

COLLEGE SUCCESS FACTORS FOR INTERNATIONAL STUDENTS
STUDYING IN THE UNITED STATES OF AMERICA AFTER COMPLETING AN
INTERNATIONAL BACCALAUREATE HIGH SCHOOL PROGRAM

A Dissertation

Presented in Partial Fulfillment of the Requirements for the

Degree of Doctor of Education

with a

Major in Educational Leadership

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Department of Graduate Education

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by


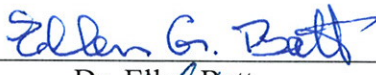
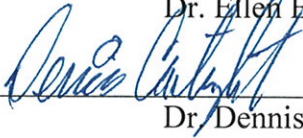
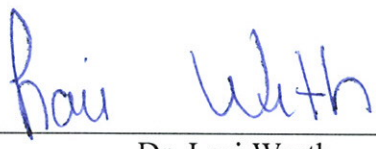
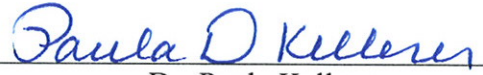

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AUTHORIZATION TO SUBMIT
DISSERTATION

This dissertation of Jennifer Hill, submitted for the degree of Doctor of Education with a major in Education Leadership and titled "College Success Factors for International Students Studying in the United States of America" has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies.

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This journey would not have been possible without the constant love, support, and understanding of my entire family, and especially my three biggest cheerleaders—my husband, Cary, and our children, Tanner and Alisa. You are my inspiration and the best international travel companions that I could ever have.

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DEDICATION

This dissertation is lovingly dedicated to my grandparents, Louis and Hazel Braun. Neither went to college or ever traveled outside of the United States, yet they left a legacy of learning and giving that helped to shape who I am as a teacher, as a researcher, and as a contributing member of the human race. They bought my very first college textbooks, and I know they would be especially proud of this project.

ABSTRACT

This quantitative study took place at a private international school in East Asia. The purpose of the study was to investigate United States college admission trends comparing International Baccalaureate Diploma Program candidates and International Baccalaureate non-Diploma Program candidates from the same school. Descriptive data was collected for the Classes of 2007-2012 and the two groups were compared based on the number of college acceptances for each group by year and as a whole, and the eventual collegiate success of the two groups once they matriculated to college, as measured by college persistence and graduation rates. The results of this study show there was a statistically significant difference between the mean number of college applications and the mean number of college acceptances per group, but there was not a statistically significant difference between the college acceptance rates for the two groups of students. There was a statistically significant difference between the matriculation rate of diploma and certificate students, but there was not a statistically significant difference between the graduation rates for the two groups of students. The information analyzed provides school stakeholders valuable data to explore the final educational outcomes for its graduates and determine if there is a significant difference in the college success of the two groups.

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Chapter I

Introduction

Each year, United States colleges and universities receive thousands of applications from prospective students who are non-U.S. citizens. These international students come from a variety of backgrounds. The majority have lived and graduated from high schools or secondary programs outside of the United States, but some have attended a U.S. secondary school as an exchange student, or boarded on the campus of a private U.S. high school. These international students have a wealth of experiences to share and their backgrounds are as various as their passport countries, but they all apply with one goal—to matriculate in a college or university within the United States.

Statement of the Problem

The decision to attend college in the United States is rarely coincidental or happenstance. International students view a U.S. degree as their primary route to future personal and professional success and they begin planning their college programs and the paths to get there years before they actually apply (Borden, 2005; Chen, 1999; Kim, 2011; Park, 2009; Zhang & Hagedorn, 2011). In the researcher's experience as an international college and career counselor in South Korea, she has also found the parents of international students are major players in the process, and they not only start saving for college tuition from the time their children are infants, but they also look for strategies and guidance from others so they can formulate a plan and learn all of the steps necessary for their children to gain admission to the top colleges and universities in the United States.

Parents of every class in South Korea see education as the primary gateway to success and societal prestige, and so they place a high emphasis on college preparation. The South Korean government spends four percent of the gross domestic product (GDP) on education. However, the private sector spends about seven percent of the GDP on education. In 2002, this equated to about 25 percent of a family's income spent annually on education for their school-age children (Lee, 2002), and the percentage has risen even higher in the last decade.

Placement in the university system in South Korea is based solely on a test score, and once you enter a specific university, you cannot transfer to another school. At the prestigious Daesung Institute, for example, only 14% of the applicants are accepted. For many students, if they do not score high enough on the entrance examinations to qualify for a top university, they will take an entire year off after high school attend study sessions 14 hours a day so they can test again the next year (Ripley, 2011). In Korean culture, which college you attend has lifelong effects on future employment, prestige, social group, and a marriage partner (Bowden, 2005). Therefore, preparation for the college entrance exams is a top priority.

In 2010, 74% of all school-aged children engaged in some kind of private, after-school instruction, at an average cost of \$2,600 per student per year. There are more private instructors in South Korea than there are school teachers, and the most popular tutors literally make millions of dollars each year (Ripley, 2011). There are currently 95,000 documented private tutoring companies in the country and 84,000 individuals providing tutoring services. With these high numbers, it is very probable that there are thousands of other businesses and tutors that offer private services without reporting income to the government (Ramstad, 2011).

Many students study late into the night, every night, and it leaves the daytime classroom full of tired and uninspired students. There is also a large disparity among the cost of tutoring

services, and it is creating a larger socioeconomic divide between those who can afford to access and pay for private lessons and those who cannot (Kwok, 2004). The South Korean government has begun a systematic crackdown on late-night *Hagwons* (the Hangul term for private tutoring schools), and sends police officers out on raids after 10:00 p.m. to liberate students and close businesses who are not following the rules (Ripley, 2011).

When it comes to finding credible information about the college application process, domestic students in the United States have the advantage of being able to attend local and regional college fairs and having college representatives from a variety of different types of schools make presentations at their high schools. They are in the same time zone as the colleges in their area and it is relatively easy to take a campus tour or stay on campus for a prospective student weekend hosted by the university. The college applications and FAFSA forms are available in their native language of English, and even if they are not able to personally attend an application or financial aid help session sponsored by the college or community organization, students are surrounded by friends, family, teachers, and acquaintances who have been through the U.S. college application process and can offer practical guidance at a moment's notice. International students do not always have these same advantages.

International students and their parents are often bombarded with mixed messages on what is required for U.S. college admission and eventual college success, and the process can leave them discouraged and confused. While a multitude of credible data and information is available for U.S. citizens on the college application process, the amount of accessible information available for international students is not as thorough and can vary greatly in depth and scope from one passport country to the next (Chen, 1999; Kim, 2011; Park, 2009; Zhang & Hagedorn, 2011). Private for-profit companies, like *Hagwons* in South Korea, can prey on this

fear and frustration and solicit their tutoring and consulting services for exorbitant fees (Ripley, 2011; Zhang & Hagedorn, 2011). At the study school, it is not uncommon for students to spend \$1,000 U.S. dollars per month to pay for private SAT tutoring, and the average rates in Seoul for assistance in writing a college application essay is between \$3,000 and \$5,000 USD.

When students directly contact the United States universities looking for further details not available on the school's website, it can take weeks to receive a reply, and often the responses are generic and vague, or do not provide the specific answers the students are seeking. This is not just an issue for international students, but domestic students as well.

In 2013, *BizEd* published a study from InsideTrack, a college-consulting firm located in San Francisco. The company asked "secret shoppers" to send admissions questions to every type of U.S. business school: traditional, online, public, private, for-profit, and non-profit. The results of the study showed 73% of the public business schools in the study did not respond to web inquiries within ten days, and 32% of the private schools did not respond within that time. Only 13% of the for-profit schools did not respond within ten days. When it came to phone requests for information, 58% of the private schools, 53% of public schools, and 40% of for-profit business schools did not respond to phone messages within ten days (B-schools, 2013). A slow response time can be especially frustrating for an international student who may think that the college is indirectly saying they are not interested in the candidate or that the question asked was not important enough to respond to.

High school counselors at international schools around the world are often charged and challenged with the task of helping students and parents wade through various college application processes for multiple schools where the students hope to apply. Therefore, as the U.S. college matriculation demand from the international community around the world continues

to increase, it is essential that international students, their parents, and international school counselors and administrators have credible and current college admission data and college success resources available. International schools can help dissuade rumors, calm fears, and be a reliable and accurate source of information to help international students realize their red, white, and blue college dreams.

Background

Numerous studies have been conducted which show a rigorous high school course of study contributes to academic success in college for both domestic and international students (e.g. Adelman, 2006; Breland, 2002; Geiser, 2008; Geiser & Studley, 2004). The International Baccalaureate Program is one type of specific high school curriculum that has been linked to success in college (Caspary & Bland, 2011; Duevel, 1999; Shah, Dean, & Chen, 2010; Thomas, 1991). However, within the worldwide International Baccalaureate curriculum, there are two different paths available to students: the full IB Diploma Program (DP) and the Certificate Program track.

The full International Baccalaureate Diploma Program (IBDP) consists of six International Baccalaureate courses (three standard level and three higher level courses) completed over a two-year period for juniors and seniors, in addition to a three-semester Theory of Knowledge course and a 4,000-word extended essay on a topic of the students' choosing. Each diploma candidate must also complete at least 150 hours of self-directed volunteer work over the two-year period in the categories of creativity, action, and service (Chmelynski, 2005; IBO, 2012).

Within the International Baccalaureate curriculum, not every student has the ability or scope of knowledge to qualify for an IB Diploma Program schedule and excel in six different

subject areas, including a second language (Chmelynski, 2005; Gazda-Grace, 2002; IBO, 2012). In many IB schools, students who are either academically unqualified or unwilling to take the six IB courses (plus Theory of Knowledge) required for a full IB diploma are able to take individual IB certificates in the IB courses appropriate for their learning and ability levels (IBO, 2012). Additionally, since the pursuit of an IB diploma or individual certificates requires a commitment to a two-year course of study, the program choice has to be made during a student's sophomore year. Students often feel ill equipped and unprepared to make such an important decision so early in their high school careers (Mayer, 2008; Taylor & Porath, 2006).

As popular as the IB curriculum has become, few studies have been conducted to compare college acceptance and completion rates for International Baccalaureate Diploma Program candidates versus certificate students (Caspary, 2011). Yet in the minds of international students, their parents, high school counselors, and administrators, this data is crucial for college planning purposes. Parents and students need to know, not just assume, which route will best help them obtain college admission and enable them to be successful once they begin college. High school counselors and administrators need concrete data to help them properly guide students and develop comprehensive high school programs in a way that will best serve their students and stakeholders.

This study was conducted at a private international K-12 school in East Asia, which annually sends approximately 95% of its graduates to colleges in the United States of America. The study school is accredited by the Western Association of Schools and Colleges (WASC) and fully authorized to offer the International Baccalaureate Primary Years Program (PYP), Middle Years Program (MYP), and the IB Diploma Program (DP). In 2012, the high school division (grades 9-12) included approximately 310 students from 12 different nations around the world,

with 92% having ethnic Asian backgrounds. The Class of 2012 had 94 students from eight nations: Canada, Ecuador, Germany, Japan, Korea, Nepal, Taiwan, and the United States of America.

Missionary families founded the school in 1958, and the school transitioned from using the Advanced Placement (AP) curriculum to the International Baccalaureate (IB) curriculum in 2005, and had its first class of International Baccalaureate Diploma and Certificate candidates graduate in 2007. The school routinely garners some of the highest International Baccalaureate scores in the world, and students are able to choose either the full diploma program or certificate route, based on guidance from the school faculty, counseling office, IB director, and the student's own interests and ambitions.

The school's customized recommendation process for an International Baccalaureate Diploma or certificate-track schedule begins early in the student's sophomore year and involves assessing the student's academic abilities based on school performance and standardized testing, teacher and counselor recommendations, and student and parent input. The process is very involved and time intensive, and it is tailored to correctly identify the appropriate placement for each student on an individual basis.

Individual departments meet in January to offer recommendations in each subject for each sophomore. In math, for example, a Google doc spreadsheet is prepared and utilized as teachers meet together to discuss and record the student's current and previous performance in their mathematics courses to help determine the most appropriate future placement for a student to be successful. Teachers look at the current level of math and current math grades, as well as the PSAT score in Mathematics for each student. (The school annually administers the PSAT to every student in grades 9-11 each October.)

Then, in February of each year, their department recommendation is recorded in PowerSchool, the study school's grading and attendance system, where it can be eventually viewed by the parent, student, and counseling department. A student's level of math is a primary determining factor for the diploma program because in order to qualify for an IB-level math course as a junior, and therefore qualify to take the full IB Diploma, students must have successfully completed Algebra 2 by the time they finish their sophomore year. Students who have not reached the Algebra 2 level by their sophomore year are not eligible to take an IBDP-level mathematics course as a junior and senior, and are then not eligible for a full IB Diploma schedule. Students in these situations would then become IB Certificate candidates in other subjects besides mathematics.

In the history department, as another example, teachers consider multiple factors for placement, depending on the scope and content of the different IB courses in this category. In IBDP Economics, for example, the department considers the student's current level of mathematics their sophomore year and their grades in high school math classes to determine if the student has the skills and background to be successful in the higher-level mathematics required in the economics course. As part of both the Standard-Level (SL) and Higher-Level (HL) Economics courses, students use linear equations to explore supply and demand functions. They are also required to calculate unemployment rate, inflation rate, economic growth rates, and marginal and average rates of tax (IBO, 2013). As part of the recommendation process, the history department determines if the student has the mathematics and scholastic background necessary to be recommended for IBDP Economics SL or HL.

Another course that the history department at the study school considers as part of the recommendation process is IBDP History SL or HL. The information analyzed for

recommendations for this course is very different than for economics, because instead of math level, for the history course the department must investigate the student's reading and writing level in English. In the International Baccalaureate IBDP History curriculum, students focus on developing their critical thinking skills through the analysis and synthesis of historical materials that cover the major themes of the 20th century (IBO, 2013). There is as much reading and writing involved in this course as there is in an upper-level English course, so students must have the vocabulary and writing and reading sophistication necessary to do well in the course and pass the final IB examination, which is primarily essay based. Students whose native language is not English and have not had at least five years of full-time education in English-speaking schools do not generally have the skills necessary to take this class. For an IBDP History recommendation, the department must also consider each student's academic preparedness in the English language in order to officially recommend him or her for this specific course.

Six different departments at the school (English, history, math, science, world languages, and the arts) follow their own processes for student recommendations and they review each student individually. After all department recommendations have been entered for each subject, the school counseling office holds a parent meeting in late February to discuss the International Baccalaureate Diploma and Certificate Programs and release a copy of the recommendations to parents. In the weeks following the parent meeting, the counseling office meets individually with all sophomores to discuss their recommendations, answer questions, and help students select classes and their intended program of study, based both on review of the department recommendations and the student's interests and plans for post-secondary education.

As illustrated in Figure 1, students who intend to pursue the IB Diploma must have IB-level course recommendations in at least five of the six groups: Group 1- Studies in language and

literature (multiple levels of English and/or the student's mother tongue); Group 2- Language acquisition (second-language studies); Group 3- Individuals and societies (history, economics, information technology, etc.); Group 4- Experimental sciences (biology, chemistry, and/or physics); Group 5- Mathematics and computer science; and, Group 6- The arts (Theatre, music, or visual art).

Figure 1

IB Diploma Program Curriculum Framework



Figure 1. A visual picture of the six groups of study required to obtain an International Baccalaureate Diploma, in addition to the Theory of Knowledge course, 4,000-word Extended Essay on a research topic of the student's choice, and 150 hours of documented creativity, action, and service (CAS). *Source:* International Baccalaureate Organization, 2013.

In order to take the full IB Diploma Program, students must be eligible to take at least one subject from each of the five groups as part of their recommendations. For the sixth subject, they can choose a class from Group 6 (The arts) or a second subject from groups 1-5. In addition to receiving recommendations in each group, students receive recommendations from each department as to what level of the course is appropriate—either HL or SL. For a full IB Diploma, at least three (and never more than four) subjects must be taken at the HL level, which requires at least 240 teaching hours over two years, and three subjects must be taken at the SL level, which requires at least 150 teaching hours over the two years (IBO, 2012). The difference between the HL and SL courses ranges by subject area, but typically the content is more in-depth and students delve deeper into the content in HL courses. Table 1 illustrates the differences between the Group 1 English Language and Literature course at the HL and SL level.

Table 1

Difference between HL and SL in A1: Language and Literature

English Language and Literature HL	English Language and Literature SL
Literature Units: More Texts (6 works)	Literature Units: Fewer Texts (4 works)
Language Units: More depth, also more texts—more topics covered in order to achieve more learning outcomes	Language Units: Fewer topics covered in order to achieve learning outcomes
Rubrics: More difficult assessment criteria	Rubrics: Less difficult assessment criteria
Assessments: <ul style="list-style-type: none"> • At least four written tasks completed, two submitted for external assessment, one of which is Written Task 2 (a critical response to one of six questions) • Paper 1 is a comparative analysis of a pair of texts, one of which is non-literary 	Assessments: <ul style="list-style-type: none"> • At least three written tasks completed, one submitted for external assessment • Paper 1 is a commentary analyzing one non-literary text of extract

Source: Erny, 2012.

Students also need to have a general idea of their intended field of study and the countries in which they plan to seek college admission, because these factors influence course selection and diploma type. For example, an academically gifted student hoping to attend a highly-selective college in the United States and major in a science field might consider taking two Group 4 classes, Chemistry HL and Biology SL, for example, along with Math HL (A two-year advanced Calculus course, which is the highest math course available at the study school). A student interested in attending a business school might double up in Group 3 and take both Economics HL and Business Management SL. A student who excels in languages might take two courses in Group 1, English Literature HL and Korean Language and Literature SL, along with Mandarin Language HL (in Group 2). On the other hand, students seeking a more well-rounded education, regardless of their intended college major, may consider adding a Group 6 course like Theater SL or Music HL to their schedule to show their versatility and multiple interest areas.

With so many different options, it is easy to personalize the curriculum for individual student needs, but it can be overwhelming for someone new to the process to know where to start or hypothesize what options will open the most collegiate opportunities later on. Scheduling is also difficult for small schools that need to offer a robust course catalogue with limited teaching and training resources.

United States colleges and universities do not require students be International Baccalaureate Diploma candidates in order to apply for admission. However, in many other countries, it is the experience of the researcher if, as an international student, the student is not participating in the national curriculum and graduates from a high school outside of that country, a full IB Diploma becomes the only route available for the student to apply for university

entrance. Therefore, students at the study school who intend to pursue higher education in countries like Hong Kong, Singapore, Australia, and the United Kingdom have to be able to complete the IB Diploma successfully in order to matriculate in college in a specific country. All of these factors must be considered when a student is considering which diploma path to take and which classes to choose. There are many options, but an incorrect choice could close doors of opportunities later on for the student if he or she is not given appropriate and accurate guidance.

After the student has made course selections and recorded them in PowerSchool, the International Baccalaureate Diploma Program Committee, comprised of the study school's department heads, counselors, and administrators, meets in late March or early April to review schedules and make sure the courses chosen are appropriate in conjunction with each other and fit the ability and stated future goals of each student.

If the chosen courses that have been recorded in PowerSchool are not deemed appropriate for the student, then the group offers an alternate schedule for the student to consider. For example, if a humanities-minded student wants to take Art SL, Theater HL, and Music SL, then the course selections (three classes in Group 6) would not allow for a diploma schedule, so the committee would approve a certificate schedule for this student.

The most common reasons for the committee to reject a diploma schedule for a student would be if the student's level of spoken and written English is not high enough to be successful in all six subject areas, or if the student has chosen the most difficult HL courses in combination, for example, Math HL, Physics HL, and Chemistry HL. The amount of after-school lab time alone required for two science courses at the higher level is almost impossible for a student participating in sports or another significant club activity, so the committee might recommend

the student lowers one of the science classes to SL, or drops the IB Diploma so the student does not spend time on the Theory of Knowledge class and the 4,000-word Extended Essay.

During the IBDP sophomore recommendation season from January through April of each school year, the counseling office at the study school is flooded with requests for information and assistance for students and parents earnestly deliberating which classes are the most advantageous. For students who intend to pursue college in the United States, the first question typically asked in the counseling office is if it is “better” to be a full IB Diploma candidate instead of an IB Certificate candidate. It is with this content in mind that the following dissertation study was created: Are International Baccalaureate Diploma Program candidates from this specific high school more likely to be accepted to college and graduate from college at a faster rate than their IB Certificate peers at the same school?

Research Hypotheses

The first null hypothesis of this study (H_0) states there will be no statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The second null hypothesis of this study (H_0) states there will be no statistically significant difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The first alternate hypothesis of this study (H_1) states there will be a statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The second alternate hypothesis of this study (H_1) states there will be a statistically significant difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students.

Description of Terms

F-1 Student Visa. The most common visa type issued by the United States Department of State for students who want to study at an accredited U.S. college or university, or study English at the collegiate level or in an intensive English language institute (EducationUSA, 2012).

International Baccalaureate (IB). The International Baccalaureate is a non-profit educational foundation founded in 1968 in Switzerland. The IB offers four curriculum programs for students aged 3-19 (IBO, 2012).

International Baccalaureate Diploma Program (DP). The International Baccalaureate Diploma Program is an academically challenging comprehensive program for students aged 16-19. The full IB Diploma Program (DP) consists of six IB courses (three standard level and three higher level) completed over a two-year period for juniors and seniors, in addition to a three-semester Theory of Knowledge course and a 4,000-word extended essay on a topic of the students' choosing. Each diploma candidate must also complete at least 150 hours of self-directed volunteer work over the two-year period in the categories of creativity, action, and service (Chmelynski, 2005; IBO, 2012).

International Baccalaureate Certificate Program. The International Baccalaureate Organization does not officially offer a title for this program or the students who do not pursue the full IB Diploma, but this group of students take IB Certificates for individual classes in subject areas of their choice, based on individual strengths and interests (IBO, 2012). For the purposes of this study, these students will be referred to as IB Certificate students or IB Certificate candidates.

IB Diploma Candidate and IB Certificate Candidate. After two years of participation in an International Baccalaureate course during a student's junior and senior years, he or she sits for the IB examination for that specific subject in May of the senior year, just before graduation. Final exam results are released in July (IBO, 2012). Because the scope of this study did not investigate whether students had actually completed the diploma or certificates, students are referred to as candidates and not recipients.

International Baccalaureate Information System (IBIS). IBIS is a planning, assessment, and reporting tool developed and maintained by the International Baccalaureate Organization in Geneva, Switzerland, that is available to schools as part of their IB affiliation. IBIS is a password-protected secure website for IB schools and IB site coordinators and school counselors use this site to register candidates, submit predicted grades internal assessment marks, and receive results (IBO, 2013).

IB Predicted Scores. An IB predicted score is the classroom teacher's prediction of the student's final IB score in that subject based on the student's performance in that class up to that point. IB predicted scores are typically available in January of a student's senior year. Final IB scores are issued by the IBO in July following a student's graduation from high school (IBO, 2013).

Managebac. ManageBac is a planning, assessment, and reporting tool for the International Baccalaureate developed by Faria Systems, Inc, that is available to schools for an annual subscription rate (Managebac, 2012).

Naviance. Naviance is a college and career planning and data tool created by Hobsons and available to secondary schools as part of an annual paid subscription. Students can research college acceptance data specific to their school's applicants as well as worldwide statistics.

Students self-report their individual acceptances into the database for tracking purposes each year (Naviance, 2012). The study school also uses Naviance's edocs feature to transmit school documents (transcript, letters of recommendation, etc.) electronically to colleges around the world.

National Student Clearinghouse. The National Student Clearinghouse's StudentTracker for High School's system matches alumni records to collegiate enrollment and degree data for U.S. colleges and universities. For an annual subscription fee, schools receive detailed reports on college trends by graduating class and the post-secondary performance of individual students (National Student Clearinghouse Research Center, 2012).

PowerSchool. A web-based student information system developed by Pearson and used by the study school for enrollment, attendance, and grading (Pearson, 2013).

SEVIS: The Student and Exchange Visitor System maintained by the U.S. Department of Homeland Security. This internet-based system contains information on all international students who come to the United States to study (U.S. Immigration, 2012).

Significance of the Study

The intent of this study was both specific and universal in scope. It was (and is) the hope of the researcher that having specific IB Diploma and IB Certificate college admission and success data available to parents, students, faculty, counselors, administrators, and trustees at the study school will allow all parties involved to make more informed and data-driven decisions for the good of the school and individual students both now and in the future.

Outside of the study school, both new and well-established international schools using the IB curriculum are faced with the same dilemma—is it more advantageous to require all high school juniors and seniors take the full International Baccalaureate Diploma, or should students

have a certificate option? Will students who take the less-rigorous certificate route have fewer college acceptances? Are students who do not take the full diploma program less likely to graduate from the college they attend in the United States than their full IB Diploma peers? In essence, if a student attends an IB high school, is a full diploma schedule necessary to be accepted into a U.S. college or university and a factor in student success once the student matriculates? These are the important and high-stakes questions routinely asked in the classrooms and counseling offices of international schools around the world, and it is the hope of this researcher that this study will to start the process of offering some concrete answers for one specific school.

Although the information gleaned from the study is specific only to one international high school in Asia, the research steps outlined in this study can easily be replicated at other international schools and the data can be relevant in a variety of settings. Almost all of the research currently available on college admission and success for International Baccalaureate students is based on research studies commissioned and sponsored by the International Baccalaureate Organization (Casparly, 2011; Casparly & Bland, 2011; Shah, Dean, & Chen, 2010), and there is an important academic need for IB research to be conducted outside of the umbrella of the International Baccalaureate Organization (IBO).

Furthermore, at the collegiate level, if highly competitive colleges and universities in the United States are using IB Diploma Program participation as a factor in college admission, it is important to study the eventual collegiate success of those students in comparison to their non-DP peers to ascertain if there are noticeable differences between the two groups. International students often feel at a disadvantage in the college application process, and studies like this can help demystify the process for all involved.

No matter the country or the setting, it is the hope of every school and community that its students will be successful and productive. By being willing to address difficult questions and search for relevant and applicable answers, we can help our students be as prepared as possible for the future that is awaiting them.

Overview of Research Methods

This study is a quantitative research project in design and scope. The researcher investigated the role attempting a full International Baccalaureate Diploma in high school played in U.S. college admission and college completion rates for one international high school in East Asia, compared to students from the same school who did not take the full IB diploma. Data was collected for approximately 550 graduates who graduated from the study school between 2007-2012. Specifically, the study collected and analyzed the following variables with data gathered by the researcher from Naviance, IBIS, and the National Student Clearinghouse:

1. Percentage of IB Diploma candidates and IB Certificate students for each graduating class from 2007-2012. The researcher examined trends in the numbers using a line graph.
2. Percentage of IB Diploma candidates and IB Certificate students by gender, using a Chi-Square test of independence.
3. Percentage of IB Diploma candidates and IB Certificate students by country of origin, using a Chi-Square test of independence.
4. Mean number of college applications for IB Diploma candidates and IB Certificate students for each graduating class and for all classes from 2007-2012, using an independent t-test.

5. Number of college acceptances compared to number of college applications for IB Diploma candidates and IB Certificate students by graduation year and for all years combined, using an independent t-test.
6. Number of Ivy League acceptance offers for IB Diploma and IB Certificate students. The researcher examined trends using a chart.
7. Specific higher-level courses of IB Diploma students with Ivy League acceptance offers. The researcher studied trends using a chart.
8. Percentage of IB Diploma candidates and IB Certificate students enrolled in college in the fall immediately after high school graduation, within the first year, and within the second year after graduation, using a Chi-Square test of independence.
9. College freshman-to-sophomore retention for IB Diploma candidates and IB Certificate students, using an independent t-test.
10. Percentage of IB Diploma and IB Certificate students in each graduating class with a college degree, using an independent t-test. (This information was only available for the graduating classes at the study school from 2007-2008.)
11. The time required to complete the initial college degree for IB Diploma and IB Certificate students in each graduating class, using an independent t-test. (This information was only available for the graduating classes at the study school from 2007-2008.)

Chapter II

The Literature Review

Introduction

Many students from countries outside the United States desire to go to college and graduate school inside the United States. There are numerous factors which ultimately determine which international students will be accepted into U.S. colleges and universities, as well as many documented factors which may determine how successful those students are once they begin studying in America.

International Student Demographics and Rationale

During the 2009-10 school year, there were 690,923 international students studying in the United States as undergraduate or graduate college students, an increase of 2.9% from the previous school year. Of those students, 202,970 were students enrolling for the first time at a U.S. institution (U.S. Immigration, 2010). In 2010-11, total international student enrollment in the U.S. increased by 5% to a record high of 723,277 (Institute, 2011). After the first Student and Exchange Visitor Information System (SEVIS) quarterly reporting period in 2012, China had 202,003 of its citizens studying in America. China has the highest number of active international students studying in America of any foreign country. South Korea is the seconded largest group with 107,054 students enrolled in U.S. institutions, and India is the third largest group with 98,554 students. The top majors include business (177,730 students), engineering (118,749 students), basic skills (89,556 students), and computer and information sciences (54,594 students) (U.S. Immigration, 2012, April).

Seven states currently host 55% of all international students: California, New York, Texas, Massachusetts, Illinois, Florida, and Pennsylvania. In early 2012, California had 147,401 international students attending higher education institutes within the state, followed by New York with 103,630 students (U.S. Immigration, 2012). The vast majority of undergraduate students attend four-year colleges and universities, but a growing number of students are choosing to first attend community colleges. In 2003-04, nearly one-third of international students in the United States (28%) attended a community college. International student enrollment at community colleges rose almost 60% from 1995-2005— double the overall growth for all postsecondary institutions (Hagedorn & Lee, 2005). However, even with this substantial growth, international students currently comprise less than 4% of total enrollment in United States higher education (Institute, 2011).

In the last ten years, international student enrollment in the U.S. has increased 32% and the number of female international students has increased by 37%. Additionally, international students contributed 10.2 billion more dollars to the U.S. economy in 2010-11 compared to 2000-01 (Institute, 2011). The National Association of Foreign Student Advisors (NAFSA) estimates during the 2009-10 school year, international students and their families contributed \$18.8 billion to the U.S. economy. In Idaho alone, the net contribution to the state's economy by foreign students and their dependents in 2009-10 was approximately \$38,836,000 (NAFSA, 2010).

Open Doors, an annual report from the Institute of International Education, reports more than 60% of international students rely on personal and family sources for the majority of their funding. When other sources of funding are included (i.e. assistance from the home country's government or university), almost 70% of the funding for international students comes from

sources outside the United States (Institute, 2010; Starobin, 2006). Many countries provide funding to their students to study in America in exchange for specified stipulations after graduation. For example, Turkey's Higher Education Council (YOK) launched a program in 1993 to sponsor thousands of students for graduate study in the United States with the hope of creating a base of highly-educated professors to teach in 24 newly established universities in the country (Matthews, 2007).

In 2008, there were 48,802 research doctorates awarded in the United States. Of those graduates, 33% were awarded to non-U.S. citizen temporary visa holders. Chinese (including Hong Kong) passport holders received a total of 4,526 U.S. doctorate degrees, and China is also the country with the largest number of non-U.S. doctoral graduates. China, India, Korea, Taiwan, and Turkey passport holders received 21% of all doctorates awarded in the United States in 2008. The overall growth in the number of U.S. doctoral degrees since 1978 reflects the growing number of foreign students on temporary visas who choose to study in the United States. International students earned 60% of the U.S. engineering doctorates awarded in 2008 and 48% of the doctorates in physical sciences. Thirty-five percent of the temporary visa-holding doctorate recipients were women (National Science Foundation, 2009).

There may also be a notable group of undocumented international students attending college in the United States; however, research in this area is sparse and the data is difficult to collect. In the spring semester of 1999, Dosier (2001) recorded there were 294 documented and 246 undocumented international students enrolled in a New York urban community college. Seventy-six percent of the undocumented students had received their high school diplomas in the United States. The majority of documented students attended full-time, whereas many of the undocumented students attended part-time due to a lack of financial assistance to pay for college.

(No specific enrollment status percentages were presented in the Dossier study.) It generally took longer for the documented students to enter college after graduating from high school than it took for the undocumented students in the study. (No specific reason was stated for this fact in the study.)

International students travel to the United States to study for a variety of reasons. The most common factors for Korean students, for example, are dissatisfaction with domestic education and excessive competition for college entrance, and the hope of improving English communication skills, connecting to a global professional network, and enhancing professional and social positions in their native society (Kim, 2011; Park, 2009).

A U.S. undergraduate or graduate degree is viewed as the main road to success and prestige in Korean society, and most Koreans view a U.S. degree as superior to degrees awarded in Korea and essential for good job placement on the peninsula (Kim, 2011; Park, 2009). For example, in 2005, 80% of the newly hired social science faculty members in the top three universities in Korea had received U.S. doctorate degrees, and at the two leading engineering and science schools in Korea, 70-80% of new faculty members held terminal degrees from the United States. Only 10% of the new faculty members held degrees from Korean universities (Ph.D.s, 2005). In an incident referred to in Korea as the “Hwang Affair” in 2007, many Korean professors were found guilty of a misuse of funds, research misconduct, and forged degrees. According to Kim (2011), “By studying in the United States, Korean students hope to escape the undemocratic culture, the authoritarianism, the corruption, and the research misconduct they associated with Korean universities” (p. 119).

Many international students also find the United States offers a more streamlined and flexible process than other countries. In many countries such as Australia, Hong Kong,

Singapore, and the United Kingdom, international students receive conditional college acceptance offers based on their IB Predicted Scores which are released in January, and students do not know until July when final IB scores are released if they have met the criteria for college admission and can then enroll in the college of their choice (IBO, 2013).

Changing requirements may also make it difficult to understanding the process in different countries. In the United Kingdom, for example, the U.K. Border Agency requirement of tier four sponsors in the visa process has changed 16 times since 2009. Lord McGregor, the Secretary of State for Education under Margaret Thatcher, reported to Parliament that individual university admission offices had to hand review thousands of admissions offers made to prospective students because of changes to the visa process in the middle of the application cycle. Lord Howard of Newport reported during the same session the changing visa policies and the confusion which resulted, “was interpreted around the world as being that international students were no longer welcome in Britain (Student, 2013, p. 15).”

U.S. Admissions Process and Requirements

There are three primary admission requirements in the United States for international students: a sufficient command of the English language (as most commonly measured by the Test of English as a Foreign Language (TOEFL) exam), adequate financial resources, and a solid academic record (Abel, 2002; Abel & Sementelli, 2002). Each college and university can set its own standards when it comes to language proficiency and academic achievement, so more highly selective schools have more rigid standards. International students need to be aware of the lack of uniformity when U.S. schools evaluate a student’s credentials for admission and determine whether foreign transfer credits will be admissible. Because it is both time and labor-intensive to evaluate international transcripts, some U.S. colleges and universities may require students to

pay to have their transcripts reviewed by an independent service (Abel & Sementelli, 2002). Credit evaluation and authentication reports typically provide a U.S. credit equivalency summary, credential analysis, course-by-course analysis, and overall summary, as well as a translation of the original foreign transcript, if needed (World, 2013).

Even though the number of international students in the United States seems high, there are many more students who desire to study here that are denied access for a multitude of reasons (Editorial, 2005). International students are not eligible for any form of U.S. federal financial aid and are traditionally at a disadvantage for college and university scholarships. Many public colleges and universities also have a higher non-resident tuition and fee structure (Hagedorn & Lee, 2005). Even though most colleges consider themselves “need blind” to some degree (meaning the ability to pay is not a major consideration in whether or not a student is accepted), very few U.S. colleges and universities are need blind for international students. Carnegie Mellon, for example, is need blind for early decision (November 1 deadline candidates), regular decision (January 1 deadline candidates), and transfer students, but takes the ability to pay into account for international students and waitlisted students (Sostek, 2013).

The newly-created U.S. Student and Exchange Visitor Information System (SEVIS) requires international students be enrolled full time and complete their degrees within the specified student (F-1) visa period. The paperwork process for international students is intense and prospective students must provide proof of financial resources and English proficiency prior to admission. Students who are not able to meet these criteria and submit the necessary documentation are denied access (Hagedorn & Lee, 2005).

How can international students find assistance with the complex U.S. college application process? In addition to individual college international student admission centers and offices,

there are a limited number of government-sponsored programs available to help international students understand the U.S. application and visa process. The United States Bureau of Educational and Cultural Affairs (ECA) oversees EducationUSA, a global network of over 400 advising centers in 170 countries. In addition to offering face-to-face assistance, they also maintain a website in every major language and offer webinars and education fairs. These services are free of charge to international students and U.S. students currently studying outside of the United States, but most are located in limited international areas close to U.S. embassies or consulates, so students may have to travel long distances to reach an advising center if they do not live close to a major population center. During peak times, it can be difficult to get an appointment, and so careful planning is important (EducationUSA, 2012).

A growing number of international students, especially students from China and South Korea, hire third-party education agents (often referred to as consultants) to help them apply to college and gain admission to American postsecondary institutions. De Luca (2010) noted the number of international students placed by agents worldwide has recently grown considerably, as much as between 60% and 80% in some geographic locations of Asia. Zhang and Hagedorn (2011) stated the practice of using agents has a derogatory connotation in the U.S. education community primarily because of cases where agents follow unethical practices like writing personal statements for the students, fabricating letters of recommendation, or making up service and leadership activities that are listed on the college applications.

Zhang and Hagedorn (2011) reported 57% of the Chinese undergraduate participants in their study reported using an agent when they applied to U.S. colleges. The most common reasons why students chose to hire an agent were the following: lack of knowledge of the college application process, lack of knowledge in visa application, and lack of knowledge of foreign

institutions. The other forty-three percent of Chinese undergraduate respondents in the study listed the following reasons why they did not use an agent: I'm capable of applying on my own, I don't trust agents' services, agent expenses/fees are too high, and my parents/relatives/friends can help me.

Almost 40% of the students who hired an agent felt they were more likely to receive a college acceptance offer if they applied with the assistance of an agent (Zhang & Hagedorn, 2011). It is important to note the authors in this study were only working with students who had successfully matriculated in college, so for this group, working with an agent would have been one of their factors in gaining college acceptance, whether or not it would have actually been necessary.

Factors that Contribute to Academic Achievement

There are several documented factors which contribute to the academic success of international students studying in the United States after they are accepted and matriculate in college. Research in this area shows effective learning by international students was related to language proficiency, learning strategies, study strategies, and certain personal characteristics (Abel, 2002; Ren & Bryan, 2007; Stoyhoff, 1997).

A lack of English-language proficiency may be the largest obstacle for international students from non-English speaking countries (Ren & Bryan, 2007). The Test of English as a Foreign Language (TOEFL) is the most common standard used to measure an international student's English language competence. The correlation between academic success and language proficiency (as measured by the TOEFL test) was positive and significant, and the TOEFL also correlated modestly with credits earned (Able, 2002). However, as Stoyhoff (1997) pointed out, prediction studies using the TOEFL do not take into account different factors

not measured by the TOEFL that may have an important effect on academic achievement. For example, one aspect of achievement not defined and measured by the TOEFL is strategies students use to attain new knowledge and perform well on graded work such as tests. Stoyhoff also contended because so much of what is learned in higher education is presented in the form of printed materials, reading skills are of immense importance to international students.

Often international students lack good note-taking skills due primarily to a lack of training and/or due to the amount of processing time it takes to hear a sentence in English, translate it into personal meaning in the student's native language, and then write it down. Spencer (2003) asserted second-language learners often miss linguistic cues which indicate an important point is being made, such as the professor writing a key idea on the board, offering a "note this" type statement, or repeating key words or altering pace or volume to emphasize those key words.

Ren and Bryan (2007), in their research with graduate students, found English-language familiarity in the specific research area (number, formulas, research methods, etc.) is also a key to academic success. Although there are cultural differences between societies, there are many commonalities in academic research areas, especially in natural and engineering sciences. They believed it was of utmost importance for students to become linguistically familiar with their academic areas because this was the main form of communication between graduate students and their professors.

Stoyhoff's (1997) study using an assessment measure of student-learning and test-taking strategies called Learning and Study Strategies Inventory (LASSI), found academic success seems to correlate modestly with attitudes toward learning and learning strategies. For international students, the number of course withdrawals had a strong negative correlation with

positive attitudes toward studying, effective time management, and concentration as measured by the LASSI scales. Stoyhoff's study also reported the following conclusions:

More academically successful students better managed their study time, were better able to prepare for and take tests, were better at identifying the main ideas in spoken and written discourse, made better use of social support systems (e.g., study groups, tutors, friends, etc.), and spent more time studying than less academically successful students. It is possible that training in learning and study strategies may lead to lower anxiety, less frustration, and improved academic performance among international students, even those with high TOEFL scores. (p. 61)

Overall, students receiving an American education are expected to demonstrate an ample amount of individual initiative. This is in stark contrast to what is commonly expected in many schools outside of the U.S. Many international students are more accustomed to listening and learning than speaking in class. They also assume more formal relationships with their professors than do most American students and expect professors to tell and do more for them than is expected in most U.S. colleges and universities (Abel, 2002). Spencer (2003) wrote most international students come from "cultures in which the student is expected to passively receive lecture material and produce memorized information verbatim" (p. 165).

In South Korea's school system, for example, memorization has been, and continues to be, the chief means of education. Large secondary class sizes (more than 50 students per class in urban areas) lend themselves to lectures instead of discussion. The system is largely based on the idea of only "one right answer" and learning the right answers and always agreeing with the teacher or older students is a valued and honorable characteristic. Therefore, students from the

Republic of Korea tend to perform very highly on standardized objective tests which have only one right answer (Ripley, 2011).

According to Borden (2005), “Lively discussion, creative thinking, alternate solutions, and intellectual independence are neither welcome in the classrooms of Korea at any level nor are they conducive to earning high grades or respect from the teacher” (p. 53). International students need to understand active classroom participation is expected (and often part of the final grade) and they may also need intentional practice in paraphrasing and summarizing in order to avoid plagiarism.

Academic writing is an issue which can be problematic for international students. There are multiple factors that make writing academically in a second language an extremely complex cognitive and social task. Students’ countries of origin and cultural context can also be a major factor in their writing styles (Kuo, 2011; Mohamad & Boyd, 2010). For example, Angelova and Riazantseva (1998) noted an international student from Russia was raised in a culture which did not allow him to be critical of what he read. Therefore, he did not feel he could criticize anyone’s ideas, so he only looked for written opinions that he could agree with. In another example from the same study, the authors discussed difficulties a Chinese student had in organizing her writing for a U.S. graduate program. Chinese writing is much different in structure and the role of the reader. Ideas do not have to be defined in a strictly logical way. The writer assumes the audience already understands what the writer is saying, so main points do not necessarily have to be stated clearly (Angelova & Riazantseva, 1998).

Academic writing is also an important part of the admissions process, and can deter potential applicants, both international and domestic. Boston College experienced a 26% decrease in applications from 2012 to 2013 when it added a supplemental essay of up to 400

words in response to one of four writing prompts provided by the college as part of its Common Application supplement. In 2012, the college received a record-number of 34,051 applications (domestic and international) for 2,250 seats in its freshman class. For the high school graduates in the Class of 2013 who had an additional essay requirement, Boston College only received about 25,000 applications (Hoover, 2013).

International students bring writing experiences with them which can be very different from the conventions of American academia and they may need a great deal of mentoring and assistance to understand and conform to U.S. writing standards in order to be successful in their courses. Open-ended writing assignments without explicit parameters and specifications can be especially difficult for international students (Angelova & Riazantseva, 1998; Kuo, 2011; Mohamad & Boyd, 2010).

High School Course of Study and Admissions Testing Factors

The relationship between standardized test scores and high school grades as a predictor of college success in the United States (for both international and domestic students) has been widely researched. In 2000, a comprehensive survey of 957 four-year U.S. colleges and universities was conducted by the National Association for College Admission Counseling (NACAC), ACT, the CollegeBoard, and Educational Testing Service (ETS). The study built upon prior data that the same group analyzed in 1979, 1985, and 1992. In the 2000 study, as in the prior studies, high school GPA or class rank was rated as the most important factor in admissions (Breland, 2002). Based on the results of this analysis, university admissions offices and their corresponding institutional research offices often study the correlation of high school grades and test scores to predict the grade point averages of college freshmen (Geiser & Studley, 2003).

Waugh, Micceri, and Takalkar (1994) found for 8,573 first-time-in-college students at the University of South Florida, high school GPA was moderately correlated to graduation and retention rates ($\rho = .21$). There were no differences in retention/graduation rates among ethnic groups for students with average high school GPAs, but there were large differences for students with low or high GPAs. Overall graduation rates did not reveal differences among races when high school GPA was controlled; however, African-American students with low GPAs were more vulnerable to either transfer or drop-out of college.

In his data essays *Answers in the Toolbox* (1999) and *The Toolbox Revisited* (2006), Clifford Adelman, senior research analyst with the U.S. Department of Education, found the intensity of a high school academic program of study is a major factor in college bachelor's degree completion, along with high school GPA and class rank. Of the students surveyed who completed their high school courses with the highest degree of academic intensity (as measured by 31 intensity levels), 95% completed a bachelor's degree.

The University of California's Center for Studies in Higher Education at Berkeley routinely looks at admission data for UC students to find trends in college success and completion rates. Geiser and Santelices (2004) examined the data for 81,445 students who enrolled at one of UC's eight undergraduate campuses as first-time freshmen between 1998-2001. (The numbers include both domestic and international students and the study does not differentiate between the two groups.) They found taking Advanced Placement (AP) courses was a major factor in college admissions at top-tier universities, but statistically the number of honors or AP classes taken in high school was not a valid solitary indicator of college performance and bears almost no relationship to later college grades. However, student performance on Advanced Placement examinations was strongly related to college performance.

In the Geiser and Santelices (2004) study, unweighted high school GPA (one that does not grant additional points for honors or AP courses) was consistently the best predictor of both first and second-year college grades. For the overall sample, high school grade point average had the strongest predictive weight (.25), followed by SAT II scores (.16), parents' education (.08), school API quintile (.05), and SAT I scores (.04). All coefficients were statistically significant at the 99% confidence level.

It is important to note there continues to be debate about the predictive validity of SAT and ACT test scores as they relate to college success. Noble and Sawyer (2002), in a study sponsored by ACT, examined the college grades of 291,435 college freshmen from 301 postsecondary institutions. Using a logistic regression model, they found ACT composite score predictions were effective in predicting college success at all levels of first-year college grade point averages (2.0, 2.5, 3.0, 3.75, 4.0, etc.). Sawyer (2010) also found in situations of low college admissions selectivity and minimal to average academic performance, high school GPA is a more suitable predictor of first-year grade point averages than ACT test scores; however, in highly selective admissions situations with high academic performance, ACT test scores are more accurate predictors than high school GPA. Waugh, Micceri, and Takalkar's (1994) study showed no significant correlation between ACT score ($\rho = .10$) or SAT score ($\rho = .01$) and college graduation rate at the University of South Florida.

Geiser (2008), in his analysis of six different University of California research studies (Geiser & Studley, 2002; Geiser & Studley, 2003; Geiser & Santelices, 2006; Geiser and Santelices, 2007; Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008; University of California, 2002) contended SAT I scores alone are a relatively poor predictor of student performance and,

as an admission criteria, have a more adverse impact on poor and minority applicants than other measures of academic achievement.

In regard to the mathematics used to calculate relationships when analyzing student data for potential success in college, Saupe and Eimers (2010) stressed the importance of utilizing specific mathematical techniques to correct the correlation between a college success predictor (i.e. admission test score) and a measure of success in college (i.e. GPA or retention). They demonstrated relationships between predictor variables and success measures can be masked by restricted range and a number of other extraneous variables. They suggested predictor variables are probably even more accurate than what is generally published in the literature on this subject. Clearly, there continues to be debate in this area.

Using the International Baccalaureate Program to Predict College Success

So how then can we measure the academic rigor of high school courses for international students and predict their college success? One way is to examine a common high school curriculum used by schools in multiple countries and compare the rigor of the different high school programs of study to the students' later college success. The International Baccalaureate Program is one such curriculum that can be used for data collection purposes in the context of international student college success factors and high school course-of-study predictors.

The International Baccalaureate® (IB) was founded in 1968 in Geneva, Switzerland. The program was originally developed for students from ages 3-19 who were internationally mobile and wanted to prepare to participate in higher education in an English-speaking country. The first IB schools were predominantly private, but today over half of the IB World Schools authorized to offer the Primary Years Program (for students aged 3-12), Middle Years Program (for students aged 11-16), and/or the Diploma Program (for students aged 16-19) are public

schools (IBO, 2011). Bunnelle (2008) reported in the United States in 2008, 92% of the IB World Schools were state-funded. There are currently over 997,000 students in 3,339 schools in 141 countries that use the IB curriculum (IBO, 2012). In May of 2011, a total of 402,695 senior IB exams were administered in a total of 103 higher level and 160 standard-level subjects. The International Baccalaureate Organization reported the students represented 205 nationalities and 10,885 of the test takers had dual nationalities (IBO, 2011).

The full IB Diploma Program consists of six IB courses (three standard level and three higher level) completed over a two-year period for juniors and seniors, in addition to a three-semester Theory of Knowledge course and a 4,000-word extended essay on a topic of the students' choosing. Each diploma candidate must also complete at least 150 hours of self-directed volunteer work over the two-year period in the categories of creativity, action, and service (Chmelynski, 2005; IBO, 2012).

Unlike Advanced Placement (AP) exams, IB students must be enrolled in the specific IB course to be eligible to take the examination for that subject. IB exams are knowledge-based (students are evaluated on what they have actually studied) and criterion-referenced (Chmelynski, 2005; Gazda-Grace, 2002; IBO, 2012). The variety and quality of assessments are what further separates the International Baccalaureate from other curriculums. Students in English, for example, must also complete an internal assessment component which is an oral assessment given five months before the IB examination, which occurs in May each year. The teacher selects a literary passage which has been previously studied and the student is given a short time to read the passage and take notes. Then, the student must individually complete a tape-recorded dialogue with the teacher regarding the meaning of the selection. The conversation is scored based on an international rubric and the tapes are then sent to different

locations around the world to be externally moderated and assessed by IB examiners. When final IB exams are graded each summer by the IBO, schools receive subject reports listing student scores for the individual school and worldwide. Each teacher receives a written report from the IB subject examiner explaining how well his/her students were prepared for the exam and offering the individual teacher specific curriculum and instruction suggestions (Gazda-Grace, 2002). Because of its rigorous and highly structured and regulated comprehensive curriculum, coupled with the ongoing intensive teacher training, the program has grown into what has been called the “Cadillac” of college-prep programs (Gehring, 2001).

Thomas (1991) offered one of the first early studies on IB and college success when he followed 1,036 IB diploma holders at 26 UK universities who sat for university examinations from 1971-87. His results showed 98% of the diploma holders completed good honours degrees (meaning the students graduated with first, second, or third class honours, similar to the U.S. *summa cum laude*, *magna cum laude*, and *cum laude* honors designations). Duevel (1999) examined whether earning an IB Diploma in high school was a predictor of later university success. She worked with twelve U.S. universities as part of her doctoral dissertation (Columbia, Cornell, Georgia Tech, Harvard, Indiana at Bloomington, Texas at Austin, Illinois at Urbana-Champaign, Virginia, Washington, and Wisconsin at Madison) and found 92% of their IB Diploma holders earned bachelor’s degrees and 87% of those degrees were earned in five years or less.

In many IB schools, students who are unable or unwilling to take the six IB courses (plus Theory of Knowledge) required for a full IB diploma are able to earn individual IB Certificates in the IB courses appropriate for their learning and ability levels (IBO, 2012). In another study commissioned by the IB through SRI International, worldwide data was collected from 2001 and

2002 in IB schools for 1,919 students who took between one and six IB classes as juniors and seniors in an international high school. Years later, 1,126 of the 1,919 students from international IB high schools attended college in the United States and had the following completion rates: 75% of the IB Diploma recipients ($n = 799$) graduated from college within four years, and a total of 85% of the diploma recipients graduated within six years; 55% of the IB Certificate students ($n = 295$) graduated from college after four years, and 80% graduated within six years of enrolling.

Of the highest achieving students who scored a six or a seven on three or more exams (seven being the highest score possible), 81% graduated within four years; after six years, 91% of the students in this group had graduated from the U.S. college or university where they matriculated directly after high school. There was also a small group of non-diploma recipients in the sample group ($n = 32$) who attempted the IB diploma but did not complete it successfully, and data from those students showed 41% graduated in four years and 66% percent graduated in six years (Casparly, 2011). It is important to note even though this study was conducted with students at international high schools, the students in the study all claimed “American” as their first or second nationality on their IB exam registrations. Therefore, these students would have applied to U.S. colleges as domestic students and would not be considered international students for college data purposes.

Casparly and Bland (2011) conducted another study for SRI International which analyzed the first college courses taken by 4,845 Florida students who took the senior IB exams between 2000 and 2005 and enrolled at the University of Florida the fall after their senior year in high school. Overall, seniors who performed well on their IB subject exams earned higher college grades in the same subjects than students who did not perform as well on the IB exams. For

example, 59 percent of students in the sample group who earned a final score of six or seven (seven being the highest score possible) on a specific IB subject exam earned a final grade of A in their first college course in that subject.

Shah, Dean, and Chen (2010) examined the success of 1,547 IB Diploma students in the United States who enrolled in a University of California college between 2000 and 2002. They compared the group to the entire UC student population as well as to a comparison group of 5,253 non-IB students with similar profiles in the areas of enrollment, family income, race, and high school performance using GPA and highest SAT or ACT score. The results of the descriptive analysis showed IB students had higher college grade point averages and higher graduation rates than both the comparison group and the overall UC student population. The regression analysis (with controls for socio-economic status, ACT/SAT, and high school grade point average) showed a positive relationship between IB participation and college performance. Diploma Program performance (as measured by final IB scores) was the best predictor of college success and accounted for approximately 25% of the variance. The scores on the IB science exams were the best predictors of college GPA, demonstrating 17% of the variance.

It is important to note the Caspary (2011), Caspary and Bland (2011), and Shah, Dean, and Chen (2010) studies were directly commissioned by the International Baccalaureate and were not peer reviewed or published outside of the International Baccalaureate Organization. Therefore, these studies have not undergone the same scrutiny that would exist with a peer-reviewed study. There is a definite research hole found in this area because there are few IB studies that have been conducted independently and outside of the control and authorization of IBO.

How do students view their IB educations after they have graduated? Taylor and Porath (2006) completed a qualitative study on the reflections of recent IB graduates and interviewed 16 students from schools in British Columbia. They found that overall, students had a positive experience and felt the IB gave them an intellectually-stimulating curriculum and prepared them well for post-secondary education. Eighty-seven percent of the respondents felt they were better prepared for post-secondary education than their non-IB peers, and 68.75% felt better prepared for advanced college courses. Sixty-two and a half percent of the students surveyed were granted some kind of credit in college for their high school IB coursework. However, only half of the students surveyed reported feeling less stressed their first year in college than they perceived their non-IB-educated peers to be.

As the International Baccalaureate Program continues to grow in size and scope worldwide, there is also criticism which needs to be considered. Hayden and Wong (1997) stated there is no doubt of the international acceptability and emphasis on languages that IB provides, but cautioned the IBO should not make claims their program inculcates international attitudes and directly supports the preservation of individuals' cultural identities. Bunnell (2008) contended the IBO must address the growing global imbalance of IB schools, especially in African nations where only 2% of IB schools can be found, compared to 35% of IB schools in the United States. Van Oord (2007) argued IB is designed from a strikingly western humanist tradition and therefore perpetuates western domination by westernizing the youth of non-western traditions.

In the United States, Mayer (2008) noted many IB programs are implemented in socioeconomically advantaged communities and African-American, Latino, and Native American students continue to be underrepresented in U.S. IB schools; Kyburg, Hertberg-Davis,

and Callaghan (2007) found for IB programs to be successful in urban areas, administrators cannot take a rigid approach to the IB program. Caring teachers, not just the curriculum, continue to be the strongest influencing factor in academic student success.

Factors that Contribute to the Emotional Health of International Students

Chen (1999) contended educational stressors for international students may include performance expectations, system adjustment, and test-taking anxiety. International students in the study indicated they expected to do as well as (if not better than) they did in their previous country academically. If students perceived themselves as academically successful, they were more likely to feel more confident in their new environment. If they were not successful, they may have felt a lack of control and felt their very health and wellbeing was threatened. For many international students, success is not just an individual matter but also includes factors such as “family tradition, pride, hope, and friends’ faith in them” (p. 53).

International students may not only experience academic challenges adjusting to education in the United States, but they may also experience loneliness, culture shock, physical symptoms due to stress (headaches, insomnia, mental exhaustion, etc.) and a loss of social status if their social standing in their country of origin is not recognized as important in the U.S. Students may misinterpret the meaning of a phrase in talking with peers or mistake friendly conversation with members of the opposite sex as romantic invitations. Male students who are from countries where women are openly discriminated against may find it difficult to accept women as their equals. Religious situations may also arise and students may need to miss class to attend religious meetings. For example, during certain holy days Muslims may need to attend prayers at the mosque or fast for several days. While fasting, students may be drowsy during class or may not participate as actively. In each of these situations, international students may

encounter problems with cross-cultural communication and discrimination, and they can become easily discouraged or reluctant to seek friendships with Americans (Lacina, 2002).

It is important to note Yoon and Portman (2004) found there is a tendency in research to overgeneralize findings to all international students and to underemphasize within group differences. For example, Korean students are more likely to express depression through somatic symptoms than U.S. students and are more likely to seek counseling services when they experience discomfort somatically. Latin American international students report higher levels of psychological distress than Asian international students. European international students show less adaptation strain than Asian international students. Gender comparisons show female international students had more open attitudes to seek counseling if they had a previous counseling experience (Mitchell, Greenwood, & Guglielmi, 2007).

Tochkov, Levine, and Sanaka (2010) found homesickness was more prevalent among international students than among American college students, but both groups experienced homesickness in varying degrees. International students from India and students from the United States were given Archer's Homesickness Questionnaire, the Beck Anxiety Inventory, and the Beck Depression Inventory II. Their results showed homesickness was significantly more pronounced ($p < .05$) among Indian international students from India, but American students experienced higher levels of anxiety and depression than their Indian counterparts. Anxiety and depression had a positive correlation with homesickness for both samples, but the coefficients were significant only for the Indian sample ($p < .05$). The authors also found the longer international Indian students in the study remained in the United States, the more homesick they became; however, students who were planning to remain in the United States to find work felt less homesickness overall.

In an Asian study examining how international students' use of the Internet affected their academic, social, and emotional adjustments, Lee, Lee, and Jang (2011) used a web-based survey to gather information for 166 Chinese students studying at a single university in South Korea. They found when students used the Internet for the purposes of developing a local social network and improving language skills, they adjusted better socially. However, when the purpose of a student's Internet use was primarily inclined toward his or her home country, it hindered adaptation to the new surroundings and actually posed greater emotional challenges for the student. This was due primarily to the fact that utilizing the mass media of the host country equipped students with important cultural, social, and political knowledge, whereas gravitating toward ethnic media (from a student's home country) acted to sustain a student's sense of separateness and actually interfered with the assimilation process.

Ridinger and Pastore's (2000) investigation of international student athletes showed this subgroup of international students were significantly more well-adjusted to college than international non-athletes. In fact, international athletes adjusted to college as well as students and student-athletes from the United States. According to the authors, this may be due in part to the fact that athletes tend to form strong social bonds with teammates and social identity and network may make cultural adjustments easier.

Koyama and Belli (2011) examined alcohol use, acculturative stress, and drinking motivation among international students in a large community college in a Mid-Atlantic metropolitan area of the United States. The focus of their study was students specifically attending English as a second language programs (ESL), which included both domestic and international students. The study included 126 F-1 students (indicating international students studying in the U.S. on an F-1 visa) and 136 non-F-1 students (indicating permanent U.S.

residents, naturalized citizens, those holding working visas, and refugees). The study found the quantity of alcohol consumption was not different between the two groups, but the F-1 students drank on more occasions than the non-F-1 students, both over the past year and the past 30 days.

For both groups, the three strongest stressors were academic pressure, financial concerns, and language difficulty. Both groups identified cultural adjustment and perceived discrimination as the least stressful factors. However, the authors did not find clear relationships between alcohol use and acculturative stress in this population. This may have been due in part to the fact that there were different college environments and expectations between general academic programs and ESL programs. The authors point out the social acceptance of alcohol can vary greatly by culture and gender, and international students could benefit from a psycho-educational group examining alcohol use in the United States and on college campuses (Koyama & Belli, 2011).

Even though many international students are in need of psychological assistance, mental health services are often under-accessed by this group of students. According to Lacina (2002), the international students who did seek mental health counseling were more likely than their American peers to terminate counseling prematurely. International students may view students who seek psychological help as dishonorable to their family or they may be suspicious of the counselor's motives for helping a student of a different race or nationality. They may also be fearful their counseling appointments may be reported to the officials in the governments that are sponsoring their education and they may be asked to return home—bringing great shame to the student and his or her family (Lacina, 2002).

Rice et al. (2009), in their work with international graduate students and faculty advisors at the University of Florida, reported the quality of the student-faculty advising relationship is an

often overlooked, yet critical factor in the success and adjustment of international graduate students. The authors measured three dimensions of the advising relationship using the Advisory Working Alliance Inventory (AWAI and AWAI-S): rapport, identification-individuation, and apprenticeship. They found international graduate students identify the ideal faculty advisor as one who demonstrates the following traits: cross cultural empathy (understanding cultural values, language barriers, and special needs), interpersonal relationship (personable, respectful, fair, and an open communicator), advisement (guidance, feedback, collaboration, and clear expectations), identification-individualization (matching interests and a similar personality), and financial support (through helping students find scholarships and enforcing fair pay).

Yet even with the many difficulties of studying in a foreign country, Reynolds and Suh (2005) reaffirmed numerous studies which show international students have resiliency factors that aid in their adjustment to the host country and overall life satisfaction. International students in their study scored significantly higher than their American peers in aspiration, academic interest and satisfaction, and leadership and initiative. (There was no significant difference between the two groups in identification vs. alienation and anxiety.) The fact the international students chose to attend college in another country demonstrated their sense of adventure and confidence. Financial support from home and motivation to succeed may have also contributed to a positive adjustment.

Ways U.S. Institutions Can Assist International Students

Ren and Bryan (2007) offered four specific areas colleges and universities in the United States could address to provide stronger support services for international students: 1. Interview prospective international students using teleconferencing and video conferencing. These interviews can provide significantly more information on a student's language ability than a

TOEFL score alone. 2. Encourage the creation of clubs and organizations which promote native and non-native student interaction. These programs provide language assistance and social outlets for international students and provide opportunities for American students to learn about other cultures. 3. Provide mandatory workshops for all faculty members. (Topics may include cultural differences and communication barriers, the role of English in non-English speaking countries, specific teaching strategies and classroom management techniques, etc.) 4. Make a deliberate effort to advertise and promote the existing services and programs that already exist on campus for international students.

Spencer (2003) recommends international students arrive on campus several days before the other students arrive. This gives international students an opportunity to rest and adjust to the new time zone as well as explore the campus (and the cafeteria) before it becomes crowded by returning students. "Friendship Families" within the community can be assigned to come along side the international students and provide a social outlet off of campus as well as the nurturing care of a family atmosphere.

Many colleges with large groups of international students have already created successful programs to assist and help retain their international clientele. The University of California at Los Angeles (UCLA) holds a welcome dance for the international students when they arrive on campus. San Diego State University (SDSU) has an email exchange called the Email Partners Program. The program matches new SDSU international students with student volunteers who have attended the school for at least a semester. The email mentors can answer questions on a variety of topics and because the communication is written, many international students feel more adept at asking questions that they might not normally be willing or able to ask in a face-to-face conversation (Lacina, 2002).

Wang's (2003) unpublished dissertation on the adjustment of international graduate students at two large American universities (n = 289) found resilience characteristics, not background factors, were the strongest predictors of adjustment issues. Using the Personal Resilience Questionnaire and the Michigan International Student Problem Inventory, the author concluded resilience characteristics such as being positive, flexible, organized, focused, and proactive must be better understood, discussed, and taught when analyzing adjustment issues for international graduate students because resilience factors are important indicators of the ability to cope with change. Background factors such as father's education level, country of origin, age, length of stay, and gender are also related to adjustment, but the overall correlations for these elements to adjustment problems is not as strong overall as it is for resilience factors. Wang recommended universities offer training for staff and international students on resilience factors and how to improve resilience characteristics.

Specific courses can also be created to meet a recognized need. Fairleigh Dickinson University had an average total international student enrollment of 1,200 in 2010 and annually enrolls about 500 new international students. The school identified the need for basic writing assistance for non-native English speakers and created five different class and lab tracks based on the most popular majors for international students: (1) Business and hotel and restaurant management and related majors; (2) Engineering and computer sciences; (3) Nursing and allied health, natural sciences, psychology, and related majors; (4) Criminal justice, pre-law, political science, and history; and (5) Communications, education, and art. At FDU, both undergraduate and graduate non-native English speakers take an English writing proficiency class and writing lab during their first semester of study. In course exit surveys, all of the students surveyed said

they would come back to the writing studio for tutoring, and half of those surveyed said they would attend future workshops (Mohamad & Boyd, 2010).

Online courses may also pose a challenge to international students because of the level of language proficiency required. Zhang and Kenny (2010) stated non-native English speakers required significantly more time to process reading assignments and read and respond to postings. Their lack of understanding of culture and colloquial language further hindered their understanding of course discussions and increased their frustration and isolation in the courses. The authors encouraged colleges to consider raising the English proficiency requirements for online courses primarily because the written nature of the online courses requires interpretation without verbal cues. Colleges also need to make sure course designers are aware of international student needs and combine both traditional and constructivist design theories into their online courses to aid in international student success.

In multiple studies, international students at both the undergraduate and graduate levels expressed concern and frustration regarding legal issues such as the hours they were allowed to work on campus compared to United States residents (Dozier, 2001; Lee & Rice 2007; Rice et al., 2009; Wang, 2003). International students also reported mild to severe discrimination in one form or another from other students, community patrons, or even from their own college professors, and they did not understand what resources were available to them to report these incidences. It is in the best interest of colleges and universities to educate international students either before they arrive in the U.S. or as soon as they arrive in the U.S. to better assist them in understanding the laws and support services available to help them be successful in their new environments (Lee & Rice 2007; Rice et al., 2009; Wang, 2003).

The challenge to better assist international students is not just a purely U.S. concern. Sawir (2011) interviewed 80 academic staff from Australia's University of Melbourne, a school with a large population of international students. He found more professors from "soft" disciplines (faculty of arts: 88%; economics and business: 68%) reported changes in their teaching practice as a result of the presence of international students in their classrooms than did professors who taught in "hard" disciplines (engineering: 41%; science: 56%). Overall, 34% of the staff surveyed reported they made no adjustments to their teaching in consideration of international students because the nature of the subjects they taught required no changes. They also reported they had not received any training regarding working with international students. Of the 66% who had made teaching or curriculum changes, motivating factors included having an interest in other cultures, having experience living overseas themselves, and having the nature of the subjects that they taught naturally lend themselves to cross-cultural and international elements.

Colleges can also assist international students in the areas of career counseling. While there are many stigmas surrounding personal counseling, career counseling is of high importance to students and is also an initial topic (referred to in counseling as a presenting problem) that may open doors and receptiveness to other types of counseling later on. Spencer-Rogers's (2000) factor analysis pointed to six conceptual categories that represent the career-development needs of international students: (a) long-term U.S. employment, (b) return-focused employment, (c) short-term U.S. employment, (d) interview barriers, (e) interviewing techniques, and (f) general career planning. Crocket and Hayes (2011) stated although it is well known that international students face considerable career challenges and vocational difficulties, college

counselors remain focused on their work with American students and are not adequately or appropriately meeting the vocational needs of the international students within their institutions.

Natali (2005) ascertained every college and community college that enrolls international students on F1 visas should employ a professional international student advisor and provide funds to support that advisor's continual professional development and membership in the National Association of Foreign Student Advisers (NAFSA). She also stressed the positive impact international students can bring to an entire campus:

The presence of international students on our campuses enriches the collegiate experience of all of our students. International students bring with them a wealth of diverse ideas, challenging their classmates to see the world from a variety of perspectives. As a result, students enrolled in courses from art and literature, social sciences, math, or natural science will consider global perspectives on subjects they may in the past have only considered from their own familiar cultural vantage points. (p. 47)

Conclusion

Research indicates college admission and academic success for international students studying in the United States of America for undergraduate or graduate school is influenced by a number of factors. As the world continues to become more globally focused, the population of international students in non-native countries will continue to grow. International students are a group of students with enormous potential, and they bring not only a wealth of knowledge and experience to colleges and universities in the United States, but they also bring a new and challenging perspective to the American students and professors in those classrooms. It is in the best interest of U.S. higher education to not only meet the diverse needs of international students,

but to also facilitate a growing understanding of this population and develop programs and pedagogy to maximize the cultural exchange at every level.

Chapter III

Design and Methodology

Introduction

There are multiple factors that influence the academic success of international students who wish to study outside of their countries of origin. Because the factors are as unique and varied as each individual student, it is not possible to adequately investigate every factor that contributes to a successful United States college experience through one dissertation alone. Nonetheless, one factor consistent across contemporary academic research is a rigorous high school course of study was one of the best predictors of college success (Adelman, 1999; Adelman, 2006; Breland, 2002; Geiser & Santelices, 2004; Waugh, Micceri, & Takalkar, 1994). However, not all high school programs of study are equal, even within the same geographical area, and what is considered rigorous for one student may not be truly rigorous for another.

Does that mean, then, that international students who do not complete, or are not able to complete, the most rigorous course of study available at their school will not have the same success in college? This is a question commonly asked in school counseling offices by junior and senior high school students and their parents who are trying to choose the “right” college preparatory classes. In the International Baccalaureate Program, not every student has the ability or scope of knowledge to qualify for an IB Diploma Program schedule and excel in six different subject areas (Chmelynski, 2005; Gazda-Grace, 2002; IBO, 2012). For example, if a student is not able to successfully complete Algebra 2 by the end of his or her sophomore year, he or she is not eligible for an IB diploma course load because the students’ level of math is not high enough

to qualify for IB Math Studies or IB Math Standard Level (SL) or Higher Level (HL)—the math courses required for a full diploma schedule. In another scenario, what if a student decides not to pursue the DP and instead focus his or her time and attention to a specific class or program that is highly demanding, such as Music HL or Visual Art HL? If a student is either required or elects to take an IB certificate schedule instead of the prestigious diploma schedule, will he or she be automatically at-risk for limited college success in comparison to his or her peers who take a full DP course of study?

Research Design

This study is a quantitative research project in design and scope. The researcher first looked at descriptive statistics of the two different groups (IB Diploma and IB Certificate at the study school from 2007-2012) to summarize the characteristics of the data set, and then used inferential statistics to draw conclusions about the data (Tanner, 2012). According to Creswell (2008), a quantitative analysis is most appropriate for this type of study because it will allow the researcher to break down the data into parts to address the research questions. Survey research, as opposed to experimental research, (Creswell, 2009) provides a quantitative description of trends of a specific population by analyzing a sample of the population and then generalizing the sample to the population. The researcher utilized existing data to investigate the difference between college acceptance rates and degree completion for international high school students attempting to complete the IB Diploma compared to students who were attending the same school at the same time and did not take a full IB diploma schedule during their junior and senior years of high school.

The first null hypothesis of this study (H_0) stated there will be no statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students

and International Baccalaureate Certificate students. The second null hypothesis of this study (H_0) stated there will be no statistically significant difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The first alternate hypothesis of this study (H_1) stated there will be a statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The second alternate hypothesis of this study (H_1) stated there will be a statistically significant difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students.

Setting and Participants

The study was conducted at a non-profit international Christian school in East Asia. The school serves approximately 470 students in pre-kindergarten to grade 12 that meet South Korea's international student criteria. In order to enroll in an international school in South Korea, students must meet at least one of the following criteria: 1. Be non-Korean passport holders, 2. Be dual-Korean passport holders (with citizenship in Korea and one other country), or 3. Have lived outside of Korea for at least three years (as calculated by number of days). The Korean Ministry of Education has changed or adapted the specific details of this requirement many times, and the location of the school (i.e. in a free-trade zone) or the school's longstanding legal agreement with the Education Ministry for the number of foreign and domestic seats available each year at the school causes variances to this requirement across the peninsula at different international schools. However, at the time of this study in this specific school, the three factors above determine if a student is deemed legally eligible to qualify to attend the study school.

The school is accredited through the Western Association of Schools and Colleges (WASC) and the Association of Christian Schools International (ACSI). The school is an International Baccalaureate World School which is fully authorized to offer the Primary Years Program (PYP), Middle Years Program (MYP), and Diploma Program (DP). At the junior and senior grade levels, students can choose either an IB Diploma Program schedule or a certificate schedule based on recommendations from their teachers and counselors. Approximately 500 students from 22 nations attend the school, with 46% of the students holding passports from the United States and 39% holding passports from Korea. Currently 84% of students have ethnic Asian backgrounds. Demographically for the teaching staff, 63% of the faculty hold passports from the United States, followed by 13% from Canada and 12% from Korea. Thirty-five percent of the staff have obtained master's degrees and 3% have doctorate degrees. The student-to-teacher ratio is 6:1. The study school is also a 1:1 Apple laptop school for students in grades 6-12. Students are required to purchase Apple laptops and bring them to each class each school day (School, 2012).

In order to fulfill the Class of 2012 graduation requirements, students have to complete a minimum of 28 credits, including six credits in English, literature, and writing; three credits in science; three credits in social studies; three credits in mathematics; two credits in world languages; one-half (0.5) credit in physical education, and one-half credit in speech. Students are also required to complete a one-semester Bible class every year that they are enrolled. Most students elect to take the core academic courses for all four years of high school.

The academic year at the study school is comprised of 180 instructional days and the year is divided into two semesters (typically August to December and January to June). Students attend school Monday through Friday of each school week. The secondary school schedule is

comprised of nine class blocks and students attend six classes per day on a rotating block schedule. Each class block is 60-minutes in length, but is shortened to 50 minutes on Day 3 of the cycle to allow time in the school day for a chapel service.

The school also manages and maintains four dormitories for approximately 130 students who board on campus. The boarding program is accredited by the Association of Christian Schools International (ACSI). Approximately one-third of the secondary students at the study school board on campus during the week, and then travel back to their hometowns on the weekends and during school vacations to spend time with their parents and families. The school is also a partner with several missionary organizations across the world and each year the students of missionaries receive scholarships to attend the school and board on campus while their parents are actively serving in different countries around the world.

Many opportunities are available on campus for students to participate in co-curricular activities. The school currently sponsors 29 active clubs. All juniors and seniors are required to participate in a minimum of 150 hours of co-curricular activities in the areas of Creativity, Action, and Service (CAS) and record these hours and personal reflections in their individual student Managebac accounts. The CAS program emphasizes learning by doing real tasks and then reflecting on those experiences over time. CAS activities include, but are not limited to, the following co-curriculars: student council, National Honor Society, math team, forensics, Model United Nations (MUN), chapel praise team, Red Cross, Amnesty International, drama productions and musicals, yearbook, newspaper, and school service and mission trips both locally to orphanages and nursing homes, and internationally to places like Bangalor, India; Boracay, Philipines; and ChiangMai, Thailand.

Varsity athletics at the study school include cross country, volleyball, rugby, tennis,

basketball, cheerleading, soccer, and swimming. The study school is a member of both the Korean-American Interscholastic Activities Conference (KAIAC) and the Asia Pacific Activities Conference (APAC).

The students at the study school consistently have IB and SAT scores that exceed the worldwide means. See Table 2 for an SAT score comparison and Table 3 for IB exam results.

Table 2

Standardized Testing Score Comparison

Class of 2010 SAT Test Data		
	<i>School Mean</i>	<i>Worldwide Mean</i>
Critical Reading	517	500
Mathematics	665	515
Writing	573	491
Class of 2011 SAT Test Data		
	<i>School Mean</i>	<i>Worldwide Mean</i>
Critical Reading	566	497
Mathematics	699	514
Writing	609	489
Class of 2012 PSAT Test Data		
	<i>School Mean</i>	<i>Worldwide Mean</i>
Critical Reading	49.5	46.5
Mathematics	60.4	48
Writing	48.8	44.4

Source: School Profile, 2011-12.

Secondary students at the school consistently perform well above the world averages on the SAT exams and in the International Baccalaureate Diploma Program. On the PSAT and SAT standardized testing examinations, graduates in the Classes of 2010-2012 had mean scores that were higher than the worldwide mean scores in every subject: critical reading, mathematics, and writing. On the IB examinations, administered to seniors every year in May, students at the study school had mean scores higher than the world mean in five of the six testing areas.

Table 3

IB Exam Results from May 2010-2012

	Score: 7	6	5	4	3	2	1	School Mean	World Mean
Literature	15%	41%	33%	11%	0%	0%	0%	5.62	5.51
World Languages	12%	28%	48%	11%	0%	0%	0%	5.37	5.45
Ind. & Society	1%	16%	38%	36%	8%	1%	0%	4.58	4.27
Science	4%	23%	25%	30%	15%	3%	0%	4.46	4.26
Mathematics	28%	38%	22%	10%	1%	0%	0%	5.76	4.59
Fine Arts	5%	36%	40%	19%	0%	0%	0%	5.36	4.64

Note. Final International Baccalaureate Scores range from 7 (highest) to 1 (lowest). This table shows the percentage of students that received each final score in each subject From May 2010 to May 2012 at the school, a total of 1,537 IB Exams were taken, with a diploma passing average of 5.41. (Final IB scores range from 1-7.) *Source:* School Profile, 2012-13.

International Baccalaureate examinations are given on a set day and time worldwide for seniors each May. From May 2010 to May 2012, 108 of the 110 diploma candidates at the study school received the IB Diploma. 93% of the scores for IB courses were 4.0 or higher, and 98%

of the diploma candidates received the IB Diploma.

For the graduating Class of 2012, the 93 students in the senior class received 323 college acceptance offers and accumulated \$4,656,097 USD in scholarship offers from 140 universities around the world. The school is known for its academic rigor and its high acceptance rates to selective colleges in the United States and worldwide.

Data Collection

The data for this study was fully accessible to the researcher in her current position with the school. All data was compiled and saved in Excel spreadsheets and SPSS files on the researcher's personal laptop computer and was backed up on a USB flash drive and Google Drive. Data for this quantitative study was retrieved from three specific sources: Naviance, IBIS, and the National Clearinghouse.

Naviance—Naviance® is a college and career planning tool created by Hobsons that is available to schools as part of an annual paid subscription. Students are able to view anonymous admissions data for both the school's applicants and applicants across the world. This data includes the average GPA and SAT super scores (the highest scores in each SAT subject) for previous students who have been accepted to the specific college or university. The school in the study has been collecting college admission application and acceptance data since 2005 using the Naviance database. Seniors first select the colleges to which they plan to apply and record their application list in Naviance in the fall of each school year. The school counseling office then tracks where students apply and if students are accepted or denied at each college where they have applied based on student self-reports. The admission information for the school is available to students without disclosing the specific names of applicants. However, all of the specific

admission information (including student names) is available in Naviance to the counselors, administrators, and technology managers at the school.

This information has commonly been used as a guide to help students on an individual level make appropriate college selections based on local high school and worldwide averages for cumulative grade point average and SAT and/or ACT admission testing scores for students who have been selected or rejected at specific colleges and universities. While this individual data has been collected for the study school since 2005, it had not previously ever been utilized as part of a specific research study for the group as a whole.

From the Naviance database, the researcher collected the number of college applications that each individual student in the graduating classes of 2007-2012 submitted, along with the number of acceptance offers he or she received, as were recorded previously in the database. This application and acceptance information was typed by the researcher into Excel spreadsheets and saved by the year of graduation.

International Baccalaureate Information System (IBIS)— IBIS is a planning, assessment, and reporting tool developed and maintained by the International Baccalaureate Organization in Geneva, Switzerland, available to schools as part of their IB affiliation. School officials use IBIS to register their students for IB exams, collect data, and run reports (IBO, 2013). IBIS was used in this study to determine the gender, country of origin, course selection, and diploma type (diploma or certificate) for each student in each graduating class from 2007-2012. Data was pulled from IBIS in the form of pdf documents listing the name, country of origin, and diploma type of every student by class. This information was then typed by the researcher into Excel spreadsheets and saved by graduation year. The researcher also examined the specific HL and SL courses, as well as the diploma type (IB Diploma or Certificate) for each

student who had been accepted to an Ivy League university, according to the acceptance data retrieved from Naviance.

National Student Clearinghouse—The National Student Clearinghouse’s StudentTracker for High Schools matches alumni records to collegiate enrollment and degree data for U.S. colleges and universities. For an annual subscription fee, schools receive FERPA-compliant detailed reports on college trends by graduating class and the post-secondary performance of individual students. The researcher submitted the names, birthdates, and graduation dates for all of its students in the graduating classes of 2007-2012 to the National Clearinghouse in November of 2012. Approximately one month later, in December of 2012, the National Clearinghouse completed a report for the study school in the form of Excel and pdf files which contained the following information:

1. How many of the school’s high school graduates enrolled in college?
2. How soon did the school’s graduates enroll in college and did they remain at that college from one year to the next?
3. How long did it take for the students to graduate?
4. Did the students attend a four-year or two-year school, and was it public or private?
5. Which colleges did graduates from the school most commonly attend?

This information was electronically delivered to the study school in the form of Excel and pdf documents and the researcher combined the matriculation, retention, and college graduation data with the information that had already been collected and saved on Excel spreadsheets from the Naviance and IBIS databases.

The data that was collected from Naviance, IBIS, and the National Clearinghouse was used to calculate the following descriptive variables that were investigated as part of this study:

1. Percentage of IB Diploma candidates and IB Certificate students for each graduating class from 2007-2012.
2. Percentage of IB Diploma candidates and IB Certificate students by gender.
3. Percentage of IB Diploma candidates and IB Certificate students by country of origin.
4. Mean number of college applications for IB Diploma candidates and IB Certificate students for each graduating class and for all classes from 2007-2012.
5. Number of college acceptances compared to number of college applications for IB Diploma candidates and IB Certificate students by graduation year and for all years combined.
6. Number of Ivy League acceptance offers for IB Diploma and IB Certificate students from one or more of the following schools: Brown, Columbia, Cornell, Dartmouth, Harvard, Princeton, The University of Pennsylvania, or Yale.
7. Specific higher-level courses of IB Diploma students with Ivy League acceptance offers.
8. Percentage of IB Diploma candidates and IB Certificate students enrolled in college in the fall immediately after high school graduation, within the first year, and within the second year after graduation.
9. Freshman-to-sophomore retention for IB Diploma candidates and IB Certificate students.
10. Percentage of IB Diploma and IB Certificate students in each graduating class

with a college degree. (This information was only available for the graduating classes of 2007-08.)

11. The time required to complete the initial college degree for IB Diploma and IB Certificate students in each graduating class. (This information was only available for the graduating classes of 2007-08.)

The school's data from 2007-2012 was organized and analyzed between August, 2012 and April, 2013. The sample size involved approximately 550 students. The administration of the school provided written permission for the researcher to collect and analyze the data and was very interested to learn the results of the study as it may potentially guide future marketing, programing, and planning for the school.

All of the information for Naviance, IBIS, and the National Clearinghouse was available to the researcher online through password-protected accounts. The researcher used pre-assigned unique school-created student ID numbers to manage the individual data, and SPSS to run the appropriate statistical tests. The information collected was stored on the researcher's personal computer and backed up on a USB flash drive and Google Drive.

Irregularities within the IB student databases were discussed and clarified with the school's IB Diploma Program coordinator who has worked at the school since 2004. He clarified any gaps in the information and acted as a research consultant when necessary.

Analytical Methods

The following graphic devices and statistical tests were used to analyze each of the variables that were examined:

1. When considering the percentage of IB Diploma candidates and IB Certificate students for each graduating class from 2007-2012, the researcher looked for trends in the numbers using a line graph.
2. When considering the percentage of IB Diploma candidates and IB Certificate students by gender, the researcher used a Chi-Square test of independence.
3. When considering the percentage of IB Diploma candidates and IB Certificate students by country of origin, the researcher used a Chi-Square test of independence.
4. When considering the mean number of college applications for IB Diploma candidates and IB Certificate students for each graduating class and for all classes from 2007-2012, the researcher used an independent t-test.
5. When considering the mean number of college acceptances compared to the mean number of college applications for IB Diploma candidates and IB Certificate students by graduation year and for all years, the researcher used an independent t-test.
6. When considering the school's Ivy League acceptance offers for IB Diploma and IB Certificate students, the researcher looked at trends using a chart.
7. When considering higher-level courses of IB Diploma students with Ivy League acceptance offers, the researcher looked at trends using a chart.
8. When considering the percentage of IB Diploma candidates and IB Certificate students enrolled in college in the fall immediately after high school graduation, within the first year, and within the second year after graduation, the researcher used a Chi-Square test of independence.

9. When considering freshman-to-sophomore retention for IB Diploma candidates and IB Certificate students, the researcher used an independent t-test.
10. When considering the percentage of IB Diploma and IB Certificate students in each graduating class with a college degree, the researcher used an independent t-test. (This information was only available for the graduating classes of 2007-08.)
11. When considering the time required to complete the initial college degree for IB Diploma and IB Certificate students in each graduating class, the researcher used an independent t-test. (This information was only available for the graduating classes of 2007-08.)

In addition to the eleven items above, the researcher investigated the number of college applications compared to number of college acceptances for all of the school's IB Diploma candidates from 2007-2012.

The correlation compared ratio bivariate data. The independent t-test was used to compare the means for ratio data for two different groups. The Chi-squared test compared bivariate nominal data. The design of the statistical test followed the steps described by Tanner (2012). All statistical tests were run using IBM SPSS predictive analytics software located on the researcher's computer. The SPSS software was available to her as a download from Northwest Nazarene University's Technology and Media Resource Center (TMR). The researcher ran every statistical test at least twice in SPSS for accuracy purposes.

Limitations

The data available in the school's Naviance database has been collected since 2005 by the school's college counselor, but since that time the job turnover has been high and four different

college and career counselors have held the position and have managed the data between 2005-2012. In multiple instances for each graduating class, some of the admission decisions were never marked as “Accepted” or “Denied” by the students and are still listed as “Unknown.” When the researcher encountered incomplete data, any “Unknown” listings are classified as “Denied” for the purposes of this study. Ultimately, the students themselves entered their college admission information data into Naviance, and it was seldom verified by the counselors. This means it is possible that students could have either errantly or purposefully listed incorrect information in Naviance regarding the colleges to which they were accepted or denied.

The IBIS database for the school has been managed by the same IB director since 2004, so the information stored there has been recorded and managed in a consistent manner.

The National Clearinghouse only catalogues and reports information for students who attended colleges or universities in the United States, and currently 96% of U.S. institutions of higher education report data to the National Clearinghouse. Therefore, if a graduate of the study high school attended and graduated from a college or university outside of the United States, his or her information would not be available as part of the StudentTracker for High Schools report. If a graduate of the study high school attended one of the 4% of U.S. colleges and universities that do not report to the Clearinghouse, it is also true that his or her college matriculation, retention, and graduation information would not be available and could not be considered as part of this study. These issues are known risks and must be noted within the context of the study. However, since more than 90% of each graduating class enrolls in a United States college or university after finishing high school, the lack of complete data would be considered minimal. High school data and graduating class numbers retrieved from the IBIS database contain only student information for students at the study school who took at least one International

Baccalaureate exam in May of their senior years. The study school has very few special education students enroll, but if a special education student was not able to take at least one IBDP-level course, then the student would not be classified as a certificate candidate and the student's information would not be included in this study.

In the same light, any students who transferred into the study school in the middle of their junior or senior year and took an IBDP class but did not meet the all of the criteria necessary to sit for an exam would not be included in this data. These limitations should add further credibility to the study because students have to be true diploma or certificate candidates to be included in the data pool. However, when examining the data, it may mean the actual numbers of students who graduated from the study school each year are higher than presented in this study. (For example, the Class of 2012 had 94 graduates, but only 86 students were IB Diploma or IB Certificate Candidates; two students were special education students and six students transferred to the school at the beginning of their senior year, so they were ineligible to sit for IB examinations.)

Another limitation to address is the fact the group being studied is very specific and the results and conclusions should not necessarily be generalized to a wider population. The researcher herself is an employee of the school and college admissions is her primary job responsibility. This data provides a snapshot of the school's college application and college matriculation information in its first six years as an International Baccalaureate World School. However, that does not mean the data will be the same in the school's next six years. As the school's recommendation and advising processes evolve with time, and with professional development and staffing changes, changes in the demographics of the student body, and/or

changes in the college application process in the United States, the school's college acceptance information may also change.

Overall, there is a high level of interest in any data related to college admissions within the extended international school community in East Asia and within the Korean culture specifically. It is the hope of the researcher these two factors will only add to the significance and importance of the study, and will encourage future follow-up studies along the same lines.

Chapter IV

Results

Introduction

The primary focus of this quantitative dissertation study was to determine if there was a statistically significant difference in the college acceptance rates and college graduation rates for students participating in the full International Baccalaureate Diploma Program their junior and senior years in high school at the study school in East Asia between 2007-2012, compared to those students who did not take the full IB Diploma and instead attempted IB Certificates in individual International Baccalaureate courses of their choosing. This chapter presents information related to the research questions, statistical analysis, and results.

The principal aim of this quantitative dissertation study was to address the following two research questions: The first null hypothesis of this study (H_0) states there will be no statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The second null hypothesis of this study (H_0) states there will be no statistically significant difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The first alternate hypothesis of this study (H_1) states there will be a statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The second alternate hypothesis of this study (H_1) states there will be a statistically significant

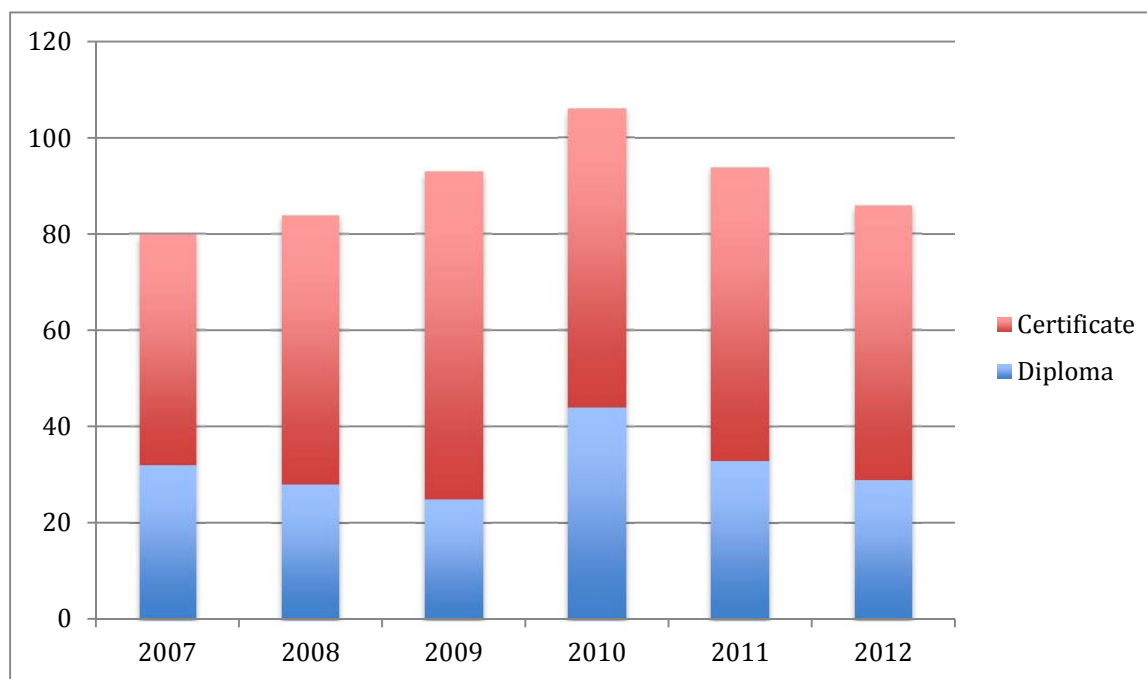
difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students.

Summary of the Results

The international school in the study has been in operation in East Asia since 1958, but transitioned from an Advanced Placement-based curriculum to the International Baccalaureate curriculum program in 2005. Since the IB courses at the Diploma Program level take two years to complete, spanning across both the junior year and the senior years, the first class of IB Diploma and Certificate candidates from the study school completed their high school course of study and graduated in 2007. (Students sit for the IB examinations in May, but the final results are not released by the IBO until July. Because the scope of this study did not investigate whether students had actually completed and been awarded the diploma or certificates, students are referred to as candidates and not recipients.)

Figure 2

Number of Diploma and Certificate Students by Graduation Year



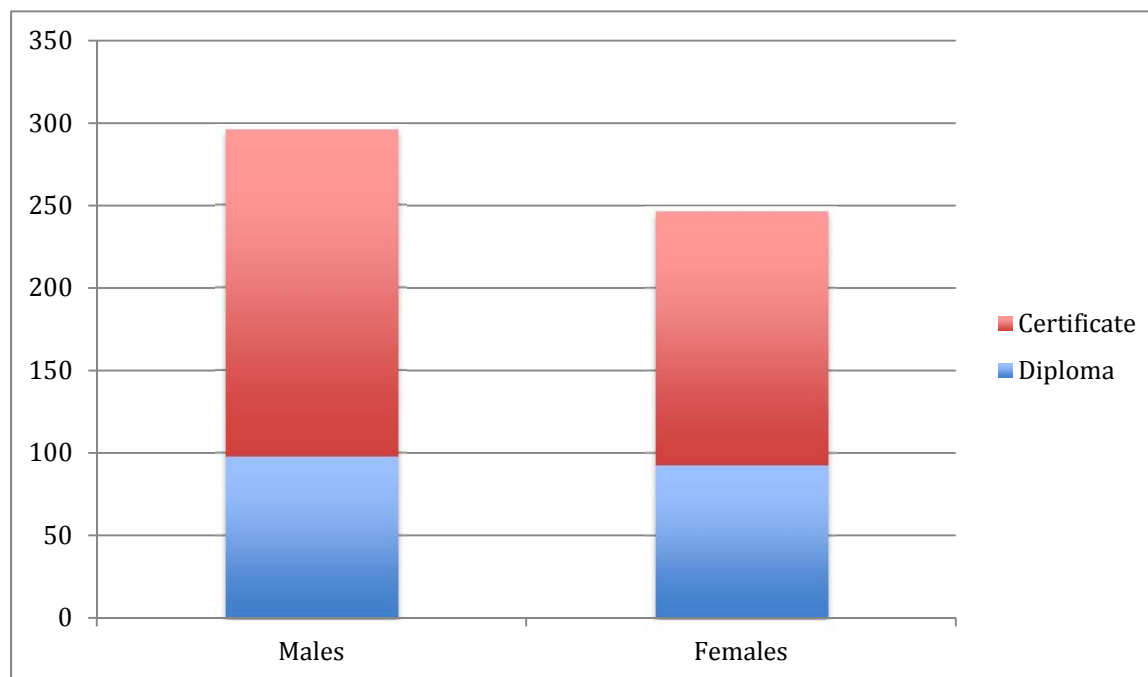
As illustrated by the graph in Figure 2, in 2007, the first year that the study school had IB-Candidate graduates, 40% (32 of 80) of the seniors were IB Diploma candidates, and 60% (48 of 80) of the seniors were IB Certificate candidates. In 2008, 33% of the seniors (28 of 84) were diploma candidates and 67% (56 of 84) were certificate candidates. The Class of 2009 had the lowest overall percent of IB Diploma candidates at 27% (25 of 93). Seventy-three percent of the students in this class were certificate candidates (68 of 93). The Class of 2010 held the largest group of seniors between 2007-2012 and had the highest percentage of IB Diploma candidates to-date, with 41.5% (44 of 106); certificate students made up 58.5% (62 of 106) of the senior class. In 2011, 35% of the seniors (33 of 94) were diploma candidates and 65% (61 of 94) were certificate candidates. For the last year studied, the Class of 2012 contained 34% diploma candidates (29 of 86) and 66% certificate candidates (57 of 86).

Therefore, between the school years of 2007-2012, a total of 543 students graduated from the study school with a high school diploma as either IB Diploma candidates or IB Certificate candidates ($n = 543$). During this time, the Class of 2010 was the largest graduating class with 106 candidates, and the Class of 2008 was the smallest graduating class with 84 candidates. Approximately 35% of the graduates (191 of 543) were IB Diploma candidates, with the Class of 2010 holding the highest percentage of DP students (44 of 106 participants, or 41.5%), and the Class of 2009 holding the lowest percentage of DP students (25 of 93 participants, or 27%). This individual student data came from the International Baccalaureate Information System (IBIS) and only includes students who took at least one IB examination in May of their senior year of high school. Any special education students who did not take IB DP classes or students who

transferred to the study school during their senior year who would not have been eligible to sit for the IB examination in May are not included in these numbers.

Figure 3

Number of Males and Females in Each Program from 2007-2012



As illustrated by the graph in Figure 3, the graduating classes of 2007-12 at the study school contained 543 students, comprised of 247 females and 296 males. Of the 247 females in the study, 93 were IB Diploma candidates (expected count: 86.9), and 154 were IB Certificate candidates (expected count: 160.1). Of the 296 males in the study, 98 were IB Diploma candidates (expected count: 104.1), and 198 were IB Certificate candidates (expected count: 191.9). Please note: The expected count listed is generated by SPSS and demonstrates what one would expect to find in a normal distribution.

Of the 543 graduates studied, 54.5% were male and 45.5% were female. Approximately 33% of the males took the full diploma program, and 38% of the females took the full diploma

program. There was not a statistically significant difference between the numbers of males and females taking the full diploma program compared to the certificate program. The Pearson's Chi-Square test resulted in a value of 1.219 ($df = 1$) and an asymptotic significance of 0.270, meaning there are 270/1000 chances this Chi-square could have occurred by chance. This statistic does not meet the standard ($p < .05$), and is therefore not statistically significant.

The International Baccalaureate Organization recognizes country of origin, or passport country, instead of ethnicity in its data collection and the reports available through IBIS. Therefore, this quantitative study analyzed the country of origin for the Classes of 2007-2012 at the study school. In cases where students had dual citizenship between the United States and another country, the researcher chose to list the United States as the primary country of origin because students with dual citizenship will apply to colleges in the United States as domestic applicants.

Table 4

Country of Origin Percentages and Diploma and Certificate Candidate Numbers

<i>Country of Origin</i>	<i>Percentage of total group</i>	<i>Number of IB Diploma Candidates</i>	<i>Number of IB Certificate Candidates</i>
USA	50.27%	95	178
Korea	37.57%	74	130
Canada	3.31%	8	10
China	1.47%	1	7
Taiwan	1.47%	2	6
Japan	1.10%	0	6
Australia	0.92%	3	2
Nigeria	0.74%	0	4
India	0.55%	2	1

As illustrated by the data in Table 4, students who listed USA as their country of origin for IB reporting purposes made up the largest passport demographic at the study school with 273 of the 543 students. Ninety-five students in this group were diploma candidates and 178 students were certificate candidates. Korea was the second-largest group with 204 students. Seventy-four Korean students were diploma candidates and 130 were certificate candidates. Canada was the third-largest country of origin and of its 18 students, eight were diploma candidates and 10 were certificate candidates. China and Taiwan were the fourth-largest countries represented with eight students each. China had one diploma and seven certificate, and Taiwan had two diploma and six certificate students. Japan was the sixth largest group (no diploma and six certificate),

followed by Australia (three diploma and two certificate), Nigeria (no diploma and four certificate), and India (two diploma and one certificate).

The following countries each had two students attend the study school as IB Diploma or Certificate candidates between 2007-12: Finland (two certificate), Germany (two diploma), New Zealand (two certificate), and Russia (one diploma and one certificate). There were six additional countries that had one student in the senior class of the study school: Argentina, Ecuador, Nepal, Poland, Sweden, and the United Kingdom. (IB type is not listed for these countries to preserve student anonymity.)

Table 5

Mean Number of College Applications and College Acceptances, 2007-2012

	<i>IB Diploma Candidates</i>	<i>IB Certificate Candidates</i>
Mean number of college applications submitted	9.182	7.115
Mean number of college acceptances	4.063	3.418

As illustrated by the data in Table 5, for the graduating classes of 2007-2012 at the study school, International Baccalaureate Diploma candidates (n = 192) submitted a mean number of 9.182 college applications (standard deviation = 4.963; standard error of the mean = 0.358). International Baccalaureate Certificate candidates (n = 349) submitted a mean number of 7.115 college applications (standard deviation = 4.564; standard error of the mean = 0.224). The Independent t-test for equality of means shows a mean difference between the two groups of 2.067 applications.

The t -test revealed a statistically reliable difference between the mean number of college applications the IB Diploma candidates had ($M = 9.182$, $s = 4.963$) and the IB Certificate candidates had ($M = 7.115$, $s = 4.564$), $t(539) = 4.769$, $p < 0.001$, $\alpha = 0.05$.

In calculating effect size using Omega-squared, the value indicates that about 3% of the difference between the groups of students can be explained by diploma type.

$$\omega^2 = \frac{t^2 - 1}{t^2 + n_1 + n_2 - 1} = \frac{22.743 - 1}{22.743 + 192 + 349 - 1} = \frac{21.743}{562.743} = .039$$

In calculating effect size using Cohen's d , the value indicates that the effect size is small.

$$d = \frac{(M_1 - M_2)}{s_{dv}} = \frac{(9.182 - 7.115)}{4.803} = .430$$

International Baccalaureate Diploma candidates ($n = 192$) received a mean number of 4.063 college acceptances (standard deviation = 2.436; standard error of the mean = 0.176).

International Baccalaureate Certificate candidates ($n = 349$) received a mean number of 3.418 college acceptances (standard deviation = 2.548; standard error of the mean = 0.136). The Independent t -test for equality of means shows a mean difference between the two groups of 0.644 acceptances.

The t -test revealed a statistically reliable difference between the mean number of college acceptances the IB Diploma candidates had ($M = 4.063$, $s = 2.436$) and the IB Certificate candidates had ($M = 3.418$, $s = 2.548$), $t(539) = 2.858$, $p = 0.004$, $\alpha = 0.05$.

In calculating effect size using Omega-squared, the value indicates that about 1% of the difference between the groups of students can be explained by diploma type.

$$\omega^2 = \frac{t^2 - 1}{t^2 + n_1 + n_2 - 1} = \frac{8.168 - 1}{8.168 + 192 + 349 - 1} = \frac{7.168}{548.168} = .013$$

In calculating effect size using Cohen's d , the value indicates that the effect size is small.

$$d = \frac{(M_1 - M_2)}{s_{dv}} = \frac{(4.063 - 3.418)}{2.523} = .256$$

International Baccalaureate Diploma candidates ($n = 188$) were accepted to 49.75% of the schools to which they applied (standard deviation = 0.267; standard error of the mean = 0.019). International Baccalaureate Certificate candidates ($n = 323$) were accepted to 54.52% of the schools to which they applied (standard deviation = 0.312; standard error of the mean = 0.017). (Note: Students who did not apply to any colleges, as recorded in Naviance, were removed from this calculation.)

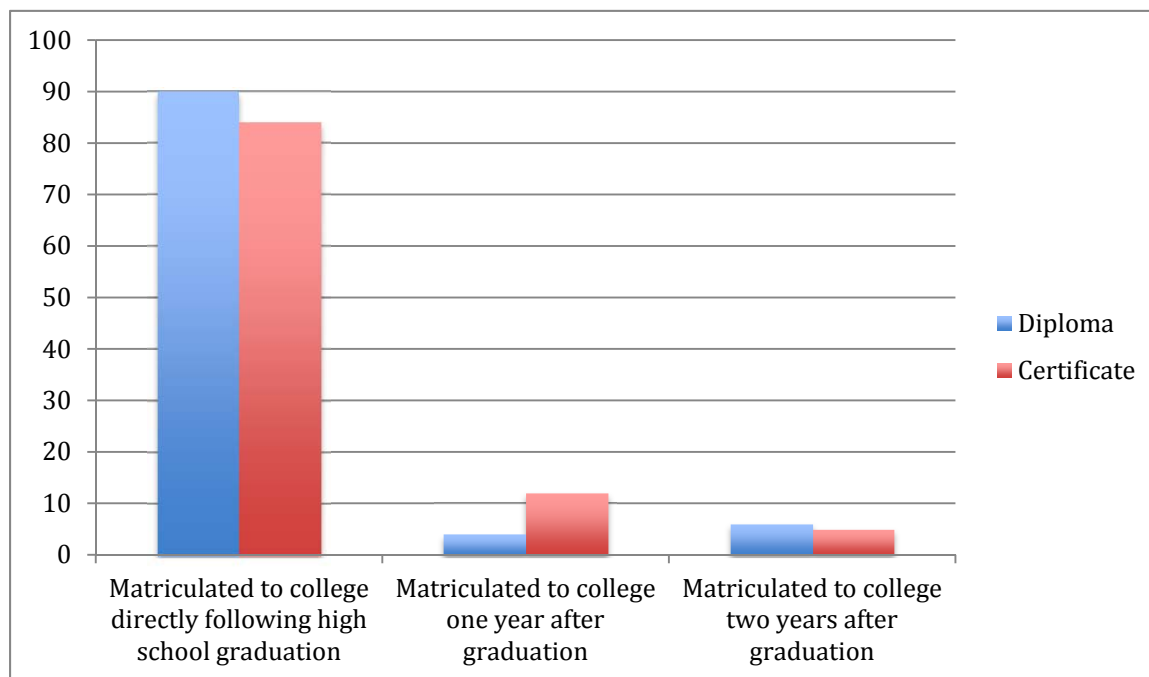
Independent t -test for equality of means shows a mean difference between the two groups of 0.047 acceptances. The t -test failed to reveal a statistically reliable difference between the mean percentage of college acceptances the IB Diploma candidates had ($M = 0.498$, $s = 0.267$) and the IB Certificate candidates had ($M = .5442$, $s = 0.313$), $t(511) = 1.791$, $p = 0.074$, $\alpha = 0.05$.

Between the years of 2007-2012, ten students at the study school were accepted to Ivy League universities in the United States (Brown, Columbia, Cornell, Dartmouth, Harvard, Princeton, Yale, or the University of Pennsylvania.) All ten of these students were full IB Diploma candidates. Two students were female and eight students were male. Two students were Korean citizens, six students were U.S. citizens, and two students were dual citizens of both Korea and the United States. Two of the students took four Higher-Level (HL) classes as part of their diploma program. Eight of the ten students took Math HL, the highest level of math available at the study school, and the other two students took Math SL. None of the students took Math Studies as part of their diploma program. For the 4,000-word Extended Essay (EE) required as part of the diploma program, five of the ten students completed an EE in science (two chose a Chemistry-related research project and three completed a Biology-related research project). It is not known what the intended majors were for each student, but the two students

who graduated from the study school in 2012 and matriculated in Cornell in the Fall of 2012 declared an initial major in a science-related field.

Figure 4

Matriculation Rates by Percentage of Diploma and Certificate Students



Based on school data results from the National Clearinghouse's StudentTracker for High Schools, as illustrated in Figure 4, 362 of the seniors (approximately 67% of the total sample) in the Classes of 2007-2012 matriculated into higher education in the United States to a college or university that reports attendance data to the U.S. Department of Education through the National Clearinghouse. Of that group, 116 IB Diploma candidates (32% of the total group and 90% of the diploma candidates) and 195 IB Certificate students (54% of the total group and 84% of the certificate candidates) matriculated in college the fall directly following graduation. For both groups combined, 86% of the schools' graduates matriculated directly to a college represented by the National Clearinghouse the fall immediately following graduation. Within the first year after

graduation, five more diploma candidates (4%) and 27 certificate students (12%) had matriculated in college, and within two years after high school graduation, an additional eight diploma candidates (6%) and 11 certificate students (4%) matriculated in a college represented by the Clearinghouse report. The Pearson's Chi-Square test demonstrated a value of 6.308 and an asymptotic significance of 0.043. This shows the difference between the time that it took for IB Diploma candidates and IB Certificate candidates to enroll in college was statistically significant at the $p = .05$ level.

According to the Chi-square test, a significant relationship was found between diploma type and college matriculation rate, $X^2 (2, N = 362) = 6.308, p = 0.043$.

Of the 362 students from the study school who matriculated in a college represented by the National Clearinghouse, 304 of those students have been in college long enough to measure freshman-to-sophomore persistence. (Fifty-eight of the total group graduated in May of 2012 and are currently college freshmen.) One hundred and six IB Diploma candidates (29% of the total group of 362 students and 93% of all diploma candidates) attended the same college from their freshman year to sophomore year and had no time lapse in attendance from spring semester of their freshman year to fall semester of their sophomore year. (Summer school data was not included as part of this study.) One hundred eighty-two certificate students (60% of the total group of 362 students and 94% of all certificate candidates) attended the same college from their freshman year to sophomore year and had no time lapse in attendance from spring semester of their freshman year to fall semester of their sophomore year. For the students who did not remain in a college represented by the Clearinghouse from their freshman year to sophomore year, four students were IB Diploma candidates (3.63% of the DP group) and 12 students were IB Certificate candidates (2.36% of the certificate group).

A Chi-square test was performed and no significant relationship was found between diploma type and college retention rate, $X^2(2, N = 362) = 1.170, p = 0.557$.

Table 6

Diploma and Certificate Mean Graduation Timespan and Percentages, 2007-2008

	<i>IB Diploma Candidates</i>	<i>IB Certificate Candidates</i>
Class of 2007: Mean length of time spent in college before graduating	4.00 years	4.33 years
Class of 2007: Percentage of group with a college degree in 2012	59%	19%
Class of 2008: Mean length of time spent in college before graduating	3.86 years	4.00 years
Class of 2008: Percentage of group with a college degree in 2012	32%	27%

Since the study school has only had IB graduates since 2007, this study analyzed the college graduation information for the Classes of 2007 and 2008 that was available through the National Clearinghouse. As illustrated by the information in Table 6, the data report for the Class of 2007 contained 80 students (32 diploma students and 48 certificate students). At the time of the study, 19 diploma students (59% of the diploma group) and 15 certificate students (19% of the certificate group) in the class had completed a bachelor's degree from a U.S. college or university which reports graduation data to the National Clearinghouse. The mean length of time spent in college before graduation for International Baccalaureate Diploma candidates in the Class of 2007 was 4.00 years (standard deviation 0.471), and the mean length of time for certificate students was 4.33 years (standard deviation 0.617).

For the Class of 2007, the t -test failed to reveal a statistically reliable difference between the mean length of time spent in college before graduating for the IB Diploma candidates ($M = 4.00$, $s = 0.471$) and the IB Certificate candidates ($M = 4.333$, $s = 0.617$), $t(32) = 1.731$, $p = 0.096$, $\alpha = 0.05$.

The data report for the Class of 2008 contained 84 students (28 diploma students and 56 certificate students). At the time of this study, nine diploma students (32% of the diploma group) and 15 certificate students (27% of the certificate group) in the class had completed a bachelor's degree from a U.S. college or university which reports graduation data to the National Clearinghouse. The mean length of time spent in college before graduation for IB Diploma candidates in the Class of 2008 was 3.86 years (standard deviation 0.378), and the mean length of time spent in college before graduation for certificate students was 4.00 years (standard deviation 0.00).

For the Class of 2008, the t -test failed to reveal a statistically reliable difference between the mean length of time spent in college before graduating for the IB Diploma candidates ($M = 3.857$, $s = 0.378$) and the IB Certificate candidates ($M = 4.00$, $s = 0.00$), $t(20) = 1.00$, $p = 0.356$, $\alpha = 0.05$.

Chapter V

Conclusion

Introduction

In the context of college success factors for international students studying in the United States of America, the purpose of this quantitative study was to determine if there was a statistically significant difference in the college acceptance rates and graduation rates for students participating in the full International Baccalaureate Diploma Program at the study school compared to those students who did not take the full IB Diploma and instead received IB Certificates in individual courses. Data was collected for students who graduated from the study school between 2007-2012. All demographic data, application data, and college retention and graduation data were retrieved from the school's Naviance database, the International Baccalaureate Information Systems (IBIS) database, and from the National Student Clearinghouse. This chapter presents a constructive and defined evaluation of the research that has been conducted as related to the research questions, and offers conclusions, recommendations for further research, and implications for professional practice.

This research was a quantitative study in that it compared data between the two groups of participants. A total of 543 students were involved in the study: 191 full IB Diploma candidates and 352 IB Certificate candidates. Demographic and diploma data was collected from the school's International Baccalaureate Information Systems (IBIS) database and examined using a series of statistical tests in SPSS. A Chi-Square test of independence was calculated to examine

the difference between the observed and expected values in the number of IB Diploma candidates and IB Certificate students by gender. A Chi-Square test was also used to investigate the difference between the observed and expected values in the number of IB Diploma candidates and certificate students by country of origin. According to Coed et al. (2009), “Small differences between the observed and the expected frequencies are an indication of the independence between the two classifications” (p. 591).

College application data and college acceptance data was collected from the school’s Naviance database and examined using statistical tests in SPSS. An Independent t-test was conducted to determine if there was a statistically reliable difference in the mean number of college applications and college acceptances for International Baccalaureate Diploma candidates and certificate candidates from 2007-2012.

College retention and college graduation data was retrieved from the National Student Clearinghouse and studied using a series of statistical tests in SPSS. A Chi-Square test of independence was used to determine the difference between the observed and expected values in the percentage of IB Diploma candidates and IB Certificate candidates enrolled in college the fall immediately following high school graduation, within the first year following high school graduation, and within the second year after high school graduation. An Independent t-test was used to calculate the significance of the freshman-to-sophomore retention rate for diploma and certificate students. An Independent t-test was also used to determine the significance of the percentage of diploma and certificate students in each graduating class with a college degree, and the time required to complete the initial college degree for both groups. (This information was only available for the graduating classes of 2007 and 2008.)

The aim of this quantitative dissertation study was to address the following two research questions: The first null hypothesis of this study (H_0) states there will be no statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The second null hypothesis of this study (H_0) states there will be no statistically significant difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The first alternate hypothesis of this study (H_1) states there will be a statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students. The second alternate hypothesis of this study (H_1) states there will be a statistically significant difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students.

The results of this study are valuable not only to the specific school being studied, but the information can also be used as a resource and comparison point for other international schools in Asia and across the world as well as United States domestic IB schools. Additionally, at the collegiate level, if highly competitive colleges and universities in the United States are using IB Diploma Program participation and completion as a factor in their college admissions process, it is important to study the eventual collegiate success of those students in comparison to their non-DP peers to determine if there are noticeable differences between the two groups. Because the vast majority of research currently available on college admission and success for International Baccalaureate students is based on research studies commissioned and subsidized by the International Baccalaureate Organization (Casparly, 2011; Casparly & Bland, 2011; Shah, Dean,

& Chen, 2010), there is an important academic need for IB research projects like this study to be conducted outside of the sponsorship of the IBO.

Summary of Results

The study school transitioned from an Advanced Placement-based curriculum to the International Baccalaureate program in 2005. Since the IB courses at the diploma program level take two years to complete, spanning across both the junior year and the senior year, the first class of IB graduates from the study school completed their high school course of study in 2007. Between the school years of 2007-2012, a total of 543 students graduated from the study school with a high school diploma as either IB Diploma candidates or IB Certificate candidates. Overall, 35% of the students (191 of 543) were IB Diploma candidates and 65% of the students (352 of 543) were IB Certificate candidates. Students are referred to as candidates in this study because their final IB results were not released by the IBO until several months after their high school graduation. This study did not measure whether or not the students actually received the IB Diploma or IB Certificates in July following their high school graduation.

International Baccalaureate Diploma candidates submitted a mean number of 9.182 applications and received a mean number of 4.063 college acceptances. International Baccalaureate Certificate candidates submitted a mean number of 7.115 applications and received a mean number of 3.418 college acceptances. When considering the number of applications, there is a mean difference between the two groups of 2.067 applications.

The *t*-test revealed a statistically reliable difference between the mean number of college applications that the IB Diploma candidates had ($M = 9.182$, $s = 4.963$) and that the IB Certificate candidates had ($M = 7.115$, $s = 4.564$), $t(539) = 4.769$, $p < 0.001$, and $\alpha = 0.05$.

When considering the number of acceptances, the data shows a mean difference between the two groups of 0.644 acceptances.

The *t*-test revealed a statistically reliable difference between the mean number of college acceptances that the IB Diploma candidates had ($M = 4.063$, $s = 2.436$) and that the IB Certificate candidates had ($M = 3.418$, $s = 2.548$), $t(539) = 2.858$, $p = 0.004$, and $\alpha = 0.05$.

Therefore, the difference in means between the two groups in the number of applications submitted and the number of acceptances offered is significant at the $p = 0.05$ level, showing there is less than a 5% chance these differences in application and acceptance means could have occurred by random chance.

International Baccalaureate Diploma candidates were accepted to 49.75% of the schools to which they applied. International Baccalaureate Certificate candidates were accepted to 54.52% of the schools to which they applied. (Note: Students who did not apply to any colleges, as recorded in Naviance, were removed from this calculation.)

When considering the percentage of acceptances, an Independent *t*-test for equality of means shows a mean difference between the two groups of 0.047 acceptances. The *t*-test failed to reveal a statistically reliable difference between the mean percentage of college acceptances that the IB Diploma candidates had ($M = 0.498$, $s = 0.267$) and that the IB Certificate candidates had ($M = .5442$, $s = 0.313$), $t(511) = 1.791$, $p = 0.074$, and $\alpha = 0.05$.

Therefore, the results of this study show there was a statistically significant difference between the mean number of college applications ($p < 0.001$, $\alpha = 0.05$) and the mean number of college acceptances per group ($p = 0.004$, $\alpha = 0.05$), but there was not a statistically significant difference ($p = 0.074$, $\alpha = 0.05$) between the college acceptance rates for the two groups of students.

The first null hypothesis (H_0) is accepted. There is not a statistically significant difference between the college acceptance rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students, and the two groups are independent classifications. The probability of this difference occurring by chance is about 7%, which is not a small enough probability to be accepted at the $p = 0.05$ significance level.

When examining the college graduation rates between the two groups, it is important to note this study was only able to analyze data for the graduating classes of 2007 and 2008 because not enough time has passed for the other classes of graduates to have finished college. This would be an appropriate follow-up study for future years. Many males in the sample who are Korean citizens may have been required to fulfill their mandatory military service during this time as well, which would have potentially delayed their graduation. However, that variable was not examined as part of this study.

The retention and graduation information comes from data obtained through the National Clearinghouse, which maintains college enrollment and degree data for over 3,300 colleges and universities who enroll over 96% of all students in public and private United States institutions (National, 2012). Of the 543 graduates that are part of this study, 362 enrolled in at least one of the schools that report to the National Clearinghouse. See Table 7 for the most common U.S. institutions where the students matriculated. Students who attended a college or university outside of the United States or attended an institution which did not report to the National Clearinghouse were not part of the following analysis.

Table 7

Ranking of Institutions by the Most Common Institutions of Enrollment in the Fall Immediately Following High School Graduation for the Study School's Classes of 2007-2012.

<i>U.S. Institution Name</i>	<i>Rank</i>	<i>State</i>	<i>Level</i>	<i>Type</i>	<i>Total number of students</i>
U. of Illinois, at Urbana-Champaign	1	IL	4-year	Public	24
University of Washington- Seattle	2	WA	4-year	Public	16
New York University	3	NY	4-year	Private	12
Purdue University- West Lafayette	4	IN	4-year	Public	12
Pennsylvania State University	5	PA	4-year	Public	9
Indiana University Bloomington	6	IN	4-year	Public	8
University of Wisconsin- Madison	7	WI	4-year	Public	8
Calvin College	8	MI	4-year	Private	7
Georgia Institute of Technology	9	GA	4-year	Public	7
Northwestern University	10	IL	4-year	Private	7
Pratt Institute	11	NY	4-year	Private	7
Rhode Island School of Design	12	RI	4-year	Private	7
Case Western Reserve University	13	OH	4-year	Private	6
School of the Art Institute Chicago	14	IL	4-year	Private	6
School of Visual Arts	15	NY	4-year	Private	6
Carnegie Mellon University	16	PA	4-year	Private	5
Cornell University	17	NY	4-year	Private	5
Rutgers- New Brunswick	18	NJ	4-year	Public	5
University of Michigan-Central Campus	19	MI	4-year	Public	5
University of Rochester	20	NY	4-year	Private	5
Duke University	21	NC	4-year	Private	4
Emory University	22	GA	4-year	Private	4
Mount Holyoke College	23	MA	4-year	Private	4
Northwest Nazarene University	24	ID	4-year	Private	4
University of Southern California	25	CA	4-year	Private	4

Source: National Student Clearinghouse StudentTracker Aggregate Report (2012)

Based on school data results from the National Clearinghouse's StudentTracker Report for High Schools, 67% of the students in the classes of 2007-2012 matriculated in higher education in the United States to a college or university that reports attendance data to the U.S. Department of Education through the National Clearinghouse. Of this group, 89.92% of the study school's IB Diploma candidates and 83.69% of the IB Certificate candidates matriculated in college the fall directly following their high school graduation. Within the first year after high school graduation, 93.80% of the diploma candidates and 95.28% of the certificate candidates had matriculated in college.

The Pearson Chi-square calculation shows a significance level of 0.043 for the rate of matriculation, demonstrating there is a higher than expected number of IB Diploma students who enrolled in college immediately after graduation as compared to the expected number of their certificate peers. This means at a 5% significance level, the departure between observed and expected is too great to have occurred by random chance.

A Chi-square test was performed and a significant relationship was found between diploma type and college matriculation rate, $X^2(2, N = 362) = 6.308, p = 0.043$.

Of the 542 graduates who attended the study school between 2007-2012, 362 enrolled in a college or university in the United States which reports data to the National Clearinghouse. Three hundred and four of those students have been in college long enough to measure freshman-to-sophomore persistence. Ninety-three percent of the diploma candidates attended the same college from their freshman year to sophomore year and had no time lapse in attendance from spring semester of their freshman year to fall semester of their sophomore year. (Summer school data was not included as part of this study.) Ninety-four percent of all certificate candidates attended the same college from their freshman year to sophomore year and had no

time lapse in attendance from spring semester of their freshman year to fall semester of their sophomore year. For the students who did not remain in college from their freshman year to sophomore year, four students were IB Diploma candidates (3.63%) and 12 students were IB Certificate candidates (2.36%).

A Chi-square test was performed and no significant relationship was found between diploma type and college retention rate, $X^2(2, N = 362) = 1.170, p = 0.557$.

In the Class of 2007, at the time of this study, 59% of the diploma group ($n = 32$) and 19% of the certificate group ($n = 48$) had completed a bachelor's degree from a U.S. college or university which reports data to the National Clearinghouse. The mean length of time spent in college before graduation for IB Diploma candidates was 4.00 years and the mean length of time for certificate students was 4.33 years.

For the Class of 2007, the t -test failed to reveal a statistically reliable difference between the mean length of time spent in college before graduating for the IB Diploma candidates ($M = 4.00, s = 0.471$) and the IB Certificate candidates ($M = 4.333, s = 0.617$), $t(32) = 1.731, p = 0.096$, and $\alpha = 0.05$.

In the Class of 2008, at the time of this study, 32% of the diploma group ($n = 28$) and 27% of the certificate group ($n = 56$) had completed a bachelor's degree from a U.S. college or university which reports data to the National Clearinghouse. The mean length of time spent in college before graduation for IB Diploma candidates in the Class of 2008 was 3.68 years and the mean length of time for certificate students was 4.00 years.

For the Class of 2008, the t -test failed to reveal a statistically reliable difference between the mean length of time spent in college before graduating for the IB Diploma candidates ($M =$

3.857, $s = 0.378$) and the IB Certificate candidates ($M = 4.00$, $s = 0.00$), $t(20) = 1.00$, $p = 0.356$, $\alpha = 0.05$.

Therefore, the results of this study show there was a statistically significant difference between the matriculation rate of diploma and certificate students ($p = 0.043$), but there was not a statistically significant difference between the graduation rates for the two groups of students ($p = 0.096$ for the Class of 2007 and $p = 0.356$ for the Class of 2008).

The second null hypothesis is accepted (H_0). There is not a statistically significant difference between the college graduation rates for International Baccalaureate Diploma students and International Baccalaureate Certificate students at the study school from 2007-2012.

Conclusions

At an International Baccalaureate school that offers a two-track program for high school juniors and seniors, the decision to follow a full diploma or certificate path toward graduation involves a great deal of contemplation, investigation, and input from teachers and others who are aware of a student's strengths and weaknesses academically. The results of the data analysis for this specific school show that when it comes to college acceptances and eventual college completion, a student's status in high school as a full IB Diploma candidate or an IB Certificate student is not necessarily an accurate predictor or indicator of the level of success after graduation in the world of higher academia. The results of this research do not provide a definite answer to the role a specific IB course of study in high school plays in the college acceptance and college completion process.

What the data did show is for this school, IB Diploma students submit a higher number of college applications than their certificate peers (a mean difference of 2.068 more), but their college acceptance rate was not necessarily higher than their certificate peers. This could be a

result of IB Diploma candidates applying to more selective schools overall, but this was not a factor addressed as part of this study. It is also true for graduates in the Classes of 2007-2012; all ten of the school's Ivy League acceptances were for students who were pursuing the IB Diploma.

The other important note is for all graduates of the study school between 2007-2012, the college completion rate is high. The school should be commended in the fact that all students, whether IB Diploma or IB Certificate candidates, showed a high level of preparedness for college in their matriculation, retention, and graduation rates. This implies the strength of the entire program at the school is strong and their high school graduates enter the world of higher education in the United States of America equipped with the academic skills necessary to be successful.

Perhaps the most important point of the study is the college application and graduation process for international students and domestic students is multi-faceted and contains a number of variables. One of those variables may be the course of study a student pursues in high school, like an IB Diploma or Certificate path, for example. However, to say a specific academic path is the only way to achieve success in college is not a statement that can be supported by the data results from this specific study for one international school in East Asia.

The hypotheses of this study were that there would be a statistically significant difference in the college application rates, acceptance rates, retention rates, and graduation rates between the students who participated in the full International Baccalaureate Diploma Program compared to students at the same school who participated in the International Baccalaureate Certificate Program. Several statistical analyses were performed in SPSS: three different Chi-Square tests and five different Independent t-tests. The results of the analyses revealed no statistically

significant difference existed between the two groups of students in their college acceptance rates, retention rates, and graduation rates.

Recommendations for Further Research

This study examined college application, retention, and graduation data for one private international school in East Asia. Comparison studies with other International Baccalaureate World Schools in different areas who offer both the diploma path and certificate path could provide more information to show if the college trends seen at the study school are similar or different by school or region. Because this study was only able to examine college graduation data for high school graduates at the study school from the Classes of 2007 and 2008, a follow-up study of college graduation rates for additional classes of graduates after more time has elapsed would provide a more thorough analysis of trends over time.

There were four factors not addressed as part of this study that could also potentially have a significant effect on the length of time students spend in college before graduating: 1. How might a specific major in college or degree type take longer to complete than another major or degree type?; 2. Do IB Certificate students select majors that can be completed faster than majors chosen by IB Diploma students?; 3. How does mandatory military service for Korean males delay college graduation?; and 4. Do IB Diploma recipients receive more college credit granted as a result of their IB coursework, and do they therefore not have to complete as many credits in college to graduate, resulting in less time in college before graduation? These factors could potentially skew graduation rates and could be addressed as part of a future study.

Other important factors in the college admission process that were not incorporated into this specific study include high school cumulative grade point average (GPA) for students in the two groups and the selectivity rates of the schools to where students apply. These two elements

could be addressed as part of future studies and may indicate more specific trends for the two types of International Baccalaureate students.

The International Baccalaureate Organization collects and analyzes a tremendous amount of data each year for IB Diploma candidates. However, they do not maintain or analyze information on IB Certificate candidates, or even have a record of which schools worldwide offer both options for their students. This presents a significant gap in data and understanding of the two cohorts of learners, and an effort should be made on the part of the IBO to track data for both groups of students worldwide.

Implications for Professional Practice

Too often in education circles throughout the world, well-meaning teachers, administrators, parents, and policy makers make decisions or develop ideas that are based on assumptions and are not necessarily based on data. Number crunching and data collection takes time and effort, but the results offer concrete answers, and these answers are necessary to build strong educational systems. This study was born out of an assumption at the study school that IB Diploma candidates will have higher college acceptance rates and will be more prepared to be successful in college. The design of the study was to take data that was readily available and see if that assumption was accurate. In this case, based on a statistical analysis, the assumption was incorrect and there is not a significant difference between the two groups in the areas that were analyzed.

Having concrete data to share with students, parents, staff, and stakeholders empowers not only the school guidance office, but it gives freedom to students to choose the paths that are best for them-- based on their strengths and goals for the future. Concrete data help parents see

the school is looking out for the best interests of their students, and cares about their success now and in the future.

International students across the world have a tremendous amount to offer colleges and universities in the United States. Their presence can enhance and enrich a college campus and bring a spirit of diversity and global perspective to classrooms in every major field of study. International schools are often challenged to provide an avenue down which students can access U.S. higher education. In order to help our students obtain college admission and thrive on the campus of their choice once they matriculate, all schools need to provide students with accurate and tangible guidance that is data-driven and still uniquely personal. This is the responsibility and privilege we hold as educators-- as stewards of the gift of learning around the world and in every language. May we never stop asking questions and seeking answers.

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