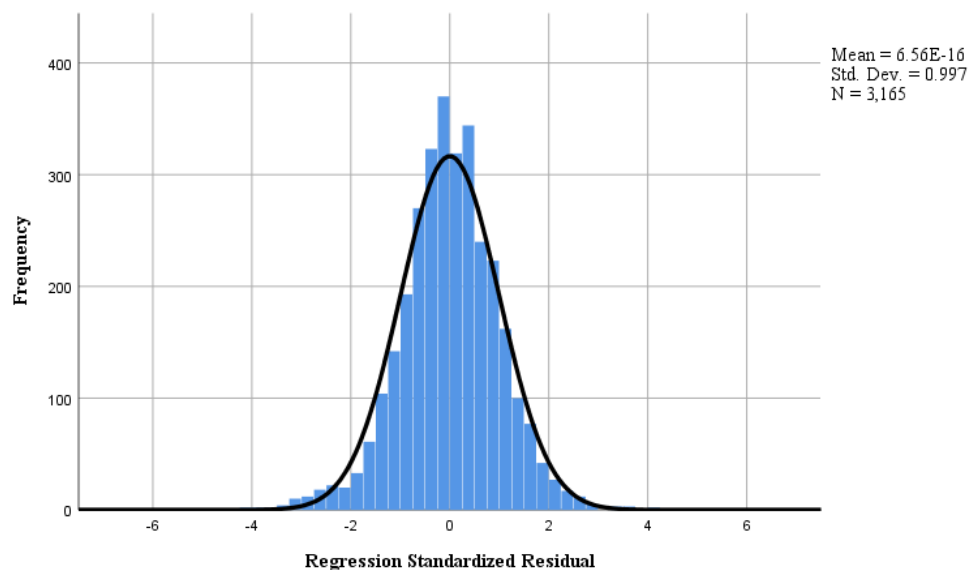


in a nearly straight diagonal line from bottom left to top right are expected in a normal P-P plot (Pallant, 2016). It is also hoped that the residuals in the scatterplots are roughly rectangularly distributed, with majority concentrated in the center (Pallant, 2016).

Normal refers to a symmetrical and bell shaped curved (Pallant, 2016). The standardized residuals appear to be approximately normally distributed based upon the histogram (see Figure 6).

**Figure 6**

*Histogram of Normally Distributed Standardized Residuals*



*Note.* Dependent variable is the top CET-4 score.

Skewness is a measure of symmetry or the lack of symmetry. A distribution is symmetric if it looks the same to the left and right of the center point on a graph. Kurtosis is a measure of whether the data are peaked or flat relative to a normal distribution (Pallant,

2016). Skewness and kurtosis values within the range of  $\pm 1$ , or with a standard error (SE) range of  $\pm 2$ , are generally considered normal. According to Pallant (2016), positive skewness values indicate scores may be clustered to the left at lower values, and negative skewness values indicate a clustering to the right (at the high end). A positive kurtosis value indicates a peaked distribution, and values below 0 indicate a rather flat distribution (or too many extreme cases). By calculating skewness and kurtosis values (shown in Table 9), the normality of the distribution of scores were assessed beforehand.

Linearity is also visible in graphs and describes the relationship between a variable and a constant, where they are related by their closeness to a straight line. For this research, it was approximately linear (see Figure 7).

### **Descriptive Analysis**

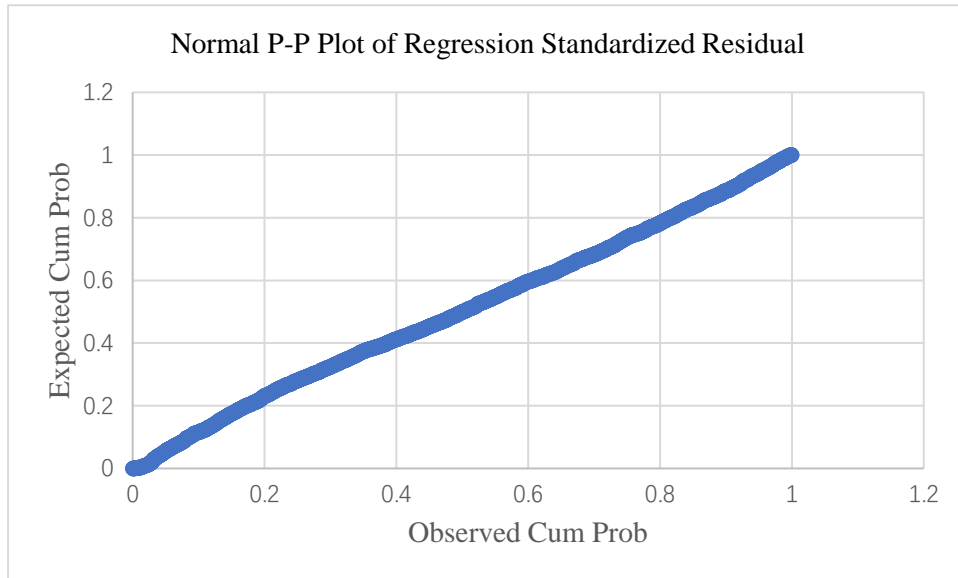
Descriptive statistics were analyzed after the data were cleaned. This descriptive analysis is used to report the sample characteristics, provide a variety of information, and check the variables for any violation of the assumptions. Frequency could tell the distribution of each categorical variable (Pallant, 2016) and was applied to describe the categorical variables. Examples of these categorical variables included social engagement, the times of test taken, family background, demographic information, and academic success. For the two continuous variables (academic achievement and high school academic achievement), statistics such as mean, median, and standard deviation could provide the basic summary.

**Table 9***Normality Coefficients*

	Skewness		Kurtosis	
	statistic	Std. error	statistic	Std. error
NCEE Total	.016	.044	-1.070	.087
NCEE English	-.135	.044	-.333	.087
Awards (0)	-.128	.047	.119	.094
Awards (1)	-.092	.118	.475	.235
CET Times 1	-.180	.071	1.735	.141
CET Times 2	-1.038	.099	1.359	.197
CET Times 3	-.276	.133	-.545	.266
CET Times 4	.146	.127	1.600	.254
CET Times 5+	-.075	.096	.416	.191
Urban	-.157	.055	.058	.111
Rural	-.241	.070	.365	.141
Shanghai	-.233	.070	.340	.141
Eastern China	-.243	.084	.617	.168
Central China	-.174	.085	.408	.171
Western China	.133	.142	.297	.282
Female	.058	.058	.429	.115
Male	-.080	.066	-.228	.132
Ethnic Minorities	.318	.214	.833	.425
Ethnic Han	-.131	.044	.185	.089
Liberal Arts	.010	.097	.270	.194
Fine Arts	-.150	.104	-.209	.207
Economy	-.142	.157	.367	.312
Management	-.208	.078	.208	.155
Engineering	-.186	.092	.182	.184
Medicine	.000	.398	-1.047	.778
Top Score of CET-4	-.121	.044	.172	.087
Valid N (listwise)				

**Figure 7**

*Normal P-P Plot With Normally Distributed Dependent Data (Top Score)*



### ***Frequencies of Categorical Variables***

As aforementioned, variables like social engagement, persistence to the CET-4, family background, demographic information, and academic success are categorical. Therefore, indicators such as awards, times students repeated the CET-4, registered permanent residence (*hukou*), provincial origin, gender, ethnicity, major, and test result were calculated (see Table 10).

**Table 10***Descriptive Statistics of Categorical Variables*

Category	<i>n</i>	%
Awards		
no	431	13.62%
yes	2734	86.38%
CET times		
1	1198	37.86%
2	611	19.30%
3	335	10.58%
4	367	11.60%
5+	654	20.66%
Hukou		
Urban	1957	61.83%
Rural	1208	38.17%
Provincial Origin		
Shanghai	1205	38.07%
Eastern China	845	26.70%
Central China	819	25.88%
Western China	296	9.35%
Gender		
Female	1801	56.90%
Male	1364	43.10%
Ethnicity		
Minority	128	4.04%
Han	3037	95.96%
Major		
Liberal Arts	635	20.06%
Fine Arts	555	17.54%
Economy	241	7.61%
Management	992	31.34%
Engineering	707	22.34%
Medicine	35	1.11%
CET-4 Result		
Fail	1067	33.71%
Pass	2098	66.29%

The dependent variable of passing or failing CET-4 was identified from students' records (see Table 11). The threshold for successful passing was if a student graduated within 4 years from the time of enrollment into the university. The highest CET-4 score was one of the two dependent variables of this study; 66.3% of students passed the CET-4.

**Table 11**

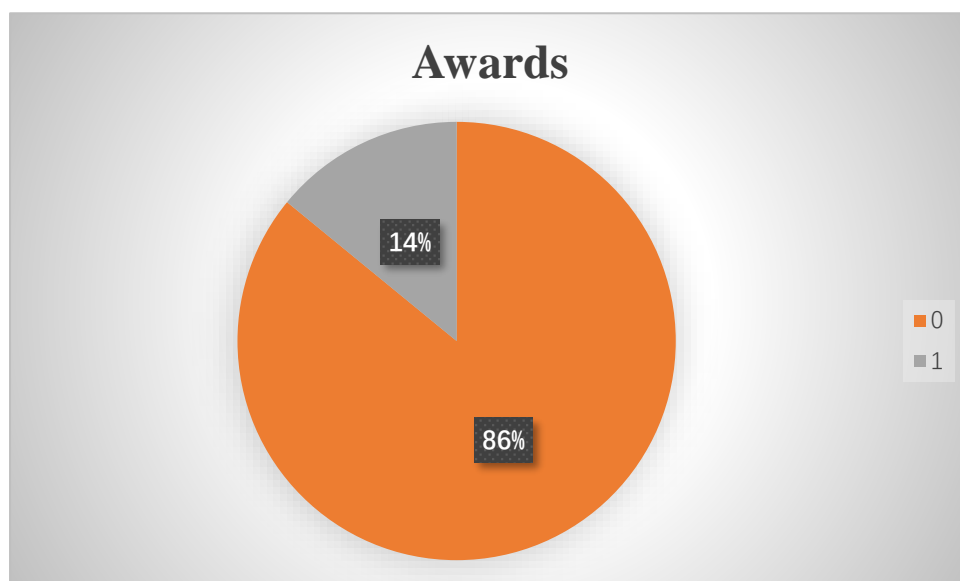
*CET-4 Passing Rate for the Sample*

		Frequency	%	Valid %	Cumulative %
Valid	0 Fail	1067	30.5	33.7	33.7
	1 Pass	2098	59.9	66.3	100.0
	Total	3165	90.4	100.0	

As stated in Chapter 2, awards were used as an independent variable for social engagement, indicating whether a student performed well and showed leadership in high school. In this study, of 3,165 students, 431 (13.6%) categorized as leaders or as outstanding had an opportunity to win awards and scholarships during high school at the school level or as a national award (see Figure 8).

**Figure 8**

*Awards*



The indicator of persistence to the CET-4 is CET Times (see Table 12 and Figure 9). It was also adopted as another independent variable. The CET-4 is held twice per year and 75% of first-year students are permitted to join CET-4 during their second semester. Students can join the CET-4 during the second semester based on their final exam result in college English during the first semester. Except for the first year of college, students may retake the test in the following 3 years. However, there are also students giving up all the chances in this test for reasons that need further exploration in future research. Thus, the number of 0 has been excluded in this study. Meanwhile, the College English course is only offered to first- and second-year students; juniors and seniors could learn English by themselves. As a result, the number of times students repeated CET-4 more than five times were all coded as 5+. The number of times ranged from 1–5. It is clear in Table 11 that 37.9% of the 2014 cohort

registered to take the exam once. Of the over 3,000 participants in this study, 19.3% of students took the CET-4 twice. In total, 654 (20.7%) students took the exam five times or more (see Table 12 and Figure 9). A certain number of junior students, after passing the CET-4, will pursue the CET-6 to earn a higher-level certificate.

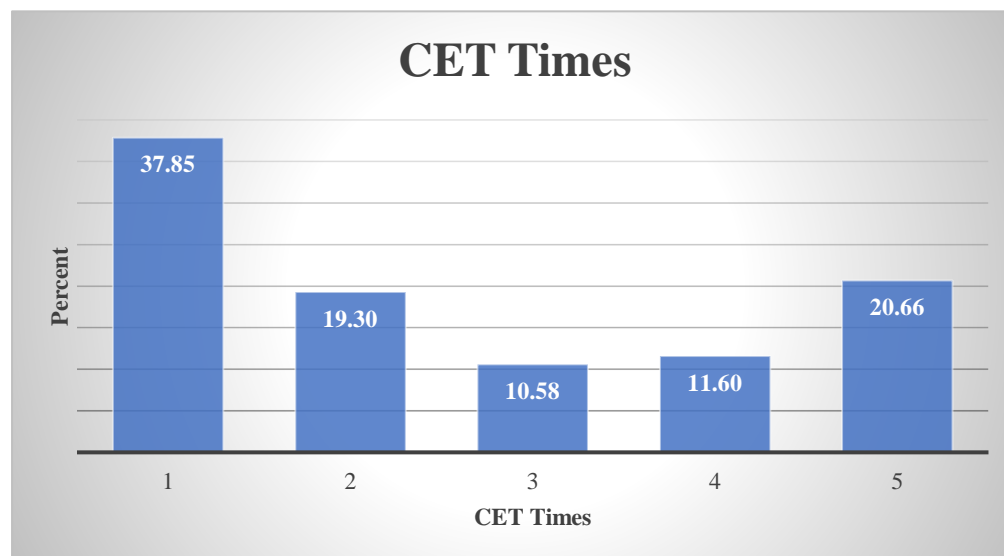
**Table 12**

*Number of Times Students Repeated CET-4*

		Frequency	%	Valid %	Cumulative %
Valid	1	1198	34.2	37.9	37.9
	2	611	17.4	19.3	57.2
	3	335	9.6	10.6	67.7
	4	367	10.5	11.6	79.3
	5+	654	18.7	20.7	100.0
	Total	3165	90.4	100.0	

**Figure 9**

*Number of Times Students Repeated CET-4*

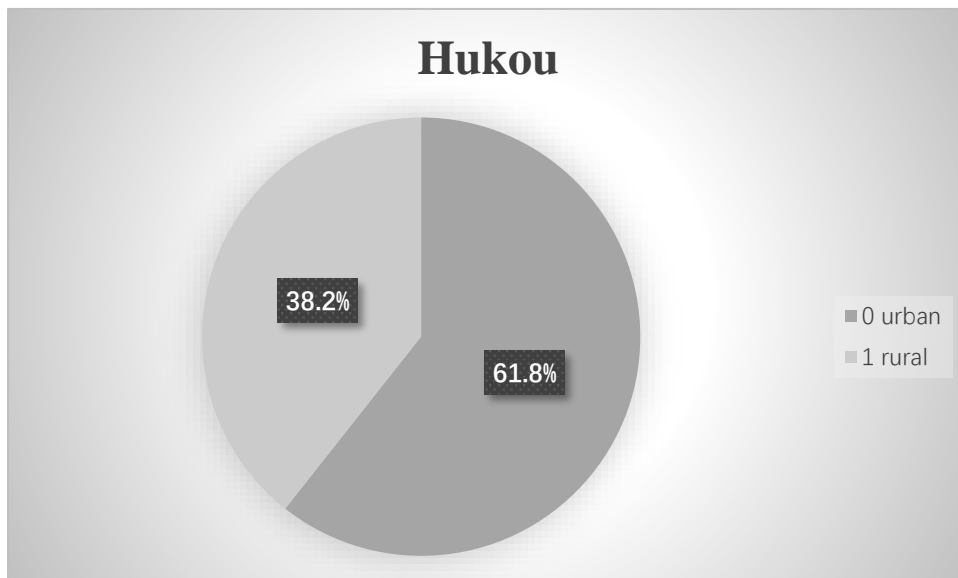




Family background includes the registered permanent residence and the provincial origin in this study, which could partially indicate the socioeconomic status of every single family. The urban and rural dual household registration system (*hukou*) in China is attached to various political, economic, and social rights. The data for the hukou are shown in Figure 10. The data were released by the National Bureau of Statistics of China (2018 Statistical Bulletin on National Economic and Social Development, 2019). By the end of 2018, the total population of the Chinese mainland was 139.538 million, among which 83.37 million were permanent urban residents, accounting for 59.58% of the total population. The percentage in this study is 61.8%, likely to be the same.

**Figure 10**

*Hukou*



Mainland China has 32 provinces and municipalities. Each province or municipality administers their version of the Gaokao (NCEE) based on provincial education under the guidelines of China's MoE. Higher education institutions within provinces have available seat quotas for students within its province and students from external provinces. According to the Australian Education International (2009), "A matrix of provincial quotas, university quotas, and subject quotas is negotiated annually between universities and national and provincial authorities" (p. 29). Historically, the more geographical east in mainland China, the more developed and richer in economy, and vice versa. Moreover, because of the location of the private university used for this study, native Shanghai students make up most of the student groups. Of the 32 provinces and administrative zones in China, three provinces and one municipality were not represented in this study: Shandong, Hunan, Tibet, and Beijing. Their lack of representation might be due to the 2014 enrollment policy. Because this private university is in Shanghai, there is no doubt it could attract and enroll more Shanghai students. Due to regional economic development, the population decreased from east to west. As shown in Table 13 and Figure 11, 38% of the population were Shanghai students; students from Western China accounted for the least (9.4%).

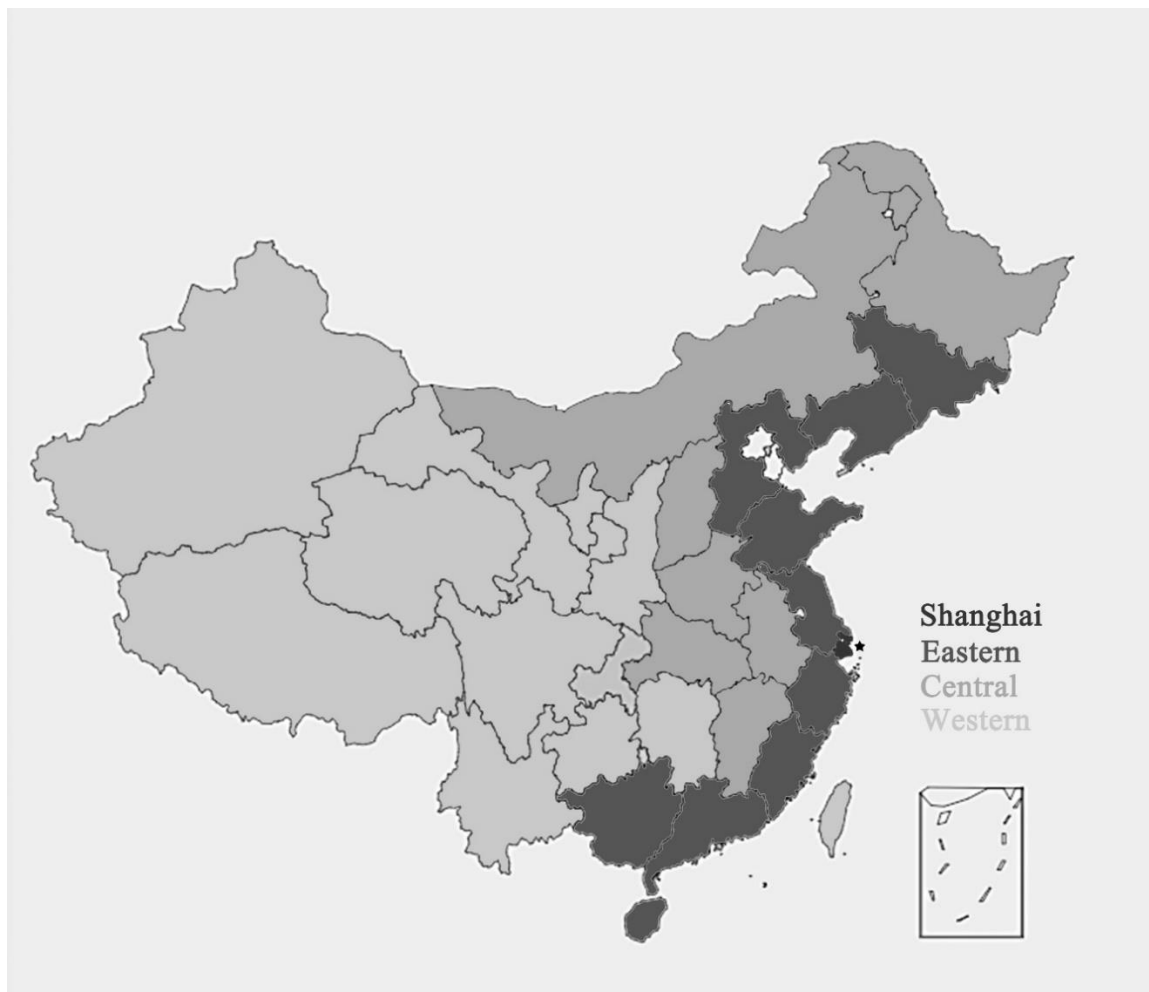
**Table 13**

*Distribution of Student's Provincial Origin*

		Frequency	%	Valid %	Cumulative %
Valid	0 Shanghai	1205	34.4	38.1	38.1
	1 Eastern	845	24.1	26.7	64.8
	2 Central	819	23.4	25.9	90.6
	3 Western	296	8.5	9.4	100.0
	Total	3165	90.4	100.0	

**Figure 11**

*Map of Population Distribution*



Demographic information is also an independent variable. Gender was chosen to investigate differences between male and female Chinese students in academic success. The proportion of gender is balanced in this study, but there is still gender imbalance among those passing CET-4 (see Table 14). Table 14 proves women account for 64.5% among all the passing students, and 75.2% of female students passed the CET-4. The data show female students outperformed male students in English.

**Table 14**

*Gender*

		Frequency	%	Valid %	Cumulative %
Valid	0 Female	1801	51.4	56.9	56.9
	1 Male	1364	38.9	43.1	100.0
	Total	3165	90.4	100.0	

Ethnicity was chosen to investigate the relationship between student success and former academic performance among different ethnic groups. The National Bureau of Statistics of China (2018 Statistical Bulletin on National Economic and Social Development, 2019) reported the 55 statutory ethnic minorities accounted for 8.49% of the total population. The percentage of ethnic minority students is comparatively lower than the average national data (8.49%). There are a series of preferential admission policies to ethnic minority groups, so this lesser ranked private university could recruit small numbers of minority students.

**Table 15***Ethnicity*

		Frequency	%	Valid %	Cumulative %
Valid	0 Minority	128	3.7	4.0	4.0
	1 Han	3037	86.7	96.0	100.0
	Total	3165	90.4	100.0	

Participants' majors at the time of enrollment into the university were recorded in categories to complete descriptive and inferential statistical analyses. Majors were coded according to the *Undergraduate Specialty Catalogue of Higher Institutions* (2012) guidelines from the MoE China: Liberal Arts (0), Fine Arts (1), Economics (2), Management (3), Engineering (4), and Medicine (5). Table 8 shows there were 635 (20.1%) students studying liberal arts, 555 (17.5%) fine arts, 241 (7.6%) Economics, and 992 (31.3%) management. As a newly established major, 35 (1.1%) students studied medicine, which needs to be explored in future studies with the increase of enrolled population.

**Table 16***Major*

		Frequency	%	Valid %	Cumulative %
Valid	0 Liberal Arts	635	18.1	20.1	20.1
	1 Fine Arts	555	15.8	17.5	37.6
	2 Economics	241	6.9	7.6	45.2
	3 Management	992	28.3	31.3	76.6
	4 Engineering	707	20.2	22.3	98.9
	5 Medicine	35	1.0	1.1	100.0
	Total	3165	90.4	100.0	

### ***Continuous Variables***

A descriptive analysis was run in the continuous variables, such as NCEE (*Gaokao*) total score, NCEE (*Gaokao*) English score, and CET-4 top score. Because those who never registered for the CET test could contribute little to this study, scores of 0 were excluded from this analysis. The maximum and minimum values of NCEE Total are 541 and 221, respectively. The mean value of 381.18 and a standard deviation of 71.22 indicated a large deviation from the mean value. The maximum and minimum values of NCEE English are 136 and 23, with an average value of 86.25 and a standard deviation of 17.65. Those results indicated a small deviation from the mean value. For the CET-4 Top Score, this study used information from the 2014 cohort. Among the sample size, scores ranged from 241 to 640, with a mean of 441.59 and a standard deviation of 63.53 and indicated a big deviation from the mean (Urdan, 2016). Skewness and kurtosis, which could result in an underestimate of the variance, were also conducted. However, this risk is reduced because the sample size of this study is larger than the medium-large sample size of 200 (Tabachnick & Fidell, 2013). Details of these descriptive statistics are shown in Table 17.

**Table 17**

#### ***Descriptive Statistics of Continuous Variables***

	<i>N</i> statistic	Minimum statistic	Maximum statistic	Mean statistic	Std. deviation statistic
NCEE Total	3165	221	541	381.18	71.219
NCEE English	3165	23	136	86.25	17.647
Top Score of CET-4	3165	241	640	441.59	63.533
Valid N (listwise)	3165				

## Logistic Regression Results

Direct logistical regression was performed to assess the relationship between several factors and the likelihood test-takers would pass the CET-4. The model contained nine independent variables: NCEE total score, English score, awards, times of test attended, *hukou*, provincial origin, gender, ethnicity, and major. The full model containing all predictors was statistically significant,  $\chi^2(18, N = 3,165) = 1,941.67, p < .001$ , indicating the model was able to distinguish between students who passed and did not pass in the tests. The omnibus tests of model coefficients are shown in Table 18.

**Table 18**

*Omnibus Tests of Model Coefficients*

		Chi-square	<i>df</i>	Sig.
Step 1	Step	1941.669	18	.000
	Block	1941.669	18	.000
	Model	1941.669	18	.000

Tables 19 and 20 show the model explained between 45.9% (Cox and Snell *R* square) and 63.6% (Nagelkerke *R* square) of the variance in the CET-4 performance and correctly classified 84.6% of cases.

Table 21 shows the regression result, and the table lists variables and parameters that were filtered in three models. The three models capture high school performance. Model 1 is considered to be the full model, and Models 2 and 3 include a deconstructed NCEE (Gaokao) variables (including total score and English score) in order to isolate impact within the

variables. I removed NCEE English score from Model 2, and NCEE total score from Model 3. The Sig. column represents the  $P$  value of the corresponding variable in the models, Exp ( $B$ ) and 95% CI for Exp ( $B$ ) represent the odds ratio value of the corresponding variable and its 95% confidence interval. Five independent variables made a unique statistically significant contribution to the model (NCEE English score, times of CET-4 taken, provincial origin, gender, and major).

**Table 19**

*Model Summary*

Step	-2 Log likelihood	Cox & Snell R square	Nagelkerke R square
1	2103.896	.459	.636

*Note.* Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

**Table 20**

*Classification Table*

			Predicted		
			CET-4 Result (Pass)		Percentage
Observed			0	1	correct
Step 1	CET-4 Result (Pass)	0	855	212	80.1
		1	275	1823	86.9
Overall Percentage					84.6
a. The cut value is .500					



**Table 21***Variables in Different Models*

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	Sig.	Odds ratio	<i>B</i>	Sig.	Odds ratio	<i>B</i>	Sig.	Odds ratio
Step 1 <sup>a</sup>									
NCEE Total	.001	.080	1.001	.001	.060	1.001			
NCEE English	.019	.000	1.020				.020	.000	1.020
Awards (1)	.037	.811	1.038	.010	.946	1.010	.041	.789	1.042
CET times		.000			.000			.000	
Times (2)	-2.337	.000	.097	-2.438	.000	.087	-2.356	.000	.095
Times (3)	-3.737	.000	.024	-3.847	.000	.021	-3.746	.000	.024
Times (4)	-4.106	.000	.016	-4.235	.000	.014	-4.123	.000	.016
Times (5)	-4.925	.000	.007	-5.063	.000	.006	-4.940	.000	.007
Hukou(1)	.158	.168	1.172	.144	.208	1.154	.157	.173	1.170
Provincial Origin (Shanghai)									
		.000			.000			.000	
Eastern China	-.818	.000	.441	-.806	.000	.446	-.806	.000	.447
Central China	-1.140	.000	.320	-1.070	.000	.343	-1.093	.000	.335
Western China	-1.784	.000	.168	-1.770	.000	.170	-1.754	.000	.173
Gender(1)	-1.256	.000	.285	-1.312	.000	.269	-1.241	.000	.289
Ethnicity(1)	.296	.249	1.345	.360	.160	1.433	.277	.280	1.319

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	Sig.	Odds ratio	<i>B</i>	Sig.	Odds ratio	<i>B</i>	Sig.	Odds ratio
Major (Liberal Arts)		.000			.000			.000	
Fine Arts	-1.488	.000	.226	-1.574	.000	.207	-1.446	.000	.236
Economics	.095	.709	1.099	.251	.318	1.285	.084	.740	1.088
Management	-.411	.018	.663	-.418	.016	.658	-.436	.012	.647
Engineering	-.211	.268	.810	-.142	.450	.867	-.217	.254	.805
Medicine	-2.173	.000	.114	-2.124	.000	.120	-2.241	.000	.106
Constant	3.016	.000	20.416	4.653	.000	104.854	3.545	.000	34.653

*Note.* Reference categories: Awards, CET times (1), Provincial Origin (Shanghai), Female, and Major (Liberal Arts).

## Results of Research Questions 1–4

Based on the logistical regression analysis, Research Questions 1–4 could be answered, as well as hypotheses under each question. The relationship between a series of factors and the likelihood that learners would pass CET-4 was assessed by performing direct logistical regression. I elaborate on the explanation in the following section.

**Research Question 1:** What is the relationship between high school academic achievement and the likelihood of passing CET-4?

H<sub>0</sub> (1a): There is no relationship between the Gaokao (NCEE) total score and passing CET-4.

Ha (1a): There is a relationship between the Gaokao (NCEE) total score and passing CET-4.

H<sub>0</sub> (1b): There is no relationship between the Gaokao (NCEE) English score and passing CET-4.

Ha (1b): There is a relationship between the Gaokao (NCEE) English score and passing CET-4.

The *B* values of the NCEE total score and of the NCEE English score are 0.001 and 0.02, respectively. Both Model 1 and 2 indicate that NCEE total score is not statistically significant ( $p > .05$ ). But NCEE English score for CET-4 presents a significant positive relationship. With one extra point of the NCEE English score, the odds to pass CET-4 increase by a factor of 1.02 (OR = 1.02), 95% CI [1.012,1.026] in Model 1, when controlling for demographics and other independent variables.

The three models all echoed that the NCEE English score significantly affects whether students could pass CET-4 or not ( $p < .001$ ). The overall test of NCEE variables is the same regardless of the model used.

**Research Question 2:** What is the relationship between social engagement and the likelihood of passing CET-4?

H<sub>0</sub> (2): There is no relationship between awards and passing CET-4.

H<sub>a</sub> (2): There is a relationship between awards and passing CET-4.

The coefficient  $B$  of awards is 0.031 in Model 1, and  $p$  value is greater than 0.05 among all three models, indicating the coefficient is not significant through three models. Results of this study have shown whether the award was won or not in high school does not have a statistically significant association with passing the CET-4 when accounting for the other variables in the models.

**Research Question 3:** What is the relationship between the times of test taken and the likelihood of passing CET-4?

H<sub>0</sub> (3): There is no relationship between the times of test taken and passing CET-4.

H<sub>a</sub> (3): There is a relationship between the times of test taken and passing CET-4.

With those who attended the CET-4 only once as the comparison, the coefficients of times from 2 to 5+ were all significant ( $p < .001$ ) but negatively associated with the first time. When the coefficients of times were compared with the students who only took the test one time, the odds of passing CET-4 in the first is higher than other times when controlling for other variables in three models. Passing odds declined with the increase of times, which indicates first-year students are more likely to pass the test than other groups of students.

**Research Question 4:** What is the relationship between family background and the likelihood of passing CET-4?

H<sub>0</sub> (4a): There is no relationship between registered permanent residence (hukou) and passing CET-4.

Ha (4a): There is a relationship between registered permanent residence (hukou) and passing CET-4.

H<sub>0</sub> (4b): There is no relationship between province of origin and passing CET-4.

Ha (4b): There is a relationship between province of origin and passing CET-4.

The registered permanent residence (hukou)  $B$  is .16 in Models 1 and 3, and the  $p$  value is greater than 0.05 among all three models, indicating the coefficient is not significant. The registered permanent residence (hukou) has no influence on the passing of CET-4 in all three models. Despite the lack of association with hukou status, geography did appear to play a factor in the models. With Shanghai as the comparison, the coefficients of Eastern, Central, and Western regions were all negative and significant ( $p < .001$ ). Compared with Shanghai, the odds of passing CET-4 for Eastern students is reduced by 44.1% (OR = 0.441), 95% CI [0.312, 0.606] in Model 1; Compared with Shanghai, the probability of passing CET-4 in the Central region is reduced by 32% (OR = 0.32), 95% CI [0.236, 0.468], when controlling for the variables in the full model. Compared to Shanghai, the possibility of passing CET-4 in Western region is reduced by 16.8% (OR = 0.168), 95% CI [0.111, 0.269].

For the demographic information, the  $p$  value of gender and major were both less than 0.05, indicating the coefficients were significant. However, ethnicity did not show a statistically significant relationship with the test ( $p > 0.01$ ). Conversely, gender and major had a relationship with the passing rate of CET-4. Specifically, when accounting for other variables in the models, males were 28.5% less likely to pass than females (OR = 0.285), 95% CI [0.230, 0.376]. In terms of majors, liberal arts was used as a comparative group. Except for economics majors, the coefficients  $B$  of fine arts, management, and medicine were negative. The  $p$  values of fine arts, management, and medicine were less than 0.05. Compared

with economics and engineering, there is no significant difference in the pass rate of CET-4.

When comparing fine arts with liberal arts, the odds of passing CET-4 in the former is reduced by 22.6% (OR = 0.226), 95% CI [0.161,0.357] in Model 1. Furthermore, compared with liberal arts, the odds of passing the CET-4 for management majors is 66.3% lower (OR = 0.663), 95% CI [0.462, 0.932] in the full model. Comparing liberal arts with medicine, the odds of passing CET-4 in the latter is 11.4% lower (OR = 0.114), 95% CI [0.047,0.268] in Model 1.

### **Multiple Regression Results**

A standard multiple regression was used to assess the ability of different predictors of the levels of student's top CET-4 score. Nine predictors were simultaneously entered into the model: major, awards, ethnicity, NCEE English score, hukou, NCEE Total score, times of test taken, gender, and provincial origin. As stated in Chapter 3, before the execution of multiple regression, categorical variables (major, times of test taken, and provincial origin) were dummy coded. These comparisons groups were selectively left out. Together, these predictors accounted for 44.3% of the variance in student's best performance in CET-4 (see Table 22). In Table 23, the  $F$  value is 139.24, which is significant ( $p < .001$ ), indicating each coefficient is effective.

**Table 22***Model Summary*

<i>R</i>	<i>R</i> square	Adjusted <i>R</i> square	Std. error of the estimate
.666*	.443	.440	47.534

*Note.* Dependent variable: Top Score of CET-4

\*Predictors: (Constant), Major5, NCEE English, Origin2, Awards, Ethnicity, Times1, Major3, Gender, Times2, Hukou, Major2, NCEE Total, Times3, Origin3, Major1, Origin1, Times4, Major4

**Table 23***ANOVA*

	Sum of squares	df	Mean square	<i>F</i>	Sig.
Regression	5663064	18	314614.7	139.242	.000*
Residual	7108334	3146	2259.483		
Total	12771398	3164			

*Note.* Dependent variable: Top Score of CET-4

\* Predictors: (Constant), Major5, NCEE English, Origin2, Awards, Ethnicity, Times1, Major3, Gender, Times2, Hukou, Major2, NCEE Total, Times3, Origin3, Major1, Origin1, Times4, Major4

According to results shown in Table 24, five variables were significant predictors of CET-4 top score. Gaokao (NCEE) total score ( $\beta = .06, p < .001$ ) and English score ( $\beta = .16, p < .001$ ) both made statistically significant unique contribution to the prediction of the test top score. Times of test taken ( $p < .001$ ), hukou ( $\beta = -.04, p < .05$ ) provincial origin ( $p < .001$ ), and gender ( $\beta = -.22, p < .001$ ) all made significant unique contribution to explaining the dependent variable of top score. Moreover, major could partially affect the top score on the CET-4.

**Table 24***Coefficients*

	Unstandardized coefficients		Standardized coefficients	Sig.
	<i>B</i>	Std. Error	Beta	
(Constant)	415.538	8.2		0.000
NCEE Total	0.053	0.012	0.06	0.000
NCEE English	0.568	0.051	0.158	0.000
Awards	3.121	2.481	0.017	0.208
Times2	-28.546	2.59	-0.171	0.000
Times3	-64.376	3.279	-0.298	0.000
Times4	-55.663	3.219	-0.268	0.000
Times5	-56.519	2.775	-0.347	0.000
Hukou	-5.3	1.889	-0.041	0.005
Eastern China	-14.052	2.468	-0.095	0.000
Central China	-23.542	2.598	-0.157	0.000
Western China	-42.468	3.637	-0.186	0.000
Gender	-27.663	1.909	-0.216	0.000
Ethnicity	7.67	4.468	0.024	0.086
Fine Arts	-7.434	2.908	-0.043	0.011
Economics	13.225	3.718	0.053	0.000
Management	6.488	2.402	0.046	0.007
Engineering	8.255	2.8	0.052	0.003
Medicine	-27.877	8.853	-0.044	0.002

*Note.* Reference categories: CET times (1), Provincial Origin (Shanghai), and Major (Liberal Arts).

### Results of Research Questions 5-8

Based on the linear regression analysis, Research Questions 5–8 and their hypotheses were answered. The contribution of each independent variable on the prediction of learner's top score in CET-4 was evaluated by performing standard multiple regression. I elaborate on the explanation in the following section.



**Research Question 5:** What is the relationship between high school academic achievement and students' top score of CET-4?

H<sub>0</sub> (5a): There is no relationship between Gaokao (NCEE) total score and students' top score on CET-4.

Ha (5a): There is a relationship between the Gaokao (NCEE) total score and students' top score of CET-4.

H<sub>0</sub> (5b): There is no relationship between the Gaokao (NCEE) English score and students' top score of CET-4.

Ha (5b): There is a relationship between the Gaokao (NCEE) English score and students' top score of CET-4.

According to Table 24, in NCEE total indicator, the coefficient  $\beta$  is 0.06 ( $p < .001$ ). Similarly, the coefficient  $\beta$  of NCEE English is 0.16 ( $p < .001$ ). If NCEE total score could be increased by one standard deviation (which is 71.22, see Table 17), the highest CET score would be likely rise by .06 standard deviation units ( $SD = 63.53$ , see Table 17). Similarly, the highest CET-4 score could increase by .16 standard deviation units with the one standard deviation increase of NCEE English score ( $SD = 17.65$ , see Table 17). Unlike the results of Research Question 1, these two variables made a unique and statistically significant contribution to the prediction of the highest score students could achieve in the CET-4. Compared with NCEE English score, NCEE Total score made less of a unique contribution to explaining the dependent variable of top score.

**Research Question 6:** What is the relationship between social engagement and students' top score of CET-4?

H<sub>0</sub> (6): There is no relationship between awards and students' top score of CET-4.

Ha (6): There is a relationship between awards and students' top score of CET-4.

The coefficients  $\beta$  of awards are not statistically significant. This result is consistent with Research Question 2. The  $p$  value is 0.21, greater than 0.05, which indicates whether students earned awards could not significantly affect the highest score of CET-4 in the model when all other variables were controlled for during data analysis.

**Research Question 7:** What is the relationship between the times of test taken and students' top score of CET-4?

$H_0$  (7): There is no relationship between the times of test taken and students' top score of CET-4.

$H_a$  (7): There is a relationship between the times of test taken and student's top score of CET-4.

After the dummy coding, the number of attempts in the variable CET Times was treated as the reference level. A certain number of students took the test once, hit the passing score, and stopped there. Compared with the one attempt, the other four new variables could negatively significantly influence the top score. An increase in the number of attempts would not reach a higher score than those who had only attempted the CET-4 one time. When controlling for other factors, the data results showed that, when compared to a single attempt, students could not improve their performance on the CET-4.

**Research Question 8:** What is the relationship between family background and students' top score of CET-4?

$H_0$  (8a): There is no relationship between registered permanent residence (hukou) and students' top score of CET-4.

$H_a$  (8a): There is a relationship between registered permanent residence (hukou) and students' top score of CET-4.

$H_0$  (8b): There is no relationship between province of origin and students' top score of CET-4.

Ha (8b): There is a relationship between province of origin and students' top score of CET-4.

The variable of hukou is significant ( $p = .005$ ), which indicates there are differences between urban and rural students regarding the top score of the CET-4. Differences in the previous logistic model in answering Research Question 4, the coefficient ( $\beta = -.04$ ) indicates urban students could attain higher scores than those from rural areas in the CET-4 top score when controlling other variables. Shanghai was the reference level in dummy coding of the variable provincial origin. Regionally, the significance of the three regions (Eastern, Western, and Central Area) was negatively significant as compared to Shanghai ( $p < .001$ ). The largest gap was in Western China ( $\beta = -.19$ ), while the smallest gap was in Eastern China ( $\beta = -.09$ ).

For the demographic section, the gender coefficient ( $\beta$ ) is  $-.22$  ( $p < .001$ ), indicating gender has a significant influence on the highest score of CET-4. Specifically, the highest score among male students was lower than those of female students. However, the ethnicity variable did not show a significant relationship in this study ( $p = .086$ ). Compared with Liberal Arts majors, the coefficients for Majors 1 to 5 are statistically significant at the .05 alpha level. But, the top scores of fine arts and medicine majors are less than those of the liberal arts students, while economics, management, and engineering students achieved higher scores in CET-4. As the statistics show, these results do not absolutely align with the logistic regression.

### **Chapter Summary**

Using large sample sizes for all hypotheses, the logistical regression and multiple regression analyses returned statistically significant results for Hypotheses 1, 3, 5, and 7.

Hypotheses 4 and 8 returned statistically significant results for the provincial origin factor.

However, the count of awards was not statistically significant. Additionally, gender played an important part in CET-4. Female Shanghai students performed well on the English subject test in Gaokao (NCEE) and earned the highest score in their first year. An interpretation of these findings and the discussion of the limitations of this dissertation and future considerations are discussed in Chapter 5.

## **CHAPTER 5: DISCUSSION**

This quantitative study was used to investigate university students' English learning outcomes in relation to cultural capital and academic characteristics within the context of a private university in Shanghai, China. The study was guided by a social perspective and used Bourdieu's capital theory and Tinto's student integration model to explore contributing factors to EFL learning achievement. This chapter is comprised of four major sections: (a) a review of results found from the hypotheses outlined in Chapters 3 and 4; (b) implications for policy and practice; (c) the strengths and limitations of this dissertation; and (d) suggestions for future research.

### **Research Questions and Hypotheses**

This study was guided by eight research questions. The first four questions explored the relationship between students' academic characteristics and the likelihood of passing CET-4. The last four questions focused on the association between student's academic characteristics and the top scores students could achieve.

#### **Research Question 1**

Is there a relationship between high school academic achievement and the likelihood of passing CET-4?

$H_0$  (1a): There is no relationship between the Gaokao (NCEE) total score and passing CET-4.

$H_a$  (1a): There is a relationship between the Gaokao (NCEE) total score and passing CET-4.

$H_0$  (1b): There is no relationship between the Gaokao (NCEE) English score and passing CET-4.

$H_a$  (1b): There is a relationship between the Gaokao (NCEE) English score and passing CET-4.

The results supported  $H_0$  (1a) and  $H_a$  (1b). The Gaokao (NCEE) English score could predict the odds of passing CET-4, which is consistent with Bai and Chi's (2011) argument a foreign language test score is a strong predictor of college academic performance. However, the Gaokao (NCEE) total score did not show a statistically significant association with the CET-4 result. These results are not consistent with previous scholars whose empirical studies showed the SAT total is a predictor of future academic performance (Gaertner & McClarty, 2015; Robbins et al., 2004). The NCEE English score significantly affects whether students could pass the CET-4 ( $p < .001$ ).

## **Research Question 2**

Is there a relationship between social engagement and the likelihood of passing CET-4?

$H_0$  (2): There is no relationship between awards and passing CET-4.

$H_a$  (2): There is a relationship between awards and passing CET-4.

The results of this study have supported  $H_0$  (2). Whether the award was won in high school has no influence on the passing of the CET-4. Although a preferential policy of awards could help students in college admissions in China (Y. Han, 2019), the national standardized test still requires students to study the subject. The MoE in China is also tightening up this policy that awards bonus points in the NCEE to students with exceptional ability in the sciences and sports, amid worries about abuse of the system (Y. Han, 2019). Social engagement could offer students the opportunity to connect to and know more about society. Although social engagement has a moderate effect on students' college GPA (Lotkowski et al., 2004), it could not predict CET-4 results in this study.

### **Research Question 3**

Is there a relationship between the times of test taken and the likelihood of passing CET-4?

H<sub>0</sub> (3): There is no relationship between the times of test taken and passing CET-4.

H<sub>a</sub> (3): There is a relationship between the times of test taken and passing CET-4.

The results partially supported H<sub>a</sub> (3). As Tinto (1975) stated, students' persistence level may lead to a decline in academic engagement. In this study, increased attempts in taking the CET-4 could not ensure satisfactory results. In comparison, because first-year students experienced severe competition in the Gaokao (NCEE), they adapted to the national language examination. Thus, the odds of passing are higher than other grades. What is more, graduating students were busy writing theses, participating in internships, and searching for jobs.

### **Research Question 4**

Is there is a relationship between family background and the likelihood of passing CET-4?

H<sub>0</sub> (4a): There is no relationship between registered permanent residence (hukou) and passing CET-4.

H<sub>a</sub> (4a): There is a relationship between registered permanent residence (hukou) and passing CET-4.

H<sub>0</sub> (4b): There is no relationship between province of origin and passing CET-4.

H<sub>a</sub> (4b): There is a relationship between province of origin and passing CET-4.

Supporting H<sub>0</sub> (4a) and H<sub>a</sub> (4b), these results suggest regional differences play an important role in predicting students' success in English learning, while hukou is not statistically significant. Although hukou was regarded as a critical indicator for students' academic performance (Fang & Huang, 2019), it is not surprising in the context of a private university in Shanghai. As mentioned, the tuition fee in private sectors is 4 or 5 times the cost of public

sectors. What is more, with the hukou reform in the past 3 decades, the gap between urban and rural families has been greatly closed (Chu, 2015). As a result, the hukou could not distinguish family background. However, students from different regions could receive different qualities of education, which is consistent with Wang's (2018) claim different provincial origins could lead to educational inequality. For example, students learn English as early as kindergarten in Shanghai, but in some Western areas, students do not learn English until middle school.

Gender and major had a relationship with the passing rate of the CET-4. Specifically, female students exceeded male students on the CET-4 results because women are more motivated to learn English well (Green & Oxford, 1995). In terms of majors, the odds of passing the CET-4 for fine arts, management, and medicine majors are lower than liberal arts majors. It is natural economics majors performed best on the CET-4 because this is the most popular major in J University, and admission requirements are higher than other majors. As a newly established major, medicine majors accounted for a small proportion (1.11%,  $n = 35$ ), so it requires further exploration in future research. Contrary to other studies (Hao, 2009; Li, 2010; M. Liu, 2010; Wu & Talifu, 2004), ethnicity did not show a statistically significant relationship with the CET-4 in this study, which needs future exploration of the reasoning.

### **Research Question 5**

Is there a relationship between high school academic achievement and students' top score of CET-4?

$H_0$  (5a): There is no relationship between Gaokao (NCEE) total score and students' top score on CET-4.



Ha (5a): There is a relationship between the Gaokao (NCEE) total score and students' top score of CET-4.

H<sub>0</sub> (5b): There is no relationship between the Gaokao (NCEE) English score and students' top score of CET-4.

Ha (5b): There is a relationship between the Gaokao (NCEE) English score and students' top score of CET-4.

Supporting H<sub>a</sub> (5a) and H<sub>a</sub> (5b), both the NCEE Total and English scores made a unique and statistically significant contribution to the prediction of the highest score students could achieve on the CET-4. Compared with NCEE English score, NCEE Total score made less of a unique contribution to explaining the dependent variable of top scores. It is logical students who studied hard and achieved good results in high school would have a higher success rate in college (Astin, 1984; Tinto, 1993).

### **Research Question 6**

Is there a relationship between social engagement and students' top score of CET-4?

H<sub>0</sub> (6): There is no relationship between awards and students' top score of CET-4.

Ha (6): There is a relationship between awards and students' top score of CET-4.

The results supported H<sub>0</sub> (6). Similar to Research Question 2, awards could not predict the highest score students can get on the CET-4. I did not further categorize the awards according to various levels because this was outside the scope of this research. This is a limitation of the study. The extant data were limited by the institutional records. Future research with constructed surveys could help to understand this phenomenon.

### **Research Question 7**

Is there a relationship between the times of test taken and students' top score of CET-4?

H<sub>0</sub> (7): There is no relationship between the times of test taken and students' top score of CET-4.

Ha (7): There is a relationship between the times of test taken and student's top score of CET-4.

The results partially supported H<sub>a</sub> (7). A certain number of students took the test once, earned a passing score of 425, and never attempted to retake the test. Compared with those students who only tried the CET-4 once, the results of this study showed more attempts to take the test would not allow students to earn a higher score. These results echo Bai and Chi's (2011) suggestion that more attempts in the NCEE would not lead to an increase in the NCEE scores. If learners hold strong faith and persist to the goal, the motivation for success is higher than usual (Tinto, 1993). First-year students who passed the CET-4 can drop the English class in the second year, encouraging students to focus on the language test. Therefore, with the fresh memory of NCEE, first-year students tend to achieve higher scores than students in other grades. Besides, the strongest people who passed the CET-4 in one go would not take it again.

### **Research Question 8**

Is there is a relationship between family background and students' top score of CET-4?

H<sub>0</sub> (8a): There is no relationship between registered permanent residence (hukou) and students' top score of CET-4.

Ha (8a): There is a relationship between registered permanent residence (hukou) and students' top score of CET-4.

H<sub>0</sub> (8b): There is no relationship between province of origin and students' top score of CET-4.

Ha (8b): There is a relationship between province of origin and students' top score of CET-4.

Supporting H<sub>a</sub> (8a) and H<sub>a</sub> (8b), the study results proved hukou and provincial origin are both statistically significant in explaining the highest scores students achieved. It is logical family

had the most significant effect on students' academic achievement (Li, 2010). Due to the rich social and cultural capitals (Bourdieu, 1986), urban students could attain higher scores on the CET-4 than students from rural areas. When compared with Shanghai students, the largest gap in achievement was in Western learners, while the smallest gap was in Eastern learners. These gaps reflect the regional economic differences, which also validated Bourdieu's (1986) capital theory.

The highest score of males was lower than those of females, which aligns with other scholars' data (Astin & Astin, 1992; Wu & Talifu, 2004). However, the variables of ethnicity did not show a significant relationship in this study ( $p = .086$ ), which might be attributed to the small size of this group ( $n = 128$ , 4.04%). The national document (2018 Statistical Bulletin on National Economic and Social Development, 2019) reported the 55 statutory ethnic minorities account for 8.49% of the total population. So, the proportion of the minority group in this study is comparatively lower, which calls for more attention in a future study. Pertaining to majors, top scores of fine arts and medicine majors are lower than for liberal arts students, while economics, management, and engineering students achieved higher score in CET-4.

### **Summary of Results**

The purpose of this dissertation was to unpack the attributes of various levels of language learners under the social dimension, thus providing Chinese audiences with a new perspective for understanding academic success in the English language. The findings of this

dissertation research offer support for changes in policy and practice through identification of the predictive factors in the national languages assessment, the CET-4.

The major contribution of the present study is to understand factors beyond the social and academic characteristics contributing to English language learning outcomes among a particular subject: the 2014 cohort throughout the 4 years of college life. This study shows factors associated with English learning are the NCEE English score, the number of tests taken by students, provincial origin, gender, and major. These indicators affect the odds of students' passing the CET-4, as well as the highest scores they could receive. As discussed in Chapter 2, among these statistically significant predictors, the NCEE English score and the number of tests taken by students are both underpinned by student's motivation, while provincial origin is supported by social capital. Meanwhile, with the rapid economic and cultural development in the society, the gap between urban and rural wealth is narrowing. Along with it, the social influence of *hukou* has been gradually weakening, which is also reflected in the results of this study.

Tinto (1975) pointed out students who were more likely to struggle and did not persist were those who did not attempt or achieve social and academic integration. However, it is surprising to see that awards, hukou, and ethnicity could not significantly contribute to college learners' academic achievement in English learning. Within the Chinese context, awards and hukou also reflect student's social capital, which contradicted Bourdieu's (1986) argument of the importance of capital in every field.

More importantly, educators should emphasize the importance of the first attempt on this test rather than encouraging students to retake the test repeatedly. If students could spare no effort to pass the CET-4 and CET-6 in the first two years of their college life, they could find more time and energy in the third and four years, when professional courses are set during this period. In this way, students could be more focused and develop better expertise without being distracted by English courses, which could also help to reduce the heat of “credential craze” I discussed in Chapter 1.

Just like the strong predictive power of SAT total to student’s future academic performance (Gaertner & McClarty, 2015; Robbins et al., 2004), the NCEE total score could also predict the top scores students could gain on the CET-4. As this J University is located in Shanghai, over one third (38.4%) of students are from this city. Compared with Shanghai students, teachers should focus on the needs of students from Western areas, followed by Central and Eastern China students.

### **Implications for Policy and Practice**

The results of this study could be applied into practice to offer specific suggestions from the perspectives of parents, educators, and decision makers in private sectors to encourage students to achieve academic success. By further unraveling the essential quality underlying the social dimensions of language assessments, schools could explore implications from successful English learners and enhance teaching quality for Chinese EFL researchers and practitioners. The possible academic characteristics could be applied in the process of students’ admission to improve the ranks of private universities and colleges,

which would allow society to have a better understanding of students with learning difficulties.

For college English learners' parents and educators, the study highlights the necessity of understanding family contribution as a crucial facilitator of students' English language learning, particularly at the beginning of the college experience. High school English learning outcomes affect sources generating cultural capital for English as well as academic learning. For example, parents and educators could understand individual differences according to academic characteristics, foster strengths, and bypass disadvantages of the situation; students could perform better with external support.

For language teachers and educators in private institutions, the results of this study suggest when instructing students who have received inadequate cultural input, it is of paramount importance to raise awareness and provide resources for Western rural male students. These findings could fill the gap in cultural investment by allocating adequate English resources in different provinces. The present study's findings suggest the first-year learning experience is vital to achieving desirable English proficiency on the language test. Meanwhile, awards are not as critical in English learning. Considering recently exposed college admission cheating scandals in the U.S. and China, English practitioners should focus more on language competence rather than external social engagement. These examples also illustrate the strength of the testing system that does not allow for loopholes.

The study also called for equal—if not more—attention to be given to students in a cultural capital that lacks diversity. Educators should also bear in mind that school is a venue

where the cultural capital students acquire in communities is valued and appreciated. It is a wrong practice to favor a certain kind of cultural capital over others (Bao, 1997). For example, teachers might appear to prefer a particular local accent over other accents or give obvious favor to a student's decision to major in social science. In contrast, when considering engineering majors, teachers might have a prejudice that those students will have weaker language capacity.

For private education decision makers, the findings of the present study suggest an urgent need to understand the real demand of students with poor performance on the CET-4. Those are potential sources of the absence of persistence and positive pressure. With the fast development and maturation of private sectors in higher education in China, the study combined with the contextualization of private colleges can deal with concrete issues relating to the student's performance, enhance teaching quality, and cultivate applied talent.

### **Leadership Implications**

Leaders in higher education administration have heard and learned numerous educational cases and theories. Pink (2011) alleged intrinsic motivation is linked to various positive outcomes such as work engagement, task identification, positive affect, and productivity in a context in which traditional, top-down incentive systems have seemingly reached their limits. Conversely, extrinsic rewards also tend to undermine relationships (Liu et al., 2015), produce temporary compliance, discourage risk-taking and creativity, and fail to induce lasting change because they do not create an enduring commitment to any value or action (Pink, 2011).

Experiential engagement initiatives, by definition, are communal (bring people together in a physical or virtual space), which can make people feel as if they are part of something larger than themselves and create a sense of purpose and desire to contribute (Pink, 2011). Educators and decision makers have the opportunity to find ways to guide learners for the purpose of achieving intrinsic motivation. Hence, if educators could discern students who are at risk in learning, they could take targeted actions to support these students fully. But a single model of univocal and patriarchal leadership behaviors and the ever-continuing drive to create leaders in private institutions perpetuates a model and is exclusionary and privileged (Ford, 2007). Finally, this single model will lead to a homogeneous and almost superhuman model of leaders and leadership. Leadership is interrelated with the culture in which the leader operates (Hui et al., 2007), and private institutions cultures are characterized by demographic and cultural diversity (Morgan, 2006).

Hence, universities should attempt different approaches that seek to redress the relative failure to engage with the authentic process of doing leadership as an original and natural accomplishment and which aim to show how “leadership is brought off in some here-and-now moment of localized interaction” (Fairhurst, 2008, p. 517). Considering the vulnerable state of private institutions in China, it is necessary to improve the support directed towards students who are less successful in this context.

The change of teacher’s leadership may guide the pedagogy, which could finally motivate learners to perform better in learning and bring academic success for students. There are several ways to help enhance teacher leadership (Frost & Durrant, 2003) for every faculty



member. Faculty are expected to strike a responsive chord and make bold attempts to articulate and amplify their voices during decision-making processes. Blase and Anderson (1995) revealed power within an organization was usually exhibited in a subtle and covert way. Most organizational members have internalized the norm without interfering in decision-making power; otherwise, they will be blamed and run the hazard of being labeled uncooperative. It is without doubt Chinese people are also keenly aware of this prescription. However, the essence of leadership development is to pilot new things and to test them out. For example, university presidents facilitating distributed leadership and adherence to “no blame” innovation is a necessity for faculty members. If things go wrong, it will be important for leaders to remind faculty members that making mistakes is acceptable and, in fact, is an essential part of learning. At the same time, this kind of atmosphere will encourage faculty to actively participate in decision-making process. In this way, they tend to accept and implement various teaching methods in which they have engaged, especially those decisions related to the student’s academic characteristics. As stakeholders in the educational context, their voices are pivotal in propelling the development of educational practice. This development happens throughout school multilevels. Development is not limited to administration but also includes the teaching process.

In addition to the continuous development of professional expertise, trainings targeting leadership roles are also supposed to be placed on the agenda. According to Bush (2008), the National College for School Leadership program in the United Kingdom devoted to providing trainings for school leadership at all levels encompasses programs for leaders at

all career stages. In contrast, in China, there has been a general trend in furnishing professional training courses in teaching. If there are any leadership programs, they are mainly designed for senior leaders of organizations. However, it is still essential for faculty members to be furnished with skills on entry into leadership roles. Experienced leaders not only provide support, role model and feedback, but also evoke reflection on the leadership experiences. It helps teachers to recognize students' potential and develop their leadership skills. More effective and practical preparation will lead to more leadership and administrative experience earlier in one's career (Frost & Durrant, 2003).

Last, as Katzenmeyer and Moller (2001) noted, the development of leadership was under the influence of organizational structure, actions of leaders, and relationships between team members. The impacts of these three factors are underpinned by a collaborative culture. Therefore, how to create a collaborative culture has become the crux of the issue. For sure, trust is an indispensable element in nurturing collaboration. Constant interaction, rather than a more distant style of leadership, is likely to develop trust. Building trusting relationships is a requirement of effective leadership (Ancona et al., 2007). For example, leaders can regularly organize collaborative work for the exchange of ideas between faculty members. On the occasion of meetings, leaders acknowledge the positive outcomes of collaboration, which will enhance their fulfillment in teaching. Moreover, leaders may afford positive feedbacks to prompt their enthusiasm and inclination to share work with other teachers. These positive outcomes will ultimately change the way they teach and stimulate students' motivation to achieve success within the context of a private university.

### **Strengths and Limitations**

This study was held in one university in China, so the participants were limited in the same setting. As a result, certain biases were unavoidable. Because this study used existing data, it was outside the scope of the design to collect data pertaining to students' parental information, such as educational level, career, and income. Therefore, all available information was beholden to the institutional construction of records. Moreover, one limitation of this study lies in the lack of existing instruments relevant to this area of research.

Despite these issues, there are also some positive outcomes. This study is one of the few social-dimension studies in the language testing field, and the study has employed extant data. There are several strengths of this study. First, I used a large sample size; over 3,000 cases were included in this study. Second, as discussed in Chapter 2, little research exists in the context of private educational institutions in China. It is also difficult to find empirical studies about Chinese college students' persistence as it relates to the language test. Although Bourdieu (1986) has been widely applied in Chinese academia, most researchers mainly focused on students' parental information or learning outcomes in other subjects. Research that combines the context of family, school, and studies in EFL still needs further exploration. This research helps to fill these gaps. Finally, this study also provides leadership directions and solutions for educators, decision makers, and other stakeholders.

### **Future Research Directions**

More research about standardized assessments is needed. Understanding language tests and their effects require understanding other factors and their forces in the bigger social

context. With more empirical studies, analyses in predictive factors can find proper adaptation and contribute to the improvement of EFL in China. Future research is expected to explore language testing issues in a more comprehensive framework. It is necessary to study those who never took part in the CET; students who did not take the CET were not included in the present research. Studies could also be expanded to more private institutions across the country or even a comparative study between public and private sectors.

In China, English education has assumed a dominant role in language policy and planning by the Chinese government since 1979 (C. Feng, 2020). The relationship between English education policy and students' background can be characterized as interaction. For example, the high-income expectancy reflects the social needs of English and explains why English stays a prominent role in language policy. Also, as shown in Table A4, there is a gender disparity of success and failure in the CET-4, which could be further explored. Additionally, the effectiveness of English education can be evaluated through the way of socioeconomic status. Despite the recent push to stop using English as an assessment, Chinese universities still emphasize English as a key measurement in the higher education rankings, which act as a credential for world-class status (Allen, 2019).

The CET in China has inextricable ties to many aspects of society. The test itself is a gestalt, with many procedures such as assessed-domain analysis, domain modeling, assessment operation, performance rating, and result reporting. On the other hand, the CET is a part of tertiary education, which belongs to a larger social context. Therefore, a larger scale of study not limited to one private institution with more comprehensive and diversified data is

required in the future. For more generally applicable findings, longitudinal research with a represented national sample is a more desirable practice. Although the findings may not generally be applicable to the entire country, it should have transferability to an increasing number of universities under the government-funded teacher education policy in China.

### **Conclusion**

This study has provided a tentative analysis of fostering students' English learning in a Chinese private educational context. Possible solutions are proposed based on an understanding of the academic characteristics of Chinese learners. Leaders are supposed to create a facilitative and collaborative culture, and followers, in turn, attempt to articulate a mutual learning atmosphere within the organization. However, when these solutions and plans are applied to reality, it is not an easy process. From this perspective, this goal demands the deliberate actions of teachers to create an environment that is supportive of learning. Meanwhile, continuous devotion and passion from followers are also crucial to the development of this topic.

After the tireless internationalization effort, the Chinese society is experiencing the move to look inward after 30 years of outward push. Under this phenomenon of state involution, excellence in the English subject is becoming particularly important. A satisfactory performance in English could provide people more opportunities and inspire potential to succeed. Therefore, it is worthwhile to investigate what might bring vigor and vitality to the EFL in China.

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## **APPENDIX**

**Table A1***Dummy Coding of CET Times*

CET Times	New variables			
	Times1	Times2	Times3	Times4
1	0	0	0	0
2	1	0	0	0
3	0	1	0	0
4	0	0	1	0
5	0	0	0	1

**Table A2***Dummy Coding of Provincial Origin*

Provincial Origin	New variables		
	Origin1	Origin2	Origin3
0 (Shanghai)	0	0	0
1 (Eastern China)	1	0	0
2 (Central China)	0	1	0
3 (Western China)	0	0	1

**Table A3***Dummy Coding of Major*

Major	New variables				
	Major1	Major2	Major3	Major4	Major5
0 (Liberal Arts)	0	0	0	0	0
1 (Fine Arts)	1	0	0	0	0
2 (Economics)	0	1	0	0	0
3 (Management)	0	0	1	0	0
4 (Engineering)	0	0	0	1	0
5 (Medicine)	0	0	0	0	1

**Table A4***Test Result of CET-4 by Gender Crosstabulation*

			Gender		Total
			Female	Male	
Test Result	fail	Count	447	620	1067
		% within Test Result	41.9%	58.1%	100.0%
		% within Gender	24.8%	45.5%	33.7%
	pass	Count	1354	744	2098
		% within Test Result	64.5%	35.5%	100.0%
		% within Gender	75.2%	54.5%	66.3%
Total		Count	1801	1364	3165
		% within Test Result	56.9%	43.1%	100.0%
		% within Gender	100.0%	100.0%	100.0%