

**DETERMINANTS OF CHINESE STUDENTS' ACADEMIC
SUCCESS IN KOREAN UNIVERSITIES**

by

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Abstract

The present study investigated the key determinants of Chinese students' academic success in terms of GPA and the number of credit hours earned. The determinants investigated included gender, age, prior academic performance, academic self-efficacy, the TOPIK score, self-perceived Korean and English proficiency, and the previous length of Korean and English study. This study specifically focused on three research questions concerning the prediction of Chinese students' academic success in Korean universities, the additional contribution of Korean and English language proficiency, and the examination of prediction patterns for undergraduate and graduate students.

A questionnaire was issued and collected from 138 undergraduate and 63 graduate Chinese students studying in 27 different Korean universities. The questionnaire consisted of four sections: demographic information, academic background, language proficiency and psychological factors. Correlation and multiple regression analyses were conducted to address the proposed research questions.

The findings demonstrated that traditional factors, including gender and prior academic performance, were effective predictors of academic success. However, academic self-efficacy did not play an influential role in participants' academic success. Language proficiency had a moderate effect on Chinese students' academic success, which is consistent with previous studies that reported a positive statistically significant relationship between language proficiency and academic success. In this study's context, Korean proficiency contributed to undergraduate GPA and graduate credit hours whereas both Korean and English proficiency contributed to graduate GPA. The different natures

of undergraduate and graduate studies determined that the predictors of undergraduate and graduate students' academic success were different.

The determinants of international students' academic success are complex and not yet completely understood, and language proficiency is only one of the factors contributing to international students' academic success. The present study addressed the research gap by integrating theoretical constructs from both psychology and language education, and also by exploring the relationships between language proficiency and academic success in a less researched test, TOPIK, and in two second languages, Korean and English, at the same time. The findings contribute to the overall understanding of international students' academic success, in particular the success of Chinese students studying in Korean universities.

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Chapter 1

Introduction

Chinese students' enrollment in South Korean universities has been increasing rapidly after China and South Korea established formal diplomatic relations in 1992. The increasing economic exchanges between China and South Korea have led to the increasing significance of Korean language studies in China (Gao, 2010). Cha and Chang (2009) summarized three main reasons why Chinese students pursue their post-secondary education in Korea. First, the development of Korea's economy and the relatively lower expenses for incoming international students attract self-supporting, middle-class Chinese students. Second, the rise in popularity of Korean popular culture, called *Hanryu*, has created a positive attitude towards South Korea in China. In addition, the Korean government launched the "Study Korea" project with the goal of attracting 50,000 foreign students by 2010, attempting to promote Korean universities in order to become one of the Asian educational hubs.

Currently, there are more than 80,000 Chinese students studying in South Korean universities (Shin, 2011). When applying to universities in Korea, international students need to prove their Korean language proficiency since they will be using Korean as the medium of instruction once admitted. In order to gain admission, they are required to submit their scores on the Test of Proficiency in Korean (TOPIK). The TOPIK is a test of Korean language proficiency and consists of three levels: TOPIK Elementary, TOPIK Intermediate, and TOPIK Advanced. As of April 1, 2010, there were 411 universities in

South Korea, among which 179 were four-year universities (Gukrip Gukje Gyoyukwon, 2013), that accepted Chinese students. The increasing number of Chinese students taking TOPIK and choosing to study in Korea indicates a necessity for a study on this group of students to understand what contributes to their academic success.

Research Questions

This study investigated the key determinants of Chinese students' academic success in terms of GPA and the number of credit hours earned in Korean universities. The determinants investigated included gender, age, prior academic performance, academic self-efficacy, effort regulation, and especially Korean and English language proficiency including the TOPIK scores, self-perceived language proficiency, and the length of previous language study. Specifically, the following research questions were addressed:

1. What are the predictors of Chinese students' academic success in Korean universities in terms of GPA and the number of credit hours earned?
2. What do Korean and English language proficiencies add to the contribution of traditional and psychological predictors of academic success?
3. Are the prediction models similar for undergraduate and graduate students?

Rationale

The determinants of academic success in higher education have been researched in education and psychology for decades (Robbins et al., 2004). McKenzie and Schweitzer (2001) grouped these determinants into academic, demographic, psychosocial, and cognitive predictors of academic success, with academic and demographic predictors considered as more traditional factors (Robbins et al., 2004). Prior academic performance is a key academic predictor of students' future academic success. For example, a combination of high school grade point average (GPA) and standardized achievement test scores account for approximately 25% of the variance when predicting first-year college GPA (Robbins et al., 2004). Of importance, the relationships amongst demographic predictors such as gender and age with academic success appear to be inconsistent in different empirical studies (Li, Chen, & Duanmu, 2010). Lastly, psychosocial factors such as satisfaction with university, financial situation, career orientation, and social support affect academic performance, and research on cognitive predictors of academic success falls mainly into studies of self-efficacy and attributional style (McKenzie and Schweitzer, 2001).

Robbins et al. (2004) pointed out there is little integration of the research on university students' academic success in both education and psychology. They brought educational and psychological literature together, and used a meta-analysis to increase the understanding of university students' academic success. In their study, the best predictors for GPA were academic self-efficacy and achievement motivation. These psychological

factors added more accuracy in predicting university students' academic success above the traditional predictors of academic achievement and demographics. The integration of these factors will likely improve our overall understanding of university students' academic success, and thus the present study has integrated both traditional and psychological factors to explore the academic success of Chinese students studying in Korean universities. A more recent meta-analysis by Richardson, Abraham, and Bond (2012) showed that traditional factors, including prior achievement and standardized tests, as well as psychological factors such as academic self-efficacy and effort regulation played a key role in university students' academic success.

Research on international students' academic success has focused on the relationships between language proficiency and academic success. There have been an increasing number of international students travelling to English speaking countries such as the United States, Canada, the United Kingdom, Australia, and New Zealand for higher education (Li et al, 2010). International students whose native language is not English, but who wish to study in the English-speaking countries mentioned above, are required to demonstrate their English proficiency by providing sufficiently high scores on either the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) for admission into post-secondary institutions. It is essential that such applicants have a sufficient level of English language proficiency since academic lectures, assignments, and communications are all conducted in English. In fact, a specified minimum score on English proficiency tests has become the threshold for the

admission process. It is evident that the setting of such cut-off scores rests upon the widely accepted assumption that a certain level of language proficiency is necessary for academic success (Cotton & Conrow, 1998; Kerstjens & Nery, 2000). Therefore, the relationship between language proficiency and academic success, in addition to the traditional and psychological predictors, has been a heated topic of discussion in language testing for international students.

Graham (1987) reviewed 19 early predictive validity studies and attempted to analyze the relationship between various English proficiency test scores (mostly TOEFL) and academic success. She grouped them according to the conclusions drawn by the researchers. A number of them indicated little relationship between English language proficiency and academic success (e.g. Gue & Holdaway, 1973; Hwang & Dizney, 1970; Mulligan, 1966; Sharon, 1972; Shay, 1975; Sugimoto, 1966; Wilcox, 1975, as cited in Graham, 1987), while approximately the same number of researchers concluded that English language proficiency was a useful predictor of academic success (e.g. Ayers & Peters, 1977; Baldauf & Dawson, 1980; Burgess & Greis, 1970; Freidenberg & Curry, 1981; Heiland & Aleamoni, 1974; Ho & Spinks, 1985; Odunze, 1982, as cited in Graham, 1987). A number of other research studies yielded inconclusive results and mixed conclusions (Bostic, 1981; Light, Xu, & Mossop, 1987; Mestre, 1981; Slark & Bateman, 1982; Stover, 1982, as cited in Graham, 1987). For example, Light et al. (1987) discovered that although the correlation between TOEFL score and GPA was significant for humanities, fine arts, and social science students ($r = .24, p < .001$), it was not

significant for science, math and business students ($r = .04$, n.s.). The findings of these studies suggested that the relationship between language proficiency and academic success is complicated.

A number of predictive validity studies on the TOEFL and IELTS have been conducted over the years, hoping to explore the relationship between language proficiency and academic success of international students and lend support to the identification of appropriate admission cut-off scores on the TOEFL and IELTS. However, cut-off scores have been arbitrarily set by graduate schools and admission committees (Messner & Liu, 1995). There is insufficient or limited rationale behind cut-off score decisions. According to Messner & Liu (1995), TOEFL cut-off scores become an easy and fast way to reduce the number of international applicants and hence ease the burden on admission committees. For example, as more and more international students seek educational opportunities in North America, the cut-off score for the TOEFL has been raised from 500 to 550, 580, and even 600 for the paper-based test. A university with a 550 cut-off score considers the top 35% students as eligible applicants, whereas one with 600 cut-off score considers only the top 11% of students' applications (Simner, 1999).

As a language proficiency test, TOPIK functions the same way as TOEFL and IELTS for those who pursue higher education in South Korea. Whereas prediction studies on TOEFL and IELTS have been studied frequently in language testing, research on the predictive validity of TOPIK has been scarce. The inconsistent results from previous

prediction studies also point out that further empirical studies on the relationships between language proficiency and academic success are needed, especially for a less researched test like TOPIK. Usually passing scores on TOPIK Intermediate are required by most admission offices in Korean universities. However, there also appears to be no empirical rationale supporting this cut-off score decision. Although TOPIK scores have been widely accepted as an admission criterion among Korean universities, less is known, however, as to whether TOPIK measures the Korean language proficiency required in academic settings.

Furthermore, English language proficiency, alongside Korean, is certainly beneficial to students studying in Korean universities. Given today's degree of globalization and the dominance of English, English has become a necessity in various fields, such as business, diplomacy, and academia in particular. As Jambor (2011) stated, English language has more academic power than any other language in the world. Scientists, researchers, doctors, and professors publish their research in English, and students with a good command of English are able to pursue education in well-developed English speaking countries. Even in a non-English speaking country like Korea, students with a high level of English proficiency have a better chance of being accepted at prestigious universities and achieving academic excellence. For example, English is a required subject in Korean universities' entrance exam; the higher the scores earned on the English portion of the exam, the greater the opportunities of entering a prestigious university. Some elite universities have their own entrance criteria, and Jambor (2011)

reported that an eight-minute oral interview in English accounted for 40% of the entrance requirements in Korea University – one of the elite SKY universities in Korea (Seoul National, Yonsei and Korea Universities). English is also an advantage for foreign applicants of Korean universities, especially in graduate school, where students with certain level of TOEFL or IELTS scores are granted more scholarships compared to those who only submit TOPIK scores.

Korean universities favour students with a high level of English because of the increased use of English as a medium of instruction in Korean universities. The percentage of English-medium classes offered in Korean universities has risen sharply since the mid-2000s (Byun et al., 2011). Some of the primary reasons include helping students better prepare for their future career or academic pursuits, attracting more international students, and promoting academic exchanges with other countries (Byun et al., 2011). The “Study Korea” project mentioned previously also promoted the increase of English-medium instruction courses. A government-sponsored survey showed that 94 out of the 190 responding universities offered English-medium instruction courses at undergraduate level and 54 at the graduate level (Choi & Kim, 2007, as cited in Byun et al., 2011). Even in Korean-medium courses, English textbooks are often adopted. Thus the academic success of Chinese students studying in Korean universities will be impacted in part not only by their proficiency in Korean as a second language, but also their proficiency in English as a third language. The present study will contribute to the

understanding of the relationships between language proficiency and academic success by exploring both Korean and English language proficiency at the same time.

This study investigated the key determinants of Chinese students' academic success in Korean universities, including the traditional factors (gender, age, and prior academic performance), prominent psychological factors (academic self-efficacy and effort regulation), and especially language proficiency factors (both Korean and English). Among previous prediction studies, the effects of psychological factors (e.g., academic self-efficacy and effort regulation) have not been compared with language proficiency although psychological factors did successfully predict the academic success of Chinese students who studied in England (Li et al., 2010). This study aimed to contribute to the understanding of the key determinants of international university students' academic success, especially the relationship between language proficiency and academic success. In addition, the identification of TOPIK's predictive validity will also shed light on the appropriateness of the cut-off scores set by the admission committees of Korean universities.

The Test of Proficiency in Korean (TOPIK)

The TOPIK was developed by the Korea Research Foundation in 1997 and then the Korea Institute of Curriculum and Evaluation was in charge of most of the tests (from the third to the twentieth test). Starting in 2011, the TOPIK was administered by the National Institute for International Education (NIIED), Korea. The NIIED abolished the

former Business TOPIK (B-TOPIK), and now only the Standard TOPIK (S-TOPIK) is administered as part of the admission requirements for universities. Hence TOPIK refers to S-TOPIK in this study. The TOPIK started off with one test administration per year in Korea. It is now administered up to four times per year in Korea and twice yearly in 53 other countries (Gukrip Gukje Gyoyukwon, 2010). By the end of 2012, a total of 28 tests had been administered, and the TOPIK applicants had exceeded 1 million (Yu, 2013). The applicants for the TOPIK have increased rapidly. In 2012, 151,166 applicants took the TOPIK, which is 56 times of the number in 2007 (Yu, 2013). Among those who took the twenty-ninth TOPIK in January 2013, 44.5% of the applicants intended to seek higher education in Korea (Yu, 2013).

The NIIED administers three different proficiency levels of TOPIK: TOPIK Elementary, TOPIK Intermediate, and TOPIK Advanced. Four areas – Vocabulary & Grammar, Writing, Listening, and Reading – are tested in all three levels, with 100 points for each area and a total score of 400. The entire test lasts for three hours, with a short break in between the Writing and Listening subsections. The TOPIK plans to develop a Speaking test, but currently does not have one. Most of the test questions are multiple choice, with the exception of the Writing subsection, which encompasses sentence completion, paragraph completion, and a short essay writing in addition to the multiple choice questions (Gukrip Gukje Gyoyukwon, 2010). Under each level of TOPIK, there are two sublevels depending on the scores of the applicants. In total there are six sublevels: Levels 1 and 2 (TOPIK Elementary), Levels 3 and 4 (TOPIK Intermediate),

and Levels 5 and 6 (TOPIK Advanced). The Korean Ministry of Education requires all foreign students to achieve at least Level 3 in order to study in Korean universities while a large number of universities require Level 4 for admission (Yu, 2013).

The sublevels have requirements in both overall scores and individual scores in each area. According to Gukrip Gukje Gyoyukwon (2010), those whose average score exceeds 50 in all four areas with no lower than 40 on each individual area fall into the lower level in each of the three TOPIKs (Levels 1, 3, & 5); those whose average score exceeds 70 in all four areas with no score lower than 50 on each individual area receive a higher level on their score reports (Levels 2, 4, & 6). As such, an international student needs to earn at least 200 out of 400 points (minimum score on Level 3) on TOPIK Intermediate to study in Korean universities, and some universities require 280 points and above (minimum score on Level 4) for admission. The score requirements on each level are indicated in Table 1.

Table 1

TOPIK Score Requirements for Each Level by Area

| | Total Average Score | Vocabulary & Grammar | Writing | Listening | Reading |
|---------------------------|---------------------------|-------------------------|------------------|-----------|---------|
| TOPIK Elementary | | | | | |
| Level 1 | Exceeds 50 | | No lower than 40 | | |
| Level 2 | Exceeds 70 | | No lower than 50 | | |
| TOPIK Intermediate | | | | | |
| Level 3 | Exceeds 50 | | No lower than 40 | | |
| Level 4 | Exceeds 70 | | No lower than 50 | | |
| TOPIK Advanced | | | | | |
| Level 5 | Exceeds 50 | | No lower than 40 | | |
| Level 6 | Exceeds 70 | | No lower than 50 | | |

To illustrate, a TOPIK Intermediate test-taker achieved a score of 82 points in Vocabulary & Grammar, 48 points in Writing, 76 points in Listening, and 80 points in Reading. This test-taker has an average score of 71.5 points for all four areas which exceeds the higher level requirement of 70. However, because the Writing score was lower than 50, the test-taker only qualified for Level 3 instead of Level 4.

Following the NIIED’s descriptions, a test takers achieving Level 3 should:

- have no difficulty in language functions needed in living an everyday life, using various public facilities and maintaining social relationships.
- be able to understand and express familiar, specific social topics in units of paragraphs.

- be able to understand and express basic characteristics of colloquial and written Korean.

(Gukrip Gukje Gyoyukwon, 2010, “Test Subjects”, para. “Evaluation Content by Level”)

As shown above, students achieving Level 3 can deal with the language needs of daily life, but may have trouble understanding academic lectures with sophisticated concepts and terms, leading more and more Korean universities to require Level 4 for admission.

The descriptions of Level 4 from the NIIED are shown below:

- able to perform functions needed in using public facilities, maintain social relationships and carry out normal functions.
- able to understand plain content in the news or newspaper columns.
- able to fluently understand and express social and abstract themes.
- able to understand and express social and cultural context based on an understanding of widely used idiomatic expressions and representative Korean culture.

(Gukrip Gukje Gyoyukwon, 2010, “Test Subjects”, para. “Evaluation Content by Level”)

Students who achieve Level 4 should have no language difficulty studying in Korean universities.

In summary, this study investigated the key determinants of Chinese students’ academic success in Korean universities. The determinants investigated included gender,

age, prior academic performance, academic self-efficacy, effort regulation, and especially language proficiency in terms of both Korean and English. Unlike previous research, both Korean and English language proficiencies were included because English also plays a key role in Korean academia, just as in other parts of the world. The relationship between language proficiency and academic success is complicated, and a study on a less researched language like Korean contributes to the understanding of this relationship. This study addressed a research gap by combining psychological factors with a predictive validity study of a language proficiency test, which contributes to understanding the big picture of international students' academic success. The findings are also significant for Korean universities in determining the predictive validity of TOPIK and making appropriate admission decisions. Furthermore, as more and more Chinese students choose to pursue higher education in Korea, these students will also benefit from the findings of this study. The determinants of Chinese students' academic success in Korean universities identified in this study will help them better prepare for academic success in Korean universities.

Chapter 2

Literature Review

This literature review first addresses traditional and psychological predictors of academic success. Traditional factors identified by previous prediction studies focusing on international students were since confirmed by a comprehensive meta-analysis on general university students' academic performance (Richardson et al., 2012). The meta-analysis also identified several other key psychological factors that showed effective contribution to university students' academic success. Then this literature review analyzes a variety of prediction studies on language proficiency and academic success with specific reference to international students. Indicators of language proficiency other than large-scale test scores and indicators of academic success are subsequently identified.

Traditional and Psychological Factors Contributing to Academic Success

Wimberley, McCloud, and Flinn (1992) studied 169 Indonesian students who pursued graduate degrees in a total of 27 different U.S.A. institutions, and found that undergraduate GPA was the strongest predictor of graduate GPA and its effect was much stronger than the TOEFL effect. In the same way, Wait and Gressel (2009) found that high school GPA had a much stronger correlation with overall university GPA than the TOEFL score. Stoyhoff (1997) believed that the strategies students use to learn new knowledge and to perform well on graded work and tests was one important aspect of

academic success not measured by TOEFL. Cheng and Fox (2008) also confirmed that strategic learning was more developed among students who achieved academic success.

A comprehensive meta-analysis on university students' academic performance was conducted by Richardson, Abraham, and Bond (2012). They reviewed 13 years of research on the prediction of university students' GPAs. A systematic search was conducted in PsycINFO and the Web of Knowledge databases to find primary articles between 1997 and 2010, and 241 unique data sets were extracted from 7,167 English-language articles. Fifty conceptually distinct correlates of GPA were identified, including three demographic factors (sex, age, and socioeconomic status), five traditional correlates of GPA (intelligence, SAT, ACT, high school GPA, and A level points – equivalent to SAT/ACT in the United Kingdom), and 42 psychological constructs in five conceptually overlapping but broadly distinct research domains including personal traits, motivational factors, self-regulatory learning strategies, students' approaches to learning, and psychosocial contextual influences.

Results indicated that the effect size estimates of demographic factors were small. Generally, correlations showed that students from higher socioeconomic backgrounds ($r = .11$), older students ($r = .08$), and female students ($r = .09$) obtained higher grades in universities. For the five traditional correlates of GPA, high school GPA ($r = .40$), SAT ($r = .29$), and ACT ($r = .40$) were found to have medium-sized correlations with undergraduate GPA as expected. This lent further support to Wimberley et al. (1992) and Wait and Gressel's (2009) studies. Small, positive, average correlations

were found with A level points in the United Kingdom ($r = .25$), and measures of general intelligence ($r = .20$). Among 42 psychological factors, a large correlation was observed for performance self-efficacy ($r = .59$), and medium-sized correlations with GPA were shown by grade goal ($r = .35$), effort regulation ($r = .32$), and academic self-efficacy ($r = .31$). Therefore, Richardson et al. (2012) concluded that a combination of motivation (performance self-efficacy, grade goal, and academic self-efficacy) and self-regulatory capacity (effort regulation) best predicted university students' GPAs. Although this study did not target the university GPAs of international students, it did not exclude this group either. For example, Stoynoff's (1997) study of non-native English speaking freshmen in one American university was included in the meta-analysis. Moreover, university admission requirements for local students and international students are very similar, except for the fact that international students need, additionally, to provide proof of English proficiency, which suggests that language proficiency was the only important difference for international students. Therefore, the results of Richardson et al.'s (2012) study can likely be applied to international students including the subjects of the present study.

The four key psychological factors – performance self-efficacy, grade goal, academic self-efficacy, and effort regulation – identified by Richardson et al. (2012) have potential importance for the present study. *Performance self-efficacy* consists of perceptions and expectations about specific performances that students can draw upon past experiences. The given representative item was “What is the highest GPA that you

feel completely certain you can attain?” (Richardson et al., 2012, p. 356). Shell and Husman (2001) examined the relationships between college students’ control beliefs (an integration of self-efficacy, attribution, and expectancy beliefs), future time perspective and their academic achievement. Participants were asked to assess their self-efficacy for overall GPA at graduation and GPA of courses not taken yet. They were asked to indicate their performance self-efficacy from a list of seven GPAs: 1.50, 2.00, 2.50, 3.00, 3.50, 3.75, and 4.00 and then GPAs were converted to a 7-point visual analog scale, 1 for 1.50 and 7 for 4.00.

Grade goal refers to minimal goal standards of a specific performance based on prior feedback, and the representative item given by Richardson et al. (2012) was “What is the minimum (i.e. the least you would be satisfied with) percentage grade goal for the next test (on a scale of 0% to 100%)?” (p. 357). Certainly, in the context of Richardson et al.’s (2012) study, this goal standard was GPA. Lane and Gibbons (2007) examined the relations among performance satisfaction, choice of social comparison targets, and subsequent performance as grade goal in a classroom setting. In this study, students indicated their comparison preferences for high and low performing targets by answering with whom you would be most interested in comparing your score. Then they indicated their expected grades in the course (ranging from D or less up to A) and their cumulative GPA (ranging from 0 – 1.75 up to 3.75 – 4.00), which are the grade goals of the students. Later, when they learned their scores on their exam, they were asked to report how

satisfied they were with their performance. It should be noted here that both performance self-efficacy and grade goal are expectations of future academic performance.

When students meet familiar challenges, they can draw upon past experiences to formulate efficacy expectations about their performances. This has been referred as performance self-efficacy. However, when unfamiliar challenges appear, students need to anticipate their performances on the basis of a more generalized perceptions of academic capability, which is *academic self-efficacy* (Richardson et al., 2012). The representative item offered by Richardson et al. (2012) was “I have a great deal of control over my academic performance in my courses” (p. 356).

Finally, *effort regulation* includes self-management of motivation or persistence when challenged by difficult work. In the limited cross-domain regression analyses, Richardson et al. (2012) indicated that combined measures of effort regulation, test anxiety, academic self-efficacy, and grade goal accounted for 20% of the variance in GPA, which is comparable with the 22% variance explained by high school GPA and SAT/ACT (Performance self-efficacy could not be included in cross-domain models). After the traditional intellectual factors were controlled, an additional 6% of the variance in GPA was explained by effort regulation, academic self-efficacy, and grade goal with effort regulation being the strongest predictor while test anxiety was reduced to nonsignificance. Both academic self-efficacy and effort regulation have not been researched on Chinese students who study in foreign countries.

Richardson et al. (2012) identified and mapped both academic self-efficacy and effort regulation in the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia & McKeachie, 1991). The MSLQ, developed by Paul Pintrich and his colleagues, is a well-established and widely used instrument for assessing university students' motivation and learning strategies with the ultimate goal of helping students improve learning. The development of the MSLQ began in the early 1980s and was developed using a social-cognitive view of motivation and self-regulated learning. The final version of the MSLQ underwent 10 years of development, during which time the instrument was used in numerous correlational field studies. Its current form was finalized in 1991. It should also be noted that both academic self-efficacy and effort regulation were mapped into Pintrich's (2004) recent conceptual framework for self-regulated learning of college students.

The MSLQ was designed to be used by researchers as a measurement instrument to investigate the nature of students' motivation and learning strategies use, and by instructors and students as a means of assessing students' motivation and study skills within a given course. Using data from a validation sample of 380 Midwestern college students in the United States, Pintrich, Smith, Garcia, and McKeachie (1993) completed a number of statistical tests to determine the reliability and validity of the MSLQ. Results indicated that the MSLQ showed reasonable factor validity, and relatively good internal consistency, with the Cronbach's Alpha for academic self-efficacy and effort regulation being .93 and .69 respectively. Pintrich et al. (1993) also concluded that the scales were

valid measures of the motivational and cognitive constructs. The scales' correlations with academic performance were significant albeit moderate, demonstrating predictive validity. A meta-analysis on the MSLQ also concluded that the MSLQ was a reasonably reliable measure of constructs, some of which exhibited meaningful relationships with college academic performance (Cred é & Phillips, 2011).

The MSLQ has been used in different languages, in different countries, and on diverse samples and settings. Duncan and McKeachie (2005) reported that 56 studies using the MSLQ were conducted by researchers other than Pintrich and his colleagues between 2000 and 2004, using both the MSLQ's entirety and its subscales. These studies ranged across different content areas and target populations. The MSLQ is completely modular, and the subscales can be used together or individually, depending on the needs of the researcher or instructor (Pintrich et al., 1991).

Overall, among traditional factors, the effect size estimates of demographic factors were small. Prior academic performance (high school GPA for undergraduate students and undergraduate GPA for graduate students) proved to be the strongest predictor of academic success. Even though standardized achievement test scores such as SAT and ACT played an influential role in predicting university students' academic success, international students' admission to Korean universities do not have such requirements. Therefore, standardized achievement tests were not considered for the purpose of this study. Performance self-efficacy and grade goal are expectations of future academic performance, and hence were not suitable for this study because participants

already knew their performance by the time they participated in the present study.

Academic self-efficacy and effort regulation, which can be measured through a well-established and widely used instrument like the MSLQ, were investigated in the present study. Note that academic self-efficacy was also identified as the best predictor of GPA in Robbins et al.'s (2004) meta-analysis on the prediction of college performance with psychological factors, while self-regulation had the highest observed validities for both grades in individual classes and GPA in Credé and Phillips' (2011) meta-analysis on the MSLQ.

Previous Studies on the Predictive Validity of TOEFL and IELTS

As described previously, the TOPIK is a language proficiency test that shares many characteristics with the TOEFL and the IELTS. There do not appear to have been any predictive validity studies on the TOPIK, hence this literature will review studies on the TOEFL and the IELTS.

The TOEFL is the most widely used measure of English language proficiency. It is generally considered necessary for non-native English Speaking (NNES) students to successfully complete undergraduate and graduate courses offered in English, not only in the United States and Canada, but also in other countries (Simner, 1998). The results of previous prediction studies on TOEFL are inconsistent. Johnson's (1988) study of 196 NNES undergraduate students at University of Wisconsin-Green Bay showed that the overall mean TOEFL score correlated significantly with GPA ($r = .36, p < .01$). As well,

Light and Teh-Yuan (1991) studied a sample of 56 Soviet undergraduate exchange students in the United States, and found a significant correlation between their TOEFL scores and GPA ($r = .33, p < .05$). Stoyhoff (1997), who investigated 77 NNES freshmen enrolled in a large, public university in the Northwest U.S.A., found TOEFL scores correlated significantly with cumulative GPA after two terms of university study ($r = .26, p = .01$). On the other hand, Ayers and Quattlebaum (1992), using a sample 67 Asian students who received the Master of Science in an area of engineering at Tennessee Technological University, concluded that the TOEFL score was not an effective predictor of total GPA. Similarly, after doing a prediction study of 54 NNES students enrolled in the initial graduate financial accounting course at a university in northeastern United States, Krausz, Schiff, Schiff, and Van Hise (2005) found that the TOEFL score was not significantly correlated with students' course grades.

Recently, studies have been conducted with much larger samples. Nelson, Nelson, and Malone (2004) conducted a study to determine the combination of criteria including TOEFL scores that could accurately predict the success of NNES students who had been admitted to master's degree programs in a medium-sized Midwestern university in the United States. Their study included 866 NNES students who had applied for graduate study between the years 1987 and 2002. They found that TOEFL scores were a predictor of graduate GPA, but not a highly significant one. Wait and Gressel (2009) analyzed student admissions application data and university-level academic records from a United States-accredited, American-style university located in the United Arab

Emirates. Their dataset represented 6,516 NNES undergraduate students from 85 different countries. A positive, statistically significant relationship was identified between TOEFL scores and overall GPA.

The TOEFL Internet-Based Test (TOEFL iBT) was newly introduced worldwide in 2006 (Cho & Bridgeman, 2012), and the need for continuing predictive validity studies arose. Cho and Bridgeman (2012) examined the relationship between TOEFL iBT scores and GPA of both NNES undergraduate and graduate students. They required their participants to be full-time, degree-seeking, non-transfer students who had TOEFL iBT scores and at least a first-year GPA from the current institution. Ten universities agreed to participate and seven provided information for both undergraduate and graduate students while the other three provided information for graduate students only. A total of 2,594 students, including 744 undergraduate students and 1,850 graduate students, were represented in the data. The results showed that TOEFL iBT accounted for approximately 4% of the variance in GPA for graduate students ($r = .20$) and 3% for undergraduate students ($r = .18$). It is noteworthy that even with a large sample group, the statistically significant correlations were rather small.

There have also been a number of studies that have investigated the predictive validity of IELTS. Again, the results were inconsistent. Elder (1993) used performance on postgraduate Diploma of Education courses to measure the academic success of 37 NNES students at six different universities in the Melbourne area, Australia. The results showed that there was a significant but not very strong correlation between IELTS

overall scores and the first semester course progress ratings ($r = .35, p = .05$). A study of 35 NNES students with IELTS scores and 27 with TOEFL scores (including seven with both test scores) at the University of Melbourne, Australia by Hill, Storch, and Lynch (1999) revealed that the correlation between IELTS scores and GPA ($r = .540$) was moderately stronger than TOEFL scores ($r = .287$). Another study of the relationship between IELTS scores and GPA was conducted by Feast (2002), who analyzed a dataset of 101 NNES undergraduate and postgraduate students. Feast (2002) found a relatively weak relationship between IELTS scores and GPA ($r = .39$). Woodrow (2006) reached a similar conclusion. She found a weak but significant correlation between the IELTS overall scores and the first semester GPAs for 82 NNES postgraduate students studying at the Faculty of Education and Social Work in the University of Sydney, Australia.

Other IELTS prediction studies found no correlation or only subsection score correlations with GPA. Cotton and Conrow's (1998) study of 23 undergraduates and 10 postgraduates at the University of Tasmania, Australia found no correlation between IELTS scores and GPAs. With a sample of 113 NNES students from Royal Melbourne Institute of Technology, Australia, Kerstjens and Nery (2000) found that only Reading and Writing subsection scores correlated with GPAs ($r = .286$ for Reading; $r = .250$ for Writing). Dooley and Oliver (2002) examined the relationship between IELTS scores and the first and second semester GPAs from 65 NNES undergraduate students enrolled at Curtin University, Australia. Again, only the Reading subsection scores significantly correlated with both semesters' GPAs.

From previous studies, a conclusion can be drawn that there is a relationship between language proficiency and academic success, but it is small and the relationship is not a one-to-one correspondence (Cho & Bridgeman, 2012). Regardless of the sizes of the sample group, the levels of study, or the types of language proficiency tests used, the results have been mixed and inconclusive. When statistically significant correlations were found, they were relatively small. Criper and Davies (1988) suggested that one should not expect a correlation of more than .3 (about 10%) in predictive validity studies (as cited in Dooley & Oliver, 2002). This is partly due to an inherent design problem of predictive validity studies. Only students who have been admitted to the university were included in the studies, which means the datasets consisted of restricted samples that included only those whose TOEFL or IELTS score achieved a certain level (above the cut-off score). These truncated samples did not represent a full range of scores. Therefore, the correlations obtained would be lower than the actual correlations. Bellingham (1993) investigated the relationship between IELTS scores and the first semester GPA of 38 NNES students in the National Certificate of Business Studies. A correlation of .523 was obtained. This correlation may be due to the fact that a large portion of the samples scored lower than six ($n = 25$) and even five ($n = 17$) (Cotton & Conrow, 1998; Feast, 2002), compared to the typical minimum IELTS score for university entrance of six (Feast, 2002).

Indicators of Language Proficiency and Academic Success

Though most previous prediction studies have used scores from commercial tests such as TOEFL or IELTS to measure English language proficiency, some universities conducted their own English proficiency tests to place incoming NNES students. There are studies that used these institutional proficiency tests to measure language proficiency (Lee & Greene, 2007; Light & Teh-Yuan, 1991), but it is not practical to administer such tests to all potential applicants and hence institutional proficiency tests are not feasible for admission purposes. Apart from the institutional proficiency tests mentioned above, previous studies have also included other indicators of language proficiency such as length of previous English language study (Wimberley et al., 1992; Woodrow, 2006; Xu, 1991), on-campus English program support (Cotton & Conrow, 1998; Hill et al., 1999; Wait & Gressel, 2009), and self-perceived English language proficiency (Li et al., 2010; Light & Teh-Yuan, 1991; Xu, 1991). In Xu's (1991) study, self-rated English proficiency, though not a traditional predictive validity study of academic success, was the most significant predictor of the perceived level of academic difficulty while the TOEFL score was not found to be significant. These findings suggest that along with scores on commercial language proficiency tests, other measures of language proficiency may be useful for predictive purposes. To this end, the present study includes the length of previous language study and self-perceived language proficiency as well as scores on standardized tests such as the TOPIK.

Studies on university students' academic success and on the predicative validity have largely explored the various factors, including language proficiency, that affect GPA. However, Graham (1987) questioned that GPA was not always a valid indicator of academic performance. Heil and Aleamoni (1974) pointed out that GPA did not take into account the number of courses taken (as cited in Graham, 1987). For example, a NNES student with poor English proficiency may only take two courses and yet still maintain a high GPA. Heil and Aleamoni (1974) noted that teachers may be inclined to give sympathy or goodwill grades to international students (as cited in Graham, 1987). Moreover, in graduate schools, grades are typically given in a limited spread. As Nelson et al. (2004) admitted in their study, grades in graduate school were predominately As and Bs. Therefore, they grouped their participants as students with a graduate GPA of 3.5 and above and below 3.5. This means significant correlations are less likely to be found.

Some researchers have noticed the problem with GPA and included indicators of academic success other than GPA, including course grades (Elder, 1993; Krausz et al., 2005), degree completion (Nelson et al., 2004; Wimberley et al., 1992), faculty evaluation of students' performances (Cotton & Conrow, 1998; Lee & Greene, 2007), and students' own assessments of their academic performances (Cotton & Conrow, 1998; Light & Teh-Yuan, 1991). In response to Graham (1987), several researchers also used the number of credits earned as an indicator of academic success. For example, Stoyhoff's (1997) study found a significant correlation between TOEFL scores and credits earned ($r = .23, p = .05$). Johnson (1988) selected 27 undergraduate students with

a lower TOEFL score ranging from 450 to 525, and achieved a high correlation between TOEFL scores and credit hours earned ($r = .80, p < .01$). Light et al. (1989) found that the correlation between TOEFL scores and graduate credits earned was significant ($r = .19, p < .01$). It was also slightly higher than the correlation between TOEFL scores and GPA ($r = .14, p < .05$) in the same study. Nevertheless, GPA remains the most commonly used indicator for academic success in prediction studies. It is still the key criterion for postgraduate selection and graduation employment and is predictive of occupational status (Strenze, 2007).

To summarize, traditional factors including gender, age, and prior academic performance (high school GPA for undergraduate students and undergraduate GPA for graduate students) were included in the present study. Guided by Robbins et al. (2004), psychological factors such as academic self-efficacy and effort regulation were integrated with traditional educational factors in present study to predict Chinese students' academic success in Korean universities. The integration of theoretical constructs from both education and psychology was considered essential in obtaining an overall understanding of university students' academic success (Robbins et al. 2004). The contribution of language proficiency to international students' academic success was inconclusive. Language proficiency test scores and self-perceived language proficiency were effective indicators of language proficiency, and the length of previous language study was a supplementary indicator. Since English played a crucial role in the academic success in Korean universities, both Korean and English language proficiencies were examined via

indicators mentioned above in this study. The indicators of academic success included both GPA and the number of credits, especially in the first semester, given that the relationship between language proficiency and academic success was the strongest at the end of the first semester (Elder, 1993; Light et al, 1987). In fact, the first semester GPA was also a stronger predictor of the overall GPA (Nelson et al., 2004). The second semester or the average of the first two semesters' GPA was also investigated by some studies (Cotton & Conrow, 1998; Dooley & Oliver, 2002; Light & Teh-Yuan, 1991; Stoyhoff, 1997). Hence, both GPA and credit hours from the first and second semesters were included in the present study.

Chapter 3

Methodology

This chapter presents a description of participants, an overview of the instrument used, the procedures used in data collection, and the methods of data analyses used to answer the three research questions.

Participants

The participants of this study were 148 undergraduate and 65 graduate Chinese students studying at 27 universities in South Korea. They were full-time, degree-seeking students who took TOPIK Intermediate and started their current studies in the years 2011 and 2012. This study only included master's students as graduate participants. The detailed demographic information will be described in Chapter 4.

Instrument

In this study, data were obtained through a questionnaire. The questionnaire consisted of four sections, including demographic information (items 1-5), academic background (items 6-11), language proficiency (items 12-16) and psychological factors (items 17-28). The questionnaire was designed in English but was administered in Chinese to ensure that there was no language difficulty in completing the questionnaire (see Appendix A & B). The first three parts were translated into Chinese, and then back

translated to ensure the accuracy of the translation. For the fourth part, Wu and Cheng's (1992) Chinese version of the MSLQ was adopted.

In the demographic section, participants identified their sex, age, and the name of the university that they were attending. They were also asked about their subject areas and levels of studies.

With respect to academic background, participants were asked when they started their first semester in their respective universities. The GPA and the number of credit hours earned in the first semester were collected because the relationship between language proficiency and academic success is likely strongest at the end of first semester (see Elder, 1993; Light et al, 1987). The first semester GPA is the most frequently used measure for judging academic success in predictive validity studies (Kerstjens & Nery, 2000). The second semester GPA and credit hours were also collected to observe whether the determinants of academic success changed over time. Light and The-Yuan (1991) and Elder (1993) also investigated the relationship between language proficiency and both the first and second semester GPAs. Graduate students were also asked to provide their undergraduate overall GPAs since prior academic performance has been identified as influencing academic success. For undergraduate participants, high school GPA was represented by their achievement on the high school graduation unified examination.

Proficiency scores for both Korean and English were collected as well. Participants' TOPIK Intermediate total score and four subsection scores (Vocabulary and Grammar, Writing, Listening, & Reading) were collected. TOPIK Intermediate was

selected for this study because most Korean universities require international students to achieve this level for admission purposes. For convenience, the term TOPIK will subsequently be used to refer to TOPIK Intermediate. Scores on the College English Test-Band 4 (CET-4) were also collected to indicate graduate participants' English proficiency. CET-4 is taken by undergraduate students in China to fulfill their graduation requirements and to stand a better chance in the job market (Cheng, 2008). The number of years in both Korean and English study was obtained as well. Lastly, participants' self-perceived Korean and English proficiencies were also collected. The data included measures of overall proficiency and proficiencies in reading, writing, listening and speaking for both languages using a 7-point visual analog scale, where 1 indicated "not good at all" and 7, "very good".

For the psychological factors, two subscales, academic self-efficacy and effort regulation as defined in MSLQ by Pintrich et al. (1991) were adopted as they presented the best fit for the present study (Richardson et al., 2012). The MSLQ consists of 81 self-report items divided into two broad categories: a motivation section and a learning strategy section. The motivation section, comprising 31 items, assesses students' goals and value beliefs for a course, their beliefs about their skills, and their anxiety about tests. The learning strategy section includes 31 items concerning students' use of different cognitive and metacognitive strategies, and another 19 items regarding students' management of different resources.

These 81 items can also be classified into 15 sub-scales, six within the motivation section and nine within the learning strategy section. The 15 sub-scales represent intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning and performance, and test anxiety in the motivation section; rehearsal, elaboration, organization, critical thinking, metacognitive self-regulation, time/study environmental management, effort regulation, peer learning, and help seeking in the learning strategy section. The MSLQ is completely modular, and the scales can be used together or individually, depending on the needs of the researcher (Pintrich et al., 1991). Self-efficacy for learning and performance was referred to as academic self-efficacy in Richardson et al. (2012). In order to avoid confusion, this study used academic self-efficacy, as defined by Richardson et al. (2012). Academic self-efficacy and effort regulation are composed of eight and four items respectively. In Pintrich et al. (1991), items in different subscales were in a mixed order. However, all items of academic self-efficacy were listed prior to items of effort regulation. Two subscales were ordered according to the original numbers and two constructs were naturally separated in this study (academic self-efficacy: Items 17-24; effort regulation: Items 25-28, see Appendix A).

To complete these items, participants rated themselves on a 7-point visual analog scale, 1 for “not at all true of me” and 7 for “very true of me”. Scores for each scale were calculated by taking the mean of the items that make up the scale (Pintrich et al., 1991). For example, academic self-efficacy has eight items. An individual score for academic

self-efficacy was computed by summing the eight items and taking the average. Some negatively worded items within the MSLQ were marked as “reversed” and therefore the ratings must be reversed before computing an individual’s score. For example, a reverse coded item from effort regulation is “When course work is difficult, I give up or only study the easy parts” (Pintrich et al., 1991, p. 27). An individual who had rated 1 for the item would then receive a score of 7. Hence the overall score represents the positive wording of all items and higher score indicates greater levels of the scale being measured (Duncan & McKeachie, 2005). There were no reverse coded items in the scale of academic self-efficacy. Out of four items in the effort regulation subscale, there were two “reversed” items (Items 25 & 27 in the present study).

A Chinese translation and validation of the whole MSLQ was conducted by Wu and Cheng (1992). With a sample of 368 and 921 elementary and secondary school students in Taiwan, Wu and Cheng (1992) concluded that their Chinese translation of the MSLQ showed satisfactory reliability and validity (Note that the MSLQ was originally designed for university students). The Cronbach’s alpha for academic self-efficacy and effort regulation were .82 and .55 respectively. The results of confirmatory factor analyses showed that the theoretical constructs of the Chinese translation supported the original MSLQ. There was a slight difference in the constructs between Pintrich et al.’s (1991) MSLQ and Wu and Cheng’s (1992) Chinese translation. In order to ensure the completeness of the original conceptual frameworks, the present study adopted the original construct from Pintrich et al. (1991), which includes all eight items of academic

self-efficacy and four items of effort regulation. Wu and Cheng's (1992) Chinese translation was imported into the original MSLQ construct. In other words, this study used Pintrich et al.'s (1991) construct with Wu and Cheng's (1992) translation. However, one item from effort regulation was deleted in Wu and Cheng (1992), due to the lower reliability. As a result, this item used Rao and Sachs' (1999) Chinese translation, which was developed based on Pintrich and De Groot (1990). This item happened to be an overlap in both Pintrich et al.'s (1991) version and Pintrich and De Groot's (1990) version of the MSLQ.

All translations by both Wu and Cheng (1992) and Rao and Sachs (1999) were done in the traditional Chinese characters, and were switched to the simplified Chinese characters for the participants of this study. Certain words in the translations were modified into standard mandarin to pertain to the participants. Since the participants of this study had completed their first semester of study in Korea at the time of the research, all items were presented in the past tense (see Section 4 of the questionnaire). All participants were asked to judge the items on the basis of the most successful class (the class they earned the highest GPA) in their first semester.

Data Collection

Questionnaires were collected via both paper and web-based versions, and participants were recruited on a voluntary basis. I went to South Korea in May 2013, and started data collection in Mid-June after ethics for my study were cleared (see Appendix

C). Colleagues and friends in five universities helped me to gain access to Chinese students through international centers, Korean culture classes, and Chinese students' associations. I introduced my study, invited potential participants and issued the paper-based questionnaire to them. In addition, I extended the invitation to their friends to participate in my study. Participants were asked to distribute cards with the link of web-based questionnaire to their friends on a voluntary basis. The web-based questionnaire was also spread via online forums, social networking service groups, and online chat groups where Chinese students who study in Korea are actively involved. The web-based questionnaires were distributed using the online survey software FluidSurveys. Overall, students from 27 different Korean universities participated in the study.

Data Analyses

SPSS (Version 19.0) was used to analyze the data in order to answer the research questions. Among the 148 questionnaires obtained from undergraduate participants, 10 questionnaires (3 paper and 7 web-based) were excluded because their missing data exceeded 10% of the total answers. For the same reason, two web-based questionnaires were excluded from the 65 graduate participants' questionnaires. Therefore, 138 questionnaires (74 paper and 64 web-based) from undergraduate participants and 63 questionnaires (31 paper and 32 web-based) from graduate participants were used in data analyses.

Participants' majors were classified into three categories: business (BU), engineering and sciences (ES), and humanities and social sciences (HS). Among the 27 universities involved, two universities used a 4.3 GPA grading scale; the remaining 25 universities used a 4.5 GPA grading scale (4.5 for A+, 4.0 for A, 3.5 for B+, 3.0 for B, 2.5 for C+, 2.0 for C, 1.5 for D+ & 1.0 for D). Hence the first and the second semester GPA of 16 graduate participants from those two universities were recalculated into a 4.5 GPA grading scale. The high school graduation unified examination reported students' achievement on four levels: excellent, good, moderate, and pass, which were coded as 4, 3, 2 and 1 respectively. Gender was also recoded, male as 1, and female as 2. The ratings of the negatively worded items 25 and 27 were reversed according to the MSLQ's instructions. Descriptive statistics (e.g. central tendencies, standard deviation, skewness, and kurtosis) were conducted. The comparison of descriptive statistics showed that participants who finished the paper-based questionnaires closely approximated those who finished the web-based questionnaires in terms of key variables. Therefore, questionnaires from both paper and web-based versions were analyzed together.

Missing data were carefully examined. Two graduate participants missing genders were judged as females by their handwriting on the paper questionnaires. One male undergraduate participant missed the self-perceived Korean listening rating and it was replaced by the mean ($M = 4.88$). Two female undergraduate participants did not report their majors and university names. One female graduate participant did not report the year of her first enrollment in her university. One male graduate participant did not

fill in the year he took the TOPIK. Those missing categorical items were left blank. Numerical items with a large amount of missing data also remained untouched, including the second semester GPA (20.4% missing), the second semester credit hours (22.4% missing), the CET-4 scores (52.4% missing among graduate students) and the TOPIK scores (23.9% missing for the total score; 24.9% missing for the Vocabulary and Grammar, and Writing score; 25.4% missing for the Listening and Reading score). Due to the high ratio of missing data, the second semester GPA and credit hours and the CET-4 scores were not included in subsequent analyses. Further, only a subgroup of the sample (102 undergraduate and 51 graduate participants) was included in the correlation and multiple regression analyses because of the missing data of the TOPIK scores.

Factor analysis with principal component analysis and direct oblimin rotation was conducted for the items from the self-perceived language proficiency and psychological factors. Principal component analysis is the most common factor extraction technique in the language assessment literature (Ockey, 2014). Direct oblimin rotation was used because it allowed for the factors to be correlated (Fabrigar, Wegener, MacCallum, & Strahan, 1999). A single variable of self-perceived Korean language proficiency and self-perceived English proficiency were created respectively. All items of academic self-efficacy loaded together as in the original design of the MSLQ. The four items of effort regulation did not load together as one factor, and hence effort regulation was not included in further analyses. Internal Consistency values (Cronbach's alpha) were calculated for each factor, and the results are presented in Chapter 4.

Correlation analyses were completed with the dependent variables (first semester GPA and credit hours) and all independent variables including gender, age, prior academic performance (high school GPA for undergraduate participants and undergraduate GPA for graduate participants), the length of previous Korean and English study, the TOPIK total score, self-perceived Korean and English proficiency, and academic self-efficacy. TOPIK subsections scores were also included in the correlation analyses in order to explore the relationship between the sub-skills of Korean proficiency and academic success. Correlation analyses were then performed among the independent variables mentioned above to ensure that no highly correlated variables were entered in the regression at the same time.

Regression analysis is one of the most commonly used methods in prediction studies of academic success (McKenzie & Schweitzer, 2001; Li et al., 2010). Multiple regression was used to address the research questions of this study. For undergraduate participants, two regression models were conducted with the first semester GPA and the first semester credit hours earned used as dependent variables. Gender, age, high school GPA, and academic self-efficacy were entered into the regression first. Then the TOPIK total score, self-perceived Korean proficiency, self-perceived English proficiency, the length of previous Korean study, the length of previous English study were added using stepwise regression. Stepwise regression was used during the second step to determine which, if any, of the language proficiency indicators significantly predicted first semester GPA or credit hours.

The regressions were done in a similar manner for graduate participants. The first semester GPA and the first credit hours earned were the dependent variables for the two regression models. Gender, age, undergraduate GPA, and academic self-efficacy were entered into the regression first. Then the TOPIK total score, self-perceived Korean proficiency, self-perceived English proficiency, the length of previous Korean study, the length of previous English study were added using stepwise regression. In the final step, regression models were compared between undergraduate and graduate participants.

Chapter 4

Results

This chapter presents the results of the data analyses to answer the proposed research questions. Descriptive statistics and factor analyses were performed first to prepare for further analyses. Correlation analyses were then performed to explore the bivariate relationships between academic success and the independent variables, and also among independent variables to ensure that no highly correlated variables were entered into the regression at the same time. Multiple regressions were conducted with the first semester GPA and credit hours as the dependent variables. For each section, results from undergraduate participants are presented first, followed by results from graduate participants.

Descriptive Analyses

Among 138 undergraduate participants, there were 72 male (52.2%) and 66 female (47.8%) students. The ages of undergraduate participants varied from 17 to 28, with a mean of 23.38. Among 63 graduate participants, there were 16 male (25.4%) and 47 female (74.6%) students. Graduate participants' ages ranged from 21 to 33, with a mean of 25.98. As mentioned earlier, participants were from 27 different universities. Fifteen of those universities were located in Seoul, and these Seoul universities provided 79 undergraduate (57.2%) and 49 graduate (77.8%) participants.

A total of 97 (70.3%) undergraduate participants indicated that they started their study in their current universities in 2011 while 41 (29.7%) started in 2012. For graduate participants, 42 (66.7%) started their study in their current universities in 2011, 20 (31.7%) started in 2012, and 1 (1.6%) did not report this item. The academic performance of undergraduate participants is presented in Table 2.

Table 2

Descriptive Statistics for Undergraduate Students' Academic Performance

| | N | Mean | SD | Skewness | Kurtosis |
|------------------------------|-----|-------|------|----------|----------|
| First semester credit hours | 138 | 16.70 | 3.43 | -1.32 | 2.07 |
| First semester GPA | 138 | 2.78 | .55 | .06 | 1.12 |
| Second semester credit hours | 109 | 17.67 | 3.15 | -1.46 | 3.17 |
| Second semester GPA | 111 | 2.81 | .56 | .41 | .54 |
| High school GPA | 133 | 2.77 | .86 | -.28 | -.53 |

Undergraduate participants registered for as few as 5 credit hours in their first semester to a maximum of 24 credit hours, the upper limit for 1 semester. The lowest GPA for the first semester was .75, followed by 1.38 for the second semester. Both semesters' maximum GPAs were 4.5, which was the highest score students could obtain. High school GPA was measured via high school graduation unified examination. The examination reported students' achievements on four levels, including excellent, good, moderate, and pass, which were coded as 4, 3, 2, and 1 respectively. Note that only 111 (80.4%) and 109 (79.0%) undergraduate participants reported their second semester GPA

and credit hours. Considering the high ratio of missing data, these two variables were not used in further analyses.

Table 3

Descriptive Statistics for Graduate Students' Academic Performance

| | N | Mean | SD | Skewness | Kurtosis |
|------------------------------|----|-------|------|----------|----------|
| First semester credit hours | 63 | 12.56 | 4.37 | .45 | -.79 |
| First semester GPA | 63 | 3.68 | .64 | -.90 | .64 |
| Second semester credit hours | 51 | 13.41 | 4.46 | .55 | -1.29 |
| Second semester GPA | 45 | 3.73 | .56 | -.97 | .72 |
| Undergraduate GPA | 58 | 86.26 | 6.59 | -.42 | .17 |

Table 3 presents the academic performance of graduate participants. A minimum of three credit hours was taken by all graduate participants, which equaled one graduate course. However, a maximum of 21 credit hours were reported, which exceeded the upper limit of 12 credit hours (four courses) for graduate course registration. The only reasonable explanation for this is that graduate participants reported credit hours of both their major courses and Korean language courses. Students with poor Korean proficiency were allowed to register in major courses only if they also took certain amount of Korean language courses. Graduate participants' first semester GPAs ranged from 1.67 to 4.5, which also reached the upper limit of GPA. Forty-five (71.4%) graduate participants reported their second semester GPA and 51 (81.0%) reported their second semester credit hours. Due to the high ratio of missing data, these two variables were not used in further analyses.

In the language proficiency section of the questionnaire, participants reported the length of their previous Korean and English study, TOPIK total and subsection scores, and self-perceived Korean and English proficiency. They also reported the date they took the TOPIK. The descriptive statistics for language proficiency indicators for undergraduate and graduate participants are presented in Table 4 and Table 5 respectively.

Table 4

Descriptive Statistics for Undergraduate Students' Language Proficiency

| | N | Mean | SD | Skewness | Kurtosis |
|----------------------------------|-----|--------|-------|----------|----------|
| Length of previous Korean study | 138 | 3.42 | 1.41 | .76 | 2.13 |
| Length of previous English study | 138 | 8.70 | 4.07 | -.39 | .11 |
| TOPIK Vocabulary & Grammar | 101 | 69.35 | 13.99 | -.29 | -.61 |
| TOPIK Writing | 101 | 60.64 | 11.30 | -.06 | -.10 |
| TOPIK Listening | 100 | 74.73 | 13.94 | -.67 | -.21 |
| TOPIK Reading | 100 | 70.05 | 12.74 | -.41 | -.21 |
| TOPIK Total | 102 | 274.73 | 42.22 | -.50 | -.16 |
| Self-perceived Korean Overall | 138 | 4.43 | 1.10 | -.20 | -.38 |
| Self-perceived Korean Reading | 138 | 4.51 | 1.13 | -.16 | -.58 |
| Self-perceived Korean Writing | 138 | 3.88 | 1.23 | -.00 | -.19 |
| Self-perceived Korean Listening | 138 | 4.88 | 1.19 | -.15 | -.51 |
| Self-perceived Korean Speaking | 138 | 4.48 | 1.27 | -.06 | -.51 |
| Self-perceived English Overall | 138 | 2.87 | 1.34 | .08 | -1.08 |
| Self-perceived English Reading | 138 | 3.01 | 1.53 | .16 | -1.06 |
| Self-perceived English Writing | 138 | 2.71 | 1.44 | .39 | -.76 |
| Self-perceived English Listening | 138 | 3.12 | 1.61 | .24 | -.94 |
| Self-perceived English Speaking | 138 | 2.82 | 1.60 | .53 | -.66 |

Undergraduate participants had studied Korean between 1 and 10 years, and English between 0 and 20 years. Among 138 undergraduate participants, 102 (73.9%) reported their TOPIK total scores and 100 (72.5%) reported both their total scores and each subsection scores of the TOPIK. The absence of the TOPIK scores narrowed the sample size for the correlation and regression analyses, which became a limitation for the present study. Among those who reported their TOPIK total scores, 12 (11.7%) took the test before 2011, 26 (25.5%) in 2011, 36 (35.3%) in 2012, 27 (26.5%) in 2013, and 1 (1.0%) did not report this item. The test dates reported indicated that some participants had taken the TOPIK more than once and had reported the results from the most recent administration. Also note that the National Institute for International Education, Korea did not specify an expiration date for the TOPIK scores until 2012. The means for items related to self-perceived Korean proficiency were all larger than those for self-perceived English proficiency.

Table 5

Descriptive Statistics for Graduate Students' Language Proficiency

| | N | Mean | SD | Skewness | Kurtosis |
|----------------------------------|----|--------|-------|----------|----------|
| Length of previous Korean study | 63 | 4.71 | 2.36 | .34 | -.45 |
| Length of previous English study | 63 | 12.67 | 3.72 | .16 | -.27 |
| TOPIK Vocabulary & Grammar | 50 | 73.86 | 12.07 | -.75 | .39 |
| TOPIK Writing | 50 | 66.10 | 12.03 | .25 | -.49 |
| TOPIK Listening | 50 | 81.06 | 11.59 | -.61 | -.30 |
| TOPIK Reading | 50 | 76.60 | 12.12 | -.25 | -.51 |
| TOPIK Total | 51 | 297.59 | 32.60 | -.19 | .34 |
| CET-4 | 30 | 500.50 | 76.49 | -.61 | 2.99 |
| Self-perceived Korean Overall | 63 | 4.83 | 1.49 | -.91 | .65 |
| Self-perceived Korean Reading | 63 | 5.02 | 1.44 | -1.06 | 1.22 |
| Self-perceived Korean Writing | 63 | 4.25 | 1.52 | -.19 | .02 |
| Self-perceived Korean Listening | 63 | 5.33 | 1.48 | -.97 | .81 |
| Self-perceived Korean Speaking | 63 | 4.89 | 1.46 | -1.02 | 1.31 |
| Self-perceived English Overall | 63 | 4.02 | 1.42 | .04 | -.72 |
| Self-perceived English Reading | 63 | 4.37 | 1.50 | -.12 | -.77 |
| Self-perceived English Writing | 63 | 3.63 | 1.56 | .14 | -.84 |
| Self-perceived English Listening | 63 | 4.14 | 1.59 | .13 | -.89 |
| Self-perceived English Speaking | 63 | 3.68 | 1.70 | .42 | -.70 |

Graduate participants studied Korean for as few as 6 months and as many as 10 years. English was studied between 4 and 20 years. Among 63 graduate participants, only 51 (81.0%) reported their TOPIK total scores and 50 (79.4%) reported both the total scores and each subsection scores of the TOPIK. Again, this reduced the sample size for

correlation and regression analyses, which limited the present study. Among those who reported their TOPIK total scores, 22 (43.1%) took the test before 2011, 9 (17.7%) in 2011, 13 (25.5%) in 2012, 5 (9.8%) in 2013, and 2 (3.9%) did not report this item. It is expected that graduate participants had taken CET-4 in China before they came to Korea to pursue graduate studies. However, only 30 (47.6%) graduate participants reported that they took the CET-4 and indicated their scores. These CET-4 scores were not used during further analyses due to the high ratio of missing data. According to the means, graduate participants also considered their Korean proficiency to be better than their English proficiency. A series of independent t-tests were conducted to compare the TOPIK total scores, self-perceived Korean and English proficiency, and the length of previous Korean and English study for undergraduate and graduate participants, and results indicated significant differences in all five language proficiency indicators. Compared to undergraduate participants, graduate participants earned higher TOPIK scores, indicated higher ratings on self-perceived Korean and English proficiency, and reported longer lengths of previous Korean and English study.

In the psychological factor's section, participants used a 7-point visual analog scale to rate academic self-efficacy and effort regulation items based on the class in which they earned the highest GPA in their first semester. The descriptive statistics for undergraduate and graduate participants are presented in Table 6 and Table 7. The mean item scores for graduate participants were higher than those of undergraduate participants.

Table 6

Descriptive Statistics for Undergraduate Students' Psychological Constructs (n = 138)

| | Mean | SD | Skewness | Kurtosis |
|--|------|------|----------|----------|
| 17. I believed I would receive an excellent grade in this class. | 4.72 | 1.49 | -.22 | -.59 |
| 18. I was certain I could understand the most difficult course material presented in the readings for this course. | 4.13 | 1.32 | -.22 | -.37 |
| 19. I was confident I could understand the basic concepts taught in this course. | 4.57 | 1.43 | -.19 | -.33 |
| 20. I was confident I could understand the most complex material presented by the instructor in this course. | 4.12 | 1.42 | -.22 | -.68 |
| 21. I was confident I could do an excellent job on the assignments and tests in this course. | 4.48 | 1.46 | -.16 | -.39 |
| 22. I expected to do well in this class. | 4.95 | 1.59 | -.48 | -.62 |
| 23. I was certain I could master the skills being taught in this class. | 4.27 | 1.41 | -.39 | -.15 |
| 24. Considering the difficulty of this course, the teacher, and my skills, I thought I would do well in this class. | 4.56 | 1.43 | -.49 | -.02 |
| 25. I often felt so lazy or bored when I studied for this class that I quit before I finished what I have planned to do. | 4.84 | 1.44 | -.24 | -.61 |
| 26. I worked hard to do well in this class even if I didn't like what we were doing. | 4.43 | 1.51 | -.22 | -.53 |
| 27. When course work was difficult, I gave up or only studied the easy parts. | 4.67 | 1.59 | -.37 | -.71 |
| 28. Even when the course materials were dull and uninteresting, I managed to keep working until I finished. | 4.56 | 1.66 | -.27 | -.80 |

Table 7

Descriptive Statistics for Graduate Students' Psychological Constructs (n = 63)

| | Mean | SD | Skewness | Kurtosis |
|--|------|------|----------|----------|
| 17. I believed I would receive an excellent grade in this class. | 4.86 | 1.80 | -.78 | -.24 |
| 18. I was certain I could understand the most difficult course material presented in the readings for this course. | 4.56 | 1.74 | -.53 | -.75 |
| 19. I was confident I could understand the basic concepts taught in this course. | 5.24 | 1.51 | -.94 | .52 |
| 20. I was confident I could understand the most complex material presented by the instructor in this course. | 4.48 | 1.67 | -.44 | -.70 |
| 21. I was confident I could do an excellent job on the assignments and tests in this course. | 4.89 | 1.71 | -.69 | -.24 |
| 22. I expected to do well in this class. | 5.43 | 1.51 | -1.03 | .67 |
| 23. I was certain I could master the skills being taught in this class. | 4.70 | 1.54 | -.73 | .02 |
| 24. Considering the difficulty of this course, the teacher, and my skills, I thought I would do well in this class. | 4.87 | 1.37 | -.77 | .55 |
| 25. I often felt so lazy or bored when I studied for this class that I quit before I finished what I have planned to do. | 4.89 | 1.80 | -.47 | -.73 |
| 26. I worked hard to do well in this class even if I didn't like what we were doing. | 4.97 | 1.40 | -.63 | -.06 |
| 27. When course work was difficult, I gave up or only studied the easy parts. | 4.79 | 1.69 | -.46 | -.72 |
| 28. Even when the course materials were dull and uninteresting, I managed to keep working until I finished. | 5.16 | 1.63 | -.77 | -.11 |

Factor Analyses

Factor analysis with principal component analysis and direct oblimin rotation was then conducted on the items of self-perceived language proficiency (Items 16a1-5 &

16b1-5) and psychological factors (Items 17-28). Principal component analysis was the most common factor extraction technique in the language assessment literature (Ockey, 2014). Direct oblimin rotation was used because it allowed for the factors to be correlated (Fabrigar et al., 1999). Kaiser's criterion and scree plot were also used to assist in the decision concerning the number of factors to retain. Factor analyses were first conducted with undergraduate and graduate participants separately. The results for both groups were the same, which showed the underlying constructs for both groups of participants were the same. Therefore, factor analyses were repeated combining both undergraduate and graduate participants. The results are presented in Table 8 and Table 9. The internal consistency (Cronbach's alpha) for each factor was also calculated.

Five items of self-perceived Korean proficiency – overall, reading, writing, listening, and speaking and five items of self-perceived English proficiency – overall, reading, writing, listening, and speaking were analyzed together for factors of self-perceived language proficiency. Because the correlations among the resulting factors were low ($r = .21$), the factor analysis was repeated with a varimax rotation. The Kaiser-Meyer-Olkin value was .86, exceeding the recommended value of .6 (Kaiser 1970, 1974). The Bartlett's Test of Sphericity was also statistically significant. Both supported the factorability of the correlation matrix. An inspection of the scree plot revealed a clear break after the second factor.

Table 8

Factor Loadings of Self-perceived Language Proficiency (n = 201)

| | Rotated component coefficients | | Communalities |
|-------------------|--------------------------------|---------------------|---------------|
| | Korean Proficiency | English Proficiency | |
| Korean overall | .92 | .06 | .84 |
| Korean reading | .82 | .22 | .72 |
| Korean writing | .84 | .11 | .72 |
| Korean listening | .83 | .07 | .69 |
| Korean speaking | .87 | .02 | .76 |
| English overall | .15 | .94 | .91 |
| English reading | .12 | .90 | .83 |
| English writing | .14 | .91 | .85 |
| English listening | .03 | .93 | .86 |
| English speaking | .05 | .92 | .85 |

Table 8 presents the factor loadings. Items involving Korean language proficiency (overall, reading, writing, listening and speaking ratings) were neatly loaded together, as were the items of English language proficiency (overall, reading, writing, listening and speaking ratings). Therefore, these two factors were named as self-perceived Korean proficiency and self-perceived English proficiency. Self-perceived English proficiency was extracted as the first factor, which accounted for 49.02% of the total variance. Self-perceived Korean language proficiency was the second factor extracted, and accounted for an additional 31.06% of the total variance. The Cronbach's

alpha for self-perceived English language proficiency was 0.96 and 0.91 for self-perceived Korean language proficiency.

Factors of psychological constructs (Items 17 to 28) were also analyzed together. The Kaiser-Meyer-Okin value was .90 and the Bartlett's Test of Sphericity reached statistical significance. The scree plot revealed a clear break after the third factor. The factor loadings for each item are presented in Table 9.

Table 9

Factor Loadings of Psychological Constructs (n = 201)

| | Pattern coefficients | | | Communalities |
|----|------------------------|------------------------------|------------------------------|---------------|
| | Academic self-efficacy | Effort regulation (negative) | Effort regulation (positive) | |
| 17 | .84 | -.05 | -.01 | .69 |
| 18 | .91 | -.16 | -.10 | .76 |
| 19 | .87 | .06 | .00 | .77 |
| 20 | .90 | .00 | -.05 | .78 |
| 21 | .83 | .08 | .05 | .75 |
| 22 | .57 | .00 | .31 | .57 |
| 23 | .89 | .06 | -.00 | .80 |
| 24 | .82 | .08 | .08 | .76 |
| 25 | -.02 | .85 | .10 | .76 |
| 26 | .10 | .01 | .77 | .67 |
| 27 | .03 | .89 | -.11 | .78 |
| 28 | -.06 | -.01 | .93 | .82 |

Items 17 to 24 loaded together, representing the academic self-efficacy factor in the original design of the MSLQ. It accounted for 51.68% of the total variance. The Cronbach's Alpha of academic self-efficacy was .94. Items 25 to 28 represented the effort regulation factor in the original MSLQ. However, two negatively worded items (25 and 27) loaded together while the two positively worded items (26 and 28) loaded together. They accounted for 13.12% and 9.32% of the total variance in the psychological constructs. Unfortunately, the four items of effort regulation did not load together as one factor. Therefore, these four items were discarded, and only the academic self-efficacy factor was used during further analyses.

Note that Rao and Sachs (1999) have already recognized that Chinese respondents may have trouble answering reverse-coded items. In fact, in their confirmatory factor analysis study of the Chinese version of MSLQ developed on the basis of Pintrich and De Groot (1990), all four reverse-coded items formed a group and this separate scale was named as a "method" factor (see also Rao, Moely, & Sachs, 2000; Sachs, Law, Chan, & Rao, 2001). The present study confirmed that Chinese students have difficulties answering the reverse-coded items.

Correlation Analyses

Pearson product-moment coefficients between independent variables and dependent variables for undergraduate and graduate participants are presented in Table 10. The sample included 102 undergraduate and 51 graduate students. TOPIK subsection

scores were also included in the correlation analyses in order to explore the relationship between the sub-skills of Korean proficiency and academic success. Two male undergraduate participants and one female graduate participant did not report the subsection scores of the TOPIK. These three cases were excluded pairwise. Note that except for those three missing TOPIK subsection scores, no other variables had missing data within this subgroup of the sample. Correlations among independent variables for undergraduate and graduate participants are shown in Table 11 and Table 12. Following Cohen's (1992) guidelines on interpretation of the magnitude of correlations, small, medium, and large correlations were defined as .10, .30, and .50.

As shown in Table 10, undergraduate participants' first semester GPAs were significantly correlated with most independent variables, including gender, high school GPA, the length of previous English study, TOPIK total and all subsection scores, self-perceived Korean proficiency, self-perceived English proficiency, and academic self-efficacy. GPAs were not significantly correlated with age and the length of previous Korean study. The correlation coefficients were low to moderately low, perhaps due to the restricted range in the sample. The highest correlation coefficient was with self-perceived Korean proficiency ($r = .36$), followed by gender ($r = .32$) and the TOPIK total score ($r = .29$). On the other hand, undergraduate participants' first semester credit hours were only significantly correlated with age, indicating older students had a tendency to take more courses. Undergraduate participants' first semester GPAs and credit hours

were negatively correlated with each other, suggesting the more credit hours undergraduate students took, the lower their GPAs.

Table 10

Correlations between Independent Variables and Dependent Variables

| | Undergraduate (<i>n</i> = 102) | | Graduate (<i>n</i> = 51) | |
|------------------------------------|------------------------------------|-----------------------------|------------------------------|-----------------------------|
| | First semester GPA | First semester credit hours | First semester GPA | First semester credit hours |
| First semester GPA | | -.25* | | -.28* |
| Gender | .32** | -.18 | .21 | -.00 |
| Age | -.17 | .22* | .04 | -.10 |
| High school GPA | .23* | -.03 | --- | --- |
| Undergraduate GPA | --- | --- | .39** | -.00 |
| Length of previous Korean study | -.03 | .17 | .29* | .26 |
| Length of previous English study | .25* | .10 | .29* | -.07 |
| TOPIK Vocabulary & Grammar | .20* | -.16 | .41** | -.13 |
| TOPIK Writing | .27** | -.14 | .40** | .01 |
| TOPIK Listening | .28** | -.05 | .07 | -.30* |
| TOPIK Reading | .21* | -.14 | .25 | -.39** |
| TOPIK Total | .29** | -.13 | .40** | -.29* |
| Self-perceived Korean proficiency | .36** | .04 | .10 | -.21 |
| Self-perceived English proficiency | .21* | .06 | .14 | -.16 |
| Academic self-efficacy | .26** | -.03 | .07 | -.02 |

Note: ***p* < .01, **p* < .05

Table 10 also showed that graduate first semester GPAs were significantly correlated with undergraduate GPA, the length of previous Korean and English study, TOPIK Vocabulary & Grammar, Writing, and total scores. TOPIK Listening and Reading scores were not significantly correlated with first semester GPAs, probably due to the ceiling effect. The correlation coefficients were low to moderately low, perhaps due to the restricted range in the sample. The highest correlation coefficient was with the TOPIK Vocabulary & Grammar score ($r = .41$), followed by the TOPIK total and Writing scores ($r = .40$) and undergraduate GPA ($r = .39$). Graduate participants' first semester credit hours had significant negative correlations with TOPIK Listening, Reading, and total scores. As mentioned above, students with insufficient Korean proficiency were required to take Korean language courses along with their major courses. Therefore, graduate students with insufficient Korean proficiency took more credit hours than those with strong Korean proficiency, which explained the above negative correlations. Graduate participants' first semester GPAs and credit hours were also negatively correlated with each other.

Correlations among independent variables were also examined (see Table 11 and Table 12). The correlations for the undergraduate students varied to a maximum correlation of 0.47 (age with the length of Korean study). Once again, the correlations were generally small to moderately small, suggesting that these variables could be independently used in subsequent analyses. Interestingly, undergraduate students' gender and age were significant correlated ($r = -.30$), indicating female undergraduate students

were younger than their male counterparts, which is possibly because female students were developmentally ready to start their schooling earlier than male students. The correlations for graduate students varied to a maximum correlation of 0.52 (self-perceived Korean and English proficiency). The correlations were small to medium, suggesting that these variables could be independently used in subsequent analyses.

Table 11

Correlations among Independent Variables (Undergraduate: n = 102)

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---------------------------------------|--------|-------|-------|-------|-------|-----|-------|-----|
| 1. Gender | | | | | | | | |
| 2. Age | -.30** | | | | | | | |
| 3. High school GPA | .23* | -.11 | | | | | | |
| 4. Academic self-efficacy | .18 | -.08 | .09 | | | | | |
| 5. TOPIK Total | .21* | .02 | .11 | .19 | | | | |
| 6. Self-perceived Korean proficiency | .15 | -.04 | .12 | .35** | .45** | | | |
| 7. Self-perceived English proficiency | .25* | -.08 | .41** | .30** | .25* | .13 | | |
| 8. Length of previous Korean study | -.12 | .47** | .03 | .13 | -.01 | .18 | -.11 | |
| 9. Length of previous English study | .18 | -.00 | .21* | .09 | .03 | .04 | .41** | .15 |

*Note: **p < .01, *p < .05*

Table 12

Correlations among Independent Variables (Graduate: n = 51)

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. |
|---------------------------------------|------|-------|-------|-------|------|-------|-----|-----|
| 1. Gender | | | | | | | | |
| 2. Age | -.11 | | | | | | | |
| 3. Undergraduate GPA | .15 | -.34* | | | | | | |
| 4. Academic self-efficacy | -.02 | -.08 | .43** | | | | | |
| 5. TOPIK Total | -.04 | .14 | .11 | .43** | | | | |
| 6. Self-perceived Korean proficiency | .14 | .03 | .06 | .31* | .13 | | | |
| 7. Self-perceived English proficiency | -.06 | -.18 | .32* | .46** | .33* | .52** | | |
| 8. Length of previous Korean study | .29* | .07 | .22 | .21 | .19 | .31* | .08 | |
| 9. Length of previous English study | -.02 | .42** | -.05 | -.05 | .08 | .15 | .13 | .12 |

*Note: **p < .01, *p < .05*

Regression Analyses

Hierarchical regression analyses were conducted with first semester GPA and first semester credit hours as the dependent variables respectively. One hundred and two undergraduate and 51 graduate participants who reported their TOPIK total scores were included in the regressions respectively. Gender, age, prior academic performance (high school GPA for undergraduate participants and undergraduate GPA for graduate

participants), and academic self-efficacy were entered into the regression first. Then various language proficiency indicators including the TOPIK total score, self-perceived Korean proficiency, self-perceived English proficiency, the length of previous Korean study, and the length of previous English study were added using stepwise regression. Stepwise regression was used to choose the most effective language proficiency indicators among those mentioned above. The results of the regression analyses are shown in Tables 13 through 17.

Table 13

Hierarchical Regression Analysis of Undergraduate Students' First Semester GPA (n = 102)

| Step | Adjusted R ² | F change (df ₁ , df ₂) | Variable | Final β | <i>t</i> | <i>p</i> |
|------|-------------------------|---|-----------------------------------|---------------|----------|----------|
| 1 | .14 | 5.12*** (4, 97) | Gender | .21 | 2.16 | .03 |
| | | | Age | -.07 | -.72 | .47 |
| | | | High school GPA | .14 | 1.50 | .14 |
| | | | Academic self-efficacy | .11 | 1.18 | .24 |
| 2 | .20 | 8.01** (1, 96) | Self-perceived Korean Proficiency | .27 | 2.83 | .006 |

Note: ****p* = .001, ***p* < .01

Table 13 shows the results of multiple regression with undergraduate participants' first semester GPAs as the dependent variable. Gender, age, high school GPA and academic self-efficacy were entered first, explaining 14% of the variance in the

first semester GPAs. Language proficiency indicators were then added via stepwise regression, and the total variance explained by the whole model was 20%. Self-perceived Korean proficiency was the only significant predictor among language proficiency indicators, accounting for an additional 6%. As presented in Table 14, there were no significant predictors in the regression with undergraduate participants' first semester credit hours as the dependent variable. None of the language proficiency indicators entered into the regression via Step 2.

Table 14

Hierarchical Regression Analysis of Undergraduate Students' First Semester Credit Hours (n = 102)

| Step | Adjusted R ² | F change (df ₁ , df ₂) | Variable | Final β | t | p |
|------|-------------------------|---|------------------------|---------------|-------|-----|
| 1 | .02 | 1.61 (4, 97) | Gender | -.13 | -1.19 | .24 |
| | | | Age | .19 | 1.79 | .08 |
| | | | High school GPA | .02 | .19 | .85 |
| | | | Academic self-efficacy | .01 | .11 | .91 |

The results of graduate participants' multiple regression with first semester GPAs as the dependent variable are shown in Table 15. Gender, age, undergraduate GPA, and academic self-efficacy were entered first, explaining 16% of the variance in the first semester GPAs. Language proficiency indicators were then added via stepwise regression, and the total variance explained by the whole model was 38%. In the final step, the significant predictors were undergraduate GPA ($\beta = .47, p = .001$), academic self-efficacy

($\beta = -.32, p < .05$), the TOPIK total score ($\beta = .48, p < .001$) and the length of previous English study ($\beta = .25, p < .05$). In Step 2, with the presence of academic self-efficacy, the TOPIK total score accounted for an additional 18% of the variance in first semester GPAs, and the length of previous English study added another 4% of the variance in Step 3.

Table 15

Hierarchical Regression Analysis of Graduate Students' First Semester GPA (n = 51)

| Step | Adjusted R ² | F change (df ₁ , df ₂) | Variable | Final β | t | p |
|------|-------------------------|---|----------------------------------|---------------|-------|------|
| 1 | .16 | 3.31* (4, 46) | Gender | .16 | 1.38 | .17 |
| | | | Age | .02 | .14 | .89 |
| | | | Undergraduate GPA | .47 | 3.54 | .001 |
| | | | Academic self-efficacy | -.32 | -2.30 | .03 |
| 2 | .34 | 13.84*** (1, 45) | TOPIK total | .48 | 3.78 | .000 |
| 3 | .38 | 4.19* (1, 44) | Length of previous English study | .25 | 2.05 | .047 |

Note: *** $p = .001$, * $p < .05$

Note that academic self-efficacy was not a significant predictor when it was first entered into the regression. In fact, academic self-efficacy was not significantly correlated with graduate first semester GPA. However, when the TOPIK total score entered, it became a significant predictor with a negative β value. Academic self-efficacy

may serve as a suppressor variable (see Cohen and Cohen, 1983). Since academic self-efficacy was not significantly correlated with graduate first semester GPA, it was actually a typical or classic suppressor which invites the interaction with suppression. Suppression is present when either one of two independent variables' correlation with the dependent variable is less than the correlations between the two independent variables (Cohen & Cohen, 1983). The correlation between the TOPIK total score and graduate first semester GPA was .40, and academic self-efficacy and graduate first semester GPA was not significantly correlated ($r = .07$, n.s.), both of which were smaller than the correlation between the TOPIK total score and academic self-efficacy ($r = .43$). When suppression happens, it is common that one of the coefficients becomes negative (academic self-efficacy in this case). The suppressor variable suppresses the unwanted variance in the independent variable it interacts with, and enhances the relationship between that independent variable and dependent variable (Cohen & Cohen, 1983). In this case, the β value of the TOPIK total score has been enlarged by academic self-efficacy. In order to see the real contribution of the TOPIK total score, the regression with graduate first semester GPAs as the dependent variable was performed again without the academic self-efficacy. The results are presented in Table 16.

Table 16

Hierarchical Regression Analysis of Graduate Students' First Semester GPA without Academic Self-efficacy (n = 51)

| Step | Adjusted R ² | F change (df ₁ , df ₂) | Variable | Final β | t | p |
|------|-------------------------|---|----------------------------------|---------------|------|------|
| 1 | .16 | 4.24** (3, 47) | Gender | .18 | 1.51 | .14 |
| | | | Age | .01 | .09 | .93 |
| | | | Undergraduate GPA | .34 | 2.71 | .01 |
| 2 | .27 | 8.10** (1, 46) | TOPIK total | .35 | 2.96 | .005 |
| 3 | .33 | 4.57 * (1, 45) | Length of previous English study | .28 | 2.14 | .04 |

*Note: ** $p \leq .01$, * $p < .05$*

Comparing Table 16 to Table 15, gender, age, and undergraduate GPA still accounted for 16% of the variance in the graduate first semester GPAs without academic self-efficacy. The TOPIK total score accounted for an additional 11% of the variance in graduate first semester GPAs, and the length of previous English study added another 6% of the variance. The total variance explained was reduced from 38% to 33%. Both the β values of undergraduate GPA ($\beta = .34$, $p = .01$) and the TOPIK total score ($\beta = .35$, $p < .01$) were reduced while the β value of the length of previous English study ($\beta = .28$, $p < .05$) was increased. Note that the TOPIK total score still indicated a slightly higher β value than undergraduate GPA.

With the multiple regression of graduate first semester credit hours as the dependent variable, Step 1 was not significant and the adjusted R square was -.07, indicating that gender, age, undergraduate GPA, and academic self-efficacy were not significant predictors of graduate participants' first semester credit hours. Therefore, all four variables were excluded and the regression was performed again with only language proficiency indicators via stepwise regression. The results are shown in Table 17.

Table 17

Hierarchical Regression Analysis of Graduate Students' First Semester Credit Hours (n = 51)

| Step | Adjusted R ² | F change (df ₁ , df ₂) | Variable | Final β | t | p |
|------|-------------------------|---|-----------------------------------|---------------|-------|------|
| 1 | .06 | 4.43* (1, 49) | TOPIK total | -.33 | -2.59 | .013 |
| 2 | .15 | 6.09* (1, 48) | Length of previous Korean study | .42 | 3.12 | .003 |
| 3 | .22 | 5.04* (1, 47) | Self-perceived Korean proficiency | -.30 | -2.24 | .03 |

Note: * $p < .05$

As indicated in Table 17, the TOPIK total score was entered into the model first, explaining 6% of the variance in graduate participants' first semester credit hours. Then the length of previous Korean study was entered, adding another 9% to the variance explained. In the final model, the TOPIK total score ($\beta = -.33, p < .05$), the length of previous Korean study ($\beta = .42, p < .01$), and self-perceived Korean proficiency ($\beta = -.30,$

$p < .05$) explained a total of 22% of the variance, which indicates self-perceived Korean proficiency added an extra 7% to the explained variance.

Chapter 5

Discussion and Conclusion

My research focused on three research questions concerning the prediction of Chinese students' academic success in Korean universities, the additional contribution of Korean and English language proficiency, and the examination of prediction patterns for undergraduate and graduate students. This chapter addresses these three questions in sequence. First, the predictors of academic success are discussed, GPA and credit hours respectively. Second, the discussion of the contribution of language proficiency is presented in the following order: TOPIK, self-perceived language proficiency and the length of previous language study. Finally, the prediction models of undergraduate and graduate students are compared. Regarding the interpretation of the magnitude of correlations, small, medium, and large correlations were defined as .10, .30, and .50 (Cohen, 1992). The limitations and future research are then discussed, followed by conclusions and implications.

Predictors of Academic Success

The first research question was: "What are the predictors of Chinese students' academic success in Korean universities in terms of GPA and the number of credit hours earned?" For clarity, GPA and credit hours are referred to the GPA and credit hours earned in the first semester for the discussions below. According to the regression analyses, undergraduate GPA was predicted by gender and self-perceived Korean

proficiency. None of the variables in the model were significant predictors of undergraduate credit hours. Graduate GPA was predicted by undergraduate GPA, academic self-efficacy, the TOPIK total score, and the length of previous English study. All Korean proficiency indicators including the TOPIK total score, the length of previous Korean study, and self-perceived Korean proficiency were significant predictors of graduate credit hours.

Predictors of GPA

In the present study, undergraduate GPA was predicted by gender and self-perceived Korean proficiency in the regression model. In Richardson et al.'s (2012) comprehensive meta-analysis, the effect size estimates of gender ($r = .09$) and age ($r = .08$) were small. However, I found much larger associations with gender ($r = .32$), indicating that in the case of Chinese students studying at Korean universities, female undergraduate students obtained higher GPAs than males. In Wait and Gressel's (2009) study in the context of an American accredited university located in the United Arab Emirates, gender was also a significant predictor of the university overall GPA, and again, female students earned higher overall GPAs than males. Wait and Gressel (2009) also noted that an increasing TOEFL score had a greater positive effect on GPA for female students than males, which they claimed could be attributed to different learning style preferences between males and females, although other empirical studies in language testing have not supported this finding. In the present study, female undergraduate students showed higher high school GPAs, TOPIK scores, and ratings of self-perceived Korean and English proficiency and academic self-efficacy, compared to male students.

These superior previous academic performances and perceptions could have contributed to their higher GPA in their undergraduate education. Self-perceived Korean proficiency was a significant predictor of undergraduate GPA, which will be further discussed in detail when addressing the second research question.

Age, high school GPA, and academic self-efficacy were not significant predictors of undergraduate GPA. Age was not a relevant factor to undergraduate GPA in the present study, largely because Chinese students involved in both undergraduate and graduate studies in Korean universities generally belonged to the same age group. Contrary to the previous literature, high school GPA was not a significant predictor of undergraduate GPA even though a small correlation was found ($r = .23$). In Wait and Gressel's (2009) study in the United Arab Emirates, high school GPA was a significant predictor of university overall GPA, and the coefficient was actually higher than that of the TOEFL score. In Richardson et al.'s (2012) meta-analysis, high school GPA ($r = .40$) was found to have a medium correlation with undergraduate GPA. The inconsistency between the present study and previous literature may be a result of using the high school graduation unified exam as the measure in the present study. The unified exam reports students' achievements on only four levels – excellent, good, moderate, and pass, likely an ordinal outcome. Further, amongst the 102 undergraduate students in the regression analyses, 66 (64.7%) reported “excellent” and “good.” High schools in China do not have a GPA system to record class marks, making the National Matriculation Test the best representative of high school GPA. However, not all Chinese students who pursue

undergraduate studies in Korea have taken the National Matriculation Test. Therefore, the high school graduation unified exam was chosen to measure high school GPA in this study. Researchers should be cautious when using the high school graduation unified exam in future studies.

Based on the regression analyses, graduate GPA was predicted by undergraduate GPA, academic self-efficacy, the TOPIK total score, and the length of previous English study. In the present study, undergraduate GPA ($r = .39$) had a medium correlation and was the only significant predictor of graduate GPA in the initial regression model among all four traditional and psychological factors. This result is consistent with Wimberley, McCloud, and Flinn's (1992) study that included international students from 27 different U.S. universities. They found that undergraduate GPA was the strongest predictor of graduate GPA. The present study confirmed that prior academic performance was a strong predictor of GPA.

Academic self-efficacy was significant in the regression model with graduate GPA as the dependent variable. However, it was a suppressor rather than a predictor. It was not a significant predictor when it was first entered into the regression. When the TOPIK total score entered, it became a significant predictor with a negative β coefficient. When academic self-efficacy increased, it suppressed the graduate GPA. Academic self-efficacy was not a significant predictor of undergraduate GPA even though it indicated a small significant correlation ($r = .26$). Overall, it appears that academic self-efficacy did not play an influential role for the students investigated in the present study. In

comparison, the mean correlation of academic self-efficacy and university GPA in Richardson et al.'s (2012) meta-analysis was moderate ($r = .31$), and in Robbins et al.'s (2004) meta-analysis, academic self-efficacy ($r = .38$) was identified as the best predictor of university GPA and even had a higher β coefficient than high school GPA in the regression.

Language proficiency played an important role in academic success in the present study. It has been suggested that it is at lower levels of proficiency where language becomes an important predictor of academic success (Elder, 1993; Graham, 1987). Johnson (1988) claimed that with higher language proficiency (which means when language proficiency stops playing an important role in academic success), other factors such as motivation and academic aptitude/experience may become more important in academic success (also see Stoyhoff, 1997). This might explain why academic self-efficacy was not very influential in the present study. Elder (1993) also noticed that above a certain level of language proficiency, many other factors including scholastic aptitude, motivation, and interactive styles are likely to interact with language ability. In the present study, academic self-efficacy was associated with the TOPIK total score ($r = .43$). As a suppressor, academic self-efficacy suppressed the unwanted variance in the TOPIK total score, and enhanced the relationship between the TOPIK and graduate GPA. Note that academic self-efficacy also showed medium correlations with self-perceived Korean proficiency ($r = .31$) and self-perceived English proficiency ($r = .46$). It appears

that academic self-efficacy interacted with language proficiency, which contributed to academic success.

Language proficiency predictors of graduate GPA, including the TOPIK total score and the length of previous English study, will be discussed in detail when addressing the second research question of the present study.

Predictors of Credit Hours

In the regression model, there were no significant predictors of undergraduate credit hours. It was not surprising because among all the independent variables, only age indicated a small correlation with undergraduate GPA ($r = .22$). However, in the previous studies, language proficiency had associations with undergraduate credit hours. For example, Stoyhoff (1997) found a significant correlation between TOEFL scores and credits earned ($r = .23, p = .05$), among the 77 international students who enrolled as freshmen at a university in the Northwest of the United States. Johnson (1988) selected 27 undergraduate students with a lower TOEFL score ranging from 450 to 525 at the University of Wisconsin-Green Bay in the United States, and found a high correlation between TOEFL scores and credit hours earned ($r = .80, p < .01$). The undergraduate participants investigated in the present study might have achieved adequate levels of language proficiency at the time of the study, or prior to their entrance into university so that language proficiency no longer influenced the credit hours they registered for.

On the other hand, all Korean proficiency indicators including the TOPIK total score, the length of previous Korean study, and self-perceived Korean proficiency were

significant predictors of graduate credit hours. The TOPIK total score and self-perceived Korean proficiency had negative β coefficients. This is not unexpected as graduate students with poor Korean proficiency were required to take more credit hours to increase their Korean language skills. The positive β coefficient of the length of previous Korean study actually implied that the longer graduate students studied Korean, the more credit hours they registered for, and the poorer their Korean proficiency. The length of previous Korean study was not correlated with the TOPIK total score or self-perceived Korean proficiency, indicating that more years of Korean study did not guarantee higher levels of Korean proficiency with this group of Chinese students. The length of previous Korean study represented the time from when students started their Korean study until the time they participated the study. Students could start earlier, but had no intensive or professional training, which contributed to the fact that students who studied Korean longer had poorer Korean proficiency.

It was expected that graduate credit hours would have less variation as compared to undergraduate credit hours. Most graduate students in Korean universities register for nine credit hours (three courses) for each semester (at most 12 credit hours, 4 courses). However, the data in this study showed variation in graduate credit hours likely because graduate students with poor Korean proficiency were required to take Korean language courses along with their major courses. Given the link between increased credit hours and lower language proficiency, GPA remains to be and is a better indicator of academic success in the context of Chinese students studying in Korean universities. This finding

contradicts previous research but illustrates the importance of context in exploring seemingly similar outcome variables. (Graham, 1987; Johnson, 1988; Light et al., 1989; Stoyhoff, 1997).

Contributions of Language Proficiency

This section addresses the second research question proposed by this study: “What do Korean and English language proficiencies add to the contribution of traditional and psychological predictors?” The findings confirmed what a number of other prediction studies have suggested: language proficiency has a relationship with academic success and is an important predictor of academic success (Cho & Bridgeman, 2012; Elder, 1993; Feast, 2002; Hill, Storch & Lynch, 1999; Johnson, 1988; Light & Teh-Yuan, 1991; Stoyhoff, 1997; Wait & Gressel, 2009). The standardized test, TOPIK, including both the total score and the subsection scores, is discussed first, followed by self-perceived language proficiency, and the length of previous language study.

TOPIK

Even though previous research had mixed results regarding the relationship between TOEFL/IELTS and GPA, the present study found that language proficiency, as defined by test scores, had a moderate relationship with GPA. Furthermore, both the TOPIK total score ($r = .29$) and all subsection scores (Vocabulary & Grammar: $r = .20$, Writing: $r = .27$, Listening: $r = .28$, & Reading: $r = .21$) showed small to medium correlations to undergraduate GPA. TOPIK total ($r = .40$), Vocabulary & Grammar ($r = .41$), and Writing ($r = .40$) showed medium correlations with graduate GPA. TOPIK

Listening and Reading were not correlated with graduate GPA, likely because the scores on those two sections had ceiling effects. Overall, TOPIK showed a small to medium correlation with GPA.

The TOPIK total ($r = -.29$), Listening ($r = -.30$), and Reading ($r = -.39$) scores were also negatively correlated with graduate credit hours, further indicating that graduate students with poor Korean proficiency took more credit hours. Light et al. (1987) found a positive correlation between TOEFL scores and graduate credit hours ($r = .19$), with 376 international graduate students studying in the United States. This inconsistency might be due to the fact that American universities do not offer admission to students with lower English proficiency, and hence there is no need for international students in American universities to register for additional English language classes. However, those whose English proficiency is strong can take more courses in their fields.

Small correlation coefficients were expected because of the range restriction of the sample. In fact, one should not expect a correlation of more than .3 in predictive validity studies (Cripter & Davies, 1988, as cited in Dooley & Oliver, 2002). However, even a small correlation can indicate a meaningful relationship (Rosenthal & Rubin, 1982; Schrader, 1965; Sackett, Borneman, & Connelly, 2008, as cited in Cho & Bridgeman, 2012). These should be kept in mind when interpreting the correlations between TOPIK scores and indicators of academic success obtained in the present study. Moreover, Graham (1987) believed that “it is more useful to interpret a correlation coefficient by squaring it to obtain the common variance between two measures.” (Graham, 1987, p.

508). For example, Cho and Bridgeman (2012), in their recently conducted large sample prediction study with international students studying in the U.S. universities, reported that TOEFL iBT could explain about 3% of the variance in undergraduate GPA ($r = .18$) and about 4% in graduate GPA ($r = .20$). In the present study, the TOPIK total score explained 8.41% ($r = .29$) of the variance in undergraduate GPA and 16% ($r = .40$) of the variance in graduate GPA. The predictive validity of TOPIK is relatively strong compared with previous studies using English proficiency scores and could serve well as one of admission requirements to Korean universities.

Previous research has largely relied on correlation coefficients to discuss the predictive validity of TOEFL and IELTS. In the present study, the TOPIK total score had a medium correlation and was a significant predictor of graduate GPA and credit hours. Without the presence of academic self-efficacy, the TOPIK total score alone accounted for an additional 11% of the variance in graduate GPA. The TOPIK total score also explained 6% of the variance in graduate credit hours. However, even though the TOPIK total score showed a medium correlation with undergraduate GPA, it was not a significant predictor in the regression model, which suggests that correlation analyses alone might not be sufficient and both correlation and regression analyses should be adopted in future prediction studies.

Self-perceived Language Proficiency

Self-perceived Korean proficiency ($r = .36$) indicated a medium correlation with undergraduate GPA but had no correlation with graduate GPA. Self-perceived English proficiency ($r = .21$) showed a small correlation with undergraduate GPA but had no

correlations with graduate GPA. Neither of these two indicators showed correlations with undergraduate or graduate credit hours. Self-perceived Korean proficiency was also a predictor of graduate credit hours and accounted for an additional 7% of the variance in addition to the contribution of the TOPIK total score and the length of previous Korean study.

Self-perceived Korean proficiency showed a stronger correlation with undergraduate GPA than the TOPIK total score and became the only predictor among language proficiency indicators. Self-perceived Korean proficiency added 6% of the variance in undergraduate GPA to the contribution of traditional and psychological factors. Also note that self-perceived Korean proficiency and the TOPIK total score had a medium correlation ($r = .45$) among undergraduate participants. This result is consistent with Xu's (1991) study, in which self-rated English proficiency was the major predictor while TOEFL was not significantly associated with the perceived level of academic difficulty. Also in Li et al.'s (2010) study of 178 international students in a university in England, self-perceived English writing ability instead of English test scores was a significant predictor of academic success. This finding suggests that self-perceived language proficiency can predict academic success better than standardized language tests, and hence is also a strong (and sometimes better) indicator of language proficiency. On the other hand, self-perceived English proficiency had a small correlation and was not a significant predictor of undergraduate GPA, indicating that English as a third language has limited influence on Chinese undergraduate' GPA in Korean universities.

Length of Previous Language Study

The length of previous Korean study was not correlated with undergraduate GPA but demonstrated a medium correlation ($r = .29$) with graduate GPA. The length of previous English study showed small to medium correlations with both undergraduate ($r = .25$) and graduate GPA ($r = .29$). Both variables showed no correlations with undergraduate credit hours or graduate credit hours. The length of previous Korean study was a significant predictor of graduate credit hours. The length of previous English study was a significant predictor of graduate GPA. The results of previous research showed inconsistency regarding the relationship between the length of previous language study and GPA. In Xu's (1991) study of international graduate students in the United States, the length of prior English study was a significant predictor of the perceived level of academic difficulty. In Woodrow's (2006) study conducted in the University of Sydney, Australia, the years of English learning did not correlate with graduate GPA, and the years of previous English study was not a significant predictor of undergraduate GPA in Wimberley et al.'s (1992) study on Indonesian students in American universities. However, the findings of the present study suggest that the length of previous language study had associations with, and could predict, academic success.

Among all five language proficiency indicators, the length of previous Korean study was the only one that was not correlated with undergraduate GPA. Even though the length of previous Korean study had a medium correlation with graduate GPA, it was not a significant predictor of graduate GPA. However, the length of previous Korean study was a significant predictor of graduate credit hours as well as the TOPIK total score and

self-perceived Korean proficiency. It added an additional 9% of the variance in graduate credit hours to the contribution of the TOPIK total score. This finding indicates that those three indicators captured different aspects of language proficiency, and researchers should keep in mind that different language proficiency indicators should be used together when exploring the relationships between language proficiency and academic success.

Even though the length of previous English study was correlated with both undergraduate and graduate GPA, it was a significant predictor of only graduate GPA. Without academic self-efficacy in the regression model, the length of previous English study actually accounted for an extra 6% of the variance in graduate GPA in addition to the contributions of gender, age, undergraduate GPA, and the TOPIK total score. This finding suggests that English proficiency plays a more influential role in graduate studies than undergraduate studies, and both Korean and English proficiency contribute to graduate GPA. A possible reason for this is that English is more needed in graduate rather than undergraduate studies in Korean universities.

Prediction Patterns of Undergraduate and Graduate Academic Success

The last research question addressed was: “Are the prediction models similar for undergraduate and graduate students?” Since there were no significant predictors in the regression with undergraduate credit hours as the dependent variable, this section will only review the results of regression with undergraduate and graduate GPA as the

dependent variables, followed by a comparison of the prediction patterns between Chinese undergraduate and graduate students studying in Korean universities.

In the regression model, gender, age, high school GPA, academic self-efficacy, and self-perceived Korean proficiency explained 20% of the variance in undergraduate first semester GPAs. Gender ($\beta = .21, p < .05$) and self-perceived Korean proficiency ($\beta = .27, p < .01$) were significant predictors. For graduate students, the whole model, including gender, age, undergraduate GPA, TOPIK, academic self-efficacy and the length of previous English study, explained 38% of the variance in graduate first semester GPAs. Undergraduate GPA ($\beta = .47, p = .001$), TOPIK ($\beta = .48, p < .001$), academic self-efficacy ($\beta = -.32, p < .05$) and the length of previous English study ($\beta = .25, p < .05$) were significant predictors. The variances explained by the regression models were rather small, indicating that international students' academic success is a complex issue, and in addition to language proficiency, a number of other determinants play an important role (Cotton & Conrow, 1998; Dooley & Oliver, 2002; Woodrow, 2006).

The regression analyses determined that the prediction patterns for undergraduate and graduate GPA were different, which is not surprising due to the differing natures of the undergraduate and graduate studies. Gender was an effective predictor of undergraduate GPA but not graduate GPA, and female undergraduates obtained higher GPAs than males. Compared to previous research, gender indicated a stronger correlation with GPA among undergraduate participants investigated in this study, which may be due to the superior previous performance in both academics and

language proficiency by female undergraduates. Certainly, additional research is needed to investigate the reasons behind the superior performance by female undergraduate students.

For undergraduate students, prior academic performance and English proficiency did not have an effect on their academic success. Prior academic performance (high school GPA) was not a significant predictor probably due to the poor measurement quality of this variable, the high school graduation unified exam. English proficiency was a significant predictor of graduate GPA, which might be attributed to the different characteristics of undergraduate and graduate studies. Undergraduate studies mainly focus on learning basic concepts or skills and lay foundations for life, work or future studies while graduate studies concentrate on more advanced topics and require deeper exploration of complex ideas. Graduate students in Korean universities need to read literature in English, in which most advanced research is published. In addition, English textbooks are often adopted in graduate courses in Korean universities. Hence it is not a surprise that English proficiency would contribute to graduate students' academic success in Korean universities.

Academic self-efficacy was more of a suppressor than a predictor of graduate GPA. Although it did not directly contribute to graduate GPA, it did have an interaction with Korean proficiency. It is interesting that academic self-efficacy had no such interaction with undergraduate students' Korean proficiency. Note that graduate students indicated higher Korean proficiency than undergraduate students in this study. According

to Elder (1993), above a certain level of language proficiency, other factors are likely to interact with language ability. Hence, it is possible that the level of graduate students' Korean proficiency was largely above this level.

Limitations and Future Research

The present study was limited by the range restrictions of the sample, which reduced variability in many of the variables. Since only those who achieved certain scores on TOPIK would be offered admission, the score range on TOPIK was limited. In fact, among all 102 undergraduate and 51 graduate participants who reported their TOPIK scores, only 5 undergraduate students reported a score under 200 (Level 3) out of 400, which means 97% participants achieved Level 3 and above in this study. Unlike TOEFL or IELTS, TOPIK offers three levels of test – TOPIK Elementary, TOPIK Intermediate, and TOPIK Advanced – which makes the participants of this study with TOPIK Intermediate scores even more restricted in their Korean proficiency. Previous academic performance was also restricted in its range. Undergraduate students have at least achieved a passing level at high school in order to be admitted to the program. Graduate programs usually have a cut-off score for undergraduate GPA for admission. Amongst the 51 graduate participants in the regression analyses, 45 (88.2%) reported an undergraduate GPA of 80 or above (out of 100). The restricted sample may also lead to restricted ratings of self-perceived language proficiency and academic self-efficacy. A restricted range of values in one or both of the variables will lower the correlation

coefficients found (Stoynoff, 1997). Therefore, the actual effect of the variables investigated in this study might have been underestimated.

In addition, the factors investigated in this study were limited. The present study included only two psychological constructs, and one of them (effort regulation) could not be used for further analyses because the items did not load as one factor. Academic self-efficacy was not found to have a strong influence on Chinese students studying in Korean universities, which was probably because language proficiency was still an important factor for those participants investigated in this study. Therefore, other factors, especially those unique to international students, should be included in future studies when exploring international students' academic success. For example, in Li et al.'s (2010) study in the United Kingdom, importance of learning success to family and social communication with compatriots were significant predictors of international students' and Chinese students' academic success. Wimberley et al. (1992) reported that the presence of students' family in the United States positively affected both graduate GPA and degree completion. Those factors unique to international students should also be considered when investigating international students' academic success.

Conclusions and Implications

This study investigated the key determinants of Chinese students' academic success in Korean universities, including traditional factors, prominent psychological factors and especially language proficiency factors. Consistent with previous research,

traditional factors including gender and prior academic performance were found to be effective predictors of academic success. However, academic self-efficacy did not play an influential role for Chinese students studying in Korean universities, possibly due to the influence of language proficiency.

Language proficiency had a moderate effect on Chinese students' academic success, which is consistent with previous studies that reported a positive statistically significant relationship between language proficiency and academic success. In this context particularly, Korean proficiency contributed to undergraduate GPA and graduate credit hours whereas both Korean and English proficiency contributed to graduate GPA. The different natures of undergraduate and graduate studies determined that the predictors of undergraduate and graduate students' academic success were different. The predictive validity of TOPIK is strong compared with previous prediction studies, indicating TOPIK measures the Korean proficiency needed in academic settings and TOPIK Intermediate (Levels 3 & 4) are proper thresholds for international students who want to pursue further study in Korean universities. Furthermore, self-perceived language proficiency and the length of previous language study are effective alternative measures of language proficiency.

The findings of this study have implications for future research. GPA is a strong indicator of academic success compared to credit hours, and hence GPA instead of credit hours should be used as an indicator of academic success in future research. Standardized test score, self-perceived language proficiency, and the length of previous language study

are all effective indicators of language proficiency, and various language proficiency indicators should be used together when investigating the relationships between language proficiency and academic success. It should be noted that only Chinese students were investigated in the present study and hence the findings may not be generalized for international students from other countries.

The findings of this study also have implications for practice. The TOPIK indicated a relatively strong predictive validity, and hence could serve well as an admission criterion. In addition, self-perceived language proficiency and the length of previous language study could also be used to complement the TOPIK score in admission decisions. As for graduate students, it may be helpful for the admission committee to include proof of English language proficiency as one of the admission criteria. Language proficiency plays an important role in academic success, which is positive to both Korean universities and Chinese students who want to pursue further study in Korean universities. Universities can screen students and require language intervention based on students' language proficiency while students should be aware of the fact that they need to achieve certain level of language proficiency in order to succeed in Korean universities.

The determinants of international students' academic success are complex and not yet completely understood, and language proficiency is only one of the factors contributing to international students' academic success. This study addressed the research gap by integrating theoretical constructs from both psychology and education, and also by exploring the relationships between language proficiency and academic

success in a less researched test, TOPIK, and in two second languages, Korean and English, at the same time. The findings contribute to the overall understanding of international students' academic success, in particular the success of Chinese students studying in Korean universities.

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Appendix A

Questionnaire (English)

Understanding Chinese students' academic success in Korean Universities

Check the following box if it is true for you.

"I have read the Letter of Information about this study and consent to participation in the study."

You are invited to fill in this questionnaire. It is comprised of four sections, including demographic information, academic background, language proficiency, and psychological factors. It will take you about 10 minutes to complete. Thank you very much for your participation. Please fill in the blanks or circle one of the options best fits your situation.

Section 1: Demographic Information

1. Sex: male / female
2. Age: _____
3. Level of Study: undergraduate / master's
4. Major: _____
5. University Name: _____

Section 2: Academic background

6. I started my study in Korea since _____(Month)/_____(Year).
7. I took _____ credit hours in my first semester study in Korea.
8. My first semester GPA was _____.
9. *For those who have known their second semester grades ONLY
I took _____ credit hours in my second semester study in Korea.
My second semester GPA was _____.

10. *For master's students ONLY

My undergraduate overall GPA was _____.

11. *For undergraduate students ONLY

I achieved (Excellent / Good / Moderate / Pass) level on my high school graduation unified examination.

Section 3: Language proficiency

12. I have been studying **Korean** for _____(by years).

13. I have been studying **English** for _____(by years).

14. I took the TOPIK Intermediate in _____(Month)/_____(Year), and my score reports were:

| Vocabulary & Grammar | Writing | Listening | Reading | Total |
|----------------------|---------|-----------|---------|-------|
| | | | | |

15. Have you taken CET-4? (Yes / No) If yes, please specify your score _____.

16. In a scale of 1-7, 1 = "not good at all", and 7 = "very good",

a. How do you rate your **Korean** language proficiency?

- Overall: 1 2 3 4 5 6 7
- Reading: 1 2 3 4 5 6 7
- Writing: 1 2 3 4 5 6 7
- Listening: 1 2 3 4 5 6 7
- Speaking: 1 2 3 4 5 6 7

b. How do you rate your **English** language proficiency?

- Overall: 1 2 3 4 5 6 7
- Reading: 1 2 3 4 5 6 7
- Writing: 1 2 3 4 5 6 7
- Listening: 1 2 3 4 5 6 7
- Speaking: 1 2 3 4 5 6 7

Section 4: Psychological factors

Think of the most successful class you took on your first semester study in Korea.

Answer the questions below for that class on a seven-point scale, 1 = “not at all true of me” and 7 = “very true of me”. Find a number between 1 and 7 that best describe you.

| | <p style="text-align: center;"> Not at all true of me ↔ Very true of me </p> | | | | | | |
|--|---|---|---|---|---|---|---|
| 17. I believed I would receive an excellent grade in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. I was certain I could understand the most difficult course material presented in the readings for this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. I was confident I could understand the basic concepts taught in this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. I was confident I could understand the most complex material presented by the instructor in this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. I was confident I could do an excellent job on the assignments and tests in this course. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. I expected to do well in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. I was certain I could master the skills being taught in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. Considering the difficulty of this course, the teacher, and my skills, I thought I would do well in this class. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. I often felt so lazy or bored when I studied for this class that I quit before I finished what I have planned to do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. I worked hard to do well in this class even though I didn't like what we were doing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 27. When course work was difficult, I gave up or only studied the easy parts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. Even when the course materials were dull and uninteresting, I managed to keep working until I finished. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

End of Questionnaire

Thank you very much for your participation.

Appendix B

Questionnaire (Chinese)

关于影响中国学生在韩国大学的学习成绩因素的问卷调查

如果你同意下面句子的陈述请在方框里打勾

“我已经阅读了此研究的 Letter of Information 并同意参加此次调查。”

同学们，你们好！请你填写的这份调查问卷分为个人背景，学习情况，语言能力和心理因素四个部分。完成这份问卷大概需要 10 分钟。谢谢你的参与。请按照你的具体情况和想法填空或在最符合你情况的选项上画圈。

第一部分：个人背景

1. 性别：男 / 女
2. 年龄：_____（周岁）
3. 攻读学位：本科 / 硕士
4. 所学专业：_____
5. 所在学校：_____（学校名）

第二部分：学习情况

6. 我是从_____年_____月开始进入韩国大学进行专业学习的。
7. 在韩国专业学习的第一个学期我修了_____学分（比如 12）。
8. 我第一个学期的平均成绩(GPA)是_____（比如 2.5）。
9. *请已经得知第二个学期的专业学习的情况的同学回答
第二个学期我修了_____学分，第二学期的平均成绩是(GPA) 是_____。
10. *请硕士在读生回答
我本科毕业的最终平均成绩是 _____（百分制）。
11. *请本科在读生回答
我高中会考所有科目的平均成绩是：优秀 / 良好 / 一般 / 及格

第三部分：语言能力

12. 我从开始学习韩国语到现在一共有_____年了。

13. 我从开始学习英语到现在一共有_____年了。

14. 我于_____年_____月参加了韩国能力考试-中级的测试。我的成绩如下：

| 词汇 & 语法 | 写作 | 听力 | 阅读 | 总分 |
|---------|----|----|----|----|
| | | | | |

15. 你参加过大学英语四级考试(CET-4)吗？（是的 / 没有）

如果参加过，那么你的总分是_____。

16. 如果用 1 到 7 七个数字表示你的语言能力，1 = 一点儿也不好，7 = 非常好，

a. 你如何评价自己的韩国语水平？

- 总体水平： 1 2 3 4 5 6 7
- 阅读： 1 2 3 4 5 6 7
- 写作： 1 2 3 4 5 6 7
- 听力： 1 2 3 4 5 6 7
- 会话： 1 2 3 4 5 6 7

b. 你如何评价自己的英语水平？

- 总体水平： 1 2 3 4 5 6 7
- 阅读： 1 2 3 4 5 6 7
- 写作： 1 2 3 4 5 6 7
- 听力： 1 2 3 4 5 6 7
- 会话： 1 2 3 4 5 6 7

第四部分：心理因素

请根据你在韩国大学第一学期所修的专业课程中，成绩最高的一门课来回答下面的问题(在上那门课之前和上那门课当时的情况)。如果用 1 到 7 七个数字来反映你的

Appendix C

Ethics Approval Letter



May 27, 2013

Mr. Wei Yan
Master's Student
Faculty of Education
Duncan McArthur Hall
Queen's University
511 Union St.
Kingston, ON K7M 5R7

GREB Ref #: GEDUC-670-13; Romeo # 6009509
Title: "GEDUC-670-13 Determinants of Chinese Students' Academic Success in Korean Universities"

Dear Mr. Yan:

The General Research Ethics Board (GREB), by means of a delegated board review, has cleared your proposal entitled "**GEDUC-670-13 Determinants of Chinese Students' Academic Success in Korean Universities**" for ethical compliance with the Tri-Council Guidelines (TCPS) and Queen's ethics policies. In accordance with the Tri-Council Guidelines (article D.1.6) and Senate Terms of Reference (article G), your project has been cleared for one year. At the end of each year, the GREB will ask if your project has been completed and if not, what changes have occurred or will occur in the next year.

You are reminded of your obligation to advise the GREB, with a copy to your unit REB, of any adverse event(s) that occur during this one year period (access this form at https://eservices.queensu.ca/romeo_researcher/ and click Events - GREB Adverse Event Report). An adverse event includes, but is not limited to, a complaint, a change or unexpected event that alters the level of risk for the researcher or participants or situation that requires a substantial change in approach to a participant(s). You are also advised that all adverse events must be reported to the GREB within 48 hours.

You are also reminded that all changes that might affect human participants must be cleared by the GREB. For example you must report changes to the level of risk, applicant characteristics, and implementation of new procedures. To make an amendment, access the application at https://eservices.queensu.ca/romeo_researcher/ and click Events - GREB Amendment to Approved Study Form. These changes will automatically be sent to the Ethics Coordinator, Gail Irving, at the Office of Research Services or irvingg@queensu.ca for further review and clearance by the GREB or GREB Chair.

On behalf of the General Research Ethics Board, I wish you continued success in your research.

Yours sincerely,

A handwritten signature in cursive script that reads "John D. Freeman".

John Freeman, Ph.D.
Professor and Acting Chair
General Research Ethics Board

cc: Dr. Liying Cheng, Faculty Supervisor
Dr. Don Klinger, Chair, Unit REB
Erin Wicklam, c/o Graduate Studies and Bureau of Research