

The International Baccalaureate Diploma Program's Impact on College Preparation:
The Student Perspective.

by

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A dissertation submitted in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy
(Education)

at the

UNIVERSITY OF WISCONSIN - MADISON

2016

Date of final oral examination: 4/25/2016

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Acknowledgments

There are many people to thank for their contributions to this research. Without their help and support this long journey would not have been completed. The challenge of balancing the demands of being a public school administrator and a researcher is not an easy one, and it took a team to meet it.

First, I want to thank Dr. Eric Camburn, chair of my committee and my advisor. His patience and succinct, specific suggestions brought out details in my research that might have otherwise been lost. I also want to thank the members of my committee, Dr. Diana Hess, Dr. Clif Conrad, Dr. Richard Halverson, and Dr. Art Rainwater. Clif, your research methods class aided me in so many ways, especially for reinforcing that “it’s about the learning.”

I also want to thank my dissertation coach, Kristiane Stapleton, who kept me on task, gave great suggestions, and kept this project on track. I valued your comments and support in developing my writing style. The UW-Madison Writing Center and its staff deserve mention because they provided critical support and a referral to one of their alumni, Kristiane.

Getting interviews from college students is a challenge, especially in this digital phase of our society’s growth. I would not have been able to contact the students in this study without the help of Mavis Roesch, retired IB Diploma Program Coordinator. Her reputation with her students could only come from being the best, and she more than proved that to me.

I have been blessed with knowing many talented people, and they deserve a mention for their roles. Claire Huntley, for transcribing the interviews and helping edit

my documents. Cathy Moore, for providing advice from an IBDP English teacher's perspective. Kevan Bates, my son, who helped design a roadmap for completion, which was as detailed as his engine designs. My daughter, Amelia Bates, for artistic and creative critiques. Pam Zander, for technical advice and being a model of persistence in earning her degree. My wife, Kim, for reminding me to stick to deadlines and giving me space when I needed it. Also a special thanks to Dr. Nina Bartel who supported me during tough times; her belief in me made a real difference.

I want to thank the students from Rufus King International High School. Your candid, honest reflections on your high school experience exceeded my expectations, and I gained new respect for the value of the IB Diploma Program because of your comments. You make your families and the Milwaukee Public Schools proud.

Last, I want to acknowledge the impact of my mother, Gladys, for her emphasis on education. Even though she only graduated from eighth grade, her wisdom inspired me to pursue this educational accomplishment.

Dissertation Abstract

The International Baccalaureate Diploma Program (IBDP) is a growing college preparation program that is being adopted by high schools across the world. This study looks at the effectiveness of the program in preparing high school students for college. Through retrospective interviews, college students reaffirmed that the IBDP's components do follow their intended purpose and helped this group of students face college with confidence and meet the demands of college academics.

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CHAPTER I: INTRODUCTION

Introduction

The intention of high school students to attend postsecondary schools has become the norm with eighty-six percent of the Class of 2014 seeking a college education (ACT, 2015a). However, their aspirations don't match their preparation. The ACT rated the Class of 2014 against established subject benchmarks for college preparation and found that only sixty-four percent met the benchmark in English, forty-four percent in reading, forty-three percent in mathematics, thirty-seven percent in science, and in the biggest disparity, only twenty-six percent in all four subjects (ACT, 2015a).

Additional research shows that students in the United States are under-prepared when entering college. For example, over one-third take remedial classes (National Center for Educational Statistics, 2010), and thirty-six percent complete a four-year degree on time (Complete College America, 2014). America's students lag behind the rest of the world in college completion. The Organization of Economic and Civic Development (OECD) indicates that the United States has dropped from first to twelfth in the percentage of the population aged twenty-five to thirty-four with college degrees (OECD, 2014). This has potential for severe economic impact because, according to 2009 census data, wages for college graduates are about \$24,000 more per year than those of high school graduates (Ryan & Siebens, 2012).

Research on how high schools can address college preparation and completion has a long history, and prior results pointed to the importance of a rigorous high school curriculum. The U.S. Department of Education studied college preparation and found

that the rigor of the high school curriculum was a greater predictor of college success than standardized test scores (e.g., SAT, ACT) and high school GPA (Adelman, 1999). To determine if the educational reforms begun in the 2000s had made any difference, the 1999 study was replicated in 2006. It found that “the intensity and quality of one’s secondary school curriculum” is still the single strongest influence on college access and completion (Adelman, 2006, p. xviii.).

The bar for college completion has risen because all students are now expected to graduate from high school as college and career ready (US Department of Education, 2014a). The two most popular college preparation programs are Advanced Placement (AP) and the International Baccalaureate Diploma Program (IBDP). The AP is the longest standing and most popular of the two. It began in 1954 and is used by ninety percent of high schools. The IBDP started in the United States in 1984 with one school and is now in 1000 high schools, or about seven percent of all schools. Both programs are considered to be good preparation for college and both use course exams to determine success. Due to their success, a consortium of education and business leaders called Equal Opportunity Schools has committed over \$100 million to identify and enroll low-income and minority high school students in the IBDP and Advanced Placement (EOS, 2015). For the IBDP to be included in this initiative is quite an accomplishment considering that AP has a longer history in the United States and larger percentage of participation. This recent endorsement should provide even more reason for schools to consider the IBDP.

The IBDP began in 1965 as a means of providing an internationally recognized college admission credential, and is recognized as a premier college preparation program. The diploma is given to students who successfully finish six college-level courses, complete a four thousand-word research paper, and demonstrate activities of community service or creativity.

The research on the IBDP has shown a positive relationship between diploma completion and college graduation (Bergeron, 2015; Caspary & Bland, 2011; Halic, 2013; HESA, 2011; Inkelas, Swan, Pretlow, & Jones, 2013). Research from the Chicago Public Schools showed that the IBDP made a difference in college access and college completion for minority and low-income students (Coca, Johnson, Kelley-Kemple, Roderick, Moeller, Williams, & Morgan, 2012; Saavedra, 2014).

This study explores the IBDP's impact on college preparation in a different city from Chicago but in a similar urban context. While previous studies have focused on large data and statistics, I have chosen the interview method for this study because it gives specific information from the "life world" of the interviewee (Kvale, 1996). Two groups of students from the same high school in Milwaukee, Wisconsin were interviewed: IBDP graduates and non-IBDP graduates. The sample included students who all had similar scores on the state's tenth grade academic skills test. Transcribed interview responses were used to compare the opinions of both groups and their relationship to college preparation. The interview questions were guided by the philosophical intentions behind the IBDP and research on what has been effective in college success. The analysis of the qualitative data was used to propose how the IBDP

appears to influence college readiness. Most research on the impact of the IBDP on college preparation and persistence is dominated by quantitative studies using statistical analysis of the college success of its graduates. In contrast, my interest is to explore the success of the IBDP from the personal student level. The link between the IBDP components and students' belief of their value could very well be a critical factor in its success in preparing students for college.

College readiness is an important factor for the future of the American economy. A recent survey of major employers showed that ninety percent of jobs in the future would require some postsecondary education (EvoLLLution, 2012). President Barack Obama has set a goal to lead the world in college completion by 2020, but in order to do this the U.S. college completion rate will need to increase from forty-two percent to sixty percent (National Center for Education Statistics, 2015). In January 2014, the President called for action to increase college opportunity because enrolling and succeeding in college is vital to building a strong economy (The White House, 2014a). His statement is supported by facts about the wage gap; the average hourly pay for a high school dropout was nine dollars per hour compared to a college graduate's twenty-five dollars per hour (Alliance for Excellent Education, 2012). The economic argument also fits well with a prediction that sixty-three percent of newly created jobs will require some college by 2018 (Center for Education and the Workforce, 2013).

The President takes college preparation so seriously that he held two summits focused on collaborations between K-12 schools and higher education to encourage

college enrollment and early college readiness in order to improve completion rates for first-generation, low-income, and under-represented students (The White House, 2014b). The need to prepare minority and low-income student for college appears to be addressed by the IBDP. A statement from a study about the IBDP done in the Chicago Public Schools by Coca et al. captures the findings:

Indeed, the IB program in Chicago appears to have accomplished something very rare in urban education: it took economically and socially disadvantaged students and radically changed their long-term educational prospects by making them world-class learners with an arsenal of academic skills. (Coca et al., p. 52)

This impactful conclusion is supported by the study's data, which was obtained by using a mixed methods design. The quantitative data sample used in the study was large, over 85,000 students, and the methods used a propensity matching technique to compare IBDP and non-IBDP students. The qualitative part of the methods applied in the study used student interviews to investigate IBDP students' experience in college.

The findings included: 1) when compared to a matched comparison group, IBDP students are forty percent more likely to attend a four-year college and fifty percent more likely to attend a more selective college; 2) IBDP students in four-year colleges are significantly more likely to persist in four-year colleges for two years; and 3) IBDP students in college describe a confidence in their academic ability rarely seen in studies of first-generation, low-income, racial/ethnic minority college students. Not only did they feel they could keep up with their more advantaged peers; they felt they could eclipse them (Coca et al., 2012).

Another Chicago-based study used a sample of twenty thousand students and, by comparing statistical data, found that the IBDP increased the probability of high school graduation by twenty-one percent and college enrollment by thirty-eight percent over that of non-IBDP students (Saavedra, 2014).

An important finding from this particular study was that the IBDP had a major impact on boys' performance. The boys in the IBDP had a nine and a half percent greater chance of graduating from high school than girls in the IBDP (Saavedra, 2014). This is significant because at the national level boys show a lesser probability of graduating from high school than girls (Allensworth & Easton, 2007; Levin, Befield, Muennig, & Rouse, 2007).

The design of the IBDP program appears to address college preparation. Its standards conform closely to those of college courses, producing students better prepared for college content. In a study commissioned by the International Baccalaureate Organization (IBO), researchers examined the match between the IBDP curriculum standards and those of college courses. The results showed surprisingly high alignment (Conley, 2009). The researchers used standards that university faculty expect from entry-level students called the Knowledge and Skills of University Students (KSUS). College professors have consistently reported that critical thinking skills, intellectual inquisitiveness, and interpretation are skills that should be mastered prior to enrolling in college freshman courses. The study revealed that the IBDP also was designed with these desired skills in mind.

The value of the IBDP in college preparation is further confirmed by results from an IBO study using both 2005 data from the National Student Clearing House, and IBO student data (Halic, 2013). The study sample of IBDP students included all 2005 graduates and compared their college graduation rates with the 2004 national data from a study done by Knapp et al. in 2012 (Knapp, Kelly-Reid, & Ginder, 2012). Halic found that IBDP graduates outperformed non-IBDP students in four-year and six-year college graduation rates (Halic, 2013). This impact is shown in Table 1 (Halic, 2013).

Table 1

Overall four-year and six-year graduation rates at four-year postsecondary institutions

College type	Four-year graduation rate 2005 IBDP	Four-year graduation rate 2004 National*	Six-year graduation rate 2005 IBDP	Six-year graduation rate 2004 National*
All four-year	74%	38%	87%	56%
Public	70%	31%	86%	54%
Private	81%	52%	89%	64%

Source: Halic, 2013

*National graduation rates retrieved from NCHEMS, December 2012

The impact of the IBDP on college graduation was also confirmed in a study of high school graduates in Rockville Centre, New York (Burriss, Welner, Wiley, & Murphy, 2007). To mitigate selection bias, Preliminary Scholastic Aptitude Test scores matched

the students. Eighty-eight percent of those who completed IBDP English and mathematics graduated from college in four years, compared to thirty-two percent of those who did not take these IB courses. These results suggest that the IBDP's academic preparation in high school may have lasting effects on students' performance in college, even as colleges themselves continue to exert a powerful influence on student learning.

What is so unique in the underlying design and philosophy of a program that was designed for international students that makes it a factor for American college success? One possible answer is the IBDP's intent to develop critical thinking. Currently, the IBDP is the only college-prep program to have deliberately included critical thinking as a specific requirement from its inception. The program's commitment to critical thinking is also shown in a required course titled Theory of Knowledge (TOK). TOK was based on philosophy courses taught in French high schools, but it was re-designed by the IBDP to be a course about critical thinking and inquiring into the process of knowing, rather than about learning a specific body of knowledge (IBO, 2015a). The importance of critical thinking was evident in the early design; critical thinking was emphasized in all courses; and teachers were instructed to provide concrete examples for their students of critical, reflective thinking (Peterson, 1987).

My research will include further explanation into critical thinking from the students' perspective in order to investigate the IBDP's impact on college preparation and success. The IBDP's critical thinking preparation feeds into more research on college readiness, specifically the research being done by Arum and Roksa in *Academically Adrift* (Arum & Roksa, 2011). They found that 90% of college professors identified

critical thinking as the skill they desired most in students, but after four years in college the students were not advancing their critical thinking (Arum & Roksa, 2011). This suggests that if students do not possess critical thinking skills before coming to college, they will likely not develop those skills while there. Therefore, students who have the IBDP experience in high school should be better prepared than other students. My research will include further exploration into critical thinking from the individual student's perspective in order to ascertain the IBDP's impact on college success.

The research by Arum and Roksa also suggests that racial disparities in college students' scores on tests of critical thinking, complex reasoning, and analytical writing are due to elementary and secondary education preparation. This evidence helps explain persistent racial achievement gaps. At both the time of college entrance and two years later, minority students scored lower on tests of critical thinking, complex reasoning, and analytical writing (Arum & Roksa, 2011).

Overview of the Dissertation Study

The goal of this research study is to gather, examine, and interpret data related to the IBDP's effectiveness. It incorporates the history and unique design of the program and investigates the potential coherence between the IBDP's design and students' college success. The study uses the voices of students to give their lasting impressions of how this intent is translated into their college experiences. The students are viewed as positioned subjects responding with their life experiences as they see them (Maxwell, 1998). DeBono stated, "For twenty-four centuries we have put all our intellectual effort into the logic of reason rather than the logic of perception. Yet in the conduct of human

affairs perception is far more important” (DeBono, 1990, p. 42). Students need to lend their voice to the efficacy of the IBDP because they stand the most to gain or lose from their high school preparation.

The model for this study was guided by two research questions:

1. How did students in a large, selective urban high school experience and learn from the IBDP?
2. How did students in this high school feel the IBDP prepared them for college?

Value of the Study

There are few qualitative studies that ask IBDP students about their preparation for college. Understanding why the IBDP worked for Milwaukee students in a selective high school provides critical direction for one of the central priorities in education today: equipping all students, regardless of background, with the academic skills, strategies, and confidence to thrive at four-year colleges and universities. The value of this study will be to expand the existing qualitative data on the IBDP so that policymakers, high schools, and colleges will be better informed as to the potential that the IBDP has to prepare students for college. An educational program can and should be judged by the lasting impact it makes and its ability to prepare students to apply their knowledge to new situations.

Limitations

This study is limited because it involves only students from one high school in one state. This limitation grew out of a desire to obtain information from students who came from a school that had implemented the IBDP for several years, existed in an urban

setting, and included minority and low-income students. With this in mind, and given the limited number of IBDP programs in Wisconsin, the selection was limited to one school.

Another limitation is that it relies on students' memory of a high school program that is two years in their past; however, as the study is interested in student perceptions of how their high school experience with the IBDP prepared them for college, this limitation is also a deliberate part of the study's design.

Assumptions

This study included the assumption that students can self-reflect and identify characteristics that lead to their college success. However, their comments are limited by the students' memories of their high school experience and by the small sample size.

Another assumption is that the students experienced consistent teaching in their IBDP courses since all the students come from the same high school.

Organization of Study

This study is organized into six chapters. Chapter I gives the background of variables in the study: the IBDP and college readiness. Chapter II provides a detailed background of the IBDP and how it relates to college readiness. Chapter III is the review of the literature. It examines the research on college preparation, the theoretical and empirical research on the IBDP and its components, and student perspectives on the DP. Chapter IV describes the methodology, including the selection of the participants, the interview questions used, data collection, and data analysis procedures. Chapter V presents the study's findings, including information from student interviews, coding of interview transcripts, and results of the analysis of the coding. Chapter VI provides a

summary of the entire study and discusses the findings, implications for future research, and conclusions.

CHAPTER II: BACKGROUND OF THE IBDP

Introduction

Because the International Baccalaureate Diploma Program (IBDP) is a unique course of study and examination, it is beneficial to understand its history and philosophy. This background provides the reader with context and knowledge leading into the rest of this study. The IBDP appears to provide a format that coincides with my review of the research on college readiness. I uncovered some recurring themes in college readiness: the importance of a rigorous high school curriculum, academic behaviors factor into college success, and professors expect students to acquire academic skills prior to entering college. All of these are found in the IBDP background and will be noted when they appear.

History

The main sources for my review of the history of the IBDP came from the works of Alec Peterson, Gerard Renaud, and co-authors Jay Mathews and Ian Hill. Peterson has the most complete and detailed history in two books, *Schools Across Frontiers* (Peterson, 1987) and *International Baccalaureate* (Peterson, 1972). Peterson was a professor at Oxford University and was the first Director of the International Baccalaureate Organization (IBO). Renaud, like Peterson, was also later a Director of the IBDP. He provides detail from the early implementation phase in a short work completed for the International Bureau of Education (Renaud, 1974).

Ian Hill, a former IBDP Vice-Director, and Jay Mathews, a reporter for the *Washington Post*, collaborated on a book titled *Supertest* in which the chapters alternate,

with Hill providing historical background, and Mathews following with reports on his investigation of the IBDP during time spent in a Virginia high school (Mathews & Hill, 2005).

These works are important because they give first-hand information from early originators of the IBDP on the philosophy and structure that was designed to solve the problem of a common curriculum for international high schools. What began with humble expectations grew into its current status of being recognized as a suitable college entrance credential.

Following the Second World War there was increased student movement and diversity within international high schools. This created a problem in preparing graduates from different countries for their different college entrance requirements and entrance exams. Because there was no instructional model at the time, social studies teachers from the International School in Geneva, Switzerland pushed for a change (Renaud, 1974). The first meetings to look at a common curriculum consisted of social studies teachers from international high schools. Leaders of the international schools also called in secondary school experts and university professors from various countries to participate in its design (Peterson, 1972).

From its beginning the IBDP was designed to meet university expectations due to the assistance provided by Alec Peterson from the Oxford University Education Department (Mathews & Hill, 2005; Renaud, 1974; Walker, 2000). The Oxford Education Department provided early research and assisted in the development of the program by validating exams, assessing the program, and assisting with the creation of

new courses (Peterson, 1972). An outstanding element of the IBDP design is that research has been an integral part of the IBDP, and the IBO has committed to creating a research department that continues to this day (IBO, 2015b).

When the secondary school experts met they reached agreement that the last two years of high school should not only prepare students for university entrance but also provide a balanced general education enabling each student to “learn to *use* his knowledge, rather than stuff his head full of facts” (Renaud, 1974, p.9). An early IB brochure stressed the necessity of aiming at the formation of the “whole man,” which was explained as teaching how to think, not what to think (Renaud, 1974). This key concept was meant to carry throughout the entire program design.

With sufficient buy-in from enough schools the International Baccalaureate Organization was created as a non-profit foundation. Once it had been formed and funding was obtained, the IBO saw as its mission to not only develop a high school common curriculum but also to innovate, experiment, and break away from the current, rigid national education systems (Matthews & Hill, 2005; Peterson, 1972; Renaud, 1974).

To fulfill these ideas, a two-year program for the last years of high school was developed with six course requirements that included a primary language, mathematics, history, science, a secondary language, and an additional course selected from either mathematics, science, the arts, or a locally developed course. The courses are comprised of two levels: higher level (HL) and standard level (SL). HL courses have content similar to college, and must involve 240 hours of instruction. The SL courses must have a

minimum of 150 hours of instruction (IBO, 2015c) and were patterned after the Advanced Placement (AP) courses. This was no coincidence because one of the original IBO Board members was Harlan Hanson who was serving as Director of the AP at the time (Peterson, 1972).

As mentioned earlier, a challenging high school program is a key factor to college success and the IBDP is designed to provide it. The students are given an option to select courses in these subjects, but they must take at least three HL. While it is currently commonplace, student choice was something contrary to the European structure of a prescribed curriculum. The IBDP gave recognition to student high school course selection in the United States (Peterson, 1987). It underscores the philosophy of student-led learning that permeates the IBDP. As seen later in the research on college readiness, student responsibility is a behavior that helps in college success.

Three other unique, required components were developed to reinforce the “learning to think” emphasis: the Theory of Knowledge course (TOK); a 4,000 word research paper called the Extended Essay (EE); and a student selected project called Creativity, Aesthetics, and Social Service (CAS) (IBO, 2015c).

The TOK class is based on a philosophy course but expanded to emphasize that students show not only the ability to question but also the ability to reflect upon different types of learning. For example, how a proof in mathematics is similar or different to the results of research done in the social sciences (Renaud, 1974; Rusinow, 1974). The key purpose of the course is to develop critical thinking, an academic skill desired by university professors (Arum & Roksa, 2011).

The Extended Essay is a 4,000-word research paper on a topic of the student's choice. The design intentionally followed the structure of a college research paper and was built upon the idea of encouraging student-led inquiry by giving the student a choice in the topic (Peterson, 1972).

The third additional requirement, Creativity, Aesthetics, and Social Service, has seen a title change to Creativity, Action, and Service (CAS) but its design has not changed from the original (IBO, 2015c). Students are expected to spend the equivalent of one afternoon a week in a project of their interest or one involving community service. Peterson influenced its addition to the program because he wanted students to maintain outside interests without sacrificing them to study for national exams (Peterson, 1987). The project is not specified but one of student choice, another example of student-led inquiry.

The final program element is a set of exams in each course that are compressive, externally assessed, and scored with a scale of one to seven. Because the IBDP grew from a mix of countries that used their own exams, the new exams incorporated elements from the British General Certificate of Education-Advanced Level, the German Abitur, the French Baccalaureat, and the American Advanced Placement and Scholastic Aptitude Test (SAT) (Rusinow, 1984; Walker, 2000).

The IBDP exams were designed to verify content, judgment, and reasoning (Rusinow, 1984). They were unique during their development since they used in-person external examiners, student portfolios, audio-recorded second language samples, and teacher-administered mid-term exams called internal assessments (IA) (Peterson, 1987;

Renaud, 1974). Presently, the exams are mailed to external examiners, student portfolios are digitized, second language tests include digital recordings of student responses, and IAs are still being used (IBO, 2015d).

IBDP Design

The following section gives further detail about the current IBDP design and its specific components as seen in *Figure 1: Diploma Program Design* (IBO, 2015e).



Figure 1. DP Model © International Baccalaureate Organization 2015

The outside circle includes International Mindedness, something the IBO describes as viewing topics from another perspective. The intent is to develop global citizens and to

introduce critical analysis, an element of critical thinking (IBO, 2015f). The second circle from the outside includes the subject areas for the courses. A list of the courses in each subject area is included in Appendix A. Moving further inside the diagram, there are three requirements called the core of IB: Theory of Knowledge (TOK); the Extended Essay; and Creativity, Action, and Service (CAS) (IBO, 2015c).

In the center of the entire design circle is the Learner Profile. The Learner Profile identifies traits that members of the school, including the adults, are to exemplify. The members should learn to be inquirers, thinkers, principled, caring, balanced, knowledgeable, communicators, open-minded, risk-takers, and reflective (IBO, 2015g). Many of these concepts are similar to academic behaviors found in research on college readiness (ACT, 2015; Conley, 2007).

Assessment

The key to credentialing the courses for colleges internationally is the result of the exams students take to complete their courses. The exams take place in the United States in May, and most take over four hours to complete. Once completed the exams are sent to IBO-approved external evaluators. The evaluators come from an international pool of talent, which lends to their credibility for international college acceptance. The exams are scored on a seven-point scale, and colleges often give credit on a score of 4 or above (IBO, 2015d). To earn the full diploma students must earn a minimum of 24 points, and have a certificate of completion for EE, TOK, and CAS; the combination of the three is worth one point.

Students can also earn certificates for individual courses by scoring a minimum of four points. Many universities will provide college credits based on the level and the score. However, the IBO emphasizes the full diploma. One example of the recognition of its worth is found in Florida where a student who gets the full diploma receives a minimum of 30 credit hours and up to 45 credit hours of advanced credit (University of Florida, 2015).

In summary, the IBDP has a long history of college preparation and has a design that stresses a well-rounded education. The fact that it was designed with input from university staff is a key factor to its value in college preparation. While there have been changes in terminology, the philosophy of education for the whole person through continuous active learning is still intact (Peterson, 1987; Rusinow, 1984).

CHAPTER III: REVIEW OF RESEARCH

Introduction

To address the goal of college success for all, the Department of Education, states, and schools have relied upon the results of two extensive, longitudinal studies of college completion that concluded that a rigorous high school program is the strongest indicator of success (Adelman, 1999, 2006).

One such program that a growing number of high schools are implementing is the International Baccalaureate Diploma Program (IBDP), which is internationally accepted for college preparation and known for its challenging high school experience (Mathews & Hill, 2005; Morse, 2015; Wallis & Steptoe, 2006). From 1994-2013 the number of U.S. schools that implemented the IBDP grew over tenfold from 133 to 1,390 (Saavedra, 2014). A growing body of research supports its positive effects on college preparation both in the United States and internationally (Byrd & McDonald, 2005; Caspary, 2011; Coca et al., 2012; Halic, 2013; HESA, 2011; Saavedra, Lavore, & Flores, 2013; Saavedra, 2014). This chapter will review college preparation studies and research on the IBDP, its components, and college preparation in order to position my study and its contributions to the field. The research on the IBDP has primarily used statistical data to examine college entrance, retention, and completion.

Review of Literature

The first part of this literature review will cover the research on college readiness. During this section, I will also indicate instances where there are links to these key IBDP concepts (IBO, 2015f):

- Critical thinking
- Research writing
- Content knowledge in the subjects of English, mathematics, science, and social studies
- Independent project learning
- Skills in planning, presentation, and hands-on application

The second part of the review covers the studies designed specifically to examine the IBDP's effect on college preparation, including those using only one component of the IBDP as a variable. The majority of these studies have been quantitative, using data analysis to show a performance comparison between IBDP students and others. There are studies that have used the interview method to obtain information from IBDP graduates (Coca et al., 2012; Sacko, 2005; Taylor & Porath, 2006; Wright, 2014) but none that have investigated the merits of the IBDP components through the lens of research on college readiness, as this study will.

For this reason, I will organize my literature review of the IBDP by method; I will provide an overview of the quantitative studies and a more detailed analysis of the qualitative studies (which significantly inspired and impacted my study), and I will position the pre-existing research on the topic in relationship to my own study.

College readiness. A high school background that prepares students for freshman college courses without the need to repeat them is one definition of college readiness (Conley, 2008). Components of this definition of college readiness include academic rigor, writing, and academic behaviors such as study skills. Successful college preparation is defined as students having the proficiency to complete both the entry-level courses and the next course in the subject sequence (Conley, 2008).

The findings of research on college readiness more generally fall into three main domains that are very similar to those given by Conley in his definition: 1) a rigorous, academically intense high school curriculum; 2) academic behaviors; and 3) academic skills.

Rigorous, academically intense high school curriculum. As discussed in Chapter II, the IBDP is a rigorous high school curriculum. There has been a long history of questioning how best to design a rigorous high school curriculum. I will review that history in chronological order to capture the historical development of the concept of rigor and how it developed alongside a challenging high school curriculum.

The publication of *A Nation at Risk* in 1983 sent shock waves through the United States' education establishment because it criticized high school preparation and called for more years of required subjects (Gardner, 1983). The requirements were called the Five New Basics and included: (1) four years of English, (2) three years of mathematics, (3) three years of science, (4) three years of social studies, and (5) one-half year of computer science. For college-bound students there was an additional recommendation of two years of a foreign language (Gardner, 1983).

Twenty-five years after this report it looked like nothing had changed. In a document titled *Diploma to Nowhere*, the results of a study that sought student opinion showed that fifty-nine percent of students who took remedial university courses reported their high school classes as easy. Only fourteen percent said they were difficult, and nearly half would have preferred that their high school had been harder so they would have been better prepared for college (SAS, 2008).

This shows how important it is to gain student perceptions, and foreshadows the questions I will ask the current college students in my study. When the IBDP gave its first set of exams, the IBO surveyed students and teachers to determine the quality of the tests and their design (Peterson, 1972). The students thought the IBDP helped them develop independent views and increase their concentration. They also thought that college advanced standing was a positive and the exams were helpful (Renaud, 1974).

Supporting the students' claim for the importance of a rigorous high school curriculum in preparation for college are two studies done for the Department of Education by Conrad Adelman: *The Toolbox* (1999) and *The Toolbox Revisited* (2006). Using data from the National Educational Longitudinal Study (NELS), Adelman tracked students over a twelve-year period from high school to college and then beyond. The second study replicated the first and was done to see if the education reforms enacted in the early part of the twenty-first century had any impact.

These two studies intended to find the factors that were associated with bachelor's degree attainment for seniors who attended a four-year college at any time in their undergraduate careers. The factors were reviewed in the context of student demographics, high school performance, postsecondary entry, and postsecondary history.

Adelman's research results identified academic intensity in high school as the key for the momentum needed to attain a bachelor's degree. He defined academic intensity as four years of English, four years of mathematics, two and a half years of science, two years of foreign language, two years of social studies, and one year of computers. The biggest benefit for students out of all the subjects was mathematics, with a doubling of

the college completion rate if the student studied mathematics beyond Algebra II.

Adelman identified additional factors for college graduation, which included grade point average, reading at grade level, and evidence of student responsibility (Adelman, 1999). One component of rigor he reviewed was AP courses, but he did not include the IBDP in his study.

In the wake of Adelman's studies, other groups have called for more rigor in high school curricula. These groups include governors from across the nation who met at the National Education Summit on High Schools. The concluding report from the Summit states that all students need to learn rigorous content usually reserved for college preparatory programs (Conklin & Curran, 2006). This idea eventually took hold; Achieve, Inc. found that 21 states and the District of Columbia required all students to take some version of a college preparatory curriculum in 2007 (Achieve, Inc., 2007). By 2014 that number grew slightly to 23 states and the District of Columbia (Achieve, Inc., 2015). The curriculum they specified was four years of English and math and three years of science and/or social science. The ACT supports this curriculum design; in fact, it has a readiness index that equates taking four years of mathematics and four years of science with college success (ACT, 2015b).

Academic standards. The IBDP addresses all of these rigorous curriculum requirements and goes beyond them with a four-year high school requirement in a first language (English), four years in social science, four years in mathematics, four years in science, and two years of a second language. This rigorous curriculum was intended to prepare students for success in college. Significantly, and uniquely, university professors

were involved in its development. The University of Oxford's Education Department Director, A.D.C. Peterson, was on the IBO Council and established the IBO Research Centre to validate exams, create new courses, and "to develop alternate means of assessment of fitness for entrance to higher education" (Renaud, 1974, p.5). Therefore, the IBDP had an advantage in college preparation from its very beginnings due to its partnership with university professors. The university research connection continues to this day, with the IBO not only funding research on the IBDP but also having a separate division focused on university recognition of credits (IBO, 2015h).

This stands in contradiction to the more common practice of having the standards and course mandates for high school curricula developed by outsiders to the university system rather than the individuals who teach these courses and work with these students once they arrive in college.

In fact, there is a resource to find out what university professors expect for entering students. University professors helped to develop a document, "Understanding University Success," to address what students should know and be able to do in order to succeed in entry-level courses (Conley, 2003). Faculty and staff from twenty research universities gave their input, and national academic content standards were then used for comparison. This information was winnowed down to form a group of standards for college success called the Knowledge and Skills for University Success (KSUS). Content standards were developed in English, mathematics, natural and social sciences, and the arts.

The KSUS standards were compared to the IBDP in a study commissioned by the International Baccalaureate Organization because up to that time there was no research on how the IBDP aligned to national standards (Conley & Ward, 2009). In addition to content standards, the study examined intellectual openness, inquisitiveness, analysis, reasoning, and problem solving, all of which were identified as “key cognitive strategies” (Conley & Ward, 2009, p. 5). The results indicated that the IB standards are highly aligned with the KSUS standards. Students who learn the IBDP curriculum, the study concluded, enter college with the type of knowledge and skills expected by college faculty to ensure success in entry-level classes. The most important discovery was the complete alignment of the IB standards to the KSUS standards for algebra, trigonometry and statistics, chemistry, and biology. These results indicate that students who take the IB courses are learning the course standards expected by the college professors who teach them.

Beyond a rigorous curriculum: instruction and motivation. It is one thing to create requirements but quite another to implement them. A study in the Chicago Public Schools questioned the impact of increasing high school required courses on college readiness, and found no significant academic improvement on measures for college readiness (Allensworth, Nomi, Montgomery, & Lee, 2010). The researchers concluded that requiring courses alone is not the answer; instead, what is needed is either an improvement in instruction or increased student motivation, especially around attendance and studying. These findings were reinforced by a study that found teacher support and

an atmosphere of high expectations improved motivation and attendance for both IBDP and AP students (Kyburg, Davis, & Callahan, 2007).

Both the AP and the IBDP emphasize teacher training in instruction, but they differ in their approach to addressing how teachers can improve instruction. The IBDP requires two levels of training; one that is introductory on the IBDP philosophy and program, and a second that involves delivery of the content combined with critical analysis (IBO, 2015i). Before a school can offer the IBDP, an authorization team assigned by the IBO meets with the school administration and teachers in a process similar to college accreditation to verify that teachers are prepared to teach their courses.

In a review of IBDP courses, researchers from the Thomas B. Fordham Institute noted that the IBO maintains worldwide quality by its oversight of teachers and detailed curriculum guides (Byrd, Ellington, Gross, Jago, & Stern, 2007). They noted the opposite to be true of AP courses. The AP two-day training provides a syllabus and exam examples, but leaves much more leeway for teachers to implement the course. AP does offer summer institutes and blogs for teachers to advance their skills (College Board, 2015a).

Academic behaviors. In addition to the key cognitive strategies mentioned previously in the KSUS standards, there are also behaviors identified as being vital to college success. These are sometimes called habits of mind; they include critical thinking, problem solving, and a willingness to accept feedback (Conley, 2009). These strategies can be encompassed by a term used more commonly in college research: academic behaviors (Skinner, 2004; Snyder, Shorey, Cheavens, Pulvers, Adams, &

Wiklund, 2002; Zajacova, Lynch, & Espenshade, 2005). For many college students, especially first-generation entrants, the academic behaviors also include time management, advocating for oneself, and goal setting (Byrd & McDonald, 2000).

Milson and Dietz examined college readiness behaviors for special education students in a Delphi study (Milson & Dietz, 2009). In their study, experts cited items that they considered part of college readiness. These items centered on personal characteristics and attitudes with the highest-rated item being perseverance, followed by time management, study skills, and confidence. Of the top twelve characteristics, only one was found to be specific to learning disabilities, and, despite the original intent of the study, the experts considered the other characteristics to be universally beneficial for all students.

Throughout IBO-provided information about the IBDP, there are references to academic behaviors; most noticeably these are found in the Learner Profile, which highlights qualities such as inquiry, balance, and reflection. These qualities are intended to build the maturity and personal habits a college student needs in order to be successful (IBO, 2015g).

Academic skills. Academic skills are another component of college preparation that has been targeted by university professors and researchers as being vitally important for college success (Adelman, 2006; Arum & Roksa, 2011; Conley, 2007). They include writing, critical thinking, and creativity.

In regard to academic skills, the IBDP standards not only matched the Knowledge and Skills for University Success (KSUS) content standards in all subject areas but also

fully aligned to college professors' expectations in critical thinking, intellectual inquisitiveness, and interpretation (Conley, 2009). Conley noted that some of the IBDP content standards were at a level even more advanced than entry-level college courses (Conley, 2009). This would put these students in good stead according to Adelman's findings about academic intensity (Adelman, 2006). Academic skills are also addressed in the IBDP required component called Creativity, Action, and Service (CAS); course outcomes are expected to address initiative, collaboration, commitment, developing new skills, and written reflection (IBO, 2015c).

Writing. Research on college success lists written communication as the most important skill for college success (Conley, 2007). The KSUS standards include 27 standards for writing alone and 11 standards in research skills. The most recent results on the Scholastic Aptitude Test (SAT) show the lowest writing scores in years, a very real concern if college readiness is a national focus (College Board, 2015c). This bears addressing for students to succeed in college, and high schools and high school educators should also be aware of this lack of preparation. The IBDP offers a solution to this problem with the Extended Essay, a required 4,000-word essay formatted to replicate a college paper including citation styles (IBO, 2015c).

Critical Thinking. When asked for the most important skill students should have coming into college, professors identified critical thinking (Arum & Roksa, 2011). However, in Arum and Roksa's follow-up assessments of critical thinking in college the results showed that critical thinking did not improve during college (Arum & Roksa, 2011). It would appear that if entering college students do not have this skill coming in,

then they are not going to develop it in college. Therefore, it would be advantageous for students to come into college already at a high level of critical thinking skills both for their success in college and their future development beyond college.

In the IBDP design, the Theory of Knowledge (TOK) course is structured to focus on critical thinking, and there is some evidence that it can have a positive impact for college preparation. A research study in Australia of TOK teachers and first-year college students indicated that students who completed the TOK had higher scores on the national college admission test and higher self-reported college academic outcomes than those of a matched non-IBDP cohort (Cole, Gannon, Ullman, & Rooney, 2014).

University teachers reported the positive effect of the TOK by saying it improves “their [the students’] ability to think critically and consider multiple perspectives” (Cole et al., 2014, p.40). The study also compared a sample of former TOK students and non-TOK students at the university level and revealed significantly higher self-belief with regards to critical thinking skills within the TOK cohort. In addition, the TOK students scored higher on the California Critical Thinking Dispositions Inventory, particularly with regards to the skills of inquisitiveness and confidence in reasoning (Cole et al., 2014).

Creativity. The arts are a major example of how schools can evidence a commitment to developing creativity. Creativity has been identified as one of the four skills that are crucial for success beyond school (Partnership for 21st Century Skills, 2015). The IBDP recognizes this in its Creativity, Action, and Service requirement where participation in the arts is one means of meeting the 150 hours of service. During the development of the IBDP, Peterson related a story about a student in his school who

dropped violin lessons to concentrate on the national UK exam. This troubled him greatly and led to the creation of the CAS component (Peterson, 1972). This recognition of the importance of pursuing an interest acknowledges that for some students there are extracurricular or non-academic activities that are the main reason to attend school.

The arts have been shown to benefit at-risk students according to a National Endowment for the Arts (NEA) report, *The arts and achievement in at-risk youth: Findings from four longitudinal studies* (NEA, 2012). At-risk students who had access to the arts in or out of school tended to have better academic results, better workforce opportunities, and more civic engagement than students who have low participation in the arts. In four separate longitudinal studies tracking student involvement in the arts, it was found that students with access to the arts in high school were three times more likely than students who lacked those experiences to earn a bachelor's degree (17 percent versus 5 percent), had higher career aspirations, and were more civically-engaged (NEA, 2012).

Subjects in the arts are not considered in national or state standardized tests. However, there are subject exams in the IBDP and AP for the arts. The difference between them is that the IBDP has a broader scope of arts courses, including more performing arts. This commitment to supporting the arts has an academic benefit. In a study using Scholastic Aptitude Test (SAT) scores, there was a positive correlation between the number of years of art classes and higher math, verbal, and composite scores (Vaughn, & Winner, 2000). While the AP program permits schools to offer as many or as few courses as they choose, the IBDP requires that the complete program be offered.

Accordingly, the arts are given equal status to other subjects as a component in earning a full diploma.

Additional College Preparation Programs Other Than the IBDP

The most widely used college preparation program in the United States is the Advanced Placement (AP) program with over 80% of high schools offering it (College Board, 2015c). However, the world of college preparation has a larger scope than just the AP and IBDP. Other programs that have not been mentioned in detail yet in this review are the ACT recommendations, the American Diploma Projects (ADP), United States Department of Education (USDE), and Authentic Intellectual Work (AIW). Even though it is not specifically designed for just college preparation, I am including AIW because there have been positive results associated from this program through a college aptitude test, the ACT (Iowa Dept. of Ed, 2012), and on the NAEP test (Newmann, Marks, & Gamoran, 1996).

ACT. The ACT and SAT are the two main standardized college entrance tests used in the United States. The ACT organization compared students' high school courses in English, mathematics, science, and social studies and their results on the ACT exam, and proposed a theory that completing a set number of courses provides an indicator of grades in college. The set number proposed is four years of English and three years of math, science, and social studies (ACT, 2014).

In addition to academic content, the ACT believes that personal, behavioral, and academic skills are important for college success (ACT, 2015b.). It has developed an assessment called ENGAGE that measures academic self-confidence, commitment to

college, goal striving, social activity, steadiness, social connection, communication skills, academic discipline, general determination, and study skills (ACT, 2015c.). Backed by research, ACT ENGAGE claims to predict how likely it is that college freshmen will return for a second year, and whether they will earn at least a 2.0 GPA. (ACT, 2015c).

American Diploma Project. At the 1996 National Education Summit, a bipartisan group of governors and corporate leaders decided to create and lead an organization dedicated to supporting standards-based education reform across the states. They formed Achieve, an independent, bi-partisan, non-profit education reform organization led by a Board of Directors composed of governors and business leaders. In response to complaints from the corporate sector about a lack of preparation for college and careers, Achieve developed the American Diploma Project (ADP) to determine the high school English and mathematics skills needed for success, and to help states incorporate those skills into their standards, assessments, and graduation requirements (Achieve, 2015). The resulting requirements included specificity in courses and cross-disciplinary skills.

In the ADP there are three years of mathematics required in the following courses: algebra, geometry, and a course that includes data, statistics, and probability. The other required subject is English, with four years of English being required. Embedded within the American Diploma Project benchmarks are four cross-disciplinary proficiencies: research and evidence gathering, critical thinking and decision-making, communications and teamwork, and media and technology.

AP. The Advanced Placement Program, commonly called AP, is the oldest college preparation program used in the United States. It began in 1955 as a means to provide motivated high school students with college-level courses. There are 37 possible courses offered, and about 60% of high schools in United States offer its coursework (College Board, 2015c). One item of difference from the IBDP is that the AP exams can be taken during the sophomore year in high school, while the IBDP is only a two-year program for juniors and seniors. Research on AP dating back to 1982 showed that students scoring a 3 or better were prepared for upper level courses (Simms, 1982). In 1984, Morgan and Crone found that students earned higher grades in college if they scored a 3 or above on the AP exam (Morgan & Crone, 1984). The AP does offer an International Diploma that is awarded to AP students who live outside of the US and score a 3 or better on four AP exams in three of five subject areas: language, science, mathematics, history, and electives (College Board, 2015d).

Similarly to the IBDP, students take college-level courses taught by their high school teachers, but one major difference is that any student can take the AP exam. This is not the case with IBDP, where a student must attend a high school that is approved by the IBO, and be enrolled in the course to take exam. A sign of the value of both programs is a recommendation to improve K-12 education from the National Academy of Sciences' report, *Rising above the gathering storm: Energizing and employing America for a brighter economic future* (National Academy of Sciences, 2007), which reads: "AP and IB courses would be voluntary and open to all and give students a head start by

providing them with college-level courses taught by outstanding high school teachers” (National Academy of Sciences, 2007, p. 130).

Authentic Intellectual Work (AIW). Authentic Intellectual Work is a program that emphasizes instruction. It includes the rigor that Adelman identified as a prerequisite for college success and connects student learning to real-world experiences. AIW began from work started in 1990 at the Center on Organization and Restructuring of Schools at the University of Wisconsin-Madison. In 1995, the Center studied how school restructuring promoted more authentic instruction and improved student performance (Newmann et al., 1996). Through the use of empirical data analysis, interviews, and questionnaires and gathering data from 130 teachers and 3,000 students in mathematics and social studies from twenty-four restructured elementary, middle, and high schools nationwide, it was found that authentic instruction pays off in improved student performance, and can improve student performance regardless of gender, race, ethnicity, or socioeconomic status. The results were consistent across different grades and subjects in schools across the United States. Even though authentic teaching was found, it was not the majority practice found in schools, leading the researchers to say, “ Previous research has demonstrated the difficulty of making U.S. schools more academically rigorous, and our study paints a similar picture,” (Newmann et al., 1996, p. 8)

In addition, AIW has shown success in raising scores on the ACT in Iowa, (Newmann, King, & Carmichael, 2007), and a significant positive difference in state tests in four subjects, especially in mathematics (Iowa Department of Education, 2012). AIW

shares a philosophy with the IBDP and ADP, as evidenced by this quote from one of its founders, Fred Newmann:

In short, rigor and relevance can best be achieved by helping students to work with knowledge, rather than only to reproduce it (construction of knowledge), to build in-depth understanding of and elaborated communication about the subject (disciplined inquiry), and to enhance the meaning of academic work by applying these understandings to questions, problems, and issues that occur in students' lives beyond school (value beyond school). (Newmann et al., 2007, p. 29).

The quote by Newmann has a particular resonance with the IBDP TOK course, which includes questions in its course guidelines about how knowledge is different between subjects, and is based upon the founding theory of creating students who think and reflect rather than students who have simply mastered material (Peterson 1972; Renaud, 1974; Walker, 1984). The IBDP definition of learning is to become able to apply knowledge to a new situation (Peterson, 1972), and that is a direct link to the value beyond school concept that Newmann enumerates here. Like the IBDP, AIW has a writing standard that is compatible with the academic skills outlined by Conley (Newmann, King, & Carmichael, 2007).

Also like the IBDP, AIW places a significant emphasis on teacher training. The AIW instructional development design consists of multi-year training with teachers reviewing lessons, collaborating with peers, and examining lessons for rigorous content and relevant examples (Center for Authentic Intellectual Work, 2015).

United States Department of Education— A Blueprint for Reform. In the document *A Blueprint for Reform* (2010), the United States Department of Education (USDE) laid out a plan to develop college-and-career ready students. The plan included access to a challenging high school curriculum, emphasis on rigorous standards for English and mathematics, the necessity for better assessments, and provided for better access to accelerated high school learning that includes college credit by providing grants to states to increase AP and IBDP offerings (USDE, 2010).

Comparison of Research on College Preparation

A visual representation of the programs and research studies of college preparation that I have examined in this literature review is shown in Table 2: *IBDP as compared to college readiness research*. The theories of each program and research study are used as the means to compare them to the IBDP. Critical thinking was placed as a separate indicator due to the importance that university professors placed upon it (Arum & Roksa, 2011).

Table 2.

IBDP as compared to College Readiness Research

College preparation indicators	IBDP	Adelman	Conley	AIW	Arum & Roksa	USDE	ADP	ACT	AP ¹
Community service	X								
English- 4 yrs.	X	x			X	x	x	x	x
Critical thinking	X				X		x*		x#
Science	X	x	x	x	X			x	x

Mathematics- 4 yrs.	X	x	x	x	X		x	x	x
Writing	X	x	x	x	X	x		x	x
Arts	X								x
Research	X		x				x*		
Academic behaviors	X	x	x			x			
Second language	X								x
College credit in high school	X	x ²				x			x

*requested but not specified, #optional in 2014, 1-offers courses in subjects not required, 2-first year of college should begin in high school, Adelman, 2006.

One conclusion from examining this chart is that the IBDP includes all areas covered by the research in college readiness, and even goes beyond in several areas: community service, the arts, and requiring a second language. While not usually considered part of the academic requirements for college admission, community service and participation in the arts are often a positive factor for college admission.

Another conclusion is that three categories appeared most frequently in all the research: science courses, mathematics courses, and writing. The value of science and mathematics is supported by a report done by the National Academy of Sciences in 2005 responding to a request by Congress to identify the top ten actions to take in science and technology to ensure that the United States could compete globally in the 21st century. In the 500 page report, *Rising above the gathering storm*, the number three recommendation for action was to: “Enlarge the pipeline of students who are prepared to enter college and graduate with a degree in science, engineering, or mathematics by increasing the number

of students who pass AP or IB science and mathematics courses” (National Academy of Sciences, 2005, p. 129.)

Writing is a component in the IBDP that is emphasized in not only the Extended Essay but also in each subject area exam, exams that can take up to four hours (IBO, 2015d). This commitment to writing is seen in other academic preparation programs; in AP writing is stressed in all exams, while in AIW the concept of elaborate communication also includes writing. Arum and Roksa conducted a survey of university professors and found writing to be the second most demanded skill (Arum & Roksa, 2011), and Conley’s college readiness model includes writing as one of the two overarching academic skills needed for college success (Conley, 2007).

In reviewing the programs in the chart, it is also evident that the IBDP and the AP have similar opportunities for students to take courses that could qualify for college credit. Adelman in the *Toolbox Revisited* concluded that earning college credit while in high school is a factor in college success (Adelman, 2006).

The two programs are often compared, and a direct comparison between the AP and the IBDP would be a promising approach for further longitudinal studies of their impact. The Thomas B. Fordham Institute examined the AP and the IBDP to determine if they were the gold standard for high school curriculum (Byrd et al., 2007). These two programs were selected because, “Increasingly, what people mean by phrases such as ‘rigorous college-prep curriculum’ is the Advanced Placement (AP) or the International Baccalaureate (IB) program” (Byrd et al., 2007, p. 5). After an in-depth review of courses in science, English, mathematics, and social studies by university professors and

experts in the field, it was found that, even though both programs were close to meeting the gold standard criteria, they fell short; however, they were still much better than nearly all state standards and exams. One specific recommendation from the study was for policymakers to allow AP or IB credits to serve as proof that students have met rigorous high school exit expectations rather than spending funds for state high school exit exams (Byrd et al., 2007).

IBDP and College Preparation

The majority of studies about the impact of the IBDP have been quantitative and have used statistical analysis from large data sets to draw conclusions about the value of the IBDP for high school graduation, college entrance, college entrance to selective colleges, college retention, and college graduation. These studies are highly international, because of the nature of the IBDP, so I will identify their location in each case in order to provide further context. The IBDP was established in Europe, it is growing in America, and it is just getting started in Asia, but all of the studies are invested in the potential efficacy of the IBDP.

In reviewing the range and location of studies, I decided that it was more relevant to my research to group them into four sections. I have three sections grouped and separated by method— quantitative, qualitative, or mixed methods— and the fourth section is grouped by studies about specific components of the IBDP.

IBDP Quantitative Studies

The majority of the quantitative studies used statistical analysis to determine if there was a positive impact for the IBDP as compared to the general college population in

several areas: college entrance, admission to selective universities, and graduation rates. In its efforts to provide evidence of the IBDP's value, the IBO has a research division that collates and commissions impact studies (IBO, 2015b). The IBO-sponsored studies, of course, create some bias. Because of this concern, any studies commissioned by the IBO will be noted as such.

In a study commissioned by the IBO, Halic used a large data set from the National Student Clearinghouse that consisted of 9,654 IBDP college graduates from the class of 2005 to track the six-year cycle of university completion, postsecondary enrollment, and retention (Halic, 2013). The study found that: 1) the IBDP students had a four-year graduation rate of 92% as compared to 74% for non-IBDP students, 2) the first-year retention rate was 98% versus 75%, 3) 74% of the DP candidates graduated within four years while the comparative national rate was 38% in 2004, and 4) the overall 6-year graduation rate of the DP graduates was 87% while the national rate of the 2005 cohort was 56% (Halic, 2013).

Extending this research is another study commissioned by the IBO that examines the pathways and outcomes of IBDP students in the United States who took IB exams in 2008 in order to analyze four-year and six-year graduation rates for the cohort (Bergeron, 2015). Data from the National Student Clearinghouse and IBO was used to compare 13,555 IBDP candidates with the general college population. The findings included: 1) 92% of IBDP graduates immediately enrolled in post-secondary school with 95% of this group enrolled in four-year schools, as compared to the national rate of 69% percent who enroll immediately with 60% of this group enrolling in four-year schools; 2) the first year

retention rate of IBDP in four-year schools was 98% while the national rate was 77%; 3) the average four-year graduation rate of IBDP graduates was 84% versus the national average of 39%; 4) the average six-year graduation rate for IBDP graduates was 83% percent versus the national average of 56% (Bergeron, 2015).

This finding of a greater graduation rate is supported with international results from a statistical analysis of college entrance rates and five-year graduation rates in a case study of two universities in Australia (Edwards & Underwood, 2012). It compared students who completed the IBDP to a similar group of students, and found that IBDP students had a greater college entrance rate and five-year graduation rate, although there was no significant difference in their college grade point average or career plans (Edwards & Underwood, 2012).

Another statistical comparison, but with a larger data set consisting of over 6,000 IBDP college students, was done in the United Kingdom to compare their performance to non-IBDP students (HESA, 2011). It found that the IBDP students were more likely to enroll in top-twenty colleges, receive degrees and awards, continue to further their education, and become employed in higher paying occupations (HESA, 2011). This positive impact was repeated in a study done in China which found that, over a ten-year period, 71.6% of the IBDP graduates attended one of the world's top 500 universities (Lee et al., 2013).

Another quantitative study focused on the college graduation rate of IBDP students from a high school in New York (Burriss et al., 2007). Two groups of students, IBDP students and non-IBDP students, were compared by college graduation rate. In

order to address selection bias, the students were matched on their Preliminary Scholastic Aptitude Test score. Of those students who completed IB DP English and mathematics, 88% graduated from college in four years, compared to 32% of those who did not take these IB courses. These results suggest that the IB DP's academic preparation in high school may have lasting effects on students' performance in college, even as colleges themselves continue to exert a powerful influence on student learning.

The relationship of IB DP subject exam scores and college grades was analyzed through statistical comparison using data from multiple sources including the National Student Clearinghouse (NSC), the Integrated Postsecondary Education Data System (IPEDS), the Carnegie Classifications of Institutions of Higher Education, and the International Baccalaureate Organization. It tracked enrollment and graduation rates from U.S. postsecondary institutions for two cohorts of IB DP students who completed high school in the United States in 2000 and 2001 (Casparly & Bland, 2011). Data from almost 5,000 students who took IB DP exams from 2000-2005 was compared to the students' college subject grades. There was a positive relationship between a student's IB DP subject exam score and grades in their first college course in that subject. The results showed that 59% of students who scored a 6 or 7 on the exam earned an A in their first college class in that subject (Casparly & Bland, 2011). Considering the large numbers studied, this shows potential for the IB DP exam to be a predictor of college success. The same study showed that the predictive value of the exams applied even to students who entered more advanced college courses. In Chemistry II, 74% of those who scored a 6 or 7 on the Chemistry IB exam earned an A and 50% of those with a score of 4

or higher earned an A (Caspary & Bland, 2011). This pattern was similar for mathematics and English college courses.

One large urban district in the United States that has seen rapid growth in the IBDP is the Chicago Public Schools (CPS). Within a five-year time span from 2009-2013, the number of high schools offering the IBDP in the CPS rose from two to thirteen (Saavedra, 2014). This decision to expand IBDP offerings was based on extensive studies done within the CPS. The major focus of these studies was the IBDP's impact on two large subgroups: minority and low-income students.

CPS and its IBDP programs are informed by the UChicago Consortium on Chicago School Research (UChicago CCSR). The UChicago CCSR was created in 1990 after the passage of the Chicago School Reform Act that decentralized governance of the city's public schools. Researchers at the University of Chicago joined with researchers from the school district and other organizations to form UChicago CCSR to study school reform efforts, including the IBDP. This combination of resources led to intensive, dynamic studies on the impact of the IBDP.

Two studies from the UChicago CCSR showed the value of the IBDP Coca et al., 2012, and Saavedra, 2014. Each one used the quantitative method to compare IBDP students to other students. Coca et al. went into greater depth in a mixed-methods study where they also interviewed graduates to get their impressions of the IBDP's preparation for college.

Another significant mixed methods study that confirms the IBDP's impact on achievement also comes from the Chicago Public Schools (Saavedra, 2014). Saavedra's

studies examined whether enrollment in the IBDP increased students' academic achievement as measured by ACT scores, probability of high school graduation, and probability of college enrollment. IBDP enrollment had the estimated effect of raising a student's ACT composite score to 19.1, as compared to the rest of the Chicago Public School students who averaged a 17.4 (Saavedra, 2014). This result is valuable because higher ACT scores on benchmark tests in English, mathematics, reading, and science show that the student has a higher probability of earning a B or higher in a corresponding college course (ACT, 2015c). The results of the study also indicated that IBDP enrollment increases students' academic achievement, probability of graduation, and college enrollment, and that IBDP enrollment was especially beneficial to boys (Saavedra, 2014).

The gender variable has not come up before in previous IBDP studies, so Saavedra's finding sheds some light on the IBDP's impact in new and important ways. The benefit to boys has major significance in the Chicago Public Schools, and nationally, because the probability of high school graduation and enrollment in college is substantially less for boys than girls, especially among low-income and minority students where the probability that boys will enroll in college is 25% less than it is for girls (Allensworth & Easton, 2007; Levin et al., 2007).

While not the focus of this research, during my inquiry I found that there is strong evidence demonstrating a lack of college preparation for minority and low-income students (Adelman, 2006; Arum & Roksa, 2011; Astin, 2004; USDE, 2014). This is an

area where the IBDP has significant potential. As noted in the Interpretive Summary of the study done in the Chicago Public Schools by Coca et al., 2012:

Indeed, the IB program in Chicago appears to have accomplished something very rare in urban education: it took economically and socially disadvantaged students and radically changed their long-term educational prospects by making them world-class learners with an arsenal of academic skills. (Coca et al., 2012, p. 52)

This statement certainly supports the further study of the IBDP and its effectiveness within urban settings.

IBDP Mixed Methods Studies

The mixed methods studies on the IBDP used both quantitative statistical analysis and qualitative data collection to hypothesize the IBDP's impact on college readiness. In general, the results showed that the IBDP had a positive impact. Once again, one of the studies with the largest sample size took place in Chicago.

With the purpose of examining the input of the IBDP on the postsecondary outcomes of CPS graduates from the high school classes of 2003-2007, Coca et al. studied quantitative data to estimate the effects of the IBDP on college enrollment and persistence using propensity matching; they also analyzed student interview data to investigate students' experience in college (Coca et al., 2012).

The results of this study are significant because the design was built with safeguards to protect validity and the researcher examined scores from over 13,000 students, of which 1,971 were in the IBDP. The quantitative findings were: 1) when compared to a matched comparison group, IBDP students are 40% more likely to attend a

four-year college; 2) they are 50% more likely to attend a selective college; and 3) they are significantly more likely to persist at that college for two years. The qualitative results were that, in college, the IBDP students report feeling prepared to succeed in their coursework, and they stated that the IBDP experience taught the specific skills and behaviors demanded of them at their colleges (Coca et al., 2012).

The results of the Chicago study support my interest in the ways that the IBDP can make a difference in college preparation. Mixed methods studies have examined the IBDP in international settings and found similar results to that of the research in the United States.

The impact of the IBDP on students in China was the subject of a mixed methods study conducted by Lee et al. (2013). The study used quantitative analysis of IBDP data on university entrance over time and analysis of survey data on IBDP experiences combined with IBDP exam data and college GPA. The results of this analysis showed that 71% of the IBDP graduates attended one of the top 500 ranked world colleges, and that subject requirements and the IB Learner Profile had a significant positive relationship with university preparation. The IBDP exam score was considered a strong predictor of college GPA, suggesting that better performance on the IBDP exam is associated with academic success in the first two years of college. The qualitative analysis used data derived from focus group interviews of students, teachers, and administrators. Students stated that the Extended Essay was valuable for college academic writing and research, and they felt confident going into college because of skills they learned, especially time management. Feedback from teachers and

administrators showed confidence in the IBDP as providing a first-rate university preparation that resulted from the rigor and breadth of the curriculum. Graduates who did well in the IBDP reported that they coasted during the first year in college. The staff results also showed that the IBDP equipped students with broader study skills, critical thinking, communication, and time management. These IBDP findings are the first to come out of China, and they reinforce the findings made in other countries about the academic skills developed through the IBDP.

IBDP Qualitative Studies

The focus of my study is to obtain student perceptions about the IBDP's role in preparing them for college through the use of interviews. There are a few previous studies that have used the interview method; however, most used student surveys as the preferred instrument. The survey method has an advantage of quicker response time and ease of data collection, but the interview method provides me with richer detail through conversations with subjects immersed in the topic being studied, i.e. the IB program (Stake, 1995; Kvale, 1996).

Student perception. The survey method was used in a study designed to obtain data from students who were IBDP graduates from 1996-2000 in British Columbia, Canada. They were sent a survey of twenty statements using a four point Likert-type scale and seven open-ended questions (Taylor & Porath, 2006). Students reported positive experiences with the IBDP and noted that the rich curriculum, critical thinking, and time management skills developed were worth the effort of the program. They also stated that the IB experience prepared them well for post-secondary studies.

A survey of IBDP graduates including respondents who attended high school in Sweden and those Swedish students who attended high school internationally was used to question these IBDP graduates about how valuable they thought the diploma was for their university studies, careers, or lives in general. The results showed a very high level of satisfaction with the IBDP (Thelin, Flodman, & Salminen, 2002). Similar satisfaction with the IBDP was found in a study that surveyed college students who attended a high school in Pennsylvania, with over 87% rating the program as average or above in quality (Sacko, 2005). The students also gave the IBDP credit for helping them get accepted into academically rigorous colleges.

Through the use of a questionnaire, a study comparing IBDP and non-IBDP student opinions on why they chose or did not choose the IBDP found that IBDP students said it provided them with a better chance to enter higher education and that it had better teachers. The non-IBDP students said it was too difficult, too expensive, and too academic (Paris, 2003).

Other researchers have explored the short-term impacts of IBDP and Advanced Placement (AP) tests on students' lives through interviews. They found that, even though the students in IBDP and AP courses felt sleep-deprived, they thought it was worth it (Foust, Hertberg-Davis, & Callahan, 2009). A student said, "It's all about time management. If you know how to balance your time and everything, you can have your social life and your rigorous IB classes" (Foust et al., 2009, p. 231). This statement is reminiscent of the academic behaviors found to be essential in the studies on college

readiness. In addition, students in this study echoed the Sacko study by citing a closer relationship with their teachers than did students in traditional classes (Foust et al., 2009).

Students and teachers gave their support for the IBDP as a good preparation for the challenges of college study (Saavedra, Lavore, & Flores, 2013). In a case study of four high schools, students, teachers, and administrators were questioned about the value of the IBDP. Information was gathered through surveys, focus group interviews, and data analysis. According to most students, teachers, and administrators, the IBDP students were better prepared for college than the non-IBDP students. Teachers stated that they valued the Learner Profile; the Theory of Knowledge course; the Creativity, Action, and Service component; and the Extended Essay.

University views. The value of checking with university professors has been mentioned earlier in this review as it related to the broader topic of college readiness. There is a small body of research that has sought out college professor's views on the IBDP. Overall, the IBDP has had significant value from the university perspective, but there was some confusion as to the worth of some of the components.

A qualitative study using the survey method commissioned by the IBO found university approval for the TOK course and support for the broad curriculum (Jenkins, 2003). Another IBO funded study found that professors in Australia and New Zealand approved of the assessment, the curriculum, and the HL courses, but they were uncertain about three of the IBDP's additional components: Theory of Knowledge; Creativity, Action, and Service; and the Extended Essay (Coates and Rozicka, 2007). They commented that the IBDP enhanced university students' academic competence and

capability: “The core components of the IB (is) an excellent level of training in research, comprehension, and dissemination of ideas. It is also a portable qualification, and this allows you to move interstate and internationally. I am so impressed that I want my own daughter to do it” (Coates et al., 2007, p. 26). Another professor commented: “The students seem to be better able to cope with the transition from school to university than are many of our other students” (Coates et al., 2007, p. 21).

IBDP Component Studies

There are a small number of studies that have examined the effects of specific parts of the IBDP like the Extended Essay; Creativity, Action, and Service; and Theory of Knowledge.

Extended Essay. The Extended Essay is a 4,000-word essay written about a topic the student chooses using a college research paper format (IBO, 2015c). One research study examined the correlation to Extended Essay (EE) scores and college grades and found a significant relationship between students’ EE scores and their college grade point average (Aulls, LeMay, & Pelaez, 2013). The study used a survey of both former IBDP and former AP students to examine the effect of the EE on college research and academic success. The results were similar to the 2012 Coca et al. study—IBDP students felt well prepared for college research, and felt pride in their research ability. These results were replicated in a study of the EE done in the United Kingdom where students were interviewed about the EE as compared to their national exams, the A-levels (Wray, 2013). Students felt they were prepared for critical and college research, and some even stated that they were underwhelmed by the demands of college writing.

A two-phase qualitative study to determine the value of the Extended Essay (EE) for college preparation showed positive results (Aulls, Lemay, & Pelaez, 2013). The first phase examined the relationship of the EE with undergraduates' approaches to learning, value of the importance of inquiry, and inquiry self-efficacy in comparison with non-IBDP undergraduates. In phase one, former IBDP students indicated higher ratings of inquiry learning, which represents self-regulation of the inquiry process; additionally, on average, IB students were less likely to view learning primarily as memorization. The second phase explored the learning benefits of the extended essay and the extent to which the EE helped IBDP graduates during their freshman year of university study. The results of phase two showed that IBDP students reported that the EE helped them to cope with academic demands at the university level. However, the results also showed that first-year students experienced research primarily through reading it, writing about it, and occasionally discussing it, but rarely through actually doing it as part of their coursework (Aulls et al., 2013).

Theory of Knowledge (TOK). A unique and required component of the IBDP is a one-year course titled Theory of Knowledge (TOK), which is intended to teach critical thinking. It offers students the opportunity to “reflect critically on diverse ways of knowing and on areas of knowledge” and “consider the role and nature of knowledge in their own culture, in the cultures of others and in the wider world” (IBO, 2013).

The direct impact of the TOK on college has not been studied extensively, but it is given credit as having been a positive experience by students and staff (Saavedra et al., 2014). The TOK's value in critical thinking improvement was the topic of a study done

comparing IBDP and non-IBDP college students (Cole et al., 2014). It was found that IBDP students had higher scores on all measures of critical thinking. The study also interviewed current IBDP students and teachers about the value of the TOK course and discovered that students showed apparent gains in critical thinking skills during their two-year study in the TOK class. This finding supports earlier research that found the IBDP fosters skills like critical thinking which are useful for college (Coates, MacMahon-Ball & Rozicka, 2007). On a negative note the Coates et al. study did find that current high students were unsure about how the TOK contributes to critical thinking, and they were not sure it contributed to real-world skills (Coates et al., 2007).

This seeming lack of clarity about TOK is echoed in a theoretical comparison done by Zemplen that compared the TOK course's intent to that of the underlying concepts in science subjects to determine the TOK's impact on critical thinking (Zemplen, 2007). His findings showed that, while there is some overlap between TOK and current science theory, the IBDP falls short by not being specific and clear about critical thinking. The recommendation he made was to include direct discussion of critical thinking in the course. This is the opposite position to a TOK textbook by Alchin that was cited by Zemplen, which states: "we need to take a limited approach to critical and philosophical thinking in any educational contexts" (Alchin, 2003; Zemplen, 2007, p. 1). The textbook quote and the student statements suggest that the TOK course would do better in improving critical thinking by being more transparent with its intent.

The IBO claim that TOK teaches critical thinking was critiqued in a *Journal of Research in International Education* article written by Conrad Hughes, a TOK teacher at

the International School in Geneva, Switzerland (Hughes, 2014). He compared the scholarly definitions and characteristics of critical thinking to the TOK's curriculum and assessments. As a result, he suggested that TOK should spend more time on specific behaviors like clarifying and critiquing and less time on reflecting on the types of knowledge. The general impression of his study was similar to Zemlen, and suggested that the TOK curriculum should be more specific and open about teaching critical thinking. Hughes also suggested that teaching to the creative side of critical thinking could be improved in TOK by having students suggest solutions to complex problems, test hypotheses, and explore uncertainty. His conclusion was that while TOK did address some strands of critical thinking, many were not addressed, and therefore the TOK course needs revision.

Learner Profile. The IBO includes in all of its programs a commitment to a list of personal attributes that all members of the learning community should espouse. The list is called the Learner Profile and is to be incorporated into instruction and modeled by the adults in the school as well as the students. The Learner Profile has ten attributes of learners: they should be “inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced, and reflective.” (IBO, 2015g).

The implementation and value of the Learner Profile to students were the topics of a study conducted by researchers from the University of Melbourne (Rizvi, Acquaro, Quay, Sallis, Savage, & Sobhani, 2014). The study consisted of interviews with students wherein the Learner Profile (LP) was examined for its implementation and value (Rizvi et al., 2014). Students said they valued it for the long-term impacts it had on their future

education or career. One student said, “I don’t think we will realize the full value of the LP and IB until many years from now. The LP attributes are not always for now, but for the rest of your life” (Rizvi et al., 2014, p. 88).

Summary

My review of the literature on the IBDP’s value for college preparation showed a predominance of examining the results, or the outputs, rather than investigating the value of the components, or the inputs. I will give further insight into the “inputs” of the IBDP by adding to the existing body of knowledge on the IBDP from the college student’s perspective. The lack of research in this area led me to explore the IBDP through the lens of the student experience.

The review of the literature on the IBDP and college readiness also shows there is strong and repeated evidence supporting the long-term positive impact from the IBDP on college success. In four separate studies following a similar statistical analysis of student data, it was consistently shown that the IBDP made a positive impact on college graduation and retention (Bergeron, 2014; Caspary, 2011; Halic, 2011; Shah et al., 2010).

Since the issue of improving college readiness has a national urgency, and with it comes a large economic impact, especially for minority and low-income students, policymakers should note these findings as they examine how to support and define a high school education.

In comparing the IBDP to other college readiness programs and theories, the IBDP stands out for its completeness and alignment to the Knowledge and Skills for University Success (KSUS) standards developed by college professors (Conley, 2007).

The AP exams and IBDP share some common roots and have credibility but they differ in delivery and scope. They both fit the primary curriculum tools for college success outlined by Adelman in *The Toolbox Revisited*: course substance, partnering with universities, and beginning the first year of college in high school. As he stated: “Indeed the first year of postsecondary education has to begin in high school, if not by AP then by the growing dual enrollment movement or other more structured current efforts” (Adelman, 2006, p. 108).

My study will seek to reinforce the findings of Coca et al. and their interviews of IBDP graduates. The topics for the interviews that Coca et al. conducted covered four areas: content, academic behaviors, work habits, and social integration into college. My study searches similar areas, with the exception of social integration. In addition, I will explore specific elements of the IBDP, such as the TOK courses, second language requirements, and CAS. The participants in the Coca et al. study were especially confident in their analytical writing skills after completing the IBDP, with some even saying that college was a letdown in some subjects. There was consensus that the IBDP built academic behaviors: motivation, study habits, organization, and time management.

Gaps in Research

There were some gaps in the research on college readiness and the IBDP relationship. One student group, special education students, was not examined in regard to IBDP for their post-high school experience. There were only a few studies on the value of the components of CAS, TOK, EE, and none on the required second language. A topic that came up often in the research on first-generation and minority college entrants was the

concern for managing the college context. While there was some anecdotal evidence from teachers that their practice had improved through teaching IBDP classes, it would benefit the teaching field if this group of teachers could share the changes they have made to their instruction.

Limitations

The main limitation to many of the studies addressed in this review was that the International Baccalaureate Organization commissioned them. The studies were spread out among countries and covered many topics, and bias in reporting needs to be considered.

CHAPTER IV: RESEARCH METHODS

Overview

The research on the International Baccalaureate Diploma Program has few qualitative studies that include student opinions. My study added to the field by examining the effect that the IBDP had on the college experience as seen through the perspective of college students. Through semi-structured interviews using questions based upon the research on college readiness and the stated purpose of the IBDP, I was able to obtain personal insights from the students.

My choice for the sample was two groups of college students from the same high school; ten that earned the full IB Diploma and seven that did not earn the IB Diploma but did take IBDP classes. The transcripts of the interviews provided me with a rich data set that I coded using both inductive and provisional codes. These codes were grouped into categories using NVIVO software. I used the categories to develop themes that further identified my results. This chapter concludes with my rationale for my methods, and an explanation of my positionality because of my experience in an IBDP school. My experience required me to be cognizant of my position as researcher, and my field notes provided a check on my performance.

Sample

The sample for this study was made up of college students who were graduates from Rufus King High School in Milwaukee, Wisconsin, which has a long history with the IBDP dating back to 1978.

Description of school attended by students in sample. Rufus King International

High School reflects current urban demographics; it has a minority-dominated student body (80%) with a high percentage of low-income students (55%) (Wisconsin Department of Public Instruction, 2015). It thus provides a unique perspective as a school site.

Rufus King International High School has a national reputation. It has been ranked thirteenth in the state in a list of America's Most Challenging High Schools (Washington Post, 2016) and recognized by U.S. News & World Reports as one of America's top high schools (Rufus King, 2015). It has been offering the IBDP since October 1978 and was one of the first schools in the United States to do so (Renaud, 1974). The school's website (<http://www5.milwaukee.k12.wi.us/school/rufusking/>, 2015) states:

With a strong focus on academics, activities and diversity, Rufus King International School – High School Campus is the 2012 top-rated Wisconsin public high school (U.S. News & World Report). We offer a rigorous pre-university course of study, which meets the needs of highly motivated secondary students.

The IBDP program has become a tradition at the school, and the culture is one that supports the IB philosophy and theory of action with 100% of the students participating in Pre-IB and IB courses. The school's profile (MPS, 2015b) shows the recognition it has received, including a presidential visit, and in May of 2013 it was the only high school in the nation to receive the national award for ACT's College and Career Readiness (MPS, 2015b). A copy of the school profile can be found in Appendix C.

The school includes an IB Middle Years Program for grades 9 and 10 that helps prepare students for the IB Diploma Program in grades 11 and 12. Students are admitted to the school by a portfolio or admissions assessment. It is one of two high schools in the Milwaukee Public Schools to offer the IBDP; the other is Ronald Reagan High School.

Description of sample participants. There were two groups of students interviewed: ten students who earned the full IB diploma and seven students who attempted the full IB diploma but did not earn it. The ten full diploma IB students included seven women and three men; they were sophomores in college. The seven Non-DP students included five women and two men, and some were sophomores while others were juniors in college. The Non-DP students are later in college due to my difficulty in contacting them and setting up interviews with them. The whole group of students attended a wide range of colleges from liberal arts colleges to state universities. The majors of the students were also varied, and several mentioned studying abroad.

Method of sample selection. In this section I will discuss the methods I used to select my sample from the permissions I needed to obtain, to sample determination, to engaging with the IRB, and recruiting the participants.

Permissions. Once the school for the sample was chosen I sought permission to do the study from the school district. The permission was necessary because I needed results from testing that had taken place during high school even though the students were no longer attending high school.

I contacted the Milwaukee Public School Research Department and made a formal request. The process is outlined in the district's External Research Application

Manual (MPS, 2015). The Research Review Committee serves as the decision-making body and issues final, written approval or denial of a research application. I submitted information to the committee that included my research proposal, approval by the University of Wisconsin-Madison Independent Review Board, and a sample of my study's participant consent forms. My study was approved, and I then contacted the IBDP Coordinator at the school.

Sample determination. To select the sample participants, I used the IBDP coordinator at the school. Creswell describes the people inside the organization who act as liaisons for studies as “gatekeepers” (Creswell, 1998, p. 117). A gatekeeper is the initial contact for the research and facilitates the research process by leading the researcher to other informants (Creswell, 1998).

My gatekeeper first assisted me by identifying a pool of students that had taken courses for the full diploma. There were forty-three that earned the full diploma and thirty-five that did not earn the diploma. The next step was to find students that had similar scores on the tenth grade Wisconsin Knowledge and Concepts Exam (WKCE). This academic measure was the last standardized test that students took before starting the Diploma Program in their junior year. The test gives scores in Reading, Science, Social Studies, Language Arts, and Mathematics. Because the main criteria was to find students with similar academic backgrounds, and because there was no composite score available, I worked with the gatekeeper and created a composite score by taking the average of a subjects' test scores. Once the composite was established I matched the students from the two groups and found twenty that fit in each group.

IRB. The next step was obtaining approval from the University of Wisconsin-Madison Institutional Review Board (IRB), which approves the protocol for protecting human subjects during data collection. After several iterations, my plan was approved. I had proposed using student names, but the IRB questioned the value of using them since it would not protect anonymity and not add value to the study. Following the IRB request I did not use the names of students either in my transcription or reporting of results. During my transcriptions and later in this study I identify the participants by number in two categories: IB or Non-IB. The choice to preserve anonymity also prevents responses based on social acceptability, which is considered a drawback to interviews (Biemer & Lyberg, 2003).

Recruitment methods. Once the pool of students was determined, my gatekeeper provided me with their available e-mail addresses. However, this resulted in only a few responses, so I asked the gatekeeper to make an initial contact with the sample. Once contact was made, the selection of students was based on willingness to participate— not on other criteria or demographic information.

My goal was to interview ten students from each group, and over the time of a year I was able to interview the targeted number of IBDP students. Connecting to the Non-IBDP group was a time-consuming task and took the course of another year to complete due to my personal and professional obligations. After extensive requests, I attempted to get more interviews via the snowball effect sampling technique. One type of snowball technique involves sample participants contacting other members in the sample (Atkinson & Flint, 2004). This was not very effective, and I was more successful

using my gatekeeper. I kept in contact with the gatekeeper, and we continued searching for members of the Non-IBDP sample, including contacting them via Facebook. The gatekeeper was extremely important, and without their assistance my study would have been impossible.

After I received e-mail addresses or telephone numbers from the gatekeeper I made contact. If I had the e-mail I sent a request letter (Appendix C) and a consent form (Appendix D). If I only received a phone number I called and spoke to the student, got their e-mail, and sent the forms. However, I found that sending a text as the initial contact was more effective at getting responses. I ended up with ten full IBDP graduates and eight non-IBDP graduates. This was two short of my goal of ten students in each group, but due to repeated requests and no responses, and with the approval of my dissertation committee I decided to stop making contact and proceed with my analysis. My goal in this particular study was to keep the study focused on the impact of the IBDP regardless of student characteristics.

I acknowledge that there is the potential for a slight selection procedure bias due to the possibility that the IBDP Coordinator might only contact students who had a positive view of the IBDP. However, due to the difficulty of getting responses, and taking the first students that replied, I don't believe this was a significant factor. I found that the longer the students were out of high school, the more difficult it was to connect with them. A suggestion for future studies would be to locate students around high school reunion times or connect with them right after the IBDP results are in and establish contact.

Data Collection

One of the most common techniques used in qualitative research is an individual interview. Research questions guide the individual interviews, which are either structured or semi-structured (Gordon, 1987). The role of the interviewer is to understand the world from the subject's point of view (Kvale, 1996). Interviews assume that everyone is capable of voicing their experience and that every individual has the ability to provide significant views, which are available simply by asking (Gubrium, Holstein, Marvasti, and McKinney, 2012).

Interview protocol. After I made personal contact, I set up appointments for a forty-five minute to one-hour telephone interview. A telephone interview suited my purpose because I did not need to meet with students to get their information, and it was not practical logistically to meet in person since I did not know the colleges the students were attending.

The protocol that I used for the interviews was to begin each one with a standard introduction wherein I read a letter that explained the study (Appendix C). This was intended to set the stage for the questions. Next, I went over the consent form, and then offered each participant a ten-dollar iTunes card as thanks for his/her involvement. A majority of the students did accept the card, and I requested an address to mail them. Late in the interviews one subject asked me to send them the code on the card so that I didn't have to mail it and they didn't have to reveal their address. This tip is something I would recommend for further studies because I could sense a hesitancy to give out personal information.

After reviewing the necessary information and forms, I wanted to establish a rapport with the students by asking a general, non-threatening question. The question I chose was, “How is college going so far?” If they said, “fine” or “it’s going well,” I would ask them to elaborate by asking, “In what way?” This series seemed to start the interviews off in a relaxed manner.

The interviews lasted between thirty-five and fifty-five minutes and followed a progression of questions starting with general questions about college and leading into more specific questions about the IBDP and how its structure and components may have helped in college studies. It was helpful to have a set of standard interview questions which served to warm up the students, and thus allowed me to probe in greater depth as the interview progressed.

It was my impression that all the students were eager to respond to specific questions about the IBDP, and they were sometimes even passionate when talking about their school, Rufus King International. This passion led me to explore a new theme by asking students, “What would King be like without IB?” An example of the passion for the IBDP and their school on display during these interviews came from an IBDP student:

King is where it is and how it is because of IB, and the amount of kids that are willing to attend the public school and go through IB. It made King #1. It brings a little bit of shine to MPS [Milwaukee Public Schools].

At the end of the interview the standard procedure was to ask the participants if they had anything to add about high school preparation that was not discussed. This was

typically not the case, and the interview ended with my thanks for their participation and a reminder that if they had anything to add to please send me an e-mail or contact me.

The interviews were recorded using the software program QuickTime Player, which records and digitizes the audio. This proved helpful in sharing the interviews for transcription and for ease of retrieval.

To protect the confidentiality of the information I kept all student information on a password-protected computer and on paper notations kept in my private office.

Field notes. Once each interview was completed I kept field notes on each event. Field notes are useful for recording the feelings of the researcher about the research process and provide critical analysis for future consideration (Ritchie, Spencer, & O'Connor, 2003). My notes included reactions to the interview as to whether it went well or not, ideas for the next interview, and unique quotes by the interviewee.

Data Analysis and Management

Data analysis in qualitative research differs from data analysis in quantitative research in that it is non-statistical, and the concrete material at hand primarily guides its methodological approach. In quantitative research, the sole approach to data is statistical and takes places in the form of tabulations. Findings are usually descriptive in nature although conclusive only within the numerical framework. Qualitative analysis involves a continual interplay between theory and analysis of content.

Content analysis. Content analysis is a method of analyzing written, verbal, or communication messages (Cole, 1988). Through content analysis it is possible to reduce large amounts of text into fewer, content-related categories. Content analysis is

concerned with meanings, intentions, and consequences (Downe-Wamboldt, 1992). The relevant information is pulled from the text using categories and a new basis of information separate from the original text comes into existence (Kohlbacher, 2006).

The process I used followed the steps of data reduction, data display, and conclusion drawing (Miles & Huberman, 1994). Data reduction was broken down in a three-step process based upon suggestions from Kvale (1996), Kvale and Brinkmann (2009), and Coffey and Atkinson (1996). The steps are: 1) interview transcripts are broken down into natural meaning units, 2) natural meaning units are reduced into condensed meaning segments, 3) segments are labeled with a code category. Before coding I read each transcript, made a list of natural meaning units, and used them to pre-load some codes into the computer software NVIVO. NVIVO is designed to organize qualitative data and display common themes. The use of software to analyze qualitative data dates back to the 1960s and 1970s. Coding data by attaching labels to a section of a transcript is a basic use of code-and-retrieve software (Seale & Rivas, 2012).

Coding. The transcriptions were uploaded to the software and grouped by DP and Non-DP. To begin selecting portions of transcripts and assigning codes, I used provisional codes that were based upon my review of the literature on college readiness, my knowledge of the IBDP, and the design of the interview questions. Provisional codes are defined as those that can be determined before fieldwork (Miles & Huberman, 1994). These included critical thinking, writing, research, academic skills, and personal skills such as time management.

I then reviewed each transcript with an eye on the codes that had already been entered, and with an eye towards looking for new concepts. Once a section of the transcript was coded, the software allowed sorting and grouping the raw data by the code. As the data appeared and was displayed, the codes were grouped into similar “families” as described by NVIVO (NVIVO, 2015). For example, one family is the college experience and another is the high school IBDP experience. Within the family of college experience is a sub-code called college writing and under college writing is a sub-code called feedback from professors. This sub-code provided an in-depth picture of how effective the IBDP was in developing writing skills.

Open coding started the process with as many codes as needed written into the software to cover all aspects of the transcript. Coding of the data also allowed for considering the context of comments, and identifying from which group the comment was made. It gave me the ability to look at the relationships of the data among the DP students, as well as the relationship of their data to that of the non- DP students. These relationships led to the findings and conclusions shown in next two chapters.

Sampling

In order to pursue my research questions, I chose to use purposeful sampling. Purposeful sampling is deliberately choosing a sample in a non-random manner so that learning can be optimized (Merriam, 2001), and the sample can provide important information that would not be achieved as well from other types of sampling (Maxwell, 1998). Therefore, the selection of a high school and the participants was critical. Since

my aim was to study the value of the IBDP for college preparation, careful consideration was given to what constitutes a model IBDP school.

When selecting a high school for my study I used two criteria; one, that the school be in located in Wisconsin to provide for easier access to staff and students, and two, that the school have a long history in teaching the IBDP. This second criteria is critical because I am exploring the long-term affect of IBDP principles with college students, and their information would be more valid if the students had experienced the IBDP in its truest form. I knew from my review of the literature that Rufus King International was one of the first IBDP high schools in the United States, and that it was nationally-recognized for its programming and successful college preparation.

Selection of interviewees. The choice to select current college students for interviews is consistent with the principle of purposeful sampling because they have already begun their studies and have already made an investment in college. Another reason to question current college students is that their recollections should show the lasting items from their high school academic experience.

The primary focus of my research was students who earned the full diploma from the IBO. In order to generate contrasting evidence against which I could evaluate the experiences of students who earned the full IB diploma, I intended to select a second sample of students from the same high school who had similar academic achievement on standardized test scores in tenth grade but who did not participate in the IB program. Due to a misunderstanding by the Rufus King staff member who assisted me in selecting the student sample, the second group of students in this study differed from my original

intent. The comparison group sample is made up of students who attempted to earn the full diploma but did not achieve it. I believe that this group opens up potential avenues of insight that would not have been possible with the original sample. Including the non-diploma students in the comparison group also provides “negative cases” whose experiences differ markedly from those who obtained diplomas. The non-diploma students could have a negative view of the IBDP since they spent a great deal of effort and did not reach the ultimate goal. Richards considers these “negative cases” as examples of experience that run counter to the emerging theory (Richards, 2013).

Data Collection

The choice of procedures for research is impacted by the researcher’s perspective on research. A procedure that matches my inquiry is phenomenological research, in which the researcher identifies the “essence” of human experiences concerning a phenomenon as described by participants in a study. The phenomenology procedure involves studying a small number of subjects through extensive and prolonged engagement to develop patterns and relationships of meaning (Moustakas, 1994). In this process, the researcher “brackets” his or her own experiences in order to understand those of the participants in the study (Nieswiadomy, 1993). Since my intent was to gain personal information from students about the IBDP I used phenomenological interviewing (Attinasi, 1993).

Phenomenological interviewing. The purpose of phenomenological interviewing (PI) is to gain access to the meaning an individual makes of his or her own experience as it relates to the phenomenon. This meaning is accessible when the

individual reflects upon factors making up their personal experience (Tesch, 1988). The task of the phenomenological interviewer is to get interviewees to “reconstruct their experiences and reflect on the meaning they make of that experience” (Seidman, 1985, p. 15). In this technique, the interviewer seeks detailed descriptions and understanding of the meaning of the themes being studied in the life-world of the interviewee (Kvale, 1983).

The interview itself is semi-structured being neither a free-form conversation nor a highly structured questionnaire (Gordon, 1987). Kvale (1983) describes six stages to PI, and the one most closely related to my current study suggests, “the interviewee describes his or her life-world with respect to the phenomenon of interest in a spontaneous manner without any interpretation by the interviewer” (p.181).

Another rationale for the selection of my interview method is my interpretivist research perspective. Interpretivists believe that reality is socially constructed (Husserl, 1965), and that by placing people in their social contexts there is a greater opportunity to understand the perceptions they have of their own activities (Hussey & Hussey, 1997). Interpretivists aim to reconstruct the self-understandings of actors engaged in a particular action (Schwandt, 2000); in my case this reconstruction was gathering information from college students immersed in their educations. In that way it is more meaningful than doing a retrospective interview after students have graduated from college.

Data Analysis

My analysis of the data was done based upon a social constructivist and interpretivist perspective. The assumption of both of these perspectives is that individuals

develop subjective meanings for their experiences toward certain objects and things (Creswell, 2003, 2013; Merten, 1998). These meanings are varied and multiple and lead the researcher to look for the complexity of views rather than narrowing meanings into a few categories or ideas (Lincoln & Guba, 2000; Schwandt, 2000, Neumann, 2000; Crotty, 1998).

This led me to create categories of codes driven by the responses of the students. The process of creating categories from the list of codes provides a means to describe the phenomenon and generate knowledge about it (Cavanagh, 1997). The interview transcripts were coded using computer software to provide for easy categorization of the codes. The NVIVO software was also helpful because I could upload the interview transcript in its entirety, code it, and retrieve all on one screen.

As I found the themes in the data I was aware that my interpretations are shaped by my own experiences and interactions. This is in keeping with the interpretivist perspective. Rather than starting with a theory (as in postpositivism), inquirers generate or inductively develop a theory or pattern of meaning. It also means that the researcher needs to be aware that their interpretations are shaped by their own experiences and interactions. My awareness of this assumption is explained further in this chapter under the positioned subject approach section.

Trustworthiness, Ethical Considerations, and Positionality

In a qualitative study using a constructionist perspective the traditional positivist criteria of internal and external validity are sometimes replaced by trustworthiness and

authenticity (Denzin & Lincoln, 2000). I was aware of internal content validity in my interview questions, and took care to review them after each interview.

Trustworthiness. My background as an administrator in an IBDP school district provided me the opportunity to meet staff from Rufus King International prior to beginning my research. I had met the principal and the IBDP coordinator and this connection allowed them to trust me in my research. As explained earlier, without the help of the coordinator who acted as gatekeeper, my student contacts would have been slim. The students had a personal connection to the coordinator, and their trust allowed me access.

The trustworthiness of a qualitative study is enhanced by the researcher giving a thorough explanation of the process used to obtain the data and to analyze the data (Elo & Kyngas, 2007). In this chapter I attempted to be as transparent as possible and give not only my process, but also my concern for keeping my role as researcher as objective as possible.

Ethical considerations. Qualitative research uses value-laden judgments to reach a conclusion. To make the results less fallible a researcher must be aware of their own bias. The challenge in interviewing all the IBDP students was to keep my own feelings about the IBDP from becoming evident. I have mentioned earlier my experience with the IBDP program, and was aware of this as I engaged in my conversations with the students. There were times during the interviews that I shared my knowledge of a component for example when asking about the CAS requirement, I did say that CAS stands for creativity, action, and service.

Establishing a rapport with the interviewee is important in eliciting feelings and building trust. Interviewers can either take a neutral posture adhering to their institutional identity or position themselves as having a standpoint in common with the interviewee (Alby & Fatigante, 2013). Alby and Fatigante comment that it is important for the researcher to be aware of the two models, and make a conscious choice about which one to use. They did state while there is no preferred method, it should be stated during the research.

In reflecting on my posture, I felt that I was a hybrid of both models: at some times I maintained my role as researcher, and at other times I shared my common knowledge of the IBDP. I deliberately kept my position within an IBDP school in the background until after the interviews were completed and I debriefed the subjects.

Positionality. In keeping with the positioned subject approach, I viewed the interviews as a conversation between positioned subjects. However, the conversation was not a typical one; it maintained a formality throughout and encouraged the students to do most of the talking (Folkestad, 1995). Prompts were given when questions were responded to with short comments.

The questions were general in nature and gave the interviewee the freedom to take the discussion in a direction he/she preferred. The list of questions used as guidelines for the interviews is shown in Appendix B. The questions acted as a guide and were intended to take each interviewee through the same sequence while asking the questions in the same words (Patton, 2002). There were instances when a topic was brought up out

of sequence and then explored with a return to the questions when there was a natural space to do so.

As a positioned subject in the research, I was aware of my experience with the IBDP having served in a school district that is using it in their high school. I saved any of my comments regarding the IBDP until after the interview was completed, and even then that only occurred a few times. My knowledge from the research on the IBDP's success in college preparation meant that I was not out to prove anything about the IBDP, but to gain insights into how it was successful.

CHAPTER V: FINDINGS

Introduction

The purpose of this qualitative phenomenological study was to explore the impact of the phenomenon, the International Baccalaureate Diploma Program (IBDP), on college preparation as seen from the real experiences of both IBDP and Non-IBDP college students. This chapter provides the findings from data collected through semi-structured, phenomenological interviews. All interviews were done on the telephone and began with an overview of the study and permission details, which were followed by the same series of questions as seen in Appendix C. However, each interview was unique due to the interests and responses of the participant. This led to richness in the data through individual engagement and conversation that would not have been achieved with rigid, structured interview questions. I conclude this chapter with comments from students about the value of their teachers. While not part of the original study questions, this topic was important to the students, and was intertwined within their responses to other questions, and so it seemed worthy of further study and analysis in this chapter.

Context of Study

As presented in Chapter IV, the sample chosen for the study comes from a very special urban high school. Rufus King International High School in Milwaukee, Wisconsin is not only nationally recognized (U.S. News & World Reports, 2012, 2014) but also reflects current urban demographics; it has a minority-dominated student body (80%) with a high percentage of low-income students (55%) (dpi.wi.gov, 2015). The school has been an International Baccalaureate Diploma Program school since 1978, and

students choose to enroll in the school as part of the Milwaukee Public Schools magnet school program.

The sample for this study included two groups of students: IBDP full diploma earners and IBDP students who attempted the full diploma but fell short of earning it. The IBDP diploma group included ten students; this group was composed of three male students and seven female students, and seven of the ten students were also minority students. The Non-Diploma group included seven students; these students were all minorities with two male students and five female students in this cohort.

Both groups of students had similar high school experiences and attended similar classes, and all reached for the high bar of the full diploma. This effort by both groups is consistently repeated throughout the interviews, and the similarities between the two groups in relation to this common goal became more apparent as the analysis evolved. The statements that are quoted in this chapter are excerpts from students' answers with any additional emphasis noted. In quoting the students I used their ID number and a designation of DP or Non-DP, but I do not otherwise identify my participants. I also edited out references to colleges in order to preserve the anonymity of the sample.

Research Questions

In order to examine the value of the IBDP on college preparation, I used the following research questions to guide my study and form my interview protocol:

1. How did students in a large, selective urban high school experience and learn from the IBDP?

2. How did students in this high school feel the IBDP prepared them for college?

Findings

Through data analysis using coding and sub-coding, I found that student comments mirrored research theories on college preparation. Research on the positive factors for college preparation fall in three main categories: 1) there is long-term value for college students to have experienced a rigorous, academically intense high school curriculum, 2) academic behaviors play a part in college success, 3) a solid preparation in academic skills like writing and research are identified by college professors as prerequisites for college success (Adelman, 2006; Arum & Roksa, 2011; Conley, 2006).

I found that student recollections supported the positive impact that the IBDP had upon each of the above categories. While as a group they stated that the IBDP prepared them well for college, there were some students who identified weaknesses within the program's components; I will provide those assessments within the discussion of the components.

Themes

Themes are concepts or theory that derives from the data as “some signal trend, some master conception, or key distinction” (Mills, 1959, p.216). Themes are a way to focus the argument in academic writing (Bogdan & Biklen, 2003). The major themes in this study developed from coding student transcripts, and within each theme there were findings that were generated during the analysis. The findings provide categories of the student responses.

The four major themes are:

Theme 1: General evidence that students felt prepared for college coursework.

Theme 2: Students reported how their participation in the IBDP helped them develop academic behaviors and personal skills that are important in college.

Theme 3: The role of teachers in implementing the IBDP and facilitating student learning.

Theme 4: Organizational support for the IBDP at Rufus King International High School.

Themes 1 and 2 include data from the interviews that help to answer the research questions. Themes 3 and 4 were generated from student comments about their school and teachers that permeated the interviews.

Theme 1: General Evidence that Students Felt Prepared for College Coursework

In general, the students gave supporting statements to the fact that the IBDP was impactful on their college experience. While there was not universal agreement on the positive aspects of the program, the opinions of the students lent some credence that the IBDP was living up to its original purpose.

The original purpose of designing the IBDP was to create universal academic preparation for college (Peterson, 1974). The comments from students in the sample endorsed the original purpose. In this section their quotes will be used to describe how the IBDP affected their adjustment to college. This section also includes the value of the program in earning college credits and how the students compared their college experience to that of their peers

Finding: There is an adjustment to college that occurs, and the IBDP left students with an impression of being well-prepared. The retrospective statements by all seventeen of the students were positive about their college preparation; however, they noted that college is a different learning environment than high school. The students generally felt they had the background to do college academic work. This comment from DP#9 is typical of the statements made by the students about the transition to college:

It was kind of a rough transition, but I think it would have been worse had I not had IB. The workload was kind of similar to high school. It's just a different atmosphere that you're learning in, like the big class sizes and stuff like that.

Because of their academic preparation and daily assignments for the IBDP students had to make some adjustments in college.

Academic adjustments for college. The academic adjustments to college appeared to go well for some of the students, but others noted some differences between high school and college. The students felt that high school was this busy place with something due on a daily basis but in college, “everything for all of your classes is due at once” (DP#5).

Students also noticed the freedom that college gives students. Non-DP#6 hits at the freedom issue directly: “One thing that I think IB doesn't prepare you for is the freedom that college brings. With IB we're doing work all the time, with projects and busy work! [emphasis added]” Non-DP#3 felt even more strongly that high school's workload of daily assignments make it more time consuming than college, stating, “Honestly, I feel like in high school, especially doing IB, you always had something due

the next day. I felt like I always had something to do in high school.” There were also adjustments to be made in college because of the number of assignments. The differences between the number of high school and college assignments and grades was described by Non-DP#3 like so, “In high school you could balance your grade out with other assignments, not just a specific exam.”

This finding shows that there were personal adjustments students had to make in the college environment. Non-DP#6 felt that the IBDP helped them to cope with those changes, stating, “I think that it [IB] made something feel normal in a place where everything else is new.” Adjusting to a new learning climate is made easier if the preparation from high school pays off. The feedback on preparation indicated that in comparison to other students the IBDP students felt better prepared than their peers.

Finding: IBDP students felt better prepared than their peers, including Advanced Placement (AP) students. The preparation they received from the IBDP gave many of the students a feeling of having an advantage over their college peers. The purpose of this study was not to compare AP and IBDP programs; however, the students volunteered the comparison when asked during the interviews if they felt better prepared than their peers.

The students in the sample said that they had the opportunity to interact with other students who had either studied Advanced Placement courses or had no type of college-preparatory classes. There were both DP and Non-DP students who felt that the IBDP gave them an advantage over these two groups. Non-DP#5 had talked with roommates

and felt better prepared for college than they were because of a background in critical thinking:

The courses they took in high school didn't require critical thinking or the courses they took in high school weren't to the extent that IB was. My experience in IB was 'to what extent does this have this or whatnot.' You had to think a lot more in IB and really be able to backup your answer with that critical thinking.

When other college students complained about having to write a five-page paper, the IBDP students like DP#5 weren't too bothered, stating, "I'm thinking, that's no big deal for me... Even some of the research, people complain about having to use five sources. That's no big deal, that's nothing!" [emphasis added]

In trying to explain how the IBDP made a difference, DP#4 credited the program for having introduced them to the expectations of college research:

I feel like with the DP program it forces you to go more in depth right away and not wait...I feel like a lot of the [college]courses don't expect people to have had that background in high school. More sophisticated research and using more sources, or even the style of citations, for example.

A college preparation requirement of the Extended Essay is to use an approved style such as the American Psychological Association (APA), but the differences the students noted did not only have to do with what was taught in class, but with larger differences in academic preparation.

The difference between IB and AP students was also noted by DP #7, who felt that AP students were better at taking multiple choice tests but the same tests caused problems for DP students. One reason for that is related to what the teacher expects:

I think because in the AP classes you'd just listen to the teacher, the PowerPoint, write that in your notes and say that's how it is. I think IB has taught me not to always trust what the teacher is telling you, that things change over time. I was able to figure out what they were trying to make us explain.

Many students said that the IBDP teachers emphasized to students that they need to be analytical in their thinking. These academic demands created wide-reaching changes in the students.

The rigorous, well-rounded program of the IBDP created differences between IBDP students, AP students, and others because it developed confidence. Non-DP#1 said, "I did notice a difference between the AP and IB kids and the kids who didn't [take IB/AP]. We were more confident. There were concepts that were not over our heads." Confidence was developed through taking six challenging courses. Non-DP#3 credited the IBDP directly for that confidence, "You feel a little bit more confident compared to regular students. If you're taking IB you have 6 classes that are challenging."

The statement by Non-DP#3 about the importance of taking six challenging classes would appear to concur with Adelman's findings (1999, 2006) about the value of a rigorous high school curriculum and its positive impact on college success. In addition to feeling confident about their preparation and, correspondingly, their ability to complete

their college course work, the students saw a benefit to having earned college credits in high school.

While the majority of statements by students gave an edge to the IBDP over AP, one student, DP#9 was a little more objective:

I don't know much about the AP exams. I've just always looked at it differently because they didn't have the CAS aspect of it. I don't want to say I had a better experience, but I think I had a different experience.

DP #9's recognition that AP and IBDP are different and the fact that they refrained from choosing one over the other is one way of valuing both programs and shows a mature reflection on the topic.

Finding: There was value to earning college credits in high school.

Adelman identified in his 2006 study on college readiness that one sure-fire way to finish college is to earn college credits prior to entrance (Adelman, 2006). Students in both the IBDP and the non-DP cited that one real advantage to the IB was the acceptance of their high school courses for college credit. DP#10 appreciated being able to move past the general required courses, stating, "Besides saving money it gets you to skip a lot of those electives, or base courses, and lets you look into other courses that might not be part of your major." This not only paid off financially but also allowed them to jump ahead in their class standing, and get into their major studies faster. Being placed in high level courses or opting out of courses is an advantage to the IBDP, and it created sophomore standing for DP#9 who was able to opt of freshmen courses in English and social science and entered college with twenty-two credits in hand. DP #9 reflected on this experience,

stating, “That really helped a lot because they let you pick classes based on how many credits you have, and that put me at sophomore standing already when I was just a freshman.” Having advanced standing gave one student the opportunity to do an internship abroad during the summer after the freshmen year (DP#3). They stated that this would not have happened without earning credits from high school courses.

Overall, the students appreciated not having to take general education courses, especially in their major. There is also a financial value for students like DP#9 whose 22 credits from high school are equivalent to more than one semester of college courses, and provides a significant savings in college tuition.

This isn't to say that there is no cost for the students in the IBDP because there are exam fees that are approximately \$130 per class. Thus, the students who are taking several exams face a significant investment. Students learned that college courses have a cost as Non-DP#6 related, “In high school you don't have to pay, and I think it opened my eyes to how expensive college can be when you have to pay for classes.” One student, DP#7, didn't feel that the credits for college helped very much because there were still general requirements to complete and they were not as ahead of others as they were told they would be:

Right before I was going to choose IB, full diploma or not, advisors told us we'd be ahead of a lot of students [in credits]. When I come to college it's not the truth. You still have all these general requirements to put everyone on the same level, to make sure you're not missing out on anything you need to know.

DP#7's opinion was a singular response and not indicative of the entire sample.

However, it does point out that not all colleges accept IBDP credits. The IBO is aware of this and has its own department, titled "Recognition," that is strictly concerned with improving college acceptance of IBDP credits (IBO, 2015n.).

Finding: Six required courses developed a balanced academic background.

One of the unique requirements of the IBDP is that students must take six subjects during each of the two years they are in the program. The subjects are designed in two levels: higher level and standard level. The design was formed so that students would have the option to take courses they are stronger in at the higher level, and then have the option to take less rigorous courses in their weaker areas (IBO, 2015).

The IBDP program of study is rigorous because it requires students to take courses in a broad range of subjects; three of the courses are to be taken at a higher level comparable to college content and three are taken at a standard level. There are also additional requirements: the Extended Essay, the Theory of Knowledge (TOK) course, and a service learning project (CAS). The findings showed that students believed the challenges of the IBDP were worthwhile because their preparation for college was improved.

In general, the students reported that having a strong academic background in six different rigorous courses influenced their college experience. The rigor was an important factor as was the balance demanded of studying subjects that may not be a student's strength. The students indicated that there are benefits to being forced to do

something even though they did not view it as one of their strengths. DP #4 noted it led to growth, as in this statement:

You could keep taking the same things, the thing that you're interested in, but taking something you're not the best at, or most fond of, forces you to think in a little bit different way, and it forces you to grow.

Students reflected that having to take subjects they were weaker in caused three things to happen: one, it forced them to think about why this subject caused them trouble; two, it caused them to step outside their comfort zone; and three, they had to focus on the weaker subject. This statement by DP #10 highlights how being required to take a course in an area of weakness can lead to some benefits:

Chemistry, I started off and hated chemistry with a passion. Because I wanted that IB diploma, it made me go back and think: I'm not good at chemistry, why am I not good at it? It would be certain concepts that I just couldn't understand, so I would go back and read the text and talk to my teachers. That helped my understanding of the subject so much more.

Another student, DP#4, explained how the challenge created growth:

Going out of your comfort zone helps you become more well-rounded. You could keep taking the same things, the thing that you're interested in, but taking something you're not the best at or most fond of forces you to think in a little bit different way and it forces you to grow. You learn more having to do that, to focus more and tell yourself I have to study this material more because it won't come as easily to me.

The fact that students were forced to take a subject that was not easy for them also meant that they sought help from either a teacher or study groups, as was noted by DP#7:

If I was ever struggling I would get a study group and try to catch up on concepts I didn't understand, or go look at my previous mistakes in exams and see what wrong and if I can improve it. If I couldn't then I would ask my teacher, 'How was I going about this problem wrong?'

IB #9 echoed the need to talk with the teacher, and extended that concept into communicating with college professors:

I think in IB...I definitely knew if I needed help, I needed to go talk to my teachers. That's continued into college. I go to office hours a lot. There aren't a lot of students who do that, surprisingly, which kind of shocked me. With having 6 courses at once, it's the same in college, you have to be able to balance multiple courses loads and know when you need to ask for help.

The requirements of the IBDP led the students to growth that would not have occurred otherwise. The students also needed help with challenging courses in subjects that were not familiar to them, which caused them to interact significantly with peers and teachers.

The IBO believes that the IBDP has to provide students with not only a well-rounded education but also the ability to look at subjects from a different perspective (IBO, 2015 j.) In response to being asked the value of required classes, Non-DP student # 5's response gives support to the IBO belief:

I think being forced to take classes ... it helps you to think with different perspectives. It helps you be well-rounded versus only focusing on math for AP,

or science. In IB you get that global awareness of math, science and history and Spanish.

While it might seem restrictive and as though it does not allow for student choice, the students did not complain about having to take courses in an area of weakness. They had the belief that it made them more well-rounded and made them grow in areas that might not have been possible without the requirement.

Finding: The required second language study had practical uses in college and life. Every IBDP candidate must take two years of a second language other than his or her mother tongue, which for this sample was English. All the students in my research studied Spanish with the exception of one student who studied Latin. In following the intent of the IBDP, which is to become fluent in the secondary language and understand the culture of the language studied (IBO, 2015k), the high school program had a positive influence on the students. Their comments showed that even though some students were not taking the language in college, they still appreciated the experience:

I'm not learning Spanish right now in college, but I think it's very useful just to communicate with people who might not speak English. Now every time I read something in Spanish, I have a background in it so I can somewhat understand it.
(DP#5)

Even though they were attending a college that didn't have a Spanish program, Non-DP#2 affirms the value of learning about culture:

I think it's good to know things about other cultures other than you own and I think that learning Spanish, not just the language but the culture as well. It felt

like it lets me have the ability to connect with other people who aren't necessarily the same as me.

Students saw an advantage to taking these courses from both the cultural understanding and language aspect, in addition to encouraging further study and use of the language.

The depth of language fluency and cultural knowledge that taking a second language at the IB level gave students also gave them the confidence to pursue their language of choice in college. They were interested in the possibilities to use the language they had studied to connect with other people both in school and their day-to-day lives. The students I interviewed were excited when relating to me how they used their language in the workplace. DP #10 found the study of Spanish useful during an internship in a company that had a large Hispanic population because when they could be understood it made them more comfortable:

They see me and then they say something in Spanish. I know what they are saying, and a lot of times it's not too many good things they are saying! [emphasis added]. So, they'll say something and then they see me giggle. I noticed that when they knew I could understand what they were saying, it made them more comfortable and opening up.

The importance of understanding the value of a second language was underscored by the students' real life experiences.

Mastery of a second language in high school led students to expand their interest by taking more courses in college. Several students gave their opinions that their choice to either major or minor in a second language was driven by their high school experience.

This statement from DP #9 captures this conclusion, "...it also made me feel more comfortable in my speaking skills, and made me want to continue Spanish in college. Now I'm actually trying to double-major in Spanish as well."

The in-depth knowledge of a second language gave another student the background to use the language during an internship in another country and make Spanish a second major along with Chemistry. This student stated, "Even in [edited-reference to European country] over the summer, people who didn't speak English in the labs over there spoke Spanish, so I was able to use it then" (DP#3).

The fact that Rufus King International had rigorous second language instruction was a benefit to Non-DP#4, who was a native Spanish speaker, "Before that [IBDP] I was in a lot of bilingual programs. I'm glad that King had high enough level courses that I could take, so I wasn't taking intermediate Spanish again." The instruction carried into college where the same student said that in college they had not been challenged because of the writing done in high school Spanish with five page papers whereas in college their maximum was two or three. Another student appreciated the rigorous approach, "Instead of basic assignments we were reading articles about what was going on in the world, in Spain or Latin American, no matter what" (Non-DP#6).

One of the students took Latin, a language not used for conversation, but the importance of the teacher was shown by how the student appreciated the instruction, "We went to conventions at Madison. It was nice to see a larger community studying Latin. I didn't know that" (DP #7).

The majority of the students believed they developed true competence in another language in their high school courses, but one student, Non-DP#1 shared the opinion that the second language didn't add to their high school experience, "I get it, the history and English part. The second language was kind of frustrating. I'd rather not have to deal with it. I just got to senior year and did what I had to do to finish the class." This comment was in the minority, and based upon the students' overall comments the second language requirement was beneficial in college and in life.

Finding: The IBDP requirements beyond the traditional subjects— CAS, Extended Essay, and TOK were valuable preparation for college. The IBDP includes not only traditionally studied high school classes but also three unique components. Each is designed to complement the idea of building a well-rounded, college-prepared student. The CAS requirement provides a student the chance to use a hobby, sport, arts activity, or volunteer service to meet the course requirements. The Extended Essay is designed to replicate a college research paper, including following the style guides required in college research. The TOK class is designed to develop critical thinking and has a resemblance to a college philosophy course. The students' statements that relate to these components have been broken into categories of CAS, Extended Essay, and TOK.

CAS. CAS is designed to have a student pursue a service project that is interesting to them, or they can use service that they are already participating in. The details that students gave about their projects lent insight into the social value of CAS, as can be seen by this statement by DP#9:

For my CAS project I did a coat drive and then donated the coats to my local church. It was a really good experience. I think it shows you can do a lot more than you can think. Before, when I would see any kind of big project going on, I never thought that was something I could do. I thought: that must require a lot of people and a lot of work. Really, it showed me that I could do something like that on my own and it's not that difficult if you work hard at it.

Hearing a college student say that this project opened their eyes to their own possibilities of doing service is enlightening.

The majority of respondents had positive comments about the CAS requirement. Most felt that it gave them an edge on other students because it either made them look better on a college application or gave them experience in volunteering, which came in handy during college. Students appreciated that they could pursue their interests and still meet the requirement. DP#9 particularly appreciated how athletics was counted:

Knowing that this is something of my CAS experience, something that has to be done, but I get to play soccer and it counts for something academic. That was really nice for me ..., and it was contributing to my progress.

The value of allowing athletics to be part of CAS was seen as a personal benefit for them because it gave students the chance to try something new:

I branched out. I was part of sports teams, the basketball team, so you were constantly put into situations where you might not know someone in the room, but I'd go and introduce myself. Those skills, it [IB] helped out with. (DP#10)

Branching out can take different forms. One student, DP#7 told how it applies to reaching out in college:

I had to reach out to community service projects already going on, and get myself doing things. Working with other students, too, if they were doing projects. Yes, right now I'm working with [edited], which is a [college] student association here at [edited]. You can't do things all by yourself, you have to reach out for help, too.

The high school preparation in service projects appeared to carry over into college, and assisted students in building confidence and cooperation.

This statement by Non-DP #6 reinforces the benefit of CAS for college involvement: "Yes, we had to do the CAS hours, the volunteering and everything. That was one part that was also easy and it helped me get even more involved in college."

The value of CAS seemed to carry over into college life for several students. They said it helped them get more involved in volunteering at college and taught them how to balance time and priorities.

The first letter in CAS is creativity, and when students were asked directly if there was creativity that arose from CAS, there were positive responses. When DP#4 was told of Peterson's intent to not allow academics to get in the way of a student's passion for music while creating the IBDP, DP#4 stated, "That makes sense. It kept me going."

Another student noted that the creativity in CAS made it fun:

I think the creativity was more fun because people have to remember that along with academics you always remember to have fun, because without that you

wouldn't be happy. I think they put the creativity in there as a reminder to just have fun sometimes. (Non-DP #2)

Even though creativity is part of this required component, it can't be assumed that just requiring it will make it happen. However, being forced to examine what creativity means gave Non-DP #5 a new hobby:

For creativity, that was actually hard for me to do. I realized that the creativity part was just being able to learn different techniques and different skills and habits that I may now have known or done before. One example, I learned how to crochet. That was creativity, and I used crochet to try to develop that creativity and talent to continue to use that over time.

Having to stretch one's abilities is not a traditional view of creativity, but it is a value that made an impression on this student. The student comments on creativity lend some support to the notion that this aspect of CAS did take place in high school.

Not everyone gave a resounding endorsement of CAS. One participant, Non-DP#3, said that CAS didn't play a role in their college experience. Their opinion was, "In high school you feel like you have to do certain things to get into college but once you're in college you don't feel like you have to do certain things anymore because it's not required." DP#3 was not a big fan of the CAS program either and believed that because some students scrambled to get it done, it was not taken seriously:

I know for myself and others it was something you did but didn't really get a whole lot from. For the most part I was in National Honors Society and we had to do projects anyway, but the other parts were a little bit more of a stretch.

The measurement of hours was also not viewed by DP#5 as a positive thing; in fact, they thought it shouldn't be a measure of competence, "I guess one thing is with CAS, you have to put in hours. There's no amount of hours you can set and say, hey I did twenty hours for art, and you're good for art." The negative reflections by the students show that they were aware that the tacit counting of hours does not indicate service, although they did not suggest that the requirement be omitted.

Overall, the students did say that CAS was a good experience for high school because it teaches volunteerism and offers students opportunities to join groups that match their philosophy. The intent of the IBDP for CAS appeared to take effect, as noted by the students who shared how it helped them discover creativity and inspired them to follow their passion, whether that passion was for music, sports, or crocheting.

The Extended Essay. The Extended Essay is a 4,000-word essay on a topic of a student's choice. It is intended to replicate a college research paper with attention to details, including formatting in the APA style. Students are to find an advisor to help them during the process. The choice of the topic is something left to the student, a concept that is consistent in the IBDP philosophy and that was also reflected with the CAS project. Overall the students supported the Extended Essay and felt it prepared them for college. Once again the concept of being required to complete a task to earn the full diploma was a benefit, as is seen in comments by several students. This comment by DP#10 shows that students felt the Extended Essay was valuable, and being forced to do it was worth it:

I'd say the value ...by it being that it was 4,000 words, it made you go back and have to do research and make you not have 2,000 words of content and 2,000 words of fool[foolish content], for lack of a better term. So having the Extended Essay forced you to come up with actual content and actual meaning behind what you said.

The Extended Essay appeared to have value for students because of its structure, and because it allowed for student choice.

DP #10 chose a difficult topic for their Extended Essay and appreciated being able to choose:

I remember writing mine on desegregation of Milwaukee Public Schools. I liked it a lot because they let you pick your own topic. They set up certain deadlines that you had to meet. They'd say by this date they want a rough draft or this amount of research done. I liked that. I appreciated that.

The philosophy of the IBDP is to allow student choice; in this instance, the choices are in the topic of their research papers. Similar to the feelings that students had about their CAS projects, the concept of choice appears to be important.

In addition, the students felt the essay helped them in their college preparation. The quote used earlier by Non-DP#6, "now you can write anything," endorses the Extended Essay's benefit to their writing, and other students also gave credit to the Extended Essay. They said it helped them use other skills like critical thinking, perseverance, and time management. DP#7's comment gives insight into how it taught perseverance:

It has taught me that even if you have limited resources you should not give up. I had to use some outdated sources, so it was really hard to write a strong thesis at the end. Writing has taught me a lot about time management, not just to critically look at the resources because there were so many stories that were not told, so I couldn't make a strong conclusion. It definitely shows that it needs to be researched more. I needed to not just look at these resources, but maybe I need to go out into my community to get primary resources too.

The importance of perseverance in obtaining quality research information was a conclusion that students reached about the value of the Extended Essay.

The Extended Essay had an additional benefit by connecting the students to real-world problems, a concept that reinforces the AIW program, mentioned earlier in the review of the research, which stresses having students engaged in authentic, real-world activities (Newmann, 2006). The opinions of the students I interviewed suggest that the Extended Essay does that as well, like this statement from DP #7:

Whenever I look back at my extended essay I realize it was not a really good essay, but it taught me a lot - that the problem you want to write about should be local, so it hits home more. It makes you critically think about the issue you're looking at in your community. Bring it back to your community so it's not just a paper I need to write, but also a paper that you can use in the future.

This idea is further supported by comments by Non-DP #9:

I wrote my extended essay on how you assess the cognitive development in children. It opened my eyes to seeing how anything can apply to anything as long as you do the research and learn how it can apply to anything.

Connecting learning in school to relevant, authentic tasks has been shown to increase student achievement on standardized tests as well as tests of complexity (Newmann et al., 2007). It appears that some students saw that connection in the IBDP.

Students were asked if they had suggestions to improve the Extended Essay. The suggestions included organization and better advisor support. Organization was one area that DP #10 believed could have been better through standardizing the procedures:

The only thing that I would say is I wish there would have been a more set deadline for when they wanted that information. We also had to pick our own advisors for our papers. So, based off your advisor, they said when things needed to be done.

The support of an advisor was something that DP #1 wanted:

I will say I do wish that advisor would have given me a little bit more direction, you know, a little bit more support. But that's just the reality of an advisor that's handling 10 or more essay students.

These statements about having an advisor that works closely with students are similar to statements about a teacher's important role in emphasizing good writing.

Based upon the students' recollections, the Extended Essay had a positive impact on college preparation but could be improved with some organization and coordination. The long-term value of having a rigorous requirement is captured by Non-DP #6 who

said, “I think it’s [Extended Essay] a great step to have, it’s the first time you have to write a 15-page paper, now you can write anything.” In addition, their statements also reinforced the IBDP philosophy of giving students choice in their projects.

TOK. The Theory of Knowledge (TOK) course is a required course designed to develop critical thinking. It used philosophy classes as its basis. Most students said it did develop thinking skills and was also a first taste of what a college course looks like.

Several Non-DP students noted that TOK was similar to college course work, and most were enthusiastic about it, like this comment from Non-DP #6: “I Love TOK! [Emphasis added] I think it’s probably the best part about IB is that class because it’s an introduction; it’s more like a college class, it’s structured the way the questions are structured.” Non-DP#4 also said: “Theory of knowledge! [emphasis added] That was probably the most interesting class I took in high school and it really opened up my mind to understanding how I know things.” The popularity of the TOK course was not because it was viewed as an easy course; rather, it was viewed as one that allowed students to think deeply about philosophical issues.

The IBDP uses TOK as an example of teaching critical thinking, but students stated it also developed other ways of thinking. For example, DP #4 talked about morals, ethics, and abstract thinking:

It was critical thinking, but above that, the more abstract thinking. It was a lot of philosophical and psychological. Again, looking at things beyond face value.

TOK was a lot about morals and ethics. You really had to dig deep into personal thoughts. Yes, critical thinking, but beyond that more metaphysical. That class

was very interesting to me and very different from anything else I've taken, or have taken so far. The way it makes you look at issues is very unique.

Seeing issues beyond their face value is another way of thinking about issues, and the comments by DP#4 show an appreciation for thinking deeply

DP#7 recollected that TOK taught about bias awareness and how to think:

My teacher taught me to think about: why are we reading things, where is the source from, is this person biased or not? That class taught a lot of students how you should think, not just believing something if you read it. Different types of fallacies, types of authority, like if it's a doctor or a PhD, should they be trusted?

Those types of fallacies.

TOK is designed to have students think about how they know things. This can be intriguing as noted above, but to students who seek clear-cut answers it can be frustrating, as noted by Non-DP#5, "I enjoyed it, although it frustrated me because I love things that are based on fact. You never really got many answers..."

Non-DP#5 may have been frustrated by the lack of concrete answers, but that is the intent of the TOK. For teachers, one way to facilitate the deeper exploration of topics is the Socratic method. The Modern Socratic Method is defined as the "process of questioning used to successfully lead a person to knowledge through small steps"

(socraticmethod.net, 2015). DP#7 shared how the Socratic method was used in TOK:

In TOK... It was about morals and ethics. We would go through the Socratic method, how do you know what you know, questioning what the course is trying to say, also social construction and looking deeper into the issue.

The TOK teacher's use of the Socratic Method recognizes that an important skill is to develop the ability to form questions and showcases just how intertwined questions and questioning, rather than any particular form of content, were in the structure of the course.

The support of the students for the TOK was one of the strongest for all of the IBDP requirements. They appreciated the fact that it was similar to a college course and even though there is not a college credit to be gained by passing it, they believed the IBDP would not be the same without it.

The student statements about all of the course requirements reveal that in their opinion the course requirements create a well-rounded person able to cope with the demands of college. The importance of choice within the requirements was also of value to the students. My conclusion is that the IBDP's original intent of having well-rounded students capable of doing college work is echoed by the students sampled.

Finding: Structural parts of the IBDP design had a positive impact. Based upon the students' comments, there are structural parts of the IBDP that appeared to have an impact on college preparation. Those given special attention in my interviews were: course final exams, Internal Assessments (IAs), and the Learner Profile.

Course final exams. The course final exams are done in May and can take up to four hours each. Once completed, the tests are sent to IBO-trained examiners, who are selected at random.

Consistent with the idea of having students learn the material and not memorize facts, DP #4 expounds on how the exams taken in the IBDP helped in college:

The testing was really actually having to know the material, not just memorization. I think it helped that you actually had to grasp the material. If you didn't know it fully you had to be able to connect bits and pieces from what you learned in order to write a coherent answer to the question that was posed on the test. That definitely helped with [college] because that's how they do it. They are not about multiple-choice and short-answer; it's more about grasping the material and being able to show that in the written assessments that we do.

The ability to pull pieces together and think beyond what was given was something that DP#7 would agree was an important result of the IBDP on college preparation:

In my history exam, we were given a small passage to explain a cartoon about Marxism. Even though I didn't know the background context of the cartoon I was seeing, I was able to answer the question because I could identify the artist and the character shown. I was thinking beyond what we were given, pulling pieces together from what I knew.

The exams given in the IBDP are similar to the college experience, as described by Non-DP#5, who said, "I would say some of the courses I took in college were pretty equal to the way the test was formatted and the expectations of the test in IB." Non-DP #6 felt the exams were not anything special but acknowledged that they were similar to college:

Exam wise, it felt like normal exams at King, even if you're not IB most of the exams have a nice mix of multiple-choice, short answer. I think the exam set up

itself isn't anything special. I feel like it was important at the time just to experience what it would be like to go into a room, take an exam and leave. Students acknowledged that the exams they were given in high school matched the experience of exam-taking in college.

While the exams were good preparation for college, the experience of taking them in high school could be stressful for the students. DP #10 viewed the experience of the exams and the stress that passing them causes as a negative:

I'd say the only negative thing about those exams would be that your coursework, no matter how long you did coursework in the IB program, could come down to if I pass this exam I get my diploma I fail it I don't get my diploma. It was a lot of stress around actually obtaining the diploma. I think that caused a lot of anxiety when it actually came down to taking the exams.

One student saw one exam as counting too much, while another viewed the time frame as not realistic. The tests were in the style of college but Non-DP#3 said the time frame was not realistic because it covered two years of information:

It's a lot of information in the time of two years. If you're taking the higher-level course they're expecting you to know things from the year before. It's not something you can really prepare for, and it's not realistic to say I can remember what I learned last year.

The challenge of pulling information from memory for the tests was not as much of an issue for the IAs, which covered more recent material, according to DP#7:

I think some of the tests we were given for IB, were really difficult. The tests we took senior year had things on them we had to pull back from junior year. I think the IAs were a little bit better because it was more recent knowledge. You were able to explain better, you didn't have to pull in so many things [from the past] that you thought you remembered.

One student, DP#5, said that studying for the exams together was empowering, and “It’s a fashionable trend! [emphasis added] We all go and study for IB! [emphasis added] ... I’ve never had that in college.” The exams may have been stressful, but the majority of students considered them good preparation for college, and they believed that they gave them the ability to connect material in crafting written responses.

The strength and weaknesses of the exams that students identified could also be applied to college exams. While some students appreciated being put through a college type of testing, others felt the stress was too much. The IAs, which cover less material, were appreciated by DP#7, and other students had similarly positive opinions about them, as this next section will reflect in greater detail.

Internal Assessments (IAs). The IAs are designed to give teachers a degree of control and flexibility, and are designed to be learning tasks that would be difficult to examine externally such as science lab experiments (IBO, 2010). Students are required to do them in each course, and the written tests have very specific guidelines that force students to write clearly and succinctly.

The students in the sample indicated that the IAs were stressful, but beneficial, “They say that when you’re in this program you’ll be irritated, but looking back on it

you'll be glad you did it. And yes, definitely, it was" (DP#4). Another student, DP # 9 felt just as strongly:

At the time I really hated them! [emphasis added] I would recommend them; they were really beneficial in preparing me...I didn't really know what to do, but in the end you really learn the time and organization it takes.

Similar to the statements about having to perform the other requirements in the program, these comments about the IAs reflect that, while they were difficult, students saw the long-term value of performing them.

The value of the IAs appeared to continue well beyond high school and assist in college, as DP#4 noted:

Especially the one I had to do for psychology, where I had to do the full APA format. That definitely prepared me for college.... there are some people that didn't know what APA is, or how to use it at all.

This feeling that the IAs were good preparation for college was echoed by both Non-DP#4 and Non-DP#6. Non-DP #4 said, "We were able to understand the material and apply it to different things. It was really cool to do that. I have definitely applied that mindset to my college papers and into my college classes as well." Non-DP#6 noted how an IA in one subject helped in another completely different subject when in college: In English IA we had to take a poem and talk about it. It was kind of like one of my Spanish exams freshman year [in college]; taking one of the topics we talked about in class and write about it.

The fact that students gave the IAs credit for being able to apply their knowledge to different things and subjects speaks to the growth of general skill development that they charted and that was useful for these students in college.

The IA's benefit to college courses included the skill of analysis, according to Non-DP#3:

I think IAs are meant to analyze specific things and go above and beyond to find what they do have in common, how are they related, how aren't they related. If they aren't related then why is it important... I think that's a good skill because then you're analyzing something you can compare it to other things that might not actually go together. That was something that we focused on in my philosophy classes at [college; edited].

Similar to the responses on the final exams, which showcased the skills that these exercises helped to develop, this student comment was able to reflect on how it was important to have the skill to find ways to connect disparate bits of information and how the IAs were structured to teach and foster this skill.

The IAs also helped Non-DP#5 in college because they taught how to apply knowledge:

It helped me to realize that I'm not just taking these classes or learning these things for no reason. We really have to apply it. I think that's what the IA showed... I have definitely applied that mindset to my college papers and into my college classes as well.

As has been previously mentioned, the value of authentic learning was realized in the students' opinions on the IAs. The ability to understand the material and apply it to different topics appears to be valuable in college studies.

The development of analysis and writing also showed up in the responses of Non-DP#6, who said, "I think [IAs] helped me condense information and get key points of a topic," and DP #4, who specifically credited the IA in the history course as being helpful:

...[IA] really helped with the critical thinking and analysis. Learning how to write to a specific prompt, how to formulate a question within the given time period.

Those internal assessments also had page limits or word counts, and being able to write within those specific confines and not just writing and writing, or writing too little.

The specificity of the IAs seemed to provide a way to develop critical thinking by asking students to condense information and select the most appropriate. However, this statement by DP#5 does indicate that there can be variability in an IA depending upon the teacher:

The way I remembered it, to score high or to score well on the internal assessment you basically follow the guidelines; this is what you do, or how do you do it, based on that teacher. That's how you score points. I remember I wrote a paper for history, and because I forgot to turn in the word 'could' I lost a grade point. It really depends on the teacher.

Because the IAs have specificity, and some students felt that these requirements were too arbitrary, it could indicate that the purpose of these strict guidelines needs to be explained to students prior to starting them.

The IAs were another way that the IBDP stressed application and synthesis of information. The students gave responses that showed a consensus that the IAs were valuable to their college preparation.

The Learner Profile. Embedded in the IBDP is the Learner Profile, a set of ten traits that all IB learners are to exemplify. They include being risk takers, caring, inquirers, knowledgeable, thinkers, communicators, principled, open-minded, balanced, and reflective (IBO, 2015). Teachers are supposed to weave the traits into their instruction rather teach them as stand-alone topics. Only a few students had recall of it, but those who did had positive comments. One of the behaviors in the Profile is to be reflective. DP#10's statement below starts out recalling how being reflective played a part in college, and later expounds on the value of risk-taking, another behavior in the Learner Profile:

In my college classes you have a different assignment, or an exam, or something you have to present. When you showcase something you worked on you get feedback from the TAs or the professors and you have to go home and take in everything that was said. You have to take in every piece of constructive criticism and reflect on that. You can think, how can I grow in this aspect? They said I did really well in this area, what areas do I need to work on? How can I better myself, how can I improve myself in those areas?

Here DP #10 goes into depth explaining another trait, risk-taker. This trait carried on into college in networking and speaking to professors:

A lot of my classmates in college are saying they are intimidated by a professor and don't want to go speak to them because they don't know what they'll say. Whereas, with my background, the professor may seem intimidating but you never know what information that professor may have to offer you or what you can benefit from, or what information you can get out of an advisor in a different college or different department. That risk-taking helped me branch out and helped me talk to people who maybe before I wouldn't have felt comfortable with.

The Learner Profile behavior was valuable and it became part of one student's life without even thinking about it:

I think all of the qualities that were part of it [Learner Profile] were qualities that helped you to maintain that balance in your life that we keep talking about. I think without even trying, you just become the IB Learner Profile by being part of the program [DP#9].

The last comment about the Learner Profile from DP#9, "you just become the Learner Profile," is exactly how the IBO would like students to view the Learner Profile. The Learner Profile is supposed to be intertwined in the instruction and not separated out for attention (IBO, 2015r).

However, one student, DP#4, didn't think the Learner Profile was very important to the IBDP experience:

...it was something in the syllabi for the course. It was there, and I would say some things from the profile were definitely picked up, but it wasn't something that was instrumental or really important.

While this particular student didn't value the Learner Profile, the fact that students could recall it, and recognize its worth is an endorsement for how it was applied during instruction and the way that its values permeated the IBDP.

In summary, students provided supporting comments to Theme 1 regarding their general preparation for college. The structural parts of the design of the IBDP played an important role in the students' favorable opinions on their college preparation. The rigorous coursework combined with the extra requirements of the Extended Essay and TOK built a balanced academic background. The Learner Profile, while not required, was woven into the instruction, and provided another positive aspect of high school that is unique to the IBDP.

Theme 2: Students Reported How Their Participation in the IBDP Helped Them Develop Academic Behaviors and Personal Skills that are Important in College

In general, the students reported that they developed skills that were used in college. They reported on the impact of the IBDP's writing emphasis, research, and problem solving. In identifying the components to college readiness, Conley (2008) found that academic skills are a factor; they include research, writing, and critical thinking. I asked students questions based on those conclusions.

During my analysis I found that students' opinions on their own personal skills could be grouped into categories like time-management, work ethic, group work, presentation skills, global perspective, and problem solving. Because of the amount of

responses by students who felt that the IBDP built their confidence, I also identified confidence as one of the personal skills group. The preparation in high school that they received in these skills through the IBDP is followed by findings related to their college experience in these skills.

Finding: In general, students felt prepared for college research. The students' data in this finding were generated from questions asked of the students about their college experiences differed from their high school preparation. As stated earlier by students in the writing portions of this section, they were prepared for writing in college, and much of the writing they did involved research. Learning how to cite resources in high school paid a dividend to Non-DP#3,

“Professors don’t tell you should cite a quote. Some students don’t know you really have to cite everything. I think that helped a lot in terms of research.” The same student related how they knew some IBDP graduates that were in a graduate school preparation program and they said the papers for the classes were very similar to writing the high school Extended Essay.

In response to the question, “Were you prepared for research in college?” most of the students said that they were. They had positive feedback from college professors, as was noted by DP#3, “I had to write a couple of research and analysis papers for my math courses. And again, the lowest grade I got on those was a 99.”

The student statements also replicated the findings of Aulls et al. (2013) who found that students did not experience a great deal of research in college. The college research experience of Non-DP#3 was not difficult, “In terms of research I actually

haven't had to do any papers that involve heavy research. I did a couple but it wasn't as extensive as any of my IB-level papers." When asked about research papers in college Non-DP#6 credited her background for being able to handle any college writing assignment, stating, "I think it's a great step to have [IB]; it's the first time you have to write a 15-page paper, now you can write anything."

College research can be different from high school depending on a student's major, and for Non-DP#4 it involved research across disciplines:

My major is music and a lot of the research I have to do is researching pieces [of music] and seeing how they are related to history. We've had to do a lot of book research and find related topics. The last paper we had to do was find a song from post-WWI, and find how it was related to its time period. We had to do a lot of historical research, and that's been the extent of my research [in college] so far. College research differs in other ways, as noted by DP#4 with the use of more databases in college, "College stepped it up a bit, how to use databases more effectively. Some of the courses teach you more a sophisticated way of doing research and digging deep."

Even though college research differed in some ways from research done in high school, the students in this sample felt prepared and often stated that they experienced more research in high school than in college. One could say they felt over-prepared.

Finding: Research skills attained in IBDP participation helped prepare students for college. When asked which high schools courses made an impact on their college research ability, the most cited component was the Extended Essay. The design of the Extended Essay is similar to that of a college research paper so it comes as no

surprise that it benefited students. However, the IBDP also caused students to do research beyond this single, intensive assignment. The background helped students to feel confident when doing college research. This response by DP#3 shows how their high school experience with the IBDP built research skills and appreciation for research:

My extended essay... so I looked at those variables and a few others. I did interviews with the supermarket managers. I did a lot of census research, phone records. I also looked at the spatial distribution of convenience stores. So I did a lot of research on that; records, city records, things like that. That experience really opened my mind not only to the different skills and methods of research, but opened my mind to the impact and importance of research—public policy work or any kind of academic work.

Similarly, even though DP#4 was not enthusiastic about the choice of topic that they made for the Extended Essay, the overall impression this student had was that the IB program gave “a good backbone” for research:

The topic I chose was my fault. The topic I looked into for my extended essay didn't have a lot of information that I was finding. So maybe a lot of what I said was kind of redundant. It was good information that I found, but I don't think it was enough for that level of a paper. I think in college I had a good foundation from high school.

Preparing for college research while in high school and developing an appreciation for academic research are two important skills from the Extended Essay that were identified by students.

After the Extended Essay, the course where the research component of the IBDP was mentioned the most was IB History of the Americas, a comprehensive history course about North, South and Central America. DP #9 explains how it helped with research in finding a subject, providing evidence, and having a thesis:

If anything I think the IB Americas course and Global [Issues class]. I think both of those two prepared me for research because there was so much “why” and having to really find evidence for your arguments, and to a great extent we had to practice those kind of questions in preparation for the IB exam. I think that really taught me how to research.

The practice of asking “why” questions and seeking sound evidence were two important research techniques encouraged by the IBDP.

The ability to find sources in history and select those that are valid is a research skill taught in this course that is reflected in this quote from Non-DP#1, “It taught me how to find information that I needed ... knowing what a valid resources is versus something that could be fabricated. I got things quicker, rather than just randomly Googling.” How to find valid sources and how develop a thesis from research are some valuable skills that students attributed to the IBDP. However some students wanted even more. Having better preparation in research would have made a difference for DP#4:

The one thing that maybe wasn't so good with the IB is that maybe we hadn't done anything quite that extensive [research]. I know myself and other people wondered, ok, how do you approach this? How do you find an appropriate topic that could actually get approved? Maybe build into some of the courses a

workshop or practice on building up to something big like [a research paper proposal].

Although there was not a unanimous opinion in favor of the research done in the IBDP, the consensus was that there was a broad base of research that was used in different subjects throughout the IBDP.

Finding: Writing assignments in the IBDP prepared students for college writing. The research on college preparation by Conley (2008) and Arum and Roksa (2011) identified that a key skill for college preparation is the ability to write.

Interestingly, there were IBDP students in both the full diploma and the non-diploma groups that referenced how writing in high school mathematics helped them prepare for college. Developing writing skills is a process, and the students gave indications that they were aware of this. Their comments gave support to the value of having not only a culture of supporting writing, but also intentional writing instruction throughout the IBDP.

A culture of writing. There is a culture of teaching writing at Rufus King International that starts early on, according to Non-DP#3: “That first writing class [in high school] helped me how to learn to write, if I’m writing a psychology paper, or a science paper. It’s always guided me in other subjects.” Other students credited the school for developing writing, including Non-DP#1, who said, “King had a really good writing program. From freshman year, from full IB, really forced us to write in different ways like creative writing and different genres. It really helped me out how to write.”

The high school teachers were the subjects of praise for their instruction in the structure of writing assignments. When interviewed, the students were able to respond to questions about using specific skills for writing. An example of this comes from Non-DP#1:

I knew language, and I knew what was expected of me. I knew how a paper should be structured and written. I wrote a lot throughout high school and that really prepared me for college, and how to structure papers.

The ability to use structure and put it into practice was also captured by this comment from DP#2, “In terms of writing, forming a thesis. How to analyze 4 of 5 different texts and use them to create a coherent argument.” The IBDP was a benefit in making DP#1’s writing more complete, as they put it, “I’m always pushing in the direction of discovering and reflecting, not telling a story in just one line.”

Students credited the IBDP for teaching them how to use original work and avoid plagiarism; moreover, they even seemed excited about writing. The excitement in the student responses when reflecting on their writing was not something I expected going into the interviews, and could indicate that the high school did have a culture of promoting quality written work.

Writing across the curriculum. The emphasis on writing in the IBDP appeared to go beyond the traditional high school courses associated with writing, such as English and history, and into even more courses. This comment from DP#2 captures that idea and again mentions structure:

With all the internal assessments in every single class, writing is a big part, even math and the natural sciences. I knew how to format an essay, to ensure that what I was writing was clear and interesting, and researched well.

One student said all the courses taught writing and that the English courses and teachers at King were phenomenal (DP#9). The type of writing that was taught was important too, as DP#3 observed:

My English class helped for interpreting a piece of writing, have you think deeper than just the words you're reading. You connected to different pieces of work. In IB they want you to connect that back to different experiences based off the writer's background.

Writing in mathematics class had a similarly long-lasting effect, "If I hadn't gone through the IB program I wouldn't have had a clue where to start on writing a math paper" (Non-DP#4). DP #3 also noted the role of writing in math class, stating, "My math class, oddly enough. We had to write a ton of different math cases...on topics you wouldn't think you'd write a paper on." Students did say that in college they had written papers in mathematics classes, so this was strong preparation that they received that their peers who did not participate in the IBDP did not experience in high school.

The history classes of the IBDP and the teachers received several comments that were positive as to how they developed writing and learned to use sources, according to DP #7:

Because we also looked at primary sources, or secondary sources, where sources come from, and the author's background. I was really good at analyzing

literature, but in history it was different. In elementary and middle school we didn't really read much non-fiction, things like news and history.

Finding sources and analyzing non-fiction texts were skills that the IBDP history classes developed. The history teacher's emphasis on writing skills had an impact on DP#1:

...it was one word that my teacher said to us that really struck me, and it kind of shaped how I write, from then on. It was 'you've really got to synthesize what you're saying'. Because, you can talk about all these little points and go infinitely with that, but it isn't until you synthesize it and you connect the ideas fluidly that your paper can be fluid, it's all connected and all surrounding your main idea.

This statement and others were examples of how students saw teachers in subjects other than English provide writing instruction.

Science courses traditionally have written lab reports even in high school, but in the IBDP Biology 1 & 2 they were longer and helped with college science reports:

So when I came here [college], not many of my classes required lab reports, but the ones that did, it wasn't really a stressful situation for me. I was used to writing lengthy lab reports, and knowing the structure of them and how they should go. (DP#9)

Lab reports in the IBDP helped DP#7 on the job: "Going into the sciences I had to write a research paper for the lab that I'm working at, and that has helped me with looking at different resources, other than fiction." Real-world application of academic skills reinforced the value of their high school program to the students.

The ability to perform different types of writing in high school had an extended value in college and employment. Teachers were mentioned often with students giving specific examples and names of teachers who made a difference in their writing ability. It appeared from the student responses that the emphasis on writing in the IBDP had a direct benefit in college. The preparation students received in writing appears to be more than adequate for college writing assignments, whether the preparation came from an English or Science class.

IBDP components and writing. Students credited components of the IBDP such as the Extended Essay and TOK for helping them to develop their writing skills. The Extended Essay appeared to help Non-DP#6 with writing, possibly due to the teacher: “I had really good teachers [in high school] and my extended essay advisor was also my English teacher, so I think that helped out a lot as far as developing my writing abilities.” Being prepared with the Extended Essay in high school paid off in college for Non-DP#4, who stated that the preparation from this essay resonated in all of their college writing:

We had to do your Extended Essay which was 20 pages and that’s still the longest paper I’ve written so far. There was a lot of research and preparation, and the preparation I’ve held onto and it’s helped me. I don’t think I’ve ever gotten any lower than a B on any paper I’ve written [in college] because King has prepared me so well.

The grades this student received are a good endorsement for the writing preparation given in high school. The comment “...the preparation I’ve held onto and it’s helped me” from Non-DP#4 is an example of how the students retained what they learned in high school.

The writing preparation given and reinforced in high school had a lasting effect on students as they approached writing assignments in college. The preparation extended beyond just the usual English classes. The other requirements in the IBDP like TOK also played a role in writing.

TOK has been primarily mentioned in this study in the context of how students believed that it builds critical thinking. However, its influence extended into writing. DP#1 gave a specific example of how TOK used writing:

In my knowledge [TOK] class we were supposed to write a paper on to what extent is creative or critical thinking more important. I found it so fascinating because that was an internal conflict for me. I think my writing career in high school needed a teacher to help me; it was a time to discover that writing is more than putting thoughts on a paper; it's about presenting an idea.

The response by DP#1 reinforces what has been said in different ways about the importance of teacher support.

Finding: Writing instruction in the IBDP was so intense that some students did not find college writing very demanding. As mentioned during the review of the literature, writing is a key academic skill that college professors are seeking in their students (Arum & Roksa, 2011). The students in my study had comments that support the professors' desire for this skill, but some of them commented that college writing was easy and that they had not experienced the demand for lengthy papers in college.

The structure and formatting of writing were skills put to use in college. Non-DP#4 felt prepared, stating, "It's been good, my writing is clear and my ideas are well

developed, like semantics. Formatting is usually the only thing that's different no matter where you go, but that's a very small player." The structure of the IB DP helped Non-DP#1 and professors complimented their writing, "I knew how papers should be structured. I knew language, and I knew what was expected of me. It wasn't like starting from scratch. Whatever I turned in worked well, professors complimented my writing skills."

The ease of college writing in English courses was directly related to preparation in IB for Non-DP #5:

College writing is easy! [emphasis added] When I first went to my college writing course we talked about different things that we'd talked about in my IB writing class. We had to write a lot of papers, obvious. It was really easy for me to write those papers because some of the topics we discussed in my IB English 2 class senior year, or some of the different vocabulary, like symbolism and allusion, we talked about all that. It was easier for me to pick those out from the literature we read and incorporate them into my writing.

DP#10 also said that writing was easy, and there were not many long papers in college, stating, "I haven't had too many of those lately, because most of my classes are more math and science based, but for the classes I did have to write for I would say it was pretty easy." Other students shared that college papers were not long, and that there was not a demand to do written reports. For example, Non-DP#3 stated, "I just haven't had to write a big paper. I had philosophy classes where we do write a paper," and another student shared that in three separate college psychology classes all that was required were

three short papers. Another student noted that there weren't many large papers in their college experience, "My college writing assignments are going pretty well. I haven't had any really large papers" (DP#7).

While it might not have required long papers, college writing was intensive, and students felt prepared for it since the IB DP requires in-depth writing. DP#2 had a good experience in college because of the writing process developed in high school:

It's writing intensive and we read a lot of classics, political, philosophical text.

So, being part of that my freshman year was terrific because specifically it was a ton of writing and the IB program is very writing intensive.

The background in writing was useful for Non-DP#6 not only in their major but also in other classes:

It comes in handy in Psychology, my major, as far as writing psychology and Spanish. As far as writing in English it helped because writing [in high school] a 15-page paper seemed like this big milestone of page after page and now [in college] it's a habit with my major, so I don't have to worry about it too much.

Not having to worry about writing a fifteen-page paper can make the adjustment to college that much easier.

The high school use of non-fiction resources also helped DP#7 in writing a college research paper:

Going into the sciences I had to write a research paper for the lab that I'm working at and that has helped me with looking at different resources, other than fiction. History [IB DP] has helped with that, because we also looked at primary

sources, or secondary sources, where sources come from, and the author's background.

The writing in college did not seem to be a great challenge for the IBDP students. They were ready for intensive writing, and the feedback from college professors about their writing was very positive.

Similarly, longer papers didn't bother DP#9 like they did students who were not IBDP prepared:

In terms of writing papers and things like that, a lot of people in my classes were getting worked up because we had to write maybe a 3-page paper or something like that. For me, I'm not really worried about that. I could do that in one night if I had to. That's the way IB prepared me. We were writing really lengthy papers often, so it wasn't a huge deal when I came here to college. A professor would assign that with a shorter deadline than I was used to, but I was prepared for that.

The lack of stress about a college writing assignment that fellow students were nervous about gave the IBDP students confidence in college. DP#1 felt that their background in writing assisted in staying calm when assignments were given:

When I saw my peers in college freak out over writing a paper in a night, and not taking the time to get all your ideas out on a piece of paper. It's falling into place, once you have that one idea, even with everything else going on, it was just so much easier for me.

The importance of having organization and structure in writing is supported by this student's comments and the other comments about writing in college being easier seems

to have come from being required to write longer longer assignments in a wide range of classes. The next finding shows that students believed that having a broad background and careful preparation were beneficial in a different academic skill, critical thinking.

Finding: Students developed critical thinking skills in IBDP courses. As discussed in Chapter III, college professors identified critical thinking as the number one skill they wished that incoming students would have (Arum & Roksa, 2011). The Partnership for 21st Century Skills, a non-profit organization made up of business leaders, identifies critical thinking as one of the four skills needed for 21st Century success (P21, 2015). The comments about critical thinking from the students included subjects or parts of the IBDP that helped them in grow in critical thinking. Students specifically credited their TOK, history, science, and English classes. In addition they gave examples of how they applied critical thinking in everyday situations, and how critical thinking included analysis.

Critical thinking in TOK. The primary IBDP component focused on critical thinking is the Theory of Knowledge (TOK) course. It changed the way students looked at material, as evidenced in this quote by DP#9:

Even if you thought you knew the answer to a question, the teachers always pushed us to think: well maybe there's a different way to answer this. I think that was really, really helpful in critical thinking. It changes the way I look at a lot of things. Rather than just assuming I have the answer already, it taught me to think and look at in a different perspective because there may be different ways of looking at it.

TOK teachers stressed that students needed to look at different ways to answer questions in order to understand them, and that approach formed a basis for their instruction for developing critical thinking at the high school level.

Critical thinking in history class. As mentioned earlier in the findings on the TOK, participants in this study endorsed TOK, but it was not the only high school class that impacted their critical thinking skills. This comment from DP #5 gives an example of how students felt:

The information you got from history, or the way you analyze from English, the stuff you learn from TOK all help. IB in general helps because it allows you to be more well prepared, or more confident, knowing how to say it - how to present and idea, how to sway others.

Being well prepared and confident from information gathered in several courses is a strong endorsement by the students and one that seems to recognize the overall impact of the Diploma Program.

DP #3 gives another example of the overall value of the IBDP in developing critical thinking skills like analysis:

Because in those courses [IBDP history] you were required to analyze works that usually you just accepted. For instance, the ability to analyze a passage from a book without having to be told how to break down the text.

Student-led inquiry is a goal of instruction, and this quote from DP#3 provides a good example of how the IBDP employed the skill.

History class created the opportunity to “think” in a variety of ways such as looking beyond the events to use critical thinking to look at an event in history, as described by DP#1:

Before IB I'd think, ok, this war happened, and then the next thing, a repeating cycle and it was kind of boring. In a textbook it tells you it happened because of x, y, and z. But in the IB program you have to think: why do those events tie into causing that war. In IB they had you make a lot of connections. You had to think beyond what you read about in order to make those connections. They don't want you to just get the same answers or responses you'd get from a textbook. It's not a regurgitation of information.

The statement, “It’s not a regurgitation of information,” is almost a verbatim quote of A.D.C. Peterson, the person recognized as being the founder of the IBDP. It is one of the best examples of how the philosophy of the IBDP becomes ingrained into the students. The concept of thinking deeper and being able to write out lengthy answers to problems helped form a college preparatory culture.

The deeper analysis that was done in IB Americas and IB World History is also found in this statement by Non-DP#4:

I definitely think that when it came to history there was a lot of critical thinking because history doesn't change, but you look at the reasons for war, the reasons for bombing other countries. We had to look at what they were thinking when they thinking, and kind of read between what a book says and put yourself in their shoes.

The idea of putting yourself in one's shoes is another way of saying that students will develop "international-mindedness," which is another basic concept embedded in the IBDP.

Critical thinking in science class. History classes stressed critical thinking, but so did science classes— just in a different way. DP#4 explained the difference, defining critical thinking in this context as:

...just being able to really look at what you're doing, and why! [emphasis added] you're doing it. I'm not really a scientific thinker, so critical thinking is there, you just really have to think 'what did I find in the experiment, what does this mean?' Then applying it to real-world situations. That's where we really had to think outside the box. If you were to be in this field, how would you apply it?

The ability to apply learning and use it in a real context is emphasized by AIW and other educational programs, and to have a student state it so clearly could indicate the long-term effects of the IBDP. Another specific example of this authentic learning idea came from DP#3 who said that in college Organic Chemistry it meant, "being able to imagine the full range of possibilities of how a molecule will move in space."

There were science courses in high school that students didn't take in college but the analytical thinking skills stuck with them. DP#7 described it like so:

Even though I don't have to take any classes like that in college, being more aware of broader applications of what I'm learning, rather than just the obvious answer. Those two courses [science]... that I had to take, definitely prepared me for critical thinking. It was a little bit different way that we went about doing it.

The comments on critical thinking in science throughout these interviews were directed to analysis and application to real world situations. These comments showed an awareness by the students about how and why they learned, not just what they learned.

Critical thinking in English class. English class in high school provided a different view on how critical thinking is used. Students read a variety of authors and used them for comparison, as described by DP#7, “It taught me about the danger of a single story, which should really be emphasized when we are researching about anything. You should not just see in one perspective.” Non-DP #2 described in greater detail how that process occurred and how it leads into analytical thinking:

We read books and then would basically have to take them apart. We would look at them closely, what every quote means. I think that was the start of it, and it was just taking a simple thing and looking into the deeper meaning, and then figuring out a big idea from that meaning. I think that is where my analytical thinking stems from.

Using critical and analytic thinking to find meaning and seeking multiple perspectives from authors were important lessons that the students I interviewed took from their English classes.

Critical thinking in everyday situations. As mentioned earlier in the findings about science class, the critical thinking in IBDP provided opportunities for independent thinking, according to DP#7:

Overall IB has taught a lot about critical thinking, about what you’re hearing and learning. To critically think about things you hear and see everyday. I think IB

has taught me how to independently and critically think about things that a teacher doesn't tell us straight [forwardly]. Teachers can tell you where to look, but they shouldn't tell you what you should see. Definitely IB has taught me that. During my analysis of the student comments there were comments that struck me as worthy of being repeated for emphasis, and I think the sentence, "Teachers can tell you where to look, but they shouldn't tell you what you should see," is definitely one of those that bears repeating. This ability to think independently assisted students when facing choices on using information.

One aspect of critical thinking includes having a filter to sift through and sort information, and DP#1 felt that the teachers in the IBDP reinforced that definition:

I think it's essential what my teachers preached to us during IB ... was a huge filter that was installed in me. All the things I'd come in contact with, inside and outside the classroom, whether it was reading the paper, or watching the news, or listening to professors. You have to question the credibility of everything. I think teaching that, exploring other perspectives.

Once again, students repeated the idea of looking at issues from other perspectives and questioning facts before accepting. The following quote from DP#2 about the is an example of that critical judgment in action:

Yeah... specifically analyzing sources and always critiquing. Taking each source or document with a grain of salt, and understand the context that the author was a part of, and the bias that each author has.

The idea of checking sources is something that is used in the IBDP format. DP#2's response to how they used critical thinking included a description of that format, "We used to call it OPVL, I'm not sure if you guys call it the same thing. Origin, Purpose, Value, and Location of each source. That was helpful ... just keep in mind the context of the author."

DP#2 explained that things aren't black and white and, "Everything is a shade of grey-- that's cliché ... it can be very aggravating because there aren't really very many truths out there. I think the best part is just keeping in mind the bias that authors or speakers have." The recognition of bias and the lack of absolute truths shows a depth of thinking and reflection that the IBDP is intended to develop.

The ability to analyze was ingrained into high school instruction, and was a feature of the IBDP that led DP#1 to say that it was a "little more creative than critical," and that this education happened with instruction:

Because they were just yanking the analysis out of you, going through all the text and ideas you were learning from. Obviously I'm not done with college yet, but I think it was that it was a little more creative, more on the creative side than critical. You just get your brain going.

Getting the brain going is one way the students emphasized how they were engaged in their learning. It is an excellent description of the students' overall comments in this section.

Critical thinking included analysis. In Chapter II I gave the history of the IBDP, which included a great deal about teaching students to learn how to think and how to use

knowledge rather than just repeating facts (Peterson, 1974, 1983). Comments from the participants appear to support these ideas, such as this statement by DP #1:

I think it takes people their whole lives to develop that ‘muscle in their heads’, whatever it is that essential function. It was, for me, finding that focused mindset, and sharpening it throughout high school for the best possible outcome.

DP#10 shares more details on how a mathematics course facilitated discovery:

They'd give you a problem and you had to go research data and you'd have to come up with formulas and back up answers that you came up with. That helped out with problem solving. The questions that they gave you didn't really have prior background or experience, so you had to go out and do research. It forced you to find different ways and different avenues to getting information, besides just typing the question in on Google.

A challenge for teachers at any level is to have students do original research and to seek out new sources of information. The mathematics course, due to its research component, caused students to stretch their ability to find information and provided useful preparation for critical thinking in college.

Another perceived advantage in developing critical thinking came from TOK. The TOK appeared to give students better preparation for difficult college classes as shared by Non-DP #4:

When tough classes got very tough [TOK] really helped me to break down how I would be able to learn, be able to break things down into categories. Oh yeah!

[emphasis added]. There are some topics that go over people's heads in the [college] courses I take but it's simple to me.

The design of the IBDP is based upon developing thinkers and problem solvers. Problem solving overlapped with the analysis skills students said they developed in their courses.

In summary, the students gave a large amount of evidence as to how the IBDP helped them with critical thinking. This preparation was vital since students found that in college critical thinking was expected and used.

Finding: Critical thinking skills were useful in college. The prior information from students about the critical thinking preparation they had in high school showed that in their opinion the IBDP did provide instruction in critical thinking. The Arum and Roksa study from 2011 that has been referenced several times in my research study showed that college professors expected students to come into their classes already prepared with critical thinking skills. I explored this in my questions and the students gave responses that this is in deed happening. This expectation by college professors was embedded in the comments of Non-DP#3:

When you get into college you're not a baby, if you know it [critical thinking], great, if you don't then you're going to have to learn. I haven't had a professor who tells you how to synthesize or analyze. They are expecting you to already know this. I think that a lot expect that in high school this is what you should be learning, but it actuality it depends on the students, the teachers.

Other students also supported the idea that in college students are expected to use critical thinking.

Non-DP#4 gave this response when asked if the expectation for critical thinking in college is implicit or explicit, “It’s explicit. They want us to understand topics that are very complex and quickly, as well.” The importance of finding deeper meaning and supporting your answers was also something that was clear to Non-DP#5:

...they don’t want you to state the obvious. They want you to think of a deeper meaning and not think or say what everyone else wants you to think or say. They want you to gain your own idea about a specific concept.

The students’ statements confirmed Arum & Roksa’s conclusion that professors have expectations that incoming students are prepared with critical thinking skills, and that the students were aware of it, and used their skills in college. The use of critical thinking in college is encompassed in this statement by Non-DP#3, “However, even in a regular class setting you definitely brought a lot of the IB critical thinking into the college room.”

There were several college classes such as science and engineering where students recalled using critical thinking. In regard to science, DP #9 noted, “ it helps you learn as well because it keeps you inquisitive and wanting to find out why, and find out more answers.” The use of independent and critical thinking taught by the IBDP also helped DP#7 in solving problems in college engineering:

For my (edited) course I had a lab where I had to build a reactor. We were kind of told what materials we’d be given and how we were going to build it, but they didn’t tell us exactly how we were going to do it, so we had to think outside the box.

Solving problems in college can take different forms, and the critical thinking required is applied to different topics. DP#5 was able to relate critical thinking to the study of architecture:

Critical thinking applies to studio stuff, more toward the academic side of architecture: history of architecture, or materials, or theory. You apply a lot of critical thinking. It helps seeing architecture theory in a much different way. Architecture isn't something where someone can tell you this is good or this is bad. We have to analyze and think through why this is good or is bad, or why it could be good or bad for that reason.

The insight expressed by DP#5 shows a background in critical thinking by mentioning how it involves analysis and support for decisions.

There have been many student comments about confidence, but DP#5 gave a statement that shows how critical thinking and perspective can be an advantage:

You see things differently; you better represent yourself in front of professors. I think in that way I feel well prepared. IB in general helps because it allows you to be more well prepared, or more confident, knowing how to say it - how to present an idea, how to sway others.

The ability to see things differently appeared to give students confidence in their ability to apply their knowledge for authentic purposes.

The preparation students received in high school gave them the ability to apply their critical thinking skills to new situations. The students confirmed there was a

definite need to use critical thinking in college courses. The importance of using critical thinking in college was evident to DP #1:

I think the ability to think critically is unbelievably crucial in college. In college I think you learn to filter it and get other perspectives going, but to limit it, and find limitations. I think critical thinking is required in college way more than it is in high school.

This comment about finding limitations show an awareness of the type of thinking that is needed in college versus high school.

Not all the students had the opinion that college expected critical thinking. There were three students who said that high school expected more critical thinking than college especially at entry-level courses. These entry-level college courses had a greater focus on content. Non-DP#1's response is indicative of those given by the students:

Most of my beginning courses, like biology, had a lot of memorizing slides for tests. More of my higher level classes, especially organic chemistry. I really had to critically think. It wasn't just checking off boxes, I really had to think.

Content-focused courses can dominate the first years in college and it may not be until later on in their college career that these students have to use their critical thinking, but their early training continued to pay off for them.

The ability to recognize how critical thinking was taught in high school and then used in college indicates how astute the students were in their knowledge of critical thinking.

Finding: Personal skills and behaviors built during high school were useful in college. The personal skills that help individuals perform well in academic settings, whether those settings were high school or college, were topics during the interviews. I was not expecting to hear it mentioned so often, but according to the students, confidence was one of the strongest contributions that the IBDP gave students entering college. In addition to confidence, the students cited time management, work ethic, cooperation, and a global perspective as benefits from the IBDP.

Confidence. During the interviews, students stated that they felt confident going into college because of the IBDP preparation. They were not intimidated entering a college classroom. One student mentioned the importance of confidence for first-generation college students. The research on first-generation college students has shown that in addition to academic skills, these students need confidence in order to manage the college “context,” in other words, to navigate the system (Byrd & McDonald, 2000).

The feeling of confidence pervaded even the Non-DP students, a group that could be viewed as lacking in confidence since they did not complete the full diploma. This comment from Non-DP#1 points out the value of gaining confidence by taking college courses in high school:

Confidence plays a big role with me, especially in academics. When I don't feel confident in something it's not going to go well. The preparation, getting the information before the exam, it's not just learning it; it's getting my self confidence to take the exam, to study enough to know I can walk into the exam

confident... I've taken my two years of IB chemistry, pretty much all the general chemistry most undergraduates take, so I've seen it before.

The students' experience of sitting in college classes and already being knowledgeable about these topics was an obvious boost for them whether or not they earned the diploma—the important thing was that they felt they had taken the right courses in high school.

Time management. Another important personal skill that can help with success in any venture, especially college, is time management. According to the student sample, the IBDP structure built time management skills that were useful in college. The demands of the IBDP courses caused DP#3 to build study habits and time management:

So I figured out during those two years that I study best in my room, a calm environment, without music. I found that my work goes a lot better if I do the thing I'm most worried about first, or the most difficult thing. I learned how to schedule time for working on each course every night, which really helped me in college because it allowed me to create a schedule before midterms or final exams.

From student comments, the IBDP by its structured requirements helped students create their own time management plans. They developed calendars, “I have a huge calendar for the entire semester” (DP#7). They developed systems, “I think the system kind of falls into place. All the things you've been preached to fall into place, you learn to make a schedule” (DP#1). They developed structure, “I would say time management and focus,

because even if you have an incredible amount of academic aptitude, you need to be able to apply it” (DP #3).

The importance of time management in college and having an intimate knowledge of what study system works were two conclusions from the student responses. DP#3’s statement about applying academic aptitude gives even more support for developing time management skills.

Work ethic. Having experienced the IBDP, students built a work ethic and a willingness to accept the workload of college. Students stated that the IBDP prepared them for the workload in college and that the program taught them about a work ethic. Non-DP#1 said that it was a benefit, “I think what the IB program did teach me was about is work ethic. Being full IB was really tough; I had to study a lot. At least I had that work ethic going into college.” The IBDP workload prepared students for the workload in college, and made the transition easier according to Non-DP#6:

A lot of my friends weren’t used to the workload and everything. They had a problem with the workload. I think that’s what IB prepares you for. They didn’t understand time management that well. The free time was a little bit of an adjustment for me at first, but I was able to adapt quicker than a lot of my friends.

The workload wasn’t any different than what we were doing in high school. Being used to a rigorous curriculum and heavy workload in high school allowed Non-DP#2 to have some stability compared to other students. As they put it, “I know people who have switched majors because they weren’t prepared for the workload, whereas for me it was a little bit of a jump but it’s something I could do because I was so used to it.”

The workload was one reason that one student told me that while in high school they studied approximately six hours a night, longer on weekends, and that led to only 3 to 4 hours of sleep. This lack of sleep and the related stress associated with it with IBDP students has been a topic of research. In a comparison study of 176 regular students and 122 IBDP students using questionnaires and scale measures, the IBDP students had better grades, a better perception of the school climate, and intact emotional wellbeing despite the stress (Shaunessy et al., 2006).

The workload from college courses and the type of assignments given can cause stress for students as they adapt to college. Having experienced similar academic challenges in high school appeared to give the IBDP students some skills to deal with this situation.

Cooperation. The ability to work with others also came through from the student responses and deserves mention. Cooperation was developed during the IBDP program through group activities. While it was not something that I intended to investigate as part of college preparation, cooperation was a sub-theme that I discovered during the coding. Cooperation is another one of the four C's identified as a skill for the future by P21 (P21, 2015). In the opinion of Non-DP#5 the ability to connect with other people in groups was built into the IBDP through group assignments:

I've done group work in college and I think with IB, because we had group assignments, it helped you to think about other people and really connect with other people in their thinking, and it opens you up to hearing different people's ideas.

Having been prepared by the IBDP for group work also helped Non-DP#4 in college:

Yeah, with group work the case is usually that my group members aren't as tuned in to what's going on. What's been happening in all of my group work is that I've been leading. That's no problem for me because we had to do it so much [in high school]. It's more preparing me for being a leader, more than working in a group.

Non-DP #3 similarly felt that the IBDP, “teaches you how to work well in groups that you might not choose all the time.” Working with other people even though you might not know them and listening to other people's ideas was a skill developed from the IBDP that some students found useful in college.

Global awareness. In their group students found it valuable to listen to another's perspective. Looking at issues from that perspective includes have global awareness. The originators of the IBDP called this international mindedness (Peterson, 1974). Being aware of international issues came up during the interview with Non-DP#5:

I think the international IB, the all-over-the-world thing is kind of cool and it helped me be more aware internationally. I think that influenced me going to Spain and traveling, and wanting to do that after graduation.

During a discussion after this comment, the same student and I agreed that it was more than global awareness, and that a more accurate title would be “global academic awareness” (Non-DP#5).

The student comments throughout Theme 2 provided data that supported how the IBDP prepared students in high school to meet the academic and personal skills identified

in research that have a positive impact on college. The next theme addresses the impact of teachers in the students' preparation.

Theme 3: The Role of Teachers in Implementing the IBDP at Rufus King International High School

The students mentioned a variety of teacher and subjects as being important factors in their college preparation. While not a research topic for this study, the interviews provided additional insights into Allensworth's supposition that student performance is improved not just through a rigorous curriculum but also through motivation and improved instruction (Allensworth et al., 2007).

Finding: Students repeatedly referenced their teachers as being instrumental in their preparation. This conclusion arose from responses given from questions about particular courses that helped them get ready for college. There were times that it was hard for the students to separate the course from the teacher, so my interviews featured an unexpected number of comments about their teachers. A quote from student Non-DP #4 highlights this issue:

The teachers prepared us for college. Instead of basic assignments we were reading articles about what was going on in the world, in Spain or Latin American no matter what.... The teachers were really great! [emphasis added]

Thus, it seems important to talk about how students perceived their teachers in addition to how they perceived their courses.

Many students gave a strong endorsement to their teachers. One student described their style as, "They made you excited to think deeper about things" (DP#10). Another student felt that their teachers used an individual-focused style, "...the teachers definitely

showed their dedication to students in a sense of what they offered them, how they helped me personally with helping me figure out what I wanted to do” (Non-DP#6). Individual teachers were singled out and given credit like this comment, “She’s probably the hardest teacher [English] I’ve ever had. She prepared us very, very well for writing later in high school and into the future” (DP#4). DP #1 mentioned another teacher’s writing preparation:

Yeah! [emphasis added] He really put it all out, he tore about our papers!
 [emphasis added] That skill of really thinking about what you are presenting in your paper, it's both acquired in our lives, and it's part of your writing career, it's crucial.

The enthusiasm shown by the students for their teachers was an indicator that they owed much of their success in high school and thereafter to their teachers. The intensive training given to teachers in order to teach in an IBDP school is an important factor to consider for future study.

The praise for teachers extended from history to music to TOK and the comments repeatedly stressed how the teachers made them think differently, think about different ways to approach a topic, and use materials that were similar to those used in college courses.

Theme 4: Organizational Support for the IBDP at Rufus King International High School

The organizational support for the IBDP from the district and the school was an additional theme that evolved from the statements of the students. The passion of the

students who mentioned the culture and value of the IBDP was significant. The support by the system did not go unnoticed by Non-DP#1:

Sometimes they [inner city students] don't feel confident, they don't feel they belong there [college]. If you show them a program like IB, where you give them college level work in high school, you show them it is possible.

The confidence in the students and the challenging curriculum of the IBDP helped build a culture of pride in the school, and strong feeling that IBDP is vital part of that culture.

Finding: The culture of Rufus King International High School was enhanced by having the IBDP, and the students believed that the school would not be the same without the IBDP. During the course of the interviews, the culture of the IBDP appeared to take on a force of its own, and student comments reflected pride in the school and pride in the fact that they did the IBDP. The pride was so strong that students said they could not imagine school without the IBDP. They believed it would just be like any other school in the city.

The culture was raised to a higher academic level because of the IBDP according to one student, DP#10:

I feel like being an IB school puts us at a whole different standard. It's a different work ethic than it is at a non-IB high school. I think we work at a higher level.

The curriculum at IB is just so different, and the way we are taught to think about things, and the workload is so intensive, the assignments like the internal assessments, and preparing for the IB exams is a lot different than just preparing for regular high school exams.

Students believed that the IBDP culture made the school different. It was described by DP #7 in this way, “I think it made King stand out a lot. It was not just an IB school, but there was a community with students and teachers.” The same student gave a more specific description of the culture:

We’re not just learning it, reading it out of the textbook and saying that’s how it is, and teachers telling us things all the time. It was more of critically thinking about what we’re learning and also of thinking of how it impacts me and what can I take away from this knowledge. I think Rufus King was able to create this type of culture.

The power of the culture to build community and a sense of belonging appeared to help students understand how to apply their knowledge.

However, some students felt there was a divide at the school between the IBDP student and the students taking regular classes:

At Rufus King only a certain number of students would take IB and it was almost a divide between some of the students because those that had time to study and take IB exams, and family support at home, so they can do their academic, were able to do IB. Other students had to take the regular courses.

DP#10 somewhat agreed with that statement and said, “I think some of my peers kind of took it as the IB program was alienating them. They felt like, oh – you have to be so smart to get into the IB program, when maybe I shouldn't really go that route.”

Even though a few students noted these divisions, others claimed not to notice them. Non-DP#2 did not notice a difference between IBDP students and other students:

Honestly to me, not really. Maybe on graduation day because you're wearing the sash. Other than that I think everyone at King was really united; I didn't notice a difference.

The challenge to offering a separate program for college-bound students is that it can create the impression that those students are getting special treatment. It appears that students noticed this at Rufus King International. From the time that this sample graduated from high school, the program at the school has changed to offer all students the IBDP.

Yet, even the students who did not get the full diploma were proud to be part of the IBDP, as this statement from Non-DP #1 indicates:

Yes, IB students...we held our heads high! We take the high level classes and are considered the smart students. I remember my calc. class senior year was filled with all the academic superstars. Everybody in my class went to UW-Madison, one went to Harvard, a couple others went to Ivy League. They were our superstars!

The pride in being part of an elite group of IBDP students was an attraction for some students, but they also knew the hard work it involved. A non-diploma student, Non-DP#6, provided insights into how IBDP students felt about being in the program and the reality they faced:

If you said you were IB that was something major because it's not for everybody.

We would say it was a struggle that only other IB students could understand.

People didn't get how we had no time. A lot of us were academically driven and

passionate about other volunteering and getting involved, whether it was sports or National Honor Society. Having those people and that support system brought a lot of my friendships full circle by the time we all graduated.

The recognition given at graduation was an initial reason for some students to go into the IBDP. Non-DP#6 was one of them:

A lot of us initially went into IB for the gold sash! [emphasis added] Or royal blue gowns for graduations! [emphasis added]. When you walked into graduation with that it was like a whole different school. Oh that person did IB! [emphasis added] Having “IB diploma candidate” in front of your name before you crossed was also pretty cool.

The individual recognition was an incentive for some students while others believed there was a value to being part of the IBDP group.

Two students, DP #4 and DP #3, mentioned the connectedness of being in an IBDP student cohort. DP#4 gave a solid endorsement for how facing a challenge brings people together:

That’s another thing with IB; the students were all really connected because they knew how hard it was. We would help each other all the time. Yeah, I still talk to a lot of my classmates. A lot of it is through social media.

The connectedness between the students carried on beyond high school with a commitment to supporting the school, according to DP#3:

I can't think of a school where alumni are so involved in what's going on, at King now, or the MPS [Milwaukee Public Schools] level, or what's going on socially in the community. It's something that King created while you are in high school. DP#3 also me that the IBDP students support the Milwaukee Public Schools and they want to keep the program intact even though the district is facing budget challenges.

The students' emotions were so strong for the IBDP and Rufus King International that it gave me the idea to ask what the school would be like without the IBDP. There are only two high schools in Milwaukee Public Schools that use the IBDP, Rufus King International and Regan International, and both have waiting lists in order to enroll. Even the students who didn't earn the full diploma endorse the IBDP, as can be seen in this statement by Non-DP#3:

If King wasn't IB I don't think it would be King! [emphasis added]. I don't mean to downgrade MPS. I think that MPS is great because it does offer opportunities to a lot of students. It does have Regan [Ronald Regan High School] and King. This same student closed out this interview question with an insight that could dispel the feeling that King students did well in college because they were a select group:

I think about our graduating class. There are the stereotypical 'they're not going to college.' It definitely created opportunities for students who might not have the means to go to college or they don't think they can go to college.

The statement by Non-DP#3 about creating opportunities for students who could not afford to go to college is a significant commentary about the value of the IBDP. The

student comments indicate that the IBDP could be an important program to consider for urban communities

When asked if King would be same without IB, students were adamant that it would not. The comments were emotionally charged and passionate about the prospect, as seen in this comment by DP#9:

Absolutely not! [emphasis added] King is where it is and how it is because of IB, and the amount of kids that are willing to go to the public school and go through IB. It made King #1. It brings a little bit of shine to MPS. I can't imagine it without IB! That's what draws students to King! [emphasis added]...I can't imagine King without IB.

Non-DP#4 also had a strong statement about the relationship between IB and King, stating that without the IBDP, King would be just any other high school. The two are linked so that they are synonymous and crucial to each other, "IB is what King is and what makes it such a great school. If they're ever thinking of getting rid of [IB] at King, they shouldn't. It's their staple."

The students were aware of the need for the Milwaukee Public Schools to have examples of what students could do if given the chance. One of the most emotional responses came from Non-DP#3 who felt that if the school didn't have the IBDP it would take away opportunities from them and other students:

If King didn't have the IB program it would take away a lot of opportunities for students. Without King they might not be where they are [today]. Without King I

wouldn't have been able to afford my tests. I would have gotten into college but it might not have been [edited], or might not be as prepared as I am today.

The IBDP provided some students an opportunity to seek their goal of further education. Maintaining the IBDP budget was a concern voiced by several students.

Another student, Non-DP#1, had a comment that goes beyond what would be expected from a college student because it hits at a social issue concerning support for inner city students:

I really think IB programs, especially in inner city students, if you open it up to them it really does prepare them for college. I thought it was a gimmick initially, but then I realized how much it really helped me. ...It really shows that you are putting effort into the students. You're not just trying to get them to graduate to increase the graduation rate. You are really preparing them for colleges. A lot of students failing out of college are first-generation students who are mainly coming from inner city schools.

The students noted and appreciated that the school system had invested in their school and taken the effort to recognize their potential. The expectations of the system have an impact upon students. The students notice it and it makes them care even more about learning, as can be seen from Non-DP#5's viewpoint:

Rufus King has high expectations from its students and has this rigorous curriculum that we have to make sure we focus on and really take the time to study and to care. Versus some other MPS schools or throughout the county. They don't expect that from their students; to be dedicated to that work. I know

the reputation of the school wouldn't be as good as it is now. The students wouldn't be as willing to care about the curriculum, or as willing to try to apply themselves with the curriculum.

The endorsement by the students for the IBDP appeared to take on another nature, one of concern for their school and their communities, not just themselves and their individual success.

Summary of Findings

The student comments gave support to the IBDP's intent and its positive impact on their college experience. Like in other studies done about the IBDP (Wray, 2013), the students in my study said that some parts of college were easier than their high school had been. While the interviews credited the IBDP's impact on their college preparation, there were differing opinions on how it could be improved or where there were weaknesses.

One student's comments summed up the IBDP experience. We discussed a musical metaphor for the IBDP, and I asked if the DP was an album or a symphony:

I think the way I see it, IB is a symphony. From my experience in band, there are parts of a symphony that are really good. The French horn player will say I don't play very much in this song! [emphasis added]. There are certain courses in IB that seem unnecessary that are actually better for the bigger picture in the end, and it makes the whole thing sound great.

This comment speaks to the value of the structure of the IBDP. Would it be as successful if some of its components were removed? It appears that for the IBDP the whole is

greater than the sum of its parts. It may be difficult to pull out parts of the program and use them to improve high school preparation for college without adopting the program wholesale. Therefore, it would seem that districts would be better served by adopting the entire IBDP.

As this chapter concludes and the study moves to providing the conclusions and implications for further research in the next chapter, two additional quotes provide a sense of how important the IBDP was to the students. First, from Non-DP#2, who said, “I think it brings opportunity for people to challenge themselves because I feel like that’s what it brought to me. Learning how to challenge yourself you really start to understand all the possibilities.” Second, Non-DP #4 summed it up most succinctly by saying: “It’s really the only thing I have to say. It’s changed my life.”

CHAPTER VI: DISCUSSIONS, CONCLUSIONS, AND IMPLICATIONS

Introduction

This chapter will begin with reviewing the findings of this study and their relation to my research. Then I will discuss the findings as they relate to my research questions and share noteworthy themes that emerged from the interviews. The chapter will conclude with potential implications for future practice and future research.

Summary of Findings

Colleges and universities recognize the IBDP internationally as a program that provides students with preparation that is worthy of college recognition, including college credit. There has been substantial quantitative research that shows that the IBDP is effective in preparing students for both college coursework and timely graduation. This qualitative study has attempted to dig deeper into the reasons behind why the IBDP is effective, as seen through the eyes of college students who themselves participated in the program in some fashion in the past three years.

My research findings emerged from analyzing interview data from interviews of two groups of current college students: IBDP full diploma earners and IBDP non-diploma earners. The coding of the interview transcripts provided rich data in the areas of college preparation, such as writing, research, and critical thinking. The two groups of students gave similar responses, but there was a slightly more negative spin given to some IBDP items by the non-IB diploma students.

Additional Themes that Emerged During the Research

This research study posed two central research questions, but during the course of the interviews, two additional themes emerged: the importance of the IBDP to the high school culture and the student and the positive impact that the teachers made upon the students.

Culture. Students were passionate about how Rufus King International High School would be just like any other high school without the IBDP, and they believed that the IBDP made their high school a shining star in the Milwaukee Public Schools. One of the students, Non-DP#3, showed great perception with this comment,

I think about our graduating class. There are the stereotypical ‘They’re not going to college.’ It [IBDP] definitely created opportunities for students who have not had the means to go to college or they don’t think they can go to college.

Considering that this comment comes from a student who many may not have believed was college material shows how important believing in students can be. The IBDP seemed to give the students a sense of pride, and an opportunity to consider college, even if they were unable to complete the full Diploma.

The students said that offering the IBDP to inner city students showed that “you [i.e. the Milwaukee Public Schools and Rufus King International] are putting effort into the students” (Non-DP#1). This support meant a great deal to them since many felt they wouldn’t have belonged in college without this preparation. By giving the students college level work, the school system sent a message to them that a college education was within their grasp.

A research report done by Californians for Justice shows the important impact that believing in students has upon student success. The researchers interviewed 2,000 high schools students along with teachers and policymakers. Their conclusion was that problems in removing the achievement gap for inner city students stemmed not from a lack of solutions or effort, but a lack of belief (Cal4Justice, 2015). This lack of belief in the potential of low-income students was wide-spread: it came across in public schools, from teachers, and even the students themselves. The authors of the article called it “the Belief Gap,” which they claimed has caused achievement gaps to persist (Cal4Justice, p. 2). The Executive Director of Californians for Justice, Taryn Ishida, had a suggestion for how to remedy the gap, “...this happens by making investments in high quality programs that allow students to reach their full potential” (Cal4Justice, p. 10). The students in my study stated that they believed that the IBDP was one of those high quality programs.

Positive impact that the teachers made upon the students. The importance of the teachers’ impact stood out in the interview comments. Sometimes it was a general comment like, “The IB English department at King, actually all the English courses at King were really phenomenal; the teachers were really great.” Other times their comments were more specific like, “She prepared us very, very well for writing later in high school and into the future.” These statements are examples of the students’ opinions on the quality of their teachers, and the preparation they provided for future study in college.

Preparation for college was the main focus on my study. The next section of this chapter will summarize how my findings answered my original research questions.

Answering the Research Questions

This section discusses how the research answered my two original research questions:

1. How did students in a large, selective urban high school experience and learn from the IBDP?
2. How did students in this large high school feel the IBDP prepared them for college?

Answering research question #1: How did students in a large, selective urban high school experience and learn from the IBDP? This question is general in nature, and based upon the students' responses, the IBDP experience was positive. More specifically, they felt better prepared than their peers and confident entering college. These feelings were based upon the background they received in high school and the additional credits that they had acquired during the IBDP. The extra credits gave them the opportunity to take more advanced classes, something that they all appreciated. The IBDP also had a positive effect on both the personal and academic skills needed for college. Students said their high school experience built personal skills in time management, focus, and organization. They felt these skills were valuable for them in college. Another positive effect was the development of academic skills in the areas of critical thinking, writing, and research.

The results of my study overlap significantly with my review of the research on college preparation. During the research review I was able to identify commonalities between college preparation programs like the IBDP, Authentic Intellectual Work, AP, and the research done on college preparation by Adelman, Conley, and Arum and Roksa.

My review also included recommendations by the United States Department of Education and the American Diploma Project. After analyzing my findings, I found that the student comments in these interviews shared some commonalities with each of these programs based upon their experience with the IBDP.

The IBDP wasn't perfect in its preparation, as some students felt that it had too much busy work, and the constant, daily barrage of assignments wasn't like the college experience. However, this element of preparation could not be replicated in high school; as the students noted, "IB doesn't prepare you for the freedom that college brings."

Even so, the majority of the retrospective statements by the students were positive about their college preparation. There is a definite benefit to taking the route of the full diploma, and it justifies the cost of taking the tests and the time spent studying. For IBDP students, research shows that 84% of students completing the full diploma graduate in four years and 70% of students who complete at least one course complete college in five years (IBO, 2015). The intent and design of the IBDP appears to have a positive effect on college preparation because of its rigorous requirements, testing, and emphasis on writing and research.

Intents of the IBDP design carried out in high school. The intended purpose to create thinkers with a well-rounded college-preparatory education appear to be carried out in this particular high school based upon student comments. This concept is important because it shows the consistency in the program's application, and could lend support for other schools considering the program. I found support for the IBDP's intended purpose in these areas; thinking deeply rather than memorizing, global

awareness, student choice for CAS projects, building critical thinking through TOK, replicating a college research paper through the Extended Essay, and requiring courses in all subjects.

Intent—thinking rather than memorization. One aspect of the IBDP’s philosophy is the focus on thinking and reflection rather than on memorization. At the time of its origin, the founders of the IBDP were concerned that students who were taking national exams were focusing too much on content and not enough on developing patterns of thought (Peterson, Hill, Walker). A.D.C. Peterson, the IBO’s first Director, had a vision for the students in the program, which was to provide a balanced general education enabling each student to “learn to use his knowledge, rather than stuff his head full of facts” (Renaud, 1974, p.9). An early IBDP brochure touted the program as teaching how to think rather what to think (Renaud, 1974).

In his book, *The Global Achievement Gap*, Dr. Tony Wagner shared a quote from a student focus group, “AP courses teach *you* what to think. IB teaches you *how* to think (Wagner, p. 282). I found student comments that supported his quote like this one from DP#10, “It’s not a regurgitation of information.” In sharing how they felt the IBDP differed from AP, students consistently referred to IBDP as teaching deeper thinking and making connections to real-world applications.

Intent—global awareness. It is almost an assumption because of the word international in its title that the IB program would be international in scope. The value of international mindedness, which leads to viewing issues from another’s perspective, was a key tenet of the development of the IBDP (Peterson, 1974). The topic of international

perspectives came up during the interviews with one student paraphrasing that concept into “global academic awareness.” The international focus also stimulated some students to consider travel or working in other countries.

Intent—student choice for CAS projects. The CAS requirement was designed to allow students to pursue their passion rather than having to drop these interests because of an emphasis on purely academic studies. The choice of their project was something that students endorsed and considered to be a useful part of the IBDP. Allowing students to choose to use athletics or service for their required hours created a wide range of projects from track to orchestra.

Intent—building critical thinking through TOK. The development of this class, Theory of Knowledge, originated from the blending of national exams in creating the IBDP. One of the countries contributing to the development of the program was France, and in the French Baccalaureate there was a philosophy class. To compromise and build the program, the TOK class became a requirement for full diploma (Renaud, 1974). However, as it developed it became a class not only focused on philosophy but also invested in learning and how students learn. One important aspect of that learning was critical thinking. While not the sole purpose of the class, the IBO is explicit in its claim that the TOK builds critical thinking (IBO, 2015 n.). Comments by the students in my study would certainly endorse that claim. There was no hesitation from any of them when they were asked if TOK built critical thinking.

Intent—replicating a college research paper through the Extended Essay. The intent of the Extended Essay is to replicate a college research paper. Its length of 4,000

words and its adherence to stylistic requirements of college papers like APA are definitely preparation for college writing assignments.

The conclusion from the student responses endorses the intent, and most students actually felt over-prepared for college writing assignments. This conclusion supports the findings of research done by Wray (2013), which found that students who had completed the IBDP stated they were underwhelmed by college writing expectations. An important feature of the Extended Essay is that students get to choose their topic and their advisor. This aspect of choice gave students greater buy-in and allowed them to pursue an interest that fit their life experience.

Intent— requiring courses in areas of weakness builds a well-rounded student.

The IBDP program design as shown in Appendix B is in the shape of a circle with equal weight given to all the subjects included in the circle. While some students or schools might feel that requiring students to take courses in each of these subjects is too restrictive, students did not share that viewpoint. They appreciated the development of their areas of weakness, and said taking a variety of courses made them feel more academically balanced.

Non-Diploma students. The comments by the students who did not receive the full diploma were not bitter and did not reveal complaints that the program was unfair or that they were short-changed. Most stated that they didn't try hard enough in high school to complete the diploma. They regretted working too many hours at after-school jobs, and stated that they would put in more effort if they had another chance. This feeling is captured by Non-DP#3, "Had I not been working I could have allocated a lot more hours

to something else, more focused on schoolwork rather than my free time being devoted to work.” Another student, Non-DP#1, said that they missed earning the full diploma by one point due to the Biology exam score, and then said, “The intelligence was there for me but it was just lack of effort at that moment.” The tone of the statement was one of acceptance, not of anger.

The students who did not earn the diploma said that they did not regret attempting the full diploma, and that they still felt better prepared for college due to its content. Looking back, one student, Non-DP#5, said, “I would still recommend it. It taught me discipline and also taught me to think outside of the box, and think about different perspectives.”

I was unable to gather a great deal of data about this topic from this group, and I think students who attempted the full diploma but failed to earn it merit further study, as they are a significant part of the IBDP population. With the IBDP having a diploma pass rate of about 80%, it means that 20% of the 76,825 students who took the exams in 2014 (IBO, 2014) are available for study under this category.

Answering research question #2: How did students in this large high school feel the IBDP prepared them for college? This research question developed as the analysis of the findings took place. As I analyzed the interview transcripts I found responses that indicated that students felt that not only did the IBDP prepare them for college but they felt that it also gave them an advantage over their peers. Students did say they saw advantages in skills like preparation in writing (including the ability to write

a longer paper) and research and that they felt better prepared than AP students overall and had a greater feeling of confidence in their college coursework.

Writing skills preparation. The students were very confident about their writing skills preparation. The comments were that they knew how to format a paper, research it well, and write in a clear manner. The writing skills they learned gave them an advantage when it came to writing papers in unexpected college courses such as mathematics, which caught other students off guard and unprepared.

Students also shared they had the ability to write a longer paper, but their peers did not. One student said that other people were “getting worked up” because they had to write a three page paper. During the interviews I sensed a feeling of almost a letdown about writing in college because it was so easy in comparison to the writing they had completed in high school.

Research. The preparation students received for research in all subjects was a significant benefit to the IB DP that they identified. The fact that they had done research papers in high school in addition to the longer Extended Essay, meant they were ready when facing one in college.

Comparison to AP. The most common preparation program in American high schools is Advanced Placement (AP). IB DP students saw a difference in their preparation as compared to AP. They saw a difference with regards to the greater emphasis on critical thinking and depth of content throughout the IB DP. Another unique part of the IB DP was the testing; the students perceived the AP programs as being characterized by multiple-choice tests while the IB DP was characterized by essays.

Confidence. The feeling of confidence expressed by the students is something that is unique to this study in comparison to the research on college preparation. The first year in college is challenging for students, and not being intimidated by college is a distinct advantage for incoming students. This feeling of confidence made a big difference for the students because they had effectively taken college courses in high school. A student comment covers that feeling, “I’ve taken my two years of IB chemistry, pretty much all the general chemistry most undergraduates take, so I’ve seen it before.” The same student said this confidence would not have been developed if he/she had attended a school that did not offer the IBDP.

Confidence from completing six rigorous, college-level courses. The confidence and credits earned from completing six courses in the IBDP gave students a feeling of having an advantage over AP and other students. The fact that they completed six courses that were challenging was a source of pride.

Structural Elements of the IBDP. During my analysis the structural elements of the program were also revealed to be effective parts of the IBDP. I define structural elements as being the components of the IBDP that are part of the design or that teachers are trained to implement. For example, structural elements include the final course exams, the Internal Assessments, the Learner Profile, and writing across the curriculum. In addition to these structural elements, there were specific components explored in the interviews, including the Extended Essay, TOK, CAS, the six required courses, and the second language requirement.

Structural elements—final course exams. The students viewed the exams as providing an experience similar to college. Students said the similarities were that they had to really grasp the material and, as DP #4 put it, “...connect bits and pieces from what you learned in order to write a coherent answer to the question that was posed on the test.” For example, during a college exam DP#7 said it they were able to answer a question because they could think beyond what information was given and pull in their prior knowledge from their experience in IB.

Structural elements—IAs. As mentioned in question #2, the Internal Assessments played an important role in developing academic skills like critical thinking, research, and writing. The assessments had a specific word count and structure, which students said helped them learn about organization and editing. The details for the assessments included using college research formats like APA, something for which students noted that other students were not prepared. Students complimented the IAs for teaching them how to focus their writing.

Structural elements—the Learner Profile. The IBO wants the Learner Profile to be incorporated into all of its programs. Only a few students had recall of it, but those who did had positive comments. One of the attributes within the Profile that students were positive about was to be reflective. The reflective behavior helped them take in feedback and work to improve. Another attribute mentioned was being a risk-taker. This one helped them to reach out to others and to not be intimidated by professors.

Structural elements—writing across the curriculum. Writing instruction is a key tenet of the IBDP. It is emphasized in all courses and in the IAs and final exams for

each subject. During the course of the interviews a common theme emerged, which was the emphasis on writing in all of the IBDP courses. The reinforcement of the importance of writing was built by having students write reports not only in English and history classes but also in science and mathematics courses.

Components—*Extended Essay*. The students' perceived value of the 4,000 word Extended Essay included that it benefited them in college, it allowed them to choose their own topic, it engaged them in real-world activity, and it incorporated different research methods.

Components—*TOK*. The TOK course was heavily endorsed by the students because it built critical thinking. It was also the course they most identified as being taught similarly to a college course. Students said it challenged them to think in non-traditional ways.

Components—*CAS*. Both the process and the end result of the CAS component were appreciated. The process caused students to interact with people outside of school, and the end result sometimes led to students following a pattern of service into college.

Components—*six required courses*. As referred to earlier in this chapter, the students responded to the required courses in the IBDP by crediting the requirements for making them more well-rounded and better prepared for college. The requirement to take three courses at a higher level that are similar to college work gave students confidence as they entered college. They felt prepared, and once in college they found that in many classes they had already seen the material in high school.

Components—second language. The second language requirement in the IBDP involved two years of study with an emphasis on learning culture and gaining fluency. Students said that it made a lasting impact on them, leading some to take a language as a second major or a minor in college. Some gave examples of how they used the second language in study abroad or in an internship. The comments reflected fluency and the practical uses of the language requirement.

Research Questions Summary. In conclusion, my research questions were answered by the interviews of the students. The first research question focused on the experience of the IBDP, and the students believed that because of the IBDP they were better prepared, confident, and had academic skills and thinking abilities that set them apart from other college students. The second research question focused on the students' feelings about the value of the IBDP. Their comments reflected feelings of confidence in their writing, critical thinking, research, and ability to apply their knowledge to different situations. The students also identified the culture of their school and the ability of their teachers as being strong factors in their success. There was a passion for their school and its link to the IBDP, and they could not imagine their high school without it.

Implications for Future Practice

This phenomenological study does not necessarily offer findings that can be generalized for future research and practice; however, the findings do lend insight into how college students view the high school preparation they received from the IBDP. The next section proposes a number of suggestions to better the practice of high schools generally and IBDP high schools specifically.

Implications for high schools. The following are a few recommendations that could be adopted separately or in unison. This short list is derived from the positive statements students made about their high school preparation.

- Give students more choice in writing topics or projects. The students in this study felt more value in doing these projects in the area of their interest. This directly related to their participation in relevant, real-world activities.
- Explore ways to make some courses replicate college in method and content. The TOK component received the most support from students as preparing them for college because of how it was taught.
- Consider training staff in teaching critical thinking. The students did say that it was expected in college, and they felt prepared because of the skills they learned not only in TOK but also the analysis learned in their history classes, suggesting that this skill could be taught without adopting the TOK course itself.
- Increase the graduation credit requirements for mathematics and science to four years, and have rigorous courses available. Students felt a sense of recognition because the district was willing to invest in college preparatory classes. They said it showed them that college was within their grasp.
- Stress writing in all subjects. Students told of how they had to write to a specific prompt for their history assessment, something that caused them to focus their writing and use critical thinking and analysis. As DP #4 noted, "...writing is a big part, even math and the natural sciences." This is just one example of the type of response given by many of the interview subjects that credited the IBDP

for their writing skills.

These individual recommendations fall short of preparing students as well as the cohesive program that is the IBDP. Policymakers and administrators would do well to learn more about the IBDP and talk with schools that are implementing it currently. The worldwide growth of the IBDP is a testament to this suggestion: from 2010-2014 the number of IBDP candidates has grown by 38% (IBO, 2014).

The recommendation to consider the full IBDP is supported by a research study done in the Chicago Public Schools. This in-depth, mixed-method study gave a strong endorsement for the IBDP with this statement:

Indeed, the IB program in Chicago appears to have accomplished something very rare in urban education: it took economically and socially disadvantaged students and radically changed their long-term educational prospects by making them world-class learners with an arsenal of academic skills (Coca et al., 2012, p.52).

The Chicago Public Schools heeded this message and increased their number of IBDP high schools, and other urban cities are joining them.

Implications for IBDP Schools. Based upon comments from students about the weaknesses they saw in the program, here are the areas of improvement to consider even in schools that have already adopted the IBDP:

1. Provide a pre-IB program of writing instruction so that students do not feel overwhelmed when facing lengthy papers. Students felt that it was a stressful situation to go from not writing a great deal to having to write a 4,000-word paper.
2. Provide some assistance to students who are stressed and not getting rest due

to their dual commitments to both work and school. Research on gifted students, including the IBDP, has found that the stress for high-performing students needs to be recognized, and support needs to be given to the students in these programs (Shaunessy et al., 2006)

3. The Extended Essay is valuable but consider some type of training or standardization for advisors. My study had a few comments that gave suggestions about the Extended Essay, and they centered on the role of the advisor.

Limitations

There are several limitations of the study that warrant consideration. Because I was only able to interview students on an intermittent basis over a two-year period, it created a time lag between the interview of the first student in the IBDP sample and the final interview in the Non-IBDP sample. There was not an apparent difference in their comments about the college experience, but because IBDP preparation can jump students ahead in college by almost a year, delaying interviews could place students in a position where they are almost finished with college courses and are entering internships or other off-campus experiences. The longer a student is away from high school, the greater the probability that recollections of that time can lose accuracy.

Another limitation was the small sample size. With more time and better access, a larger sample of both types of students would have been possible. Because of the unique population of this magnet high school it made it difficult to find academically matched groups of students between those that had no IBDP courses and those that did the full IBDP.

Reflections

When I began this research I had high hopes of spending time interviewing students and delving into the secrets of the IBDP. After conducting this study, however, I realized how difficult it is to connect with university students when you are not on site. I was limited by my accessibility to students and frustrated by the amount of time it took to connect with them, but found that by texting and using social media there was a greater response. Students' responses to phone calls or e-mails were not as forthcoming. However, as I reflect on this study, I was surprised by the insightful and at times brilliant comments made by the students I was able to interview.

Further Research

Going forward from this study there are several areas that future researchers could examine to further the understanding of the IBDP's value for college preparation. These will be discussed below. Three specific areas for future research include: (a) perform a set of interviews with the same IBDP students at multiple points in time— preferably during their senior year in high school and twice during college; (b) obtain the perception of male IBDP high school students to find out why it made a difference in their college experience; and (c) examine how teacher instruction differs in the IBDP.

This future qualitative study could be done immediately after students finish high school to get their impressions of the IBDP, and then the same sample could be followed up with after time spent in college. Exploring a non-magnet high school could also broaden the sample size. Researchers should also track demographic and gender

differences. This study could be a modified version of the twelve-year, longitudinal studies on college success done by Adelman.

Another potential qualitative study could focus entirely on male students to see why the IBDP helped them graduate from high school. This research could follow up on the findings of Saavedra's 2014 study done in the Chicago Public Schools that found that IBDP enrollment was especially beneficial for boys, for whom the probability of graduating from high school and enrolling in college at the national level was substantially less than for girls (Saavedra, 2014). In the IBDP, though, these statistics reversed. Compared to IBDP-enrolled girls the boys had a 9.5% higher probability of graduating from high school, and 5.9% higher probability of enrolling in college.

Even though my study focused on the value of the IBDP on student preparation, the value of having quality teachers came up very often. Future research with IBDP teachers could be valuable in discovering how their instruction either mimics college instruction or changed after being trained in the IBDP. Teachers could be observed and their instruction monitored for how they are instructing students in the areas of writing, research, and critical thinking, all crucial skills for college success.

Summary of Discussion

By following the process of phenomenological interviewing (Attinasi, 1993), I was able to analyze the impact of the IBDP on college preparation from the student perspective. There is still a great deal to be learned from the students and the teachers who are in the IBDP. Due to the cost of college, the achievement gap between racial groups, and the fiscal challenges of operating high schools, there is a need to find college

preparation programs that work. My study found that the IBDP appeared to give students a solid preparation for college, or at least, the students perceived that it had.

The opinions voiced by the students in this study not only support the value of the IBDP in college preparation but also provide some evidence that the original intent of the IBDP is being accomplished. The individual components of the IBDP and the structural elements of the program appear to be valuable as a whole. In addition, the students believed that the culture of school was positively impacted by the IBDP.

School culture is continual concern in education and some research shows it can have a positive impact on student achievement (MacNeil, Prater, & Busch, 2009; Marcoulides, Heck, & Papanastasiou, 2005). The topic came up so often during the interviews that I would be remiss in not reiterating the feeling that students had about the culture and the esprit-de-corps of the school. This quote from DP#7 gives an example of their feelings, “It was not just an IB school, but there was a community with students and teachers.” Importantly, this quote emphasizes the feeling of community, something that might be considered unusual in a large, diverse urban high school.

Contribution to the Field

In this study, I found that students perceive a definite value from the IBDP both for themselves and for their high school. This study contributes to the field of research on college preparation, and provides insights from college students that give a perspective on their high school curriculum that could benefit not only IBDP schools but high schools in general. The findings by Arum & Roksa (2011) stressing the value of critical thinking and the expectations of college professors were reinforced by this study.

Students stated that their professors clearly expected them to be able to analyze material, and they were prepared to do so because of their IBDP background. This would support further study in how critical thinking, writing, and research are being taught in both the IBDP and other high schools.

The study of the IBDP has been dominated by quantitative studies that have focused on the IBDP's success rate in college. The qualitative method used in this study gives another perspective about how students perceive the IBDP and the college preparation that it provided. Their comments showed mature reflection of the program, and a personal return on the investment made on their behalf by the Milwaukee Public Schools.

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APPENDIX A

IBDP Courses by Groups

Students are required to choose one subject from each of the six academic areas. They can choose a second subject from each academic area except the arts (IBO, 2016).

Group 1-Studies in Language and Literature (<http://www.ibo.org/programmes/diploma-programme/curriculum/language-and-literature/>)

Language A: Literature, which is available in 55 languages and, by special request, for any other that has sufficient written language.

Language A: Language and Literature, which is available in 17 languages.

Literature and Performance: Standard Level only, available in English and by special request in Spanish and French.

Group 2 Language Acquisition (<http://www.ibo.org/programmes/diploma-programme/curriculum/language-acquisition/>)

Modern Languages

Language ab initio— courses are for beginners, available only at Standard Level

Language B— courses for students who have some previous experience learning the language. They may be studied at either Higher Level or Standard Level.

Classical Languages

Latin

Classical Greek

Group 3-Individuals and Societies (<http://www.ibo.org/programmes/diploma-programme/curriculum/individuals-and-societies/>)

Business Management

Economics

Geography

Global Politics

History

Information Technology in a Global Society

Philosophy

Psychology

Social and Cultural Anthropology

World Religions (standard level only)

Group 4-Sciences (<http://www.ibo.org/programmes/diploma-programme/curriculum/sciences/>)

Biology

Computer Science

Chemistry

Design Technology

Physics

Sports, Exercise and Health Science (standard level only)

Interdisciplinary Course (meets requirements of Group 3 or Group 4)

Environmental Systems and Societies

Group 5-Mathematics (<http://www.ibo.org/programmes/diploma-programme/curriculum/mathematics/>)

Mathematical Studies Standard level

Mathematics Standard Level

Mathematics Higher Level

Further Mathematics Higher Level

Group 6-The Arts (<http://www.ibo.org/programmes/diploma-programme/curriculum/the-arts/>)

Available to students at higher level or standard level

Dance

Music

Film

Theatre

Visual Arts

APPENDIX B

School Profile

Rufus King International High School
School Profile
2015 / 2016

The School

Rufus King is a public co-educational International Baccalaureate (IB) high school. It has been an IB school since 1978, and 100% of the student population participates in the IB Middle Years (Grades 9 and 10) and Diploma Program (Grades 11 and 12). The IB Diploma program is a rigorous pre-university course of study, which meets the needs of the highly motivated secondary student. The program involves two years of preparation for examinations that are evaluated and recognized internationally. The IB student may work toward individual subject certificates or an IB diploma. Our school offers a rigorous academic program and is made up of a diverse population.

Special Awards

- The White House chose Rufus King High School as the site of a presidential visit, May 8, 2002. President George W. Bush recognized Rufus King High School as one of the top high schools in the United States, delivering his educational policy address here, and singling out our students and staff for national recognition.
- US News and World Report, Newsweek and the Washington Post recently ranked Rufus King High School as one of the top high schools in Wisconsin.
- Rufus King High School is consistently named a New Wisconsin Promise School of Recognition by the Department of Public Instruction.
- In 2003/04, Rufus King High School was chosen as one of only ten schools nationwide to participate in a study, "On Course for Success," by ACT and The Education Trust on how schools prepare students for success in college coursework. According to ACT, Rufus King was selected because of its diverse student body and its students' strong ACT scores in math and science.
- In May 2013, leaders in government, business, and education selected national award recipients for ACT's College and Career Readiness. Rufus King International School was the only high school in the nation to receive this award.

General

Type: Public, co-educational International Baccalaureate High School

Grades: 9-12

Enrollment: 1475 (292 seniors)

Principal: Dr. Jennifer Smith

Counseling Director: Ms. Brenda Mikell (Students with last names A-D)

Counselors: Ms. Jill Boeck (Students with last names E-L)

Ms. Tatum-Crider (Students with last names M-R)

Mr. Brian Schneider (Students with last names S-Z)

Counseling Office: (414) 267-0725

CEEB/ACT Code Number 501-435

Academic Requirements for a Rufus King Endorsed Diploma

Twenty-three credits are required. Minimum distribution requirements include:

4 years English	3 years Science	1 semester Health
3 years Social Studies	3 semesters Physical Education	2 semesters of World Language
3 years Mathematics	2 semesters of Fine Arts	1 semester of Speech

College Entrance Test Data

<u>Year</u>	<u>ACT</u>		<u>No.</u>	<u>SAT</u>		
	<u>No.</u>	<u>Composite</u>		<u>Verbal</u>	<u>Math</u>	<u>Writing</u>
2014/2015	288	19.9				
2013/2014	330	21.1	25	579	559	544
2012/2013	374	20.0	21	555	533	540
2011/2012	333	21.1	38	578	560	556
2010/2011	344	20.8	25	562	588	540

National Merit Program

The class of 2015:

- 1 National Merit Finalists
- 1 National Achievement Finalist
- 4 National Merit Letter of Commendation

Graduates' Plans

Of the 2015 graduates, 85 percent planned to attend a four-year college and 10 percent planned to enroll in two year institutions. The rigor and strength of our academic program is reflected in the caliber of students we graduate. Listed below is a partial list of schools which Rufus King Graduates are attending.

Alverno College	Howard University	University of Notre Dame
Arizona State University	Lakeland College	University of Pennsylvania
Lawrence University	Macalester College	University of Southern California
Boston College	Marquette University	University of WI La Crosse
Cardinal Stritch University	Michigan Technological University	University of WI Madison
Carroll University	Mount Mary College	University of WI Milwaukee
Central State	New York University	University of WI Oshkosh
Columbia College	Purdue University	University of WI Stevens Point
Columbia University	Tennessee State University	University of WI Whitewater
DePaul University	United States Air Force Academy	Vanderbilt University
Drake University	United States Naval Academy	Xavier University
Georgia State University	University of Lincoln Nebraska	
Hamline University	University of Minnesota	

Questions

For more information, we invite you to call or visit Rufus King International Baccalaureate High School, 1801 W. Olive St., Milwaukee, WI 53209 PH (414)267-0700 FAX (414)267-0815.

www.mpsmke.com/rufusking

APPENDIX C

Letter to Sample



WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

Dear 2012 Graduate of Rufus King International School:

I am researching the impact that high school had on the college experience. The study is based on giving students a voice on both their high school and college academics. The student voice is missing in most of the research on college readiness. A sample of 2012 King graduates were selected to be part of the study. The study involves a telephone interview that takes about 30 minutes. Your participation will be rewarded with a \$10 iTunes card. This is a confidential interview and participation is voluntary and only with your consent. A consent form will be sent to you that can be returned as an attachment.

This is an excellent opportunity for your voice to be heard and will provide information than be used to advance the field of college preparation. Any questions regarding the study should be sent to the primary researcher, Ken Bates, at kbates@glsd.k12.wi.us.

Sincerely,

Ken Bates
Student Researcher
Dissertator
Doctoral Student
University of Wisconsin-Madison
School of Education

APPENDIX D

Consent Form

UNIVERSITY OF WISCONSIN-MADISON

Research Participant Information and Consent Form

Title of the Study: College Students' Perceptions of the Impact of the International Baccalaureate Diploma Program on College Readiness

Principal Investigator: Dr. Eric Camburn (phone: 608-263-3697) (email: ecamburn@wisc.edu)

Student Researcher: Ken Bates (phone: 920-382-1403) (e-mail: kbates@glisd.k12.wi.us)

DESCRIPTION OF THE RESEARCH

You are invited to participate in a research study about the course work in high school that helped prepare you for college.

You have been asked to participate because you attended a high school in Wisconsin that offers the International Baccalaureate Diploma Program.

The purpose of the research is to find out why the International Baccalaureate Diploma Program makes a difference in college preparation.

This study will include college students that graduated from Rufus King High School in Milwaukee, WI. The research will take place through a telephone interview. You will be audio and video taped during your participation in this research.

The audio voice recordings will be used for transcription and coding at a later date. The people who will hear the recordings are: the researchers, the participants, and a typist who will transcribe the data. The tapes will be kept until the proposal is completed, then they will be destroyed.

WHAT WILL MY PARTICIPATION INVOLVE?

If you decide to participate in this research you will be asked to respond to questions about your high school academics, and your college academic experience. Your participation will last approximately 30 minutes per session.

ARE THERE ANY RISKS TO ME?

We don't anticipate any risks to you from participation in this study.

ARE THERE ANY BENEFITS TO ME?

We don't expect any direct benefits to you from participation in this study.

HOW WILL MY CONFIDENTIALITY BE PROTECTED?

Student first names may be used with your permission. If you participate in this study, we would like to be able to quote you directly without using your full name. If you agree

to allow us to quote you in publications, please initial the statement at the bottom of this form.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS?

You may ask any questions about the research at any time. If you have questions about the research after you should contact the Principal Investigator Dr. Eric Camburn at 608-263-3697. You may also call the student researcher, Ken Bates at 920-382-1403. If you are not satisfied with the response of the research team, have more questions, or want to talk with someone about your rights as a research participant, you should contact the Education Research and Social & Behavioral Science IRB Office at 608-263-2320.

Your participation is completely voluntary. If you decide not to participate or to withdraw from the study it will have no effect on any services or treatment you are currently receiving.

Your signature indicates that you have read this consent form, had an opportunity to ask any questions about your participation in this research and voluntarily consent to participate. You will receive a copy of this form for your records.

Name of Participant (please print): _____

Signature

Date

Option: Typing name in signature box will be accepted as an electronic approval

APPENDIX E

Interview Question Protocol

QUESTIONS FOR BOTH GROUPS

Background

1. How is college going so far?
2. Was your first semester as tough as you expected? In what ways?
3. You're in second semester now, are there any ways it is better? Please be specific.

High School Academic Experience

1. How would describe your high school academic preparation? Was it difficult? In what ways?
2. Did any course in high school stand out for developing written communication? If so, what was it and what kind of writing was required?
3. How much time did you spend studying in high school?
4. What courses occupied your time?
5. In what ways did these courses develop study habits?
6. What you rate your high school study habits?
7. If you had to give a grade to your high school for developing research skills, what grade would you give it and why?
8. Would you please tell me about any course or teacher that helped you grow your critical thinking skills; such as the use of analysis or questioning?
9. Anything else about high school?

College Academic Experience

1. What has been the most difficult part of your college studies? Why?
2. Did you have take any remedial courses either first or second semester? If so, why did you have to take them?
3. What would your instructors say about your writing? Your research?
4. Which courses had you doing the most writing, and what kind of writing was required? What was the average amount of pages that were expected?
5. How would you describe your time management and study habits? Have they it changed since high school? In what ways?
6. What course incorporated or developed critical thinking? How did it do this?
7. Overall, what are the most important skills, and/or content a student needs to succeed in college?
8. Anything else?

IBDP Specifics

1. In what ways would you say that the DP prepared you for college academics?
2. Did any of your IB courses count toward college credit? Which ones? How did that help you in your college plans?
3. How would you describe the rigor or challenge of the IBDP?
4. Would you agree that the Extended Essay replicated a college research paper?
5. What did your professors say about your writing?
6. How well were you prepared for research and analysis by IBDP?

7. The IB model of HL and SL courses stresses a higher rigor for HL courses. What is your reaction to that statement after being in college?
8. IB states that it teaches student how to think not what to think? True or False? Why?
9. What was the benefit of the TOK course? Did it improve critical thinking? How do know?
10. What study habits did DP prepare you with? How did they help in college?
11. If you had to do it all over again would you still do the DP? If so, why? If not, why?
12. Describe for me one particular aspect of DP that helped the most in your college courses.
13. What advice would you give to a DP student who is still in high school?
14. Anything else to add?

Non-Diploma Students

1. Why did you not earn the full diploma?
2. Would you do the IBDP over again if given the chance? Why or Why not?
3. Any regrets?