TEACHERS’ EXPERIENCES IN USING CONSTRUCTIVIST PEDAGOGIES IN THE INTERNATIONAL BACCALAUREATE DIPLOMA PROGRAM

A thesis presented
by
Maria C. Sieve

to
The School of Education

In partial fulfillment of the requirements for the degree of
Doctor of Education

Dr. Chris Unger
Advisor

College of Professional Studies
Northeastern University
Boston, Massachusetts

November 2018
Abstract

This study collected, presented, and reflected on the experiences of International Baccalaureate Diploma Program (IBDP) teachers who have developed and consistently employed constructivist pedagogies in their IBDP classrooms. A constructivist theoretical framework guided the design and analysis of this study, which was informed by a literature review of international schools, international school curricula, specifically the IBDP, and new constructivist pedagogies. Three research questions guided this study: (a) How do IBDP teachers who have developed and implemented constructivist student-centered learning practices in their classrooms describe and explain the development of those practices for the purpose of increasing their students’ engagement and enhancing their learning, with a specific focus on doing so within an IBDP curriculum and school culture? (b) What practices have they implemented and what are the outcomes of those practices, above and beyond the more “traditional” means of teaching IBDP classes, as evidenced and perceived by them? and (c) What areas of tension exist between constructivist pedagogies in the IBDP, and how do teachers seek to address them? The findings indicate that teachers implement constructivist student-centered pedagogies for a range of reasons; they maintain them because they see value in them and because these pedagogies align with their own philosophies of education. The findings also suggest that support is crucial to enabling teachers to implement these pedagogies. The findings indicate that there are tensions between the implementation of these pedagogies and the IBDP, but that teachers seek to mitigate these tensions in a range of ways. Finally, the findings suggest that implementation of these pedagogies is constrained by IBDP content and assessment requirements.

**Keywords:** constructivist, student-centered pedagogies, International Baccalaureate Diploma Program, support, tension
Acknowledgements

I would like to sincerely thank my family and friends for supporting me throughout this doctoral journey. They provided me with much-needed understanding when I had to choose between reading and writing or spending time with them. They also encouraged me to keep going, one step at a time. I would also like to thank my colleagues who provided me with inspiration and advice, and who were always there to talk through ideas and proofread papers.

I would like to express my deepest gratitude to my participants. Their willingness to openly and honestly share their experiences – positive and negative – not only provided me with vast amounts of fascinating data, but also helped me to reflect on and improve my own teaching practice. I look forward to, hopefully, one day meeting you and thanking you in person at an IB conference or training!

I would like to thank my second reader, Dr. Nancy Young, who gave me invaluable feedback both at the proposal and draft stages. I would also like to thank my third reader, Dr. Richard Swann, who was part of this thesis process from its conception; his office door was always open and he was always eager to hear about my progress, providing direction and motivation.

Finally, I would like to thank my advisor, Dr. Chris Unger, who supported and challenged me at all stages of the thesis. Most importantly, he was responsive, giving quality feedback while also granting me flexibility to take my research in directions that interested me and that I hope will interest others.
Table of Contents

Abstract ............................................................................................................................................. 2
Acknowledgements .......................................................................................................................... 3

Chapter I: Introduction .................................................................................................................. 6
  Statement of the Problem .................................................................................................................. 6
  Significance of the Problem ............................................................................................................ 10
  Problem of Practice ......................................................................................................................... 12
  Positionality Statement .................................................................................................................. 12
  Purpose of the Study and Research Questions .............................................................................. 17
  Theoretical Framework .................................................................................................................. 18

Chapter II: Literature Review ....................................................................................................... 28
  International Schools ...................................................................................................................... 29
  International Curricula .................................................................................................................. 45
  The New, Constructivist Pedagogies .............................................................................................. 53
  Summary ......................................................................................................................................... 76

Chapter III: Methodology ............................................................................................................. 78
  Research Questions ....................................................................................................................... 78
  Research Design ............................................................................................................................ 78
  Research Tradition ....................................................................................................................... 80
  Participants ..................................................................................................................................... 80
  Recruitment ................................................................................................................................... 81
  Data Collection .............................................................................................................................. 82
  Data Storage ................................................................................................................................... 83
  Data Analysis .................................................................................................................................. 83
  Trustworthiness .............................................................................................................................. 84
  Limitations ...................................................................................................................................... 85
  Protection of Human Subjects ........................................................................................................ 85
  Summary ......................................................................................................................................... 86

Chapter IV: Research Findings ..................................................................................................... 87
  Summary of Study Participants and Data Collected ...................................................................... 87
  Themes Related to Research Question 1 ....................................................................................... 95
  Themes Related to Research Question 2 ...................................................................................... 114
  Themes Related to Research Question 3 ...................................................................................... 125
  Summary of Findings ..................................................................................................................... 138

Chapter V: Discussion of the Findings .......................................................................................... 142
  Revisiting the Problem of Practice ............................................................................................... 142
  Review of the Methodology ......................................................................................................... 143
  Presentation and Discussion of Key Findings ................................................................................ 145
  Discussion of Findings in Relation to the Theoretical Framework ............................................... 156
  Discussion of Findings in Relation to Literature Review ............................................................... 162
Conclusion .......................................................................................................................... 171
Significance of the Study ................................................................................................. 172
Limitations of the Study ................................................................................................. 174
Validity of the Study ...................................................................................................... 175
Future Research Considerations .................................................................................. 176
Recommendations .......................................................................................................... 178
Personal Comments ....................................................................................................... 183

References ....................................................................................................................... 185

Appendix A: Email to IBDP Coordinators .................................................................. 212
Appendix B: Email to Teachers Who Are Identified as Using Constructivist Pedagogies .. 213
Appendix C: Signed Informed Consent Document ...................................................... 214
Appendix D: Interview Protocol for Interviews 1-3 ....................................................... 217
Appendix E: Interview Protocol for Interviews 4-10 ..................................................... 219

List of Tables

Table 1: Data about Schools from Which Participants Came ........................................ 88
Table 2: Data about Participants ................................................................................... 94
Table 3: Professional Development’s Connection to Constructivist Pedagogies ............. 103
Table 4: Specific and General Practices that Participants Use in Their IBDP Classes ....... 116
Chapter I: Introduction

Statement of the Problem

Globalization and technology are quickly changing the world (Zhao, 2012), yet schools remain “modernist institutions par excellence, located in a post-modernist context” (Hayes, Mills, Christie, & Lingard, 2006, p. 10). Most schools still operate according to an industrial model of education, one that was designed to produce good employees. In this model, students are grouped according to age and sit in rows of desks for 50-minute subject-specific periods listening to the teacher deliver fractured pieces of knowledge (Erickson, 2002; K. Robinson & Aronica, 2015, Zhao, 2012). Today’s students, digital natives used to having information at their fingertips through electronic devices, disengage from this process of schooling, finding it uninteresting, uninspiring, and irrelevant to their lives outside of the classroom (Couros, 2015; Resnick, 1987; Sheskey, 2010). Students are waiting for schools to catch up with their lives (Costa & Kallick, 2010; Martinez & McGrath, 2014).

Compounding this problem, the demands of the working world that these students will eventually enter have changed. Technology is replacing low-skilled workers (M. Tucker, 2016) and half of today’s students are preparing to enter jobs that do not yet exist (Shirley, 2016). There used to be a “general agreement about what information and understanding should be passed from one generation to the next” (Boyer, 1995, p. 82), but this is no longer the case. With technological development, the quantity of information is increasing exponentially, and the definition of knowing has changed from knowing information to knowing how to use that information (Wagner, 2012; Zohar & Dori, 2003). It is no longer sufficient for students to know academic content; the world requires that they develop innovative (Wagner, 2012), “nonroutine, creative, conceptual abilities” (Pink, 2009, p. 185). They must be able to understand and be able
to do something with that understanding (Erickson, 2007): analyze and evaluate, create and collaborate. They must be able to think critically about their knowledge (Marin & Halpern, 2011) and apply it to never-before-seen problems (Dostál, 2015; Harsh & Young, 2015; Hmelo-Silver, Duncan, & Chinn, 2007; M. Tucker, 2016). They must be able to and want to learn to learn (Barron & Darling-Hammond, 2008; W. Richardson & Dixon, 2017), to solve problems, and to be entrepreneurs and job creators (Zhao, 2012). The purpose of education is changing, so curriculum, instruction, and pedagogy must also change (Saavedra & Opfer, 2012) to match the demands of the world to the needs of students (Hayes Jacobs, 2010a). The current efficient industrial system of education is not preparing students to function effectively in their futures or to contribute to the needs of a rapidly changing, uncertain world (Fullan & Langworthy, 2014; Nair, 2010; W. Richardson & Dixon, 2017). This has led Glatthorn, Boschee, Whithead, and Boschee (2016) to assert, “We need to radically break from old approaches and embrace new ways of visualizing teaching and learning” (p. 12).

International schools educate some of the world’s most connected and economically fortunate students. Developed for the children of internationally mobile, high-achieving businesspeople and diplomats (Bunnell, 2009; Hayden & Thompson, 1998), international school populations have expanded. They now contain an increasing number of local host-country students who see an international education as providing them with opportunities to learn English, escape national examination-centered systems, attend universities abroad, and ascend the social hierarchy of their societies (Bunnell, 2010, 2011; Ezra, 2007; Gilbertson, 2014; Hayden, 2011; Lee, Hallinger, & Walker, 2012; MacKenzie, 2009, 2010; MacKenzie, Hayden, & Thompson, 2003; Potter & Hayden, 2004; Song, 2013; Velliaris & Willis, 2013; Wright & Lee, 2014b). Most international high schools adopt academically rigorous curricula, including
the International Baccalaureate Diploma Program (IBDP), Cambridge A-Levels, and Advanced Placement (AP). Although all of these programs base student evaluation, at least in part, on cumulative externally assessed examinations, the two-year IBDP is more comprehensive and holistic. It requires students to be academically well-rounded, as it assesses them in six subject areas, three at a higher level of study that is often comparable to university-level courses. In addition, students must complete the IBDP Core, which includes an epistemological course, Theory of Knowledge; the 4000-word self-directed Extended Essay (EE); and the extracurricular Creativity Activity Service (CAS) component. Student evaluation is both external, with 75-80 percent of each subject’s grade coming from the IBDP examinations, and internal, with the remaining 20-25 percent coming from internal assessments (IAs). IAs are projects that are directed by the students, assessed by the teachers, and moderated by the IB (Hill, 2012; Tookey, 2000).

Most advanced high school courses cover a lot of material and are therefore considered rigorous, but they are not truly rigorous if students do not learn and understand (Boss et al., 2011). The IB claims that the IBDP is based on a constructivist approach that involves inquiry and student action (IB, 2013, 2014), but many teachers still employ mainly teacher-centered, didactic methods, possibly including occasional teacher-driven investigations or activities (Pendergast, Dole, & Rentoule, 2014). While both the EE and the IAs require students to develop their own questions and seek solutions, students often see them as exceptions to generally teacher-centered education. Students may view these as requirements to tick off, rather than as opportunities to ask questions and explore their interests. The IBDP curriculum is content heavy, and many teachers lack time to fully develop meaningful, authentic project work (Wright & Lee, 2014a). This sometimes leads to rushed or superficial coverage of the content,
which is not enough to interest most students (Alberts, 2012). The high-stakes nature of the examinations, which determine students’ university placements (Lineham, 2013), encourages teachers to teach to the test and use past examination papers as formative in-class assessments. It also encourages students to care only about what and how content will be tested (Parker et al., 2013; Zhao, 2011, 2012), and to see the purpose of school as getting good grades, rather than true learning (Pink, 2009). This has led Costa and Kallick (2010, p. 225) to ask, “Are we educating students for a life of tests or for the tests of life?” Because most international schools are tuition-dependent and located in larger cities, competition for students requires that schools advertise their examination results. This leads many schools to focus more on results and less on learning; they fail to recognize that the two are not mutually exclusive (Boss et al., 2011; Campbell & Cabrera, 2014; Littky & Grabelle, 2004; Martinez & McGrath, 2014; Parker et al., 2013; Zafra-Gómez, Román-Martínez, & Gómez-Miranda, 2015). Even where learning is emphasized, the time that students spend on the overall IBDP requirements leaves them with little time or energy to develop their own interests and investigations outside of class. The diverse cultures and educational backgrounds represented by international school teachers may leave many feeling unprepared to teach content and skills in a constructive manner (Alliance for Excellent Education [AEE], 2011; Bailey, 2015; J. Robinson & Guan, 2012) and may leave them uncomfortable with the unpredictability and flexibility that constructivist pedagogies require (Gunderman, 2012; Harsh & Young, 2015). The diverse cultures represented by international school parents and students may lead to contradictory expectations about the purpose of education and the best ways to learn (Charlesworth, 2008; de Nooij & Riedel, 2010; Feinstein & Peck, 2008; Gan, 2009; Goad & Steuernagel, 2008; Krebs, 1997; Mertin, 2014; J. Robinson &
Guan, 2012). All of these factors combine to promote an education that does not adequately prepare students to be successful in the world they will enter.

**Significance of the Problem**

Failure to address the disconnect between pedagogy, in particular that often employed by IBDP teachers, and the requirements of modern society will fail to prepare many students to be successful in the real world. Students are not gaining the skills they will need in their future jobs. Although the IBDP examinations do promote critical thinking and problem solving (Wright & Lee, 2014a) and require some level of application and synthesis by asking students to “analyze,” “compare,” and “justify”, many students become good at these questions by reviewing countless past examination papers. While the internal assessments for each course do require students to investigate their own research questions, this is only for a short time and accounts for a relatively small portion of their grade, after which many teachers return to teaching and students to listening. Outside of these internal assessments, students rarely get opportunities to see their subjects in action, to apply their knowledge to real-world topics, or to work collaboratively. Students who are praised for achieving high results may lack the collaboration skills to work in teams. Students who get the coveted 45, the perfect score on the IB Diploma, may be unable to think flexibly or consider a problem from diverse perspectives. Students who are not prepared for their future may not be able to fully contribute to society, to solve the world’s problems, and to work diplomatically.

This problem affects not only students’ futures, but also their present. Today’s students are used to fast-paced learning; they can get all the information they need in seconds from the internet. Instead of listening to teachers, they can watch videos and read blogs by experts. They are bored and uninspired in traditional classrooms, listening to a teacher who can no longer be
considered an expert (Couros, 2015). The IBDP, despite its intention to be inquiry-based, in practice often remains teacher-centered and content-driven. Students thus sit through an education that they do not find interesting or engaging, spending their time memorizing information they can look up in seconds. They become bored and disengaged (Duffy & Elwood, 2013; Schussler, 2009), which may lead to misbehavior, truancy, apathy, or even dropping out.

This problem also affects teachers, who are caught between preparing students for examinations and preparing them for life. Teachers lose sight of the real purpose of education and may become frustrated by having to teach the same content, year after year, with little room for professional creativity. Although teachers often still ask to teach IBDP classes, with some viewing these classes as more prestigious, those teachers may become more focused on grades than on student understanding. Teachers, many of whom entered the profession hoping for change and believing in the power of education, may become disenchanted with the profession and either leave it prematurely or become satisfied with just getting by.

International schools are also becoming grade-driven and are, in some cases, losing sight of their reason for being: to educate students. In cities with multiple international schools, the numerical results from IBDP examinations allow schools to be easily compared (Alexander, 2010; Haywood, 2015; MacDonald, 2009). This puts pressure on schools, teachers, and students (Lineham, 2013). Because success can draw students away from other schools, schools are required to achieve high scores to survive (Machin, 2017; J. Robinson & Guan, 2012). Schools are in a constant state of change, however, and they must adapt in order to stay current and provide students with the education that they deserve. Otherwise, they will perpetuate the cycle of disconnect between the taught curriculum and societal needs.
Problem of Practice

Many IBDP schools focus heavily on preparing students for success in IB examinations. Time constraints, a content-heavy curriculum, and cultural factors all may discourage teachers from adopting the constructivist pedagogy that the IB promotes. With some exceptions, many teachers still employ predominantly teacher-centered traditional pedagogies. This leads to students who are uninspired, disengaged, and unprepared to be successful in a changing world.

Positionality Statement

*Traditional education* could be described as teacher-centered learning where students sit and listen to the teacher, take notes, complete daily homework, and take end-of-unit summative tests. This is sometimes referred to as the *banking* concept of education, in which students are filled with information by their teachers (Freire, 2000). In theory, 13 years of such traditional education leads to university and later to one’s desired career. The importance of this traditional education was stressed to me from a very young age. I was good at school, and in areas in which I struggled, albeit only slightly, I learned that hard work could compensate for my weaknesses. I was well served by the education that I received. I learned by listening, reading, and writing, and I enjoyed studying traditional subjects like mathematics, English, and science. By high school, I was an overachiever, taking the most difficult courses offered, especially in my favorite subjects, mathematics and Spanish, knowing that I wanted to pursue these further in university. There is a strong history of university attendance in my family, especially on my father’s side, where both of my grandparents held advanced degrees, somewhat of a rarity at that time. There was never any question that I also would attend university. Throughout my life, I have loved studying and have valued traditional education. As a teacher, I still do. This research topic, then, is quite different from my personal experience with education.
I graduated from university without a teaching degree, and I spent the next year volunteering in Atlanta Public Schools through AmeriCorps. In addition to doing very scripted reading support during the day, I helped run an after-school program, in which I could make learning come alive through inquiry and projects. I asked the students what they wanted to learn more about, and then we designed projects and activities around these topics. During the day, I was required to use traditional teaching methods, but I had freedom after school. Both the students and I enjoyed it so much more. During those times, indeed, I truly loved teaching.

I was fortunate to attend a somewhat alternative Masters of Education program for people who had previously earned degrees in languages, humanities, mathematics, or sciences, and who wanted to become teachers. Through that program, I learned principles of teaching, gained classroom experience, and earned my teaching certification. Because the program was not a mainstream undergraduate program, the participants were given classes to teach after only a single summer of educational theory. We were also given a lot of opportunity and encouragement to experiment and to try new teaching pedagogies. This is when I began to learn about student-centered constructivist education as a way to engage students in learning topics that are often perceived as a boring and very difficult. I was encouraged to come up with creative ways to make reluctant students not only learn the processes of mathematics, but also to see the beauty and importance of the subject.

After several years of teaching in the United States, I moved to Shanghai, China, where I took a position teaching mathematics at an international school. My teaching duties included several lower secondary mathematics courses in addition to the IBDP Mathematics Standard Level (SL) course. This was my first experience with the IB, as well as my first experience with all students completing such a demanding course. It was also my first time teaching a
predominantly Asian classroom of students, many of whom were amazing at computations but weaker in the creative application of and critical thinking about mathematical concepts. The two-year course was content-heavy, and it emphasized the final examination that would ultimately determine students’ university placements. As a first-year IBDP teacher, I no longer had time to teach creatively for understanding; I just had to get through the content. The students responded and their results were strong, which created a cycle of mostly teacher-centered traditional teaching and good results. After several years, I found that I was getting bored of teaching the same thing in the same way. If I was bored teaching, I could only imagine how the students were feeling. When I started teaching a new lower-level class, IBDP Math Studies SL, I decided to try something new by incorporating more projects, more collaborative work, and fewer tests into my teaching. The students and I both enjoy it. It’s nothing out-of-the-box, and it’s certainly not full project-based learning, but it’s a start.

Several years after I moved to China, I transitioned into the role of part-time IBDP Coordinator. I became responsible for overseeing all aspects of the IBDP, working with teachers, parents, students, and administrators to ensure that teaching and learning were happening, and for monitoring student results to ensure that our IBDP scores remained competitive. I was now torn between wanting to promote high-quality yet sometimes experimental constructivist teaching, which was not always well received by the school community, and wanting to ensure that our scores remained as high as possible. Although I continue to negotiate this conflict, I am cognizant of the need for a change, not just at my school, but at many IBDP schools.

International schools have diverse populations. The students and teachers at my school represent approximately 50 nationalities. My students are from a wide range of countries and
many are racially mixed. Many of them have spent much of their lives living outside of their home culture and therefore may not feel a sense of belonging to any culture; they are *Third Culture Kids* (TCKs) (Pollock & van Reken, 2009). Others have spent their entire lives in China, attending local Chinese schools before transferring into my school’s IBDP. It would be easy for me to generalize with regards to cultural expectations about education, and in particular about higher education and career goals, while forgetting that my students are individuals and that they may or may not even connect with their home culture. Similarly, teachers in many international schools come from a range of countries and bring diverse educational and teaching experiences to the school. Therefore, I need to recognize that my monocultural upbringing could predispose me to adopting a White supremacist attitude that could lessen the objectivity of my research and devalue the experiences of my non-White participants (West, 2003). I must not look at students or other teachers from any nationality or culture, or even from their third culture, from a cultural deficit perspective (Carlton-Parsons, 2008; Sensoy & DiAngelo, 2012; Yosso, 2005), but rather must value the cultural capital that multicultural education provides (Olneck, 2000). At the same time, I must not adopt colorblindness and hesitate to recognize their culture as an important part of their experience (Ladson-Billings, 2009; Yosso, 2005). In addition, because I will be basing my research in Asia, I will need to be aware of, and avoid perpetuating, stereotypes about Asians in education and Asians as a model minority (Chang, 1993; Ng, Lee, & Pak, 2007).

Because I was well-served by the education I received and was good at and inspired by school, it can be difficult for me to recognize the ways that traditional education fails to prepare students for the changing world. As a teacher, I may be inclined to teach as I was taught (Davis, 2010), through lecture, readings, notes, and tests. As an administrator, I may unconsciously still
view this as good teaching. Likewise, because most educational curricula center around the White perspective, learning was easier for me (Sharp, 2003). I need to recognize that this is not the case for many of my racially and culturally diverse students; I must work to bring critical, diverse perspectives into my teaching and my study (Ladson-Billings, 1995) and seek to understand, rather than to judge (Savva, 2017). I need be aware of these biases and actively strive to remember that today’s world is not the same as the one in which I grew up and that students need to be able to use and transfer their knowledge and understanding to new never-before-seen situations.

My position as IBDP Coordinator predisposes me to an elevated respect for the IBDP. My desire for students to do well on their examinations stems from both a concern over their future university study as well as a concern for myself, my job, and my school. If my students do well on their IBDP examinations, they can go to the universities of their choice, and I am praised; if they do not, I must respond to inquiries from my board, co-principals, parents, and the greater Shanghai community. School enrollment is dependent on the results of these examinations, so my colleagues’ jobs are also dependent on these results to some extent. I must remain confident that constructivist pedagogies do not mean that students will not do well on IB examinations. I must also constantly remember that the purpose of education is to prepare students for their futures, not solely to prepare them to take a high-stakes examination.

As a scholar-practitioner, I have developed a dual identity and have sometimes struggled to balance my research with my teaching practice (Labaree, 2003; Nganga, 2011). I based my research on my own identification and understanding of a problem in the IBDP. I was able to generate new knowledge about the teaching of the IBDP, which I hope will help other teachers better understand the ways in which they might implement these pedagogies in their classrooms,
while simultaneously improving my own practice of teaching mathematics and coordinating the IBDP at my own school (Wasserman & Kram, 2009).

In conclusion, as a scholar, an international school teacher, and an IBDP Coordinator, I have had many experiences with traditional education, and I am seeking to better understand how teachers employ constructivist, student-centered pedagogies to their IBDP classrooms. I brought my own experiences and biases into my research, which may have affected my interpretation of these teachers’ and students’ experiences. Therefore, throughout the research process, I have needed to be reflective and to assess any ways that my preconceptions may affect my research (Josselson, 2013).

**Purpose of the Study and Research Questions**

The purpose of this study was to collect, present, and reflect on the experiences of IBDP teachers who have developed and consistently employed constructivist pedagogies in their IBDP classrooms. Little research has been done on pedagogies within the international school classroom (Allan, 2015). Wagner (2012) called for “more profiles of quality instruction” (p. xi); learning from these teachers may yield some insights and recommendations for how other IBDP teachers and schools could adopt more constructivist pedagogies to better engage their students and enhance their learning.

With this in mind, the three research questions guiding this study are:

1. How do IBDP teachers who have developed and implemented constructivist, student-centered learning practices in their classrooms describe and explain the development of those practices for the purpose of increasing their students’ engagement and enhancing their learning, with a specific focus on doing so within an IBDP curriculum and school culture?
2. What practices have IBDP teachers implemented, and what are the outcomes of those practices, above and beyond the more “traditional” means of teaching IBDP classes, as evidenced and perceived by them?

3. What areas of tension exist between constructivist pedagogies in the IBDP, and how do teachers seek to address them?

**Theoretical Framework**

Constructivist learning theories posit that knowledge is not imposed from external sources, but rather that it is internalized and created or discovered by individuals (Phillips, 1995). In this view, learning results from building upon prior knowledge and experiences to construct one’s own meaning (Krahenbuhl, 2016), thus producing, rather than reproducing, knowledge (Newmann & Associates, 1996). Students apply their own previous understandings to the knowledge to make it their own and to represent it in their own way (Elkind, 2005); this knowledge must fit within their existing, yet expanding, reality (Glatthorn et al., 2016). They may have different paths to knowing, and different students may be at different points of knowing at a given time. However, over time, they will gradually adapt to the accepted truth (Riegler, 2011). While all individuals construct meanings based on their past experiences, schools must aim to “improve the quality of the meanings that students construct” (Newmann & Associates, 1996). In schools, constructivism is often characterized by authentic and active learning tasks that are based on students’ existing understanding. It may involve students acting as experts to investigate and make discoveries that enable them to construct meaning. Constructivism also enables students to learn by asking questions and making sense of the responses (Glatthorn et al., 2016). Through this process, they learn not only content but also
skills and competencies that they can use in other subject areas, grade levels, university, and work (Krahenbuhl, 2016; Matthews, 2003).

There are many different overlapping but differing sects within constructivism, based on psychological, epistemological, sociological, and historical aspects, that focus on individual learners or public subject matter (Phillips, 1995). In general, however, constructivist learning theories take their roots from Rosseau’s *Emilie* and John Dewey’s discovery learning and progressive education (Krahenbuhl, 2016; Matthews, 2003). Developmental psychologists Jean Piaget and Lev Vygotsky are most often credited with developing constructivist learning theories throughout the 20th century. Despite developing their own respective theories at approximately the same time, Piaget and Vygotsky took different approaches to constructivism. While they are different, these two theories can be applied simultaneously and in a complementary manner to teaching and learning.

**Piaget’s individual/psychological/cognitive constructivism.** Piaget is often called “The Father of Modern Constructivism” (Elkind, 2005, p. 332). His psychological cognitive constructivism assumes that meaning is constructed around a phenomenon. Piagetian constructivism could be termed autonomous (Lourenço, 2012), in that each learner is unique and has his own needs, interests, and experiences from which to internally construct knowledge (Aubrey & Riley, 2016; Lourenço, 2012). The way that meaning and knowledge are formed is influenced by one’s previous background knowledge and can be constructed individually or within a group (V. Richardson, 2003; Schrader, 2015). Piaget’s model asserted that children attain different levels of reasoning as they mature (Elkind, 2005) and presented categories of knowing at various stages of development (Elkind, 2004). Each stage must be fully developed before a child can progress to the next stage (Aubrey & Riley, 2016). Considering new
information creates disequilibrium, and the students construct meaning as they adapt (Aubrey & Riley, 2016; Schrader, 2015). This leads to more complex thinking and knowing than what was attainable at previous stages (Carey, Zaitchik, & Bascandziev, 2015; Schrader, 2015). Students’ developmental stages constrain what children can understand (Carey et al., 2015), so these stages must be matched to the academic curriculum’s content and skills (Elkind, 2005). In order to not overwhelm students, teachers must create the right amount of challenge and disequilibrium, allowing students to self-organize and adapt (Doll, 1993).

In Piagetian constructivism, students need to actively build upon previous knowledge and understanding (Lourenço, 2012) to change their conceptual systems. This involves more than just a change in beliefs that one considers to be true or an accumulation of facts. These conceptual changes enable a greater ability to think about systems of interrelated changes (Carey et al., 2015). Although they do not specifically cite Piaget’s constructivism, Baviskar, Hartle, and Whitney (2009) asserted that there are four critical characteristics of constructivist learning, which align with Piagetian constructivism. First, new learning is built upon a learner’s prior knowledge. Second, cognitive dissonance is created as learners work to assimilate new knowledge into their existing schema. Third, learners apply the knowledge to new contexts and receive feedback on that application. Finally, learners reflect on what they have learned.

**Vygotsky’s social constructivism.** Whereas Piaget’s constructivism focused on ways in which an individual constructs meaning, Vygotsky’s social constructivism could be termed heteronomous. It adds a relational perspective (Lourenço, 2012), considering the social context that is required when acquiring knowledge (Elkind, 2004). Learning comes from an asymmetrical relationship, as one learns from more advanced peers or from expert adults and then internalizes that understanding (Lourenço, 2012). Vygotsky assumed that knowledge is
constructed within a political, ideological, or social structure (V. Richardson, 2003) and that culture determines one’s learning and teaches one how to think (Schrader, 2015). He claimed that knowledge is negotiated socially and introduced the Zone of Proximal Development (ZPD), the difference between what people can do alone and with others. Social learning occurs first, and internalized understanding comes later (Lourenço, 2012).

Teachers should create activities that promote dialogue and discussion while directing students towards mastery and enabling cultural assimilation (Hyslop-Margison & Strobel, 2008). Students should work with more advanced peers and experts, including the teacher, to explain how learning occurs; these people affect both what is known and the individual's mental habits of knowing (Claxton, 2007). Learning may be more guided than in Piaget’s constructivism (Schrader, 2015). Scaffolding of knowledge is encouraged in Vygotsky’s constructivism (Lourenço, 2012), as students assimilate others’ more advanced knowledge into their own to reconstruct their thoughts (Schrader, 2015). This form of constructivism often focuses on early childhood development (Hyslop-Margison & Strobel, 2008).

Although Piaget and Vygotsky presented forms of constructivism that have different foci, the two approaches have some commonalities. Both of them focus on individual psychology, rather than public discipline, but Piaget considers biological and psychological factors and Vygotsky studies social factors as ways to an individual’s development (Lourenço, 2012; Phillips, 1995). In both theories, rather than simply accepting information, humans think for themselves to construct meaning (Aubrey & Riley, 2016; V. Richardson, 2003) based on their prior knowledge and experience. This affects how they interpret or experience this new information (Hyslop-Margison & Strobel, 2008). Both forms of constructivism stress the importance of play, especially for young children (Aubrey & Riley, 2016); for older children,
this can be seen as experimentation, problem solving, interactive learning, and collaboration.

Schrader (2015) argued that both views assert that the motivation to learn comes from within the knowledge itself, as students construct learning in their mind instead of merely receiving it from a teacher (McTighe & Curtis, 2016). Both forms of constructivism are dialectical processes in which students learn through problem-solving. “Cognitive and sociocultural constructivist perspectives are two sides of the same coin; they are indissociable from one another” (Schrader, 2015, p. 30). An either-or approach is not needed when considering these two perspectives (Cobb, 1994), as in neither theory can the internal individual be separated from her external social context (Lourenço, 2012). They are, therefore, complementary and can inform each other (Cobb, 1994).

When teachers adopt constructivist pedagogies, they become fundamental to their way of teaching (V. Richardson, 2003). Teachers often take on the role of “facilitator of meaning making” (McTighe & Curtis, 2016, p. 104). Their pedagogy centers on developing deep understanding as well as habits and skills that contribute to future learning. Characteristics of constructivist pedagogies include active student-centered learning that pays attention to a student’s background and interests, social interactions and group dialogue to create a shared understanding, planned and unplanned formal instruction as needed, internal motivation to learn, opportunities for students to challenge their beliefs and understandings, engaging tasks, and development of students’ meta-awareness (Krahenbuhl, 2016; Matthews, 2003; V. Richardson, 2003). However, even constructivist teachers will use other pedagogies when appropriate. They may use other strategies to scaffold learning as students advance from novice to expert in a particular topic, so as to not overwhelm students as they learn both new content and new skills (Krahenbuhl, 2016), or they may introduce content as students require it to work through real-
world problems (Boaler, 2015). In addition, students may make discoveries that are untrue or incorrect while they are learning constructively. If teachers do not address incorrect schema, they may be stored in students’ long-term memory and hinder future learning (Elkind, 2005; Krahenbuhl, 2016).

**Criticisms of constructivism.** In education, constructivist learning theories focus on the way that students construct knowledge to learn. There is no constructivist teaching theory, and it can be difficult for teachers to translate constructivist learning theories into constructivist pedagogies (V. Richardson, 2003). For schools to successfully implement constructivist pedagogies, there must be teacher, curricular, and societal readiness (Elkind, 2004).

Teachers may want to improve their teaching and employ the best pedagogies; however, desire alone is not enough (Alsharif, 2014). Many claims of constructivist pedagogy are heavily influenced by teacher-centered instructivism (Koutropoulos & Girelli, 2015). Many teachers may claim to take a constructivist approach but do not apply the appropriate pedagogy (Hyslop-Margison & Strobel, 2008). To successfully implement constructivist pedagogies, teachers must have both content and pedagogical expertise, and they must be familiar with child psychology (Elkind, 2004). Students cannot simply learn through constructivist pedagogies without having a basis of knowledge on which to construct their understanding (Hattie & Yates, 2014). In secondary schools, teachers may have such content expertise, but it is difficult for primary school teachers to have this in-depth knowledge across the multiple subjects that they teach (V. Richardson, 2003). In a study of Dutch biology, chemistry, and physics teachers who were simultaneously transitioning to a new science curriculum and a more social-constructivist pedagogy, Henze, van Driel, and Verloop (2009) found that teachers who rated themselves as having either insufficient content or insufficient pedagogical knowledge at the start of the course
made less progress, worked individually, and focused more on making the abstract content concrete for themselves and their students. Teachers who rated themselves as having sufficient content and pedagogical knowledge worked more collaboratively, encouraged collaboration and discussion from their students, and helped their students to actively construct meanings. After several years of teaching the new syllabus, all teachers made significant progress and perceived themselves as competent in both subject matter and teaching methods. However, the teachers who initially rated themselves as sufficient remained more engaged in professional learning activities to further improve their content and pedagogical knowledge.

Teachers at all levels may lack experience in connecting content to students’ lives; they may lack confidence in giving more control to the students, or they may believe that the more they present, the more students will learn (Alsharif, 2014). Teachers may plan interesting activities or projects for students that, despite intentions, do not enable students to construct meaning. Test-driven curricula do not encourage the use of constructivist pedagogies (Elkind, 2004) and often turn education into test preparation (Zhao, 2012). Currently, there is a disconnect between teacher education programs and the reality of the classroom. Teachers are rarely taught more than one course about child development (Elkind, 2005). Despite recommending that teachers employ constructivist pedagogies, many teacher training programs use transmission methods, so teachers often have not experienced constructivist pedagogies themselves and therefore have difficulty implementing them in their classrooms (Elkind, 2004; V. Richardson, 2003; Wagner, 2012).

Currently, the scope and sequence of most subjects is based on tradition. To ensure curricular readiness, the scope and sequence of each course must be based on both the logical structure of the subject as well as on an understanding of child development and readiness.
Content must match students’ developmental abilities and reasoning power, otherwise they may construct incorrect meanings. Further research on the timing of teaching topics is needed, as there is currently little data on this (Elkind, 2004).

Finally, educational change is only successful when society recognizes that there is a need for that change, and demands it (Elkind, 2005). Students look to teachers to share their knowledge (Carson, 2005, 2006), and some cultures value the delivery of knowledge from older to younger generations, which supports teacher-centered pedagogies (Alsharif, 2014). Previous major educational changes in the United States were implemented because society recognized a need to change. World War I and negative reactions towards Europe pushed the United States to adopt a less English-based and more progressive curriculum. In 1957, the Russian development of Sputnik led to an American curriculum that placed more emphasis on mathematics and science. This was followed by concern that students were not sufficiently learning basic content and skills, which resulted in the Back to Basics curriculum. Recent curriculum initiatives have had less societal acceptance: A Nation at Risk lacked a sense of urgency and did not create lasting change, while No Child Left Behind (NCLB) was implemented for political reasons and based on a business model, leaving many hesitant to implement it (Elkind, 2004). Currently, however, technology is advancing quickly, allowing learning to transcend the classroom walls. These advances in technology use, both in and out of the classroom, may improve societal readiness for a curricular and pedagogical change worldwide (Elkind, 2004; Schrader, 2015). Furthermore, society is ready for a change due to the rising achievement gap, violence in schools, diluted content, and low standards (Carson, 2006).

Constructivist pedagogy is not necessarily the best for all teachers or all students, and schools should not impose it on their teachers. Matthews (2003) argued that by employing
constructivist pedagogies, teachers are not using other, more effective pedagogies. Different cultures view teaching and learning differently, and not all teachers or students may appreciate or teach or learn best from such pedagogies (V. Richardson, 2003). However, according to Baviskar et al. (2009), any teaching technique can be designed in a constructivist way, provided that it is planned and implemented to maximize opportunities for students to learn. Conversely, simply following a particular constructivist pedagogy does not guarantee that students will construct understanding. Hattie and Yates (2014, p. 78) echoed this sentiment, stating, “There is little basis to suggest that personal discovery within itself assists a person to actually learn,” adding that teachers may need to directly teach students the skills required to develop deep understanding.

At the extreme, Carson (2005) argued that constructivists cannot be moderate; radical constructivists argue that all meaning is constructed relative to the learner, and because it is based on the learner’s previous experiences and interpretations, it cannot be challenged, tested, or deemed incorrect (Carson, 2005, 2006; Krahenbuhl, 2016). This leads to the interpretation that all understanding is true, as long as the learner thinks that it is true (Carson, 2005).

Although constructivist learning theories were developed in the early 1900s, they are more applicable than ever to education today. Given advances in technology and changes in what students should know and be able to do, education must change in order to stay relevant to students and to prepare them for their futures. Constructivist pedagogies enable students to make sense of their meaning and to create knowledge for themselves. Since Vygotsky and Piaget developed their theories, other branches of constructivism have been created, and pedagogies have developed to support constructivism in the classroom. However, the extent to which
teachers are able to successfully employ these recently developed pedagogies within the existing education systems, which value accountability and high-stakes testing, remains limited.
Chapter II: Review of the Literature

International schools provide a rigorous education to expatriate and, increasingly, to local students. Many international schools are competitive and results driven, especially in cities that host a variety of international schools from which students and parents can choose. Success at these schools is measured primarily by results on external examinations, such as the International Baccalaureate Diploma Program (IBDP) or the International General Certificate of Secondary Education (IGCSE), or in more nationalized schools the Advanced Placement (AP), A-Levels, or O-Levels. These examinations enable students to attend university in their home countries and abroad. For many schools, teachers, and classes, these content-heavy courses and high-stakes tests lead teachers to employ didactic, teacher-centered methodologies even though some of these programs promote inquiry-based pedagogies. This literature review studies the characteristics of international schools and the distinguishing features of the IBDP. This literature review also looks at more recent student-centered pedagogies, including deeper learning, inquiry-based learning, and project-based learning. Studying the features and outcomes of these pedagogies in relation to international schools and the IBDP may help explain why many IBDP teachers in international schools do not consistently employ them in the classroom.

This literature review will answer several questions. First, what are the characteristics of international schools and their student populations, and what drives parents and students to choose international schools? Second, what are the philosophies and realities of the IBDP curriculum? Third, what are the characteristics of recent constructivist pedagogies, and what effects do they have on student motivation and student results? Finally, how can IBDP schools adopt newer pedagogies that better align with both the IBDP philosophy and with current best practices in education?
To accomplish this, the literature review is divided into three sections. The first section focuses on defining international education. It considers international schools, first in general and then more specifically in Asia. It looks at the various types of international schools, the reasons that parents and students choose international schools, and the international school student population. The second section looks at the IBDP, its components, and the underlying philosophy behind the program. The third section details more recent constructivist pedagogies and practices being employed by teachers, particularly deeper learning, inquiry-based learning, and project-based learning. It identifies the elements of these pedagogies, their desired and expected outcomes, and challenges to implementing them in classrooms and schools.

**International Schools**

International schools are, and always have been, difficult to define (Berting, 2010; MacDonald, 2007, 2009; Walker, 2015). They have a dizzying range of characteristics, including accreditation, affiliation, curricula offered, governance, mission, reputation and size (Velliaris & Willis, 2013; MacDonald, 2007, 2009; MacKenzie et al., 2003). According to Walker (2004), there is no restriction on the term *international school*, as no governing body gives this title, international schools can be opened by governments, individuals, and corporations and can model their education on top schools worldwide (Velliaris & Willis, 2013). Although there is no set international school ethos (MacKenzie et al., 2003), international schools often are designed to serve the needs of expatriate families who may or may not move frequently, and, therefore, they do not deliver the local curriculum of the host country (Hayden & Thompson, 1998; MacKenzie, 2010). The clientele of international schools often includes the children of diplomats, international businessmen, and non-governmental organization staff (MacDonald, 2009), although they are increasingly opening up to local students (Lee et al., 2012;
Hayden, 2006), which creates stability within an otherwise transient student population (Velliaris & Willis, 2013). International schools may operate in English or in another language, with large cities worldwide being home to Chinese, French, German, Indian, Japanese, and Korean-language international schools (Velliaris & Willis, 2013). Administrators and teachers in international schools are predominantly expatriates for whom the language of instruction, often English, is a first language (Carder, 2009). Possibly most importantly, expatriate international schools are accredited by Western agencies such as the New England Association of Schools and Colleges (NEASC), the Western Association of Schools and Colleges (WASC) and the Council of International Schools (CIS), which makes their diplomas recognized by universities worldwide (MacKenzie, 2009).

Types of international schools. Increasingly, both expatriate and national parents and students worldwide are seeking a more internationalized education that places greater emphasis on learning foreign languages, especially English. This leads to greater diversity, not only in the student population in international schools, but also in the types of international schools that exist (van Werven, 2015). Berting (2010) asserted that international schools can be placed on a continuum from more local to more international, with the more internationalized schools being viewed more favorably. Similarly, Velliaris and Willis (2013) outlined four types of schools in which expatriate children can enroll: expatriate international schools that focus on a non-nationalized curriculum, expatriate international schools that focus on a nationalized curriculum, local international schools that focus on a non-nationalized curriculum, and local national schools that accept international students. Additionally, international schools can be proprietary, not-for-profit, or for-profit (Stout, 2015); most international schools are currently for-profit (Bunnell, 2015a).
The first international schools were developed in local contexts around the world in the late 19th and early 20th century to focus on goodwill and peace (Räsänen, 2015; Sylvester, 2015). As international organizations such as the League of Nations, the International Labour Offices, and the United Nations developed headquarters around the world, expatriate international schools were established, first in Geneva, Yokohama, Paris, and New York, and later throughout the world, to educate the children whose parents were working for those organizations (Hayden & Thompson, 2016; Hill, 2001). Although the expansion of European and Western education was often a byproduct of colonization, international schools employed those educational paradigms to educate European and American students living in international cities (Dittrich, 2016). Initially those schools followed a curriculum that mirrored education in England, albeit with additional attention to world history and geography. Eventually they began to serve the needs of their diverse populations by adopting more non-nationalized curricula, such as those set up by the International Baccalaureate (IB) and the International General Certificate of Secondary Education (IGCSE) (Hill, 2001; Velliaris & Willis, 2013). Both of these rigorous 2-year programs lead to external examinations and international certification, which are recognized worldwide and allow students to apply for university in most countries. Entrance to these schools is open to students from all nationalities, provided they can operate in the language of instruction, usually English. Tuition at these schools is high, but for international students, it is often paid for by employers who recognize the need for their employees’ children to have a high-quality, transferrable education. However, when local students attend exclusive expatriate international schools, their parents usually pay the high tuition fees (Haywood, 2015; Song, 2013).
Some expatriate international schools tend to focus on a nationalized curriculum; these schools may also be called national schools in an international context or transnational expatriate national schools. These include, for example, American schools, British schools, French schools, Japanese schools, or Korean schools in an international city (Velliaris & Willis, 2013). These schools may be more similar to schools in the home country in terms of student populations, structure, classroom decorations, architecture, and extracurricular activities (Murakami Ramalho, 2007), offering a level of familiarity for students (Harrison, 2015). Both students and staff are more likely to be from the home country. These school curricula vary but mirror those of the home country, such as the American Advanced Placement (AP) system, the United Kingdom’s A- and O-Levels, the French Baccalaureate, and the Korean university examinations; they may or may not offer additional non-nationalized curricula such as the IB (Murakami Ramalho, 2007; Velliaris & Willis, 2013). The language of instruction is usually that of the home country, and the school may adopt less of a worldview and focus on replicating the education that would be attained in the home country (Velliaris & Willis, 2013). Students at these schools, regardless of whether or not they are of the home nationality, may be seeking to attend university in the home country (Murakami Ramalho, 2007). Like expatriate international schools that focus on international curriculum, these schools often charge high tuition, although this may be subsidized by the home governments of the schools. Parents’ employers often pay the tuition for these schools (Velliaris & Willis, 2013). This literature review will define *expatriate international schools* as including both those that focus on non-nationalized curriculum and those that focus on a nationalized curriculum, due to similarities in student body makeup and student and teacher expectations.
International schools catering to expatriate students increased steadily throughout the 20th century (Hayden & Thompson, 2016). In the 21st century, however, international education has grown exponentially, mostly due to local international schools opening worldwide to educate host-country middle-class students (Hayden, 2011), with rapid growth occurring in Asia and the Middle East (J. Robinson & Guan, 2012; Walker, 2015; Wright & Lee, 2014b). As the student population grows and becomes more competitive, local students look overseas for university. Local international schools, which are usually taught in English and adopt non-nationalized curricula such as the IB or A-Levels, require students to learn English quickly and allow them to attain international qualifications they can use to apply to universities worldwide. However, their student populations may be monocultural, leading to confusion over the designation “international” (Fryer, 2009). Local international schools often require tuition payments for entrance, but these fees may be considerably less than those of expatriate international schools. Although most students are from the host country (Velliaris & Willis, 2013), local international schools may also attract expatriate students whose parents’ companies do not pay tuition, who pay a smaller tuition subsidy, or who want greater interaction with students from the host country. Because of their rapid growth and large number of students, these schools can be considered “the new face of international education” (Walker, 2015, p. 12).

Local national schools focus on the nationalized curriculum of the host country. These schools often accept expatriate students, although, especially in Asia, language can be a barrier for expatriate students in these schools. According to Velliaris and Willis (2013), after middle school, even expatriate students who have been enrolled in local schools since Grade 1 may find it difficult to keep up with the language level that is required to complete coursework in all subjects. This is especially true in nonalphabetic languages such as Chinese and Japanese.
Local national schools often focus on local graduation requirements as well as rigorous preparation for national university entrance examinations (Velliaris & Willis, 2013). For these reasons, local national schools generally contain a small number of expatriates. Because they do not meet many of criteria to be considered international schools, they will not be discussed further in this literature review.

Finally, some local national schools run a local curriculum through eighth or tenth grade and then employ an international curriculum for the final two or four years of schooling. This keeps students in the local system for as long as possible before finally preparing them for overseas universities. Poole (2018) found that this can lead to irreconcilable ideological differences based on differing identities at the rhetorical, curricular, and personnel levels. Additionally, in certain countries, students in national schools who complete an international curriculum must simultaneously complete the national curriculum. This increases the content they are expected to know and the tasks they are expected to complete, and limits the time that they can devote to either (Kadioğlu & Erişen, 2016).

Franchised elite private schools from the United States and United Kingdom, such as Dulwich, Dwight, Harrow, and Wellington (Bunnell, 2010, 2015a; Hayden & Thompson, 2016; Lee & Wright, 2015; Walker, 2015), as well as educational transnational education corporations such as Cognita, GEMS, and Nord Anglia (Kim, 2016), have begun opening branches around the world, particularly in the United Arab Emirates, Thailand and China. Although they accept international students, many of these schools cater to the global elite of the host country, using their brand name as a status symbol that provides social capital to those who can afford the high fees (Bunnell, 2010; Lee & Wright, 2015; Taylor, 2015). They usually offer international programs such as the IB and A-Levels, preparing students to attend university in England
(Bunnell, 2008a). However, fit with cultural realities must be considered when adopting such programs, as these imported programs, which were designed to meet criteria specific to the country in which they were developed, may not work in international settings. They might need to be adapted so much that they are no longer recognizable as the original program (Sperandio, Hobson, Douglas, & Pruitt, 2009), or they may focus on branding and being seen as the best, rather than providing the best education (Kim, 2016).

**International schools in Asia.** International schools have a long history in Asia. Although there is brief mention of the 1898 opening of a school in Seoul to prepare students for university in England and the United States, the first official English-medium school for international students in Korea opened in Pyongyang in 1900 (Dittrich, 2016). This was followed by a Chinese-medium school for Chinese citizens in Seoul in 1902 (Song, 2013), and Seoul Foreign School, which is still in existence today, in 1912 (Dittrich, 2016; Song, 2013).

The English-medium schools attempted to instill a sense of national pride and sense of social responsibility to the home countries, and they replicated both academic and extracurricular life in the home countries, effectively isolating the expatriate population from the local Korean population (Dittrich, 2016). After closing most international schools during World War II and the Korean War (Dittrich, 2016), South Korea saw most of its international schools develop in the 1990s as international business in the region grew. These first of these later international schools were classified as *oikwukin hakkyo*, or foreigners’ schools, and they served only expatriate students. Now, however, expatriate international schools in South Korea can enroll South Korean nationals for up to 30 percent of their student population, provided that those students had lived outside of South Korea for a minimum of 3 years. The South Korean government has also begun to establish global education cities where South Korean students can
attend international schools regardless of their previous international exposure (Lee & Wright, 2015). However, more local international schools are opening that target South Korean nationals because of the relative newness of and the remote locations of these global education cities, the high demand for English-language instruction in South Korea, and the desire for students to avoid Korean university-entrance examinations by obtaining internationally recognized qualifications. These schools provide South Korean parents with more choice in their children's education, provided that they are able to pay the high tuition (Song, 2013).

According to Dittrich (2016) and J. Robinson and Guan (2012), international schools in China began as early as 1898 and further developed in the early 1900s, like in South Korea, but they all closed in 1949 due to restrictions by the government. Early international schools in China were perceived as better than those in Korea because of the larger expatriate settlements; thus, Chinese international schools attracted boarders from the Korean expatriate community (Dittrich, 2016). As China opened up in the 1980s, so too did its international schools, but only to expatriate families. Expatriate international schools in China still only accept foreign passport holders, although restrictions are relaxing (Wright & Lee, 2014b, 2015; Yan, Han, & Cai, 2015). Many international schools in China have a high concentration of East Asians, many of them self-reported Chinese nationals who hold foreign passports (Wright & Lee, 2014b). As more Chinese students look overseas for university, due to both an increased average income and perceived poor postsecondary education in China, there is more demand for students to complete internationally recognized, English-based studies (Goad & Steuernagel, 2008; J. Robinson & Guan, 2012). Therefore, local schools are opening international divisions that cater to the needs of Chinese students. Depending on the type of international program, Chinese students may need to complete dual curricula: a Chinese curriculum that focuses on memorization and testing
as well as an international curriculum that usually focuses on critical thinking and creativity (J. Robinson & Guan, 2012; Yan et al., 2015).

Like China, Japan had a large expatriate settlement. Its early international schools were therefore sought after by expatriate students residing in other countries (Dittrich, 2016), even though these schools were usually set up to replicate education in one specific country. In 1924, however, Japan became the first Asian country to open an international school specifically designed to serve students from a variety of foreign countries, Yokohama International School (Hill, 2001; Sylvester, 2015). Like in South Korea, Japanese students aged 6 to 15 are required to attend local Japanese schools. However, according to MacKenzie (2009), this rule is rarely enforced (unlike in Korea); in 2009, Japanese students made up 46 percent of the international school population in Japan. Perceived problems with the Japanese education system, including a centralized, prescribed curriculum that prepares students for Japanese university entrance exams and an emphasis on conformity, have led many Japanese parents to seek out international education for their children.

Currently, international schools across Asia are experiencing unprecedented growth, with demand exceeding supply. As family incomes across the region have increased, so too has access to private education. Many parents view international schools as an investment, with international qualifications enabling students to escape examination-driven education in favor of international university placements. International schools in Asia are sometimes supported by governments, which see them as a way to enable students to get an international education without increasing government spending. Because of the growth in international schools, competition for top students is high, as top students score well on external examinations, which increases a school’s reputation and allows it to charge higher tuition (Machin, 2017).
International school students. International school students used to come predominately from the expatriate community, as their parents were overseas for work. The students were often transient, staying in one city only for the duration of their parents’ posts, which was often only two years. These students developed a third-culture identity, in that they neither identified completely with their host country nor with their home country. Increasingly, however, students are staying longer at international schools, and may identify more with their host country than with their home country. Expatriate international school students can be placed on a continuum of three categories, based on their level of interaction with the local and expatriate cultures and their acquisition of languages: advanced tourists, who remain fixed in their home country culture while observing the local host country from a distance; transitional cosmopolitans, who interact on a limited basis with the host culture but have limited language and cultural investments into that culture; and interactive cosmopolitans, who are integrated into and feel at home in the local culture and speak the language (Gunesch, 2015). Pearce (2015) developed a similar matrix based on the level to which a student values the host culture and their own culture: students who value their own culture and the host culture are considered integrated into both cultures, students who value their own culture but not the host culture are isolated from the host culture, students who value the host culture but not their own culture are assimilated into the host culture, and students who do not value either their own culture or their host culture are marginalized. In addition to enrolling a wide range of expatriate students, many international schools are opening up to local students. These various populations can bring contrasting expectations to the international school experience (Gunesch, 2015; J. Robinson & Guan, 2012).

Many international school students are expatriate children who study in international schools because their parents’ jobs are located overseas. Although some international students
study in the same school for their entire academic lives, many move frequently between countries. Because they embrace an often-conflicting combination of their home culture(s), their host culture, and their international school culture (Cockburn, 2002; Ebbeck & Reus, 2005), these students are often referred to as Third Culture Kids (TCKs). According to Pollock and van Reken (2009), a TCK is

A person who has spent a significant part of his or her developmental years outside of the parents’ culture. The TCK frequently builds relationships to all of the cultures while not having full ownership of any. Although elements from each culture may be assimilated into the TCK’s life experience, the sense of belonging is in relationship to others of a similar background. (p. 13)

Mobility is normal for TCKs. They may move regularly (McLachlan, 2007). Even when living in one location, they live in two or more cultural worlds, often traveling back and forth between them. Depending on the nationalities of their parents, some students may experience up to four cultures on a regular basis. However, although they may be comfortable in many cultures, TCKs often do not have a sense of home because they have never lived anywhere long enough to call it home or because they do not associate with it as their home (Cockburn, 2002; Hayden, 2006; McLachlan, 2007). When moving to a new location and therefore a new school, it is important that TCKs adjust quickly so that they can continue with academic learning (Pearce, 2015).

TCKs share a number of common characteristics. They are often more open-minded and flexible in their thinking than non-TCKs, maintaining a positive attitude towards other value systems and cultures (Dewaele & van Oudenhoven, 2009; Hayden, Rancic, & Thompson, 2000) and displaying greater cultural empathy. At the same time, they tend to be less emotionally
stable than their local peers (Dewaele & van Oudenhoven, 2009). Although they may make acquaintances easily, they may find it difficult to make and maintain friendships, due to the transience of both themselves and their friends (Ittel & Sisler, 2012). Because they straddle several cultures, TCKs are more able to build bridges between sometimes discrete worlds, such as the local culture and their home culture(s) (Taylor, 2015).

TCKs are exposed to a variety of languages and cultures, both of which are related to their identity (Tannenbaum & Tseng, 2015). As they move from their home culture, they may develop less cultural connection to that and a greater sense of connection to either their host culture or the third culture that they experience at school. Similarly, the longer they are away from their home culture, the less adept they may become at speaking their mother tongue, especially if that language is not English and is not supported at the international school (Grimshaw, 2015). In traveling between their host and home countries, they may realize that they no longer have a home culture and that no language is their best language (Rounsaville, 2014). Tannenbaum and Tseng (2015) found that only half of the TCKs they studied had one dominant language, and for less than a quarter of TCKs, their dominant language was the language of instruction at school, usually English, rather than their first language.

**Changing demographics.** Although international schools were developed for the mobile children of diplomats and businesspeople (Tookey, 2000), their populations are changing, with a growing number of host country students attending them in order to become fluent in English, to experience an international curriculum or environment, and to prepare for university abroad (MacKenzie, 2010; MacKenzie et al. 2003; Potter & Hayden, 2004; J. Robinson & Guan, 2012; Song, 2013). Sometimes local students attend international schools dedicated to them, but in many cases they integrate with expatriate students in international schools. When host country
students attend international schools, they may still be required to complete national education requirements that may contradict those of the international school (Murakami Ramalho, 2007).

Students at both expatriate international schools and local international schools are operating in a bi- or trilingual environment, learning an at-school academic language and a local language while simultaneously maintaining their first language at home. Two of these languages may or may not overlap for any given student. According to Langager (2010), because expatriate students generally do not intend to remain indefinitely in their host country, they cannot be considered immigrants, so they must maintain their first language at a level that will serve them when they return to their home country. Yet because their academic success is dependent on quickly learning the language of the school, often English, there is often greater focus on learning that language than on maintaining the first language. English as a Second Language (ESL) support is often available in expatriate international schools, but this may not be the case in local international schools. Children need help to develop both (or all) languages in which they are operating, and may need to complete extra lessons outside of school to maintain their first languages.

**International school choice.** In many cities, international school education has become a “thriving business sector characterized by confident quantitative expansion driven by a demand-fuelled market” (Haywood, 2015, p. 45). School choice in international schools is often varied and may be more complex than in local or national settings, depending on the options available (MacKenzie et al., 2003; Velliaris & Willis, 2013). The main reasons that both expatriate and local parents choose to send their children to international schools are consistent worldwide. These include English education; the school’s reputation; the international education provided; the internationalized curriculum employed, usually that of the IB, and strong results in
that program; the quality of school facilities; the impressions that the parents felt when visiting the campus; and the school’s diploma being recognized worldwide (MacKenzie, 2010; MacKenzie et al., 2003; Potter & Hayden, 2004).

Expatriate parents often choose to send their children to an international school due to unfamiliarity with the local language of instruction or because the local educational system may not allow their child to easily transfer back to their home country, either for further schooling or for university (Velliaris & Willis, 2013). Expatriate parents may have fewer options for schools for their children, as some cities may have only one or two international schools (MacKenzie, 2010). However, where a choice is present, parents must determine what values they place on their children and their education and must combine an understanding of their children with an understanding of the educational options available in order to correctly match their student to a school (Velliaris & Willis, 2013).

In some locations, not all types of schools are available to parents (MacDonald, 2007), due to availability, governmental regulations, and employer choice. However, local parents are increasingly choosing to send their children to international schools, expatriate students therefore are now the minority in many international schools (Haywood, 2015), even though those schools do not cater specifically for the local population (Hayden, 2011; MacKenzie et al., 2003; MacKenzie et al., 2003). In some instances, local parents may be unsatisfied with the local schools (MacKenzie, 2009; Walker, 2015), their resources and teachers (Potter & Hayden, 2004), or with the local curriculum, which in Asian settings often emphasizes on memorizing information for university entrance examinations (MacKenzie, 2009). They may view an international education as a long-term investment: a means of obtaining a competitive advantage in university admission and the workplace and of providing their children with both English
fluency and with social capital due to the school’s reputational prestige (Gilbertson, 2014; Haywood, 2015; Lauder, 2015; Potter & Hayden, 2004). J. Robinson and Guan (2012) and Song (2013) found that most Chinese and South Korean parents who send their children to international schools do so for the English language curriculum and for desired entry into foreign universities. MacKenzie (2009, 2010) found that local Argentinean, Israeli, Japanese, Singaporean, and Swiss parents chose to send their children to international schools in those respective countries because of the English-language international curriculum, the school’s reputation and facilities, and because of a good impression upon seeing happy students while visiting the school. Argentinean, Israeli, and Singaporean parents also cited small class sizes, the schools’ broad curricula, and the opportunity for students to attend university abroad as reasons for selecting an international school over a local school. This was supported by Ezra (2007), who found that Israeli parents chose to send their children to international schools for both push and pull reasons. They were pulled to international schools due to wanting their children to learn English or to learn in English, to get an international education, to experience small class sizes, and to be happier. They were pushed away from local schools because of school violence, poorly trained teachers, large class sizes, a lack of discipline, a lack of a strong challenging curriculum, a clash between personal cultural and moral values and those taught in school, and because special educational needs were not met in local schools. However, those Israeli parents recognized that by attending an international school, local students lose social connections and community ties, as well as their home language skills. Like TCKs, local students in international schools may identify less with their home nationality and may begin to view themselves as international (Ceginskas, 2010). In China, students who attend international schools and withdraw from the local educational system no longer have the option of attending Chinese
universities. They thus make a choice at a young age to isolate themselves from the Chinese system (Wright & Lee, 2014b).

In addition to learning in a new language, students who come to international schools may experience differences with the system of education and the cultural expectations for education. Education varies by country; differences can include age, social and societal pressure, streaming or tracking, transitions, and the availability of continuing education after primary or secondary school. These differences are influenced by a macro system of available schooling, economic and structural conditions, and cultural and social differences between countries (Feinstein & Peck, 2008). Ceginskas (2010) asserted that the differences between local and international schools include the curricula, teachers’ cultural and linguistic awareness, and an open versus closed atmosphere of classroom interactions. Local students who transfer to international schools experience dissonance between the educational systems and between cultural expectations (Gan, 2009; J. Robinson & Guan, 2012; P. Tucker & Fail, 2007). For example, Gan (2009) found that Chinese classrooms were characterized by large class sizes, teacher-centered instruction, and docile students. High stakes assessment, including the rigorous university entrance examination, led to a focus on memorization. In international schools, the classroom expectations were different; in the IBDP, students participated in class, questioned each other and their teachers, and could not purely only on memory. Their “home ‘learning culture’ has not prepared them for these IBDP expectations” (Gan, 2009, p. 298). International teachers in international schools may not understand the educational systems or cultural expectations of local students who transfer into the school, and local parents may be so happy that their children are attending an international school that they may not recognize the difficulties that their children are facing (Carder, 2009). This dissonance should not be
downplayed: students experienced confusion during the six to nine months they generally took to adapt to the demands of the IBDP in an international setting (Gan, 2009). Feinstein and Peck (2008) asserted that success in education depends on the complex and “dynamic interaction of persons and context” (p. 2), and that schools should attempt to meet the needs of students who have a wide range of abilities, backgrounds, experiences, styles, personalities, goals, and lifestyles.

Although initially developed to serve expatriate student populations, international schools have diversified. There is no longer only one type of international school or international school student. Parents choose to send their children to international schools for a variety of reasons, with one of the main reasons being an English-language international curriculum that allows access to universities in students’ home countries and around the world.

**International Curricula**

Along with the wide variety of international schools, there is also a wide variety in the curricula they employ. Most international schools have more curricular freedom because they are not subject to national regulations (Taylor, 2015), although most schools employ Western pedagogies and ideals (Dittrich, 2016; Hughes, 2009; Mast, 2016; Walsh, 2015). While many local international schools may call themselves international simply because English is the language of instruction, others use a combination of local and international curricula. More internationalized schools may employ a non-host country curriculum, such as the Advanced Placement system in American international schools or the German Abitur in German international schools. Other schools employ an international curriculum, such as the Cambridge IGCSE or Pre-U Diploma or the Assessment and Qualifications Alliance (AQA) Baccalaureate (Bunnell, 2015a). Perhaps the most popular international program employed by international
schools is that of the IB, although despite its continued growth, the IB no longer holds a monopoly in the international school market (Walker, 2015).

**International Baccalaureate Diploma Program (IBDP).** The International Baccalaureate is composed of four programs: the Primary Years Program (PYP) for students aged 3 to 11, the Middle Years Program (MYP) for students aged 11 to 16, and the Diploma Program (DP) and Career Program (CP) for students aged 16 to 18. These programs, when offered sequentially by a school, make up the IB Continuum for students from ages 3 to 19 (IB, 2013). The CP is a recent addition to the IB, combining elements of the DP with aspects of a more vocational or technical education. While some schools offer all four IB programs, many only offer one: the DP (Bunnell, 2008b, 2009, 2010; Hill, 2012).

Described by Gehring (2001, p. 19) as the “‘Cadillac’ of college-prep programs,” by Fitzgerald (2017, p. 76) as “the standard of excellence in pre-tertiary education,” and by Lauder (2015, p. 172) as the “gold standard qualifications framework,” the DP is a rigorous pre-university program (Tookey, 2000) that was developed at the International School of Geneva in 1962 for pedagogical, idealistic, and pragmatic reasons. Pedagogically, the DP emphasizes critical thinking skills. Idealistically, the DP’s mission is to promote intercultural understanding and international perspectives, enabling students to learn about global issues, multiple languages, and about human conditions worldwide (Hill, 2012). The IB was the first internationally-minded educational program (Hill, 2015), so pragmatically, the DP allowed international schools to offer one curriculum that was recognized worldwide, rather than having to offer various national curricula to meet the needs of diverse student bodies (Hill, 2001). The DP also united international schools in often-isolated locations, bringing a sense of belonging and order to their curricula (Bunnell, 2015a). Over the course of its development, the IB has legitimized
international education through its quality curriculum and assessments, its backing from governments worldwide, and its acceptance by top universities (Walker, 2015).

Unlike many international curricula, the IBDP makes a conscious effort to move away from a purely Western approach to learning by incorporating more global views and values (Hughes, 2009; Wylie, 2008), taking elements from many countries’ educational systems, and involving committees of teachers from around the world in the review of each subjects’ curricula and the writing and marking of examinations (Tookey, 2000). The extent to which this is the case is somewhat contested. Hughes (2009) claimed that this is done from a postcolonial approach, while Bunnell (2015b) claimed that because of the rapid growth of the program in the United States and Canada, it is becoming more North America-centric. Conner (2008) identified the four core values as having students study distinct areas of knowledge; having students evaluate and create knowledge, not just apply it; promoting development, not only in academics but also in the arts, sports, and morals; and valuing different ways of knowing for different people and different cultures. Perhaps the most important feature for global nomads, the children of diplomats and businesspeople who attend international schools, is pragmatic. The DP enables entry to universities worldwide, many of which give advanced credit (Culross & Tarver, 2011; Hill, 2012; Tookey, 2000). Most DP graduates go on to further educational study (IB, 2015), thereby making the IB Diploma a form of academic currency that students can leverage as they apply for university (Cambridge, 2010).

The IBDP is a well-rounded program (Tookey, 2000) that values breadth, depth, and balance. Students study six subjects from a range of discipline groups (Hill, 2012; IB, 2015): Group 1 consists of Studies in Language and Literature, Group 2 is Language Acquisition, Group 3 is Individuals and Societies, Group 4 is the Sciences, Group 5 is Mathematics, and Group 6 is
the Arts. In general, students study one subject from each group, although some customization is available. Students can take two Group 1 languages instead of a Group 2, and students can study an additional subject from Groups 1-4 instead of a Group 6 subject. Students who are particularly interested in the Arts can study two Group 6 subjects and take the transdisciplinary Environmental Systems and Societies course to fulfill both their Group 3 and Group 4 requirements. Students study three or four subjects at the Higher Level (HL), completing their studies in more detail, and two or three at the Standard Level (SL). Additionally, students complete the DP Core, including the 4,000-word self-directed Extended Essay (EE), the Theory of Knowledge (TOK) epistemological course, and the Creativity, Activity, Service (CAS) program (IB, 2016a). Students are assessed both internally by their teachers and through external comprehensive examinations that are standardized worldwide (Hill, 2012; IB, 2016a), criterion-referenced and standards-based (Conner, 2008), and not subject to the grade inflation that other programs have experienced (Bunnell, 2015b). Although they are different from many high-stakes tests, because they consist of multiple assessment formats, Conner (2008) argued that they are high stakes because they serve as a gatekeeper to university admissions.

Since its conception, the IB has grown and evolved organically (Hallinger, Lee, & Walker, 2011) from the solo DP into the four-program model that exists today. However, the growth of the IB is no longer closely linked to the growth of international schools (Bunnell, 2015a). It is no longer only available for globally mobile students in international schools; rather, it is now offered in many state and public schools worldwide. In the United Kingdom, a number of schools are offering the IB as an alternative to the national curriculum (Marshall, 2015). Although the number of DP schools in the UK grew steadily until 2010, that number has decreased in recent years, due in part to a push for specialization through A-Levels (Bunnell,
In Canada, the IB was relatively unheard of until 25 years ago, but now, partially due to its endorsement by universities as being more rigorous and better at preparing students than Canadian provincial education systems, Canada holds the second largest number of IB schools in the world (Fitzgerald, 2017). The largest number of IB schools and IB students is in the United States (Bunnell, 2009). In May 2016, of the 147,843 students who took DP examinations, approximately 55 percent were from schools in the United States (IB, 2016b). The DP’s growth in the United States began in the 1980s after the publication of *A Nation at Risk*, as it was seen as a rigorous disciplinary-based program that could raise the country’s results (Conner, 2008). Its growth in the United States has continued for several reasons. There is growing interest in global education in the United States and a recognized need to offer a more internationalized education to prepare students for a globalized world (Harrison, 2015). In the era of school choice, the DP is a way to draw top students back to public schools, to increase government funding for those schools (Conner, 2008; Mayer, 2008; Perna et al., 2015), and to improve accountability in low-performing schools (Conner, 2008). The DP may be used to turn around low-performing schools or to improve graduation and college enrollment rates (Saavedra, 2014). Schools may use it to boost their course offerings or further improve their reputations (Conner, 2008; Gehring, 2001). Cortes, Moussa, and Weinstein (2013) found that students in IB schools in the United States are more likely to be White, Hispanic, or Asian and less likely to be Black; they also are more likely to live in neighborhoods with higher incomes, higher education levels, and lower poverty rates. These trends have not changed, despite the expansion of the DP in the United States. Bunnell (2011) noted that in the United States IB is often situated in extreme schools – either inner-city low-income schools looking to increase funding or elite private schools looking to provide a competitive education to their students. Although the IB has no
admissions requirements (Conner, 2008; Mayer, 2008), many schools in the United States set rigorous criteria for students to enter the program (Cortes et al., 2013), sometimes developing the DP into a school-within-a-school. This has resulted in the program being viewed as exclusive (Perna et al., 2015), a draw for gifted students (Vanderbrook, 2006), too difficult for most students (Bunnell, 2008b), and elitist (Bunnell, 2008b, 2009, 2011). However, no matter the school type or background factors, students who are enrolled in DP schools, regardless of whether or not they were actually enrolled in the DP, earned higher course grades and were more likely to graduate than students who were not in DP schools (Cortes et al., 2013).

Lineham (2013) found that students in a high school in Switzerland chose the IBDP due to its breadth of subjects, especially when compared to A-Levels, as well as its worldwide recognition by universities and employers. In local Australian schools, Doherty (2012) found that high achieving students would optimize their university admissions scores based on whatever high school curriculum they studied. They would look at the score they would likely achieve from the DP before determining if they wanted to pursue that program. Thus, the popularity of the IB in Australia is due to its university recognition, not its more holistic goals of intercultural understanding.

The DP does strive for inclusivity, although this is sometimes limited by the program’s focus on university preparation and by constraints in international cities. It is offered in multiple languages, and it has been adapted to meet special educational needs as well as to meet the requirements of many national educational systems. It can be scaled back to individual IB courses if the full diploma is deemed too challenging or unnecessary for a student (IB, 2015). However, many international cities and schools lack the resources to provide testing and support for students with special educational needs, limiting the inclusivity of the DP in certain regions
Throughout its evolution, the DP has continued to be considered an international benchmark that prepares students for and is recognized by most universities worldwide (Hill, 2012), although this is not the goal of all international school students. For both local and international families, it is viewed as a guarantee of quality of the school (MacKenzie et al., 2003), but because it is often only available for the top students in local schools or wealthy students in international schools, it is often perceived as an elite program (Bunnell, 2009, 2010, 2011; Hill, 2012; Lee & Wright, 2015; Perna et al., 2015; Wright & Lee, 2014a, 2014b).

Culross and Tarver (2011) found that DP graduates continue to value the DP into university and beyond, and felt that it contributed to their success at university. In particular, they noted that CAS and the EE contributed to their reflective and research skills and their international awareness. They also found that the DP improved their ability to find common themes within and across course content. They agreed that they had a greater depth and breadth of knowledge, as well as better creative and critical thinking and communication skills than non-DP university students.

**Teaching and learning in the IBDP.** Although the IB states that teaching and learning is driven by a cycle of inquiry, action, and reflection and by a conceptual and connected curriculum (IB, 2013, 2015), realistically, this occurs much more in the PYP and MYP, where there is an integrated curriculum that is driven more by investigation and less by traditional assessments. Although this also occurs to an extent in DP Core, the rest of the DP is framed within discrete subject areas that focus on external examinations, with a strong emphasis on prescribed and detailed content (Cambridge, 2012; Hallinger et al., 2011; IB, 2015). This can lead to a disconnect between students who transition between the programs (Cambridge, 2012;
The importance of the DP for university admissions makes teachers hesitant to take risks in their teaching, “thus, the very strength of the DP serves as a constraint to developing skill-focused learning and employing a broader set of learning strategies” (Hallinger et al., 2011, p. 133).

Although Groups 1 and 2 foster communication skills, Group 3 promotes an international perspective, and Group 4 teaches investigation skills (Tookey, 2000), the IB focuses heavily on university preparation and recognition (Brunold-Conesa, 2010). The content-heavy curriculum, time constraints, and the importance of DP exams for university admission can make it difficult to fully adopt the IB philosophy and culture in the DP courses (Lee et al., 2012). Rather, the focus on inquiry and 21st century skills is mostly evident in the CAS, EE, and TOK components of the DP. Through experiential learning and student-directed projects, CAS fosters interpersonal noncognitive skills, including leadership and communication (Hatziconstantis & Kolympari, 2016), as well as personal traits, including being balanced, caring, and open-minded. The EE promotes both cognitive and noncognitive skills, including research skills, creativity, confidence, and time management, while TOK transcends all other subjects and fosters self-reflection and higher-order critical thinking skills that transfer across the other subjects (Cole, Ullman, Gannon, & Rooney, 2015; Tookey, 2000; Wright & Lee, 2014a). However, CAS is graded as pass/fail, while the combination of the EE and TOK only accounts for three of the DP’s 45 points; therefore these components may be valued less by parents, students, and schools (Wright & Lee, 2014a). CAS in particular may be viewed as merely a requirement to complete (Hatziconstantis & Kolympari, 2016).

Pendergast et al. (2015) found that student experiences do not always align to the IB’s goals of active, constructivist learning. In their study at an international school in Tokyo, they
found that 51 percent of lessons across a range of subject areas involved the teacher as the primary knower, and that students were familiar with this passive style of learning. However, they did find variance within classes and across teachers. They identified a total of 70 teaching strategies and found that, while most teachers at times acted as the primary knower, the extent to which teaching pedagogies were more student centered depended heavily on the teacher. Still, the DP has the potential to further foster such skills (Wright & Lee, 2014a). The IB’s recent Approaches to Teaching and Learning (ATL) requirements for IB schools may be an attempt to make both cognitive and metacognitive skills more explicitly taught and employed across the program (IB, 2014, 2015).

The IBDP is the most commonly employed curriculum in international schools, due to its well-rounded approach to education and its wide acceptance by universities worldwide. Despite claiming to promote constructivist pedagogies, the DP is exam-driven. This encourages many teachers to employ traditional teacher-centered methodologies, leading to a disconnect between philosophy and practice. Due to the importance of results for enrollment in international schools, many schools may prefer to maintain their current program of study rather than implement changes to teaching and learning (Roberts, 2015). The importance of the DP for university acceptance worldwide may promote a more top-down, teacher-centered pedagogical approach (Marshall, 2015).

The New, Constructivist Pedagogies

There are a number of names that have been given to the more recent constructivist pedagogies: new pedagogies, deeper learning, inquiry-based learning, project-based learning, project-based inquiry, problem-based learning, design learning, authentic learning (Newmann & Associates, 1996), productive pedagogies (Hayes et al., 2006), and, to an extent, 21\textsuperscript{st} century
skills and concept-based learning (Erickson, 2002, 2007; Wathall, 2016). Although there are subtle differences between them, in general these new pedagogies break away from traditional schooling to make education more holistic (Perkins, 2009) and applicable to students’ current and future lives and to prepare them for the uncertain future in which they will work, offering value beyond the school context (Newmann & Associates, 1996). They employ a broad curriculum that enables students to take an active role in their learning and to develop their diverse talents (Zhao, 2011), focusing not only on what students learn, but how they learn (Claxton, 2007; Malik, 2009). They aim to raise students’ thinking processes and enable students to integrate their skills and understanding across multiple subject areas (Erickson, 2002), and also to transfer their skills and understanding between courses, between school years, and from school to university to the workplace (Bransford & Schwartz, 1999). Fullan and Langworthy (2014) asserted that through the new pedagogies, students will create new knowledge and connect it to the world to solve real-world problems and be used by authentic audiences. These are not simply new teaching strategies, but new ways of doing school, ways that aim for deeper, more relevant learning and shifting teaching from content to process as teachers partner with students to explore and connect learning with the real world. Through the new pedagogies, students develop not only academic competencies, but also the social and emotional learning skills, such as problem solving, communication, and creativity, they will need as they progress into the ever-changing workforce (Shirley, 2016). At their best, the new pedagogies allow students to act as professionals, doing real work in a subject area through apprenticeships and internships (Littky & Grabelle, 2004; Martinez & McGrath, 2014). The new pedagogies include three core components: new learning partnerships between students and teachers, deep learning tasks that require knowledge creation, and the use of digital tools and
resources to support learning and creation (Fullan & Langworth, 2014). Furthermore, these new pedagogies are supported by authentic and productive assessments and by performance tasks that are aligned with the pedagogies (Hayes et al., 2006).

**Types of constructivist pedagogies.** Three new pedagogies are most commonly discussed in the literature: deeper learning, inquiry-based learning, and project-based learning, which is sometimes viewed as a subset of inquiry-based learning. These new pedagogies overlap with each other and share many common characteristics, as well as many challenges in their implementation, and it can sometimes be difficult to differentiate between them. There also are many other lesser-known, innovative ways of teaching that incorporate many of the elements of the new pedagogies, including problem-based learning and learning by design. Several of the more prominent pedagogies are outlined in this section.

**Deeper learning.** While deeper learning might result from any of the new pedagogies, deeper learning is also a specific new pedagogy. While students may gain from surface learning, which focuses mainly on content, deeper learning focuses on understanding that content (Hattie, 2003). Deeper learning is characterized by a real-world orientation, in which students have choice in the topic of study (Spires, Kerkhoff, & Graham, 2016). Although it may come under a range of names, the goal is the same: to enable students to learn how to learn; to enable them to become self-directed and reflective, to think critically, to collaborate, and to communicate; and to allow them to transfer their understanding of academic content to other contexts (Martinez & McGrath, 2014; Spires et al., 2016). Deeper learning includes rigorous content taught in innovative ways that students learn and then apply to other situations. It requires that students not only know content, but that they partake in critical thinking and problem solving, collaboration, communication, citizenship, character education, and creativity (AEE, 2011;
Fullan & Langworthy, 2014). Through deeper learning, students are self-directed and reflective, incorporating regular feedback from their teachers. Deeper learning may be inquiry based, involving students in scientific inquiry, analytical thinking, finding information, and making reasoned arguments (AEE, 2011). The deeper-learning environment must allow collaboration in authentic problem solving, in which students discuss concepts, communicate data, make conclusions, present their findings, and monitor themselves and their learning (Harsh & Young, 2015). Deeper learning is broad and conceptual, requiring students to link what they have learned to a bigger context (Campbell & Cabrera, 2014).

While effective teachers have always provided opportunities for deeper learning (AEE, 2011), deeper learning as a new pedagogy is systematic and takes place at a whole-school level; it often involves long-term integrated projects (Fullan & Langworthy, 2014; Martinez & McGrath, 2014). Although it will look different in each school, it is generally characterized by collaborative learning communities, engaging and integrated curricula, contextualized learning of content, effective incorporation of technology, and connections with the community and the wider world through internships with local companies and meaningful field trips. Students spend time applying the subject to real-life situations, as opposed to simply learning about it, and teachers take more of a mentor or guide role (Martinez & McGrath, 2014).

Inquiry-based learning. Children are born curious, with a natural inclination towards trying to understand things (Boaler, 2015). However, this curiosity declines and students lose interest in school as they progress through formal education, as answers become more important than questions. Teachers must challenge this by developing students’ natural curiosity and by encouraging students to learn by asking questions and exploring answers (Stokoe, 2012). However, there is some misunderstanding as to what inquiry-based learning entails (Gill, 2014).
Although many teachers may use inquiry in their classrooms, posing sometimes superficial questions for students to answer from an existing knowledge base, this is different from inquiry-based learning, in which students ask questions that they truly care about (Glatthorn et al., 2016) and the focus is on student-led research and knowledge creation (Levy & Petrulis, 2012). Through deep questioning, which could be considered the foundation of inquiry-based learning, students are inspired by questions and ponder their answers. Open-ended questions that invite exploration should be assessed in all areas of the curriculum (Gunderman, 2012).

Dostál (2015) asserted that inquiry-based learning focuses on students exploring facts and acquiring new knowledge while developing the knowledge, skills, and attitudes required for future problem solving. He stated that there are two streams of inquiry-based learning, differentiated by the teacher and student roles. The first includes problem-posing and solving, with teachers taking a somewhat more active role by employing a range of teaching strategies that encourage students to ask questions, seek evidence, evaluate answers, and communicate their findings. The second is broader, more scientific, and extends beyond education. It is more student-driven, where students develop the questions and the teacher serves as a facilitator.

Pedaste et al. (2015) found 109 different terms for the phases of inquiry, which they collapsed into phases and subphases. The inquiry cycle begins with orientation, in which interest is generated for a topic of investigation. This is followed by conceptualization, or understanding the concept of investigation. This involves initial research about the topic in order to develop questions and hypotheses. Next, students investigate the question through exploration, observation, experimentation, and data interpretation. The fourth phase of the inquiry cycle is the conclusion, in which students state the outcome of their investigations. Finally, students discuss, verify, and generalize their conclusions. This phase is both internal,
through reflection, and external, through communication of the outcomes. These phases are flexible, and not all must be present for inquiry-based learning to take place; discussion can take place throughout the inquiry cycle. Furthermore, they are iterative, with one investigation potentially leading to another. The inquiry cycle outlined by Pedaste et al. (2015) allows students to engage in scientific inquiry, and, according to Ramnarain (2014), there is a worldwide move towards inquiry-based education in science courses. However, inquiry-based learning is not limited to science classes; it can be applied throughout the curriculum (Dostál, 2015). In fact, as Gill (2014) indicated, many curriculum documents emphasize inquiry-based learning, but often there is a “gap between policy and practice” (p. 114), with inquiry-based learning not being effectively implemented.

**Project-based learning.** In project-based learning, students complete complex tasks and create a realistic project as their output. This realistic application leads to greater understanding and transference to other areas (Barron & Darling-Hammond, 2008). There are many forms of project-based learning, all of which “interrupt the well-established classroom routine” (Parker et al., 2013, p. 1430). They generally include five key attributes: they are important in the curriculum, are authentic to the students, include constructive investigation based on inquiry, use driving questions to invite students to investigate, and are student-driven (Thomas, 2000). Teacher instruction comes after students have experienced the problem, providing context and a need to know (Boss et al., 2011). Parker et al. (2013) asserted that project-based learning supports student initiative, is collaborative, and involves problem solving, argumentation, revision, and exploration. Projects require students to make their thinking visible, communicate, and test their own understanding; iterative projects enable students to continually improve (Boss et al., 2011).
Spires et al. (2016) asserted that project-based inquiry is a specific type of project-based learning that can promote disciplinary literacy while building disciplinary knowledge. They developed a five-phase model of project-based inquiry, in which students pose a compelling question related to the discipline; gather and analyze primary and secondary sources; synthesize the evidence that they found to make claims about their question; evaluate and revise their work, adding evidence as needed; and finally share their findings with authentic audiences in and outside of the school and put their newly acquired knowledge into action. Because students are working on real-world problems and researching questions that they posed themselves, they are more curious and learn more authentically. As they gather, analyze, and synthesize information, they build disciplinary knowledge in a process that is used by experts in the field, and they build disciplinary literacy as they learn terminology and the structure of academic writing in that field.

In a study of a project-based learning curriculum for an AP Government and Politics course, Boss et al. (2011) and Parker et al. (2013) found that project-based learning put students’ engagement first. Through iterative projects that linked back to a common theme, students were engaged in authentic government roles. In order to participate, students needed to understand their roles and the way they interacted with others. Students grappled to make sense of their roles and the situation before their teacher taught them the required information. This created a context for students to receive and immediately apply the information to their roles and situations. Therefore, students understood the content more deeply and were better able to apply it to new complex problems.

**Problem-based learning.** In problem-based learning, students investigate authentic and realistic problems. While these problems may be given to them, Perkins (2009) argued that students should be finding their own problems to investigate. In problem-based learning,
students suggest, implement, and evaluate strategies to develop a solution as their output. The problem can involve multiple methods leading to multiple solutions, requiring students to construct knowledge so they can arrive at and evaluate a plausible solution (Beringer, 2007; Hayes et al., 2006). The problem may be messy and may not have a perfect solution, requiring students to determine the best possible solution (Perkins, 2009). Through problem-based learning, teachers model good problem-solving strategies as they work to support students. They may teach traditionally, but only at certain times to provide support when needed (Barron & Darling-Hammond, 2008; Hmelo-Silver et al., 2007). Problem-based learning allows for greater retention and transfer of understanding to different contexts (Bransford & Schwartz, 1999). Teachers can structure project-based learning tasks to reduce the cognitive load, allowing students to adapt and develop their skills and learn content at an individualized level (Hmelo-Silver et al., 2007).

Hmelo-Silver et al. (2007) asserted that the terms inquiry-based and problem-based can be used interchangeably, and that the only difference between them is their origins: inquiry-based learning originated in the sciences, while problem-based learning originated in the field of medicine. Dostál (2015), however, claimed that they are related, but that the connection between them is undefined, while Barron and Darling-Hammond (2008) considered problem-based learning to be a subset of inquiry-based learning.

Results of the new pedagogies. Fullan and Langworthy (2014) stated, “Theoretically, at the end of learning experiences with new pedagogies, students should breeze through standardised tests that measure mastery of curricular content” (p. 40). However, Medina (2014) asserted that there is a lack of long-term studies on the effectiveness of the new pedagogies, while Hmelo-Silver et al. (2007) stated that most studies on the effectiveness of the new
pedagogies have been completed at the university level. Still, despite concerns that the new pedagogies may negatively affect numerical grades and examination results, studies thus far demonstrate otherwise. Despite serving at-risk populations, all eight schools studied by Martinez and McGrath (2014) had very high university acceptance rates, especially in the Science, Technology, Engineering, and Mathematics (STEM) fields.

Zafra-Gómez et al. (2015) studied university students who completed a four-year course of study in business administration, half of which was taught traditionally and half of which employed inquiry-based learning. They found a positive relationship between inquiry-based learning and students’ grades. This was evident not only through students’ average course grades, but also because more students passed the final examination and the distribution of student results was more homogenous. However, results depended on students’ class attendance: students who attended all or most of the classes felt that inquiry-based learning helped them to understand the content more theoretically, were more satisfied with the course, and had better grades.

Hu, Kuh, and Li (2008) studied inquiry-based learning and student outcomes among university students. They found that the effects of inquiry-based learning depended on students’ academic performance; inquiry based learning was not as effective for low-performing students. Overall, participating in inquiry-based learning was positive for all students, especially in the areas of science and technology and job preparation. For high- and middle-performing students, inquiry-based learning also had positive effects on intellectual development. However, all students experienced negative effects in the area of personal development.

Nicaise, Gibney, and Crane (2000) studied an authentic project-based course in which students simulated a space mission. Students were given a lot of freedom to decide what projects
they would participate in and make decisions about how to complete them. They found that the students who were most successful in the course were self-motivated, enjoyed working hard, worked well in teams, and enjoyed the challenge. A minority of students were unsuccessful due to lack of motivation, lack of time, a lack of background information, unclear goals, and limited access to the teacher. Some students indicated that the course was suited for students who already had some background in computers or aerospace, and that there were limited opportunities for them to learn certain topics: students were given choice, and students often chose projects that they knew about, leaving those without background knowledge out of the project. Students did indicate that the problems were often more challenging than those presented in their other classes, and many indicated that they remembered the information more because they were using it. Students experienced different skill and content learning outcomes as they worked through different projects. The authors cautioned that for authentic project-based learning to be successful, students need to learn to work well in teams, learning objectives and assessment criteria need to be clear, and class sizes need to be small enough that students are able to interact with the teacher as needed.

Boss et al. (2011) and Parker et al. (2013) found that more students in a project-based learning AP Government and Politics course took the AP examination than those in a traditionally taught course, showing more confidence in their preparation for the exam. Furthermore, students in the project-based course reported that they felt better prepared for the AP test and generally scored as high or higher than students in traditionally taught courses. Boss et al. (2011) developed a Knowledge in Action assessment in which students had to apply their learning to a new situation. Students performed as well or better than traditionally taught students on this test.
Campbell and Cabrera (2014) found that deep learning did not affect university students’ grade point averages, positively or negatively. While some might consider this a reason not to employ new pedagogies, the authors concluded that this may have been because the university assessments did not value analysis, synthesis, building connections, or reflection, which are skills that students strengthened through deeper learning, while simultaneously learning content and linking it to the bigger picture.

Newmann and Associates (1996) analyzed a 5-year school restructuring study and found that students in participating primary, middle, and high schools who demonstrated the highest use of authentic pedagogy performed better on standardized tests than students at schools that did not use authentic pedagogy as consistently or as well. Authentic pedagogy required that students think deeply about subject knowledge and connect it to their own experiences; they were therefore better equipped to apply this knowledge to the assessment requirements of conventional standardized tests.

**Challenges to implementing the new pedagogies.** Implementing the new pedagogies on a large scale will require that all stakeholders see school differently, as a way to prepare students to live in a world that has not yet been experienced; school contexts, pedagogies, and assessments will need to adapt simultaneously (Glatthorn et al. 2016). Switching from a traditional approach to a new pedagogy approach is not easy (Martinez & McGrath, 2014). There are constraints presented by the infrastructure of schools as well as hesitation by teachers, administrators, students and parents (Johnson et al., 2009). As traditional assessments are replaced by interactive projects, the school culture needs to shift from one of certainty to one of risk taking (Fullan & Langworthy, 2014; Newmann & Associates, 1996), and attitudes, roles, and responsibilities must change accordingly (Johnson et al., 2009).
Infrastructure. Pedagogical options are limited by school infrastructure (Hayes Jacobs, 2010b; Nicaise et al., 2000). Traditional school schedules and procedures are the biggest obstacle to the new pedagogies (Martinez & McGrath, 2014), with organizational and management forms and processes often being prioritized above teaching and learning (Bartlett, Davies, & Gerritz, 2015; Hayes Jacobs, 2010b). The new pedagogies require more teacher-teacher and teacher-student collaboration (AIE, 2011) and require time for teachers to develop and for students to complete (Dostál, 2015). This requires time in an already busy school schedule (AIE, 2011; Boyer, 1995; Martinez & McGrath, 2014) and may take away from the time spent specifically on learning content (Dennis & O’Hair, 2010). Although the new pedagogies may appear to some teachers as unstructured, they require careful planning (Barron & Darling-Hammond, 2008; Pedaste et al., 2015), sufficient and effectively used resources (Pedaste et al., 2015), and supportive classroom environments (Newmann & Associates, 1996). Students are unlikely to master inquiry skills the first time: they need sustained engagement with inquiry, which is time consuming (Kuhn & Pease, 2008). The current industrial system of educating students in 50-minute subject-specific periods (K. Robinson & Aronica, 2015) does not allow for this collaboration. In particular, deeper learning requires an integrated approach and a flexible schedule, with students working collaboratively with multiple teachers and on multiple subjects simultaneously (Martinez & McGrath, 2014). “Educational infrastructure is not currently designed to support this important shift in education goals” (AEE, 2011, p. 1); schools are not changing to keep up with the world (Littky & Grabelle, 2004). Instead, schools need to consider how their structures can best enable student learning and allow the form of school to follow its function (Hayes Jacobs, 2010b).
Taught and assessed curriculum. Formative and summative assessments affect both what and how teachers teach (Barron & Darling-Hammond, 2008). Traditional classrooms and assessments focus on a narrow definition of learning (Claxton, 2007), with large amounts of curricular content being covered and tested but not applied or remembered. Hattie and Yates (2014) asserted that students need time to acquire deep understanding and that mandated curricula can make it difficult to implement newer constructivist pedagogies. According to Hayes Jacobs (2010c), content should be reviewed to eliminate content that is not timeless; does not provide a personal, local or global perspective; and is not linked to the real world. Reducing the emphasis on content coverage would allow for meaningful pedagogies and assessments. Littky and Grabelle (2004) further asserted, “If it can’t be measured easily, then we can’t care about it, we can’t teach it, and we certainly can’t determine if a kid has learned it” (p. 3). Because the new pedagogies are not directly assessed, they can be easy to marginalize (Nehring & Szczesiul, 2015). According to Wagner (2012), teaching and learning “is largely dictated by the practices and perceived demands of colleges” (p. 153). Although there is some call for universities to place less emphasis on AP and IB examination grades, as evidenced by the Making Caring Common Project, this shift only pertains to some universities in the United States, not the geographically diverse range of universities to which international school students apply (Allman et al.). Despite their emphasis on the university admissions process, in the real world examination scores matter less than habits of mind (Gunderman, 2012). Assessment in the new pedagogies must reflect and support developing such habits. Increasingly, schools are using standards to indicate content that students should learn. However, these standards often measure the extent to which students can store content in their short-term memory and reproduce it, not
use it (Fullan & Langworthy, 2014; Hayes et al., 2006). Teachers may feel that the most
effective way to teach standards is to give students the answers, rather than letting them ask
questions to discover the answers for themselves (Wagner, 2012). Through the new pedagogies,
standards must be reconsidered, focusing on depth rather than on breadth and including not only
content but also skills that students should master (AEE, 2011).

Assessments must align with teaching and learning goals (McTighe & Curtis, 2016). As
much as possible, assessment in the new pedagogies should authentically mirror the ways in
which performance is measured outside of school, in the work place. In the traditional model of
learning, students receive feedback based on how similar their answers are to those that the
teacher expected (Gunderman, 2012); this is inadequate to measure learning through the new
pedagogies (Marton & Säljö, 1976). Rather, assessments should focus on student progress,
competency, and their ability to transfer knowledge and skills to new situations (AEE, 2011).
Frey, Schmitt, and Allen (2012) asserted that assessments should focus on realistic, performance-
based, and cognitively complex contexts; that they should require that students defend their
answers or create a new product in conjunction with peers and the teacher; and that students
should help determine how they will present the assessment and demonstrate their mastery.
Assessments may include continuous portfolios or projects (Fullan & Langworth, 2014; Nehring
& Szczesiul, 2015), ongoing digital portfolios (Niguidula, 2010) or exhibitions of student work
(Littky & Grabelle, 2004) rather than one-off tests, and should allow students to demonstrate
their learning of (Fullan & Langworthy, 2014), as well as their ability to learn (Bransford &
Schwartz, 1999), content knowledge and skills (Niguidula, 2010) in multiple formats (McTighe
& Curtis, 2016). Assessments should “enable students to demonstrate a richness of outcomes,
rather than a limited set of knowledge (Hayes et al., 2006, p. 88), through performance
assessments, written journals, portfolios, and self-assessments that allow students to demonstrate their understanding. These should be supported by assignment guidelines and rubrics that tell or show what good work looks like (Barron & Darling-Hammond, 2008). However, several researchers, including Beringer (2007), Hattie and Yates (2014), and Tyson (2010) all cautioned about the importance of looking beyond the flashy product or outcome. They stressed the importance of looking at the knowledge, understanding, and thinking behind that product or outcome, while M. Tucker (2016) warned against letting the new pedagogies lead to “shallow academics” (p. 34). Martinez and McGrath (2014) promoted public student presentations of their work for assessment. Assessment should not be viewed as the endpoint of learning, but as a checkpoint during a never-ending process, and should allow for students to build upon feedback (Costa & Kallick, 2010). Currently, such assessments are more common in the earlier years of schooling but decrease in frequency as students approach high school, in part driven by external examinations (Nehring & Szczesiul, 2015). However, Glatthorn et al. (2016) asserted that advances in technology may help bridge the gap between high-stakes content assessments and increasingly important skills assessments.

Direct instruction and constructivism are often pitted against each other, with each side seeking to prove that their method is effective and that the alternative is ineffective. However, it is important to consider both the positive effects and the negative side effects of any pedagogy, and to seek to minimize the side effects. Both have their place in education, but it is important to look at when, where, and for whom each is best (Zhao, 2017). Kirschner, Sweller, and Clark (2006) asserted that constructivist, problem-based, and inquiry-based teaching all provide minimal guidance to students, and that, without guidance, students benefit more from direct instruction. Perkins (2009) addressed this, stating that some constructivist pedagogies are “too
loose” (p. 36) and that most students would be successful if they were more carefully targeted and structured. Hmelo-Silver et al. (2007) also refuted this claim, stating that, with proper scaffolding, such pedagogies enable students to develop both content understanding and skills. This debate raises an important point: students will not benefit from new pedagogies without proper supports. When faced with a difficult problem, if sufficient scaffolds and supports are not in place, they will become frustrated and view the problem as impossible (Hayes et al., 2006; Kuhn & Pease, 2008).

**Teacher acceptance.** Change is difficult for teachers and schools (Boss et al., 2011). Teachers tend to teach as they were taught (Davis, 2010), romanticizing memories of their time in school and attempting to recreate the situation for their own students (Glatthorn et al. 2016; Hayes Jacobs, 2010a). This makes it especially difficult for veteran teachers to change (Dennis & O’Hair, 2010). For years, teachers have placed faith in the organization of knowledge acquisition but have failed to recognize that this is becoming less effective and less relevant in the rapidly changing world (Wilmarth, 2010). Despite increased attention to the new pedagogies, they have not, to this point, changed the method of teaching in many secondary school classrooms (Nehring & Szcesiul, 2015).

Dennis and O’Hair (2010) found that individual teachers had the greatest influence on student achievement in authentic instruction. But the new pedagogies require that teachers step out of their comfort zones and deal with insecurity and unpredictability (Boaler, 2015; Hayes Jacobs, 2010a; Johnson et al., 2009). Giving up control as they shift from being the all-knowing “sage on the stage” to the facilitating “guide on the side” can be difficult (Wagner, 2012). Teachers must admit to not knowing or to being wrong and must become co-inquirers who learn with their students (Gunderman, 2012; Johnson et al., 2009; W. Richardson & Dixon, 2017).
They also need the freedom and support to try new things and to learn from mistakes, recognizing that they might not fully succeed the first time (Johnson et al., 2009). Often the progressive teacher can be an outlier, as teachers face pressure to conform to expectations (Wagner, 2012). Teachers may be more likely to change if they see other teachers successfully doing something different (Claxton, 2007) or if the change is aligned with their existing teaching practices and beliefs about learning (Van Veen & Sleegers, 2006).

Hattie (2009) asserted that nearly all types of education work, but that some work better than others. Therefore, teachers may view what they are already doing as working, and fail to recognize that another pedagogy might work better. Gill (2014) further asserted that these pedagogies are not necessarily scalable, and what works in one class may not work in another. There is no set formula for effective teaching, and teachers in schools that jump from one short-lived educational fad to the next may feel confused and overwhelmed (Marzano, 2007). The extent to which teachers embrace these new pedagogies varies. Much of the success of an inquiry-based approach is dependent on individual teacher acceptance and implementation (Ramnarain, 2014). Martinez and McGrath (2014) claimed that it is only when teachers embrace deeper learning that they can lead their students to deeper learning. Fullan and Langworthy (2014) further stated that teachers must take “a highly proactive role in driving the learning process forward” (p. 20), while Newmann and Associates (1996) found that even when teachers claimed to use new authentic pedagogies, they did not use them as frequently or as well as expected. However, Dostál (2015) asserted that it is not necessary to have inquiry-based learning in every lesson, and Newmann and Associates (1996) further asserted that “the point is not to abandon all forms of unauthentic work in school, but to keep authentic achievement clearly in view as the ideal end” (p. 27). Costa and Kallick (2010) argued that adapting to the
new pedagogies will take courage and patience. To make the transition more successful, teachers should be involved as adapters of their curriculum, slowly tailoring their teaching, rather than adopters of an externally developed program (Boss et al., 2011). Gill (2014) argued that viewing the new pedagogies as an add-on task will lead to low teacher buy-in and unsuccessful implementation. While most teachers believe that inquiry-based teaching leads to better science experimental skills, including investigation, observation, and problem solving, and encourages students to enjoy science more, some teachers still feel that traditional teaching and explanation is better for conceptual understanding and will lead to higher test results. This was especially true in lower performing, rural, and less resourced schools (Ramnarain, 2014).

In addition, teachers from international schools come from a range of countries, and their training reflects different educational and sociopolitical realities (van Werven, 2015). Teachers come to international schools with beliefs about education that are based on their different cultural expectations and their previous educational experiences. These influence what teaching and learning looks like in various international school classrooms and may hinder the adoption of new pedagogies (Fisher, 2015). For example, Confucius, whose teachings often guide teaching and learning in Asia, was a proponent of rote learning. Even though he often followed this with other, more reflective pedagogies, critical thinking is not as commonly used in Eastern cultures that have strong collective and traditional norms. However, Western education, with roots in the teachings of Plato and Aristotle, finds a long history of viewing the teacher as the facilitator of knowledge (Hill, 2015).

**Teacher training.** In the new pedagogies, teachers need to be prepared to teach and assess not only content but also the skills required of students (AEE, 2011; Barron & Darling-Hammond, 2008). Because most teachers were not taught this way, they may not feel
comfortable with such an abstract, flexible approach (Ramnarain, 2014), and they have very little training in designing assessments that support this deep conceptual integrated understanding (Erickson, 2002). There is a gap between educational research and practice (Vanderlinde & van Braak, 2010), so some teachers may not be aware of the new pedagogies, of the need to change, or of ways to enact change. They need training, not only at the beginning of their teaching careers but at regular intervals throughout (AEE, 2011), to support their content and skill knowledge and to increase their confidence (Dennis & O’Hair, 2010). They also need ongoing support from professional communities (Gill, 2014). Furthermore, if teachers do not fully understand the new pedagogical approaches, they may view them as too unstructured or they may assess them in ways that are not conducive to the pedagogies themselves (Barron & Darling-Hammond, 2008). Greater professional development is needed to teach teachers to be problem-solvers (Boss et al., 2011), not simply deliverers of content. In addition to external professional development, teachers need time to collaborate and learn from each other through reflective discussions, collaboration, and sharing of successful practices (Newmann & Associates, 1996).

**Student and parent acceptance.** Students and parents may be uncomfortable with the new pedagogies. Their attitudes can be an obstacle to implementing such pedagogies (Taylor, 2015) if they contrast with students’ and parents’ current perceptions of education and student and teacher roles (Johnson et al., 2009). Students, who are used to knowing exactly what is expected of them to get a good grade (Graffam, 2003), need to learn not only what to learn, but how to learn (Barron & Darling-Hammond, 2008; Claxton, 2007). Parents may view the new pedagogies as “fluffy” (Martinez & McGrath, 2014, p. 100). In reality, however, the new pedagogies require more of students, as they no longer learn passively but actively engage in
creating and using knowledge (Fullan & Langworthy, 2014). Beringer (2007) found that, although students enjoyed and were challenged by problem-based learning, some required further guidance and support from their teachers. Graffam (2003) recommended that new classroom structures and protocols begin at the start of the academic year, to set new expectations for learning, while Dostál (2015) recommended that inquiry-based learning should be scaffolded throughout a student's education, leading to greater levels of creativity and precision.

Like teachers, international school students come from a wide range of countries. Although their parents often choose a school based on its ability to provide an international curriculum in English, many students do not come to school with the White lens around which much education is based (West, 2003; Yosso, 2005). According to Charlesworth (2008) and de Nooij and Riedel (2010), learning preferences are individualistic but may be influenced by culture, background, and motivation. In some cultures, students are taught not to question teachers or to consider other points of view (Wilkinson & Hayden, 2010), leading to tension between the student’s home and school cultures (Allan, 2015; Newmann & Associates, 1996). Students who transition from lecture-based teacher-centered classes to those that employ the new pedagogies may be uncomfortable (Mertin, 2014).

While it is important not to group Asian students into one category (Ng et al., 2007), Asian education tends to be more exam-focused and content-focused, and it usually employs teacher-centered instruction (Lee et al., 2012). Chinese culture, in particular, is closely linked to education and inflexible knowledge (Mast, 2016). Chinese classrooms are focused on Confucian and socialist principles (Poole, 2018), including collectivism and respect for the wisdom of elders, which may dissuade students from actively participating in constructivist pedagogies.
(Ngwainmbi, 2004) or from asserting their individual opinions (Mast, 2016). While constructivist pedagogies value questioning, Mast (2016) asserted that Chinese students do not learn the vocabulary associated with higher-order thinking and therefore need to be explicitly taught what is being asked of them before they can demonstrate their learning.

Although there are many exceptions, de Nooij and Riedel (2010) found that students from northern Europe preferred a combination of processing, including auditory, visual, and tactile, while students from southern Europe preferred abstract, step-by-step learning. North American students preferred mechanical reasoning and in-class performances, while Asian students preferred abstract, step-by-step learning, visual learning; they were systematic and logical in their approach to learning, but they did not like to answer questions in class. Likewise, Charlesworth (2008) found that, in general, Eastern students prefer a reflector learning style in which they take their time, listen to others, and do not impose, and that they dislike an activist learning style in which they must collaborate and jump into learning without knowing the full picture. Chinese students like some challenge and seek some new experiences, but take time to listen and respect others and to analyze before beginning. Indonesian students generally like previously tested ideas, do not like new ideas, and do not like tight deadlines. Conversely, French students generally like challenge and seek new experiences. They like to assert their own ideas if they are not happy with those of others. This may lead to the cultures of some students being more open or closed to new pedagogies.

Like learning preferences, educational expectations are also influenced by culture (Hayes Jacobs, 2010a). P. Tucker and Fail (2007) found that, although they shared many similar views, Thai families taught by Western teachers experienced dissonance with regards to the expected aims of schooling and the expectations of the role of the teacher. Thai parents indicated that the
goals of education were academic achievement and expected that school would prepare their students for careers, while the Western teachers placed greater importance on further life preparation, including social and moral learning. Similarly, Thai parents indicated that the role of the teacher was important, and that teachers should actively teach and manage classroom problems, while the Western teachers viewed their role as facilitator, allowing the students to construct learning.

Traditional education is best suited to intuitive introverts, who work silently and individually and prefer to listen and take pen-and-paper exams. Extroverts may be stifled in a traditional academic environment, as they tend to prefer hands-on, experiential, and discovery-based learning (Davis, 2010). This may lead extroverted students to prefer the new pedagogies, and may leave introverts hesitant, wishing for traditional education.

Some students only want to show what they already know; they are not interested in finding out more (Kuhn & Pease, 2008). For inquiry-based learning to be successful, students must understand and appreciate the goals of inquiry itself; otherwise they may not fully engage and will not learn as effectively (Raiser et al., as cited in Kuhn & Pease, 2008). Only once students understand the importance of inquiry should they be taught inquiry skills (Kuhn & Pease, 2008). High-performing students may be more likely to take part in and devote more time to inquiry-based learning than low-performing students (Hu et al., 2008).

Parker et al. (2013) noted that students in the project-based AP Government and Politics course were initially frustrated at having to engage without having the information. These students were already good at school and were used to teachers giving them information. Some students indicated frustration at not seeing immediate results and viewed time spent discussing and thinking as wasted. However, students also expressed that they no longer questioned when
they were going to use the knowledge, a question that is so frequently asked by today’s students (Boss et al., 2011). Students recognized that they were facing a “two-worlds problem” (p. 1445) in which they were taking the course for AP credit and also had to do a lot of work for the course that was not tested on the AP exam. They had to study the textbook in order to prepare for the AP examination in addition to doing extra work for the project-based learning. However, in hindsight, many students indicated that they learned more though project-based learning.

There are few studies that focus on newer constructivist pedagogies in the IBDP. Jordan (2013) detailed results from using a constructivist approach in her IBDP Chemistry course. She used Moodle to implement challenging, open-ended, collaborative, student-centered activities, which required her students to develop critical thinking. The online aspect of the course allowed students to work autonomously at a flexible pace, and to learn both in and outside of class. Students learned continuously, asking and answering questions on the course’s forum. She found that students who were motivated and independent participated more often, and that, although this experience aligned with university-level learning, some students did not enjoy this style of learning. The International School of Bangkok (ISB) developed a Student Research and Publishing Program (SRPP), which allows students in the IBDP Physics courses to publish their research in the ISB Journal of Physics, thus contributing to the creation of knowledge and sharing that knowledge with an authentic audience. Students have the option to apply for publication; approximately 25 percent of the students do publish, but it was found that merely having the opportunity to publish benefited all students by increasing their confidence that they could contribute to the scientific community. However, due to the content required by the course, students had to complete the majority of their work for publication outside of class time (Eales & Laksana, 2016).
Although there is no common nomenclature for the new pedagogies, and much overlap exists between the various pedagogies themselves, all of them are characterized by student-centered constructivist learning in which students must ask questions and apply their knowledge and understanding to answer those questions and must transfer their knowledge between contexts. This leads to increasingly deeper understandings and preparation for an ever-changing world. However, most schools are not set up to truly embrace new pedagogies, from infrastructure to teacher training to student and parent acceptance, and there is some fear that new pedagogies will lead to decreased scores on high-stakes tests.

Summary

International school populations around the world are changing. Rather than just educating expatriate students in international settings, they are serving an increasing number of local students who choose an internationalized English-language education that will allow them university entrance around the world. The curriculum employed by many international schools is the IBDP. This rigorous program is known for its well-rounded and rigorous education. The IBDP culminates in external assessments that are recognized by universities. However, despite claims that it is based on inquiry and prepares students for an uncertain future, the content-heavy curriculum, lack of time, and high-stakes nature of the assessments lead to many teachers employing traditional teacher-centered pedagogies (Pendergast et al., 2014) that do not prepare students for a rapidly changing world.

The new pedagogies provide a way for teachers to make learning more interesting and meaningful to students while preparing them for both IBDP examinations and their futures. However, teachers may be hesitant to take pedagogical risks because of student and parent expectations, the time required to cover content, and because their current teacher-centered
pedagogies are often validated by success on the IB examinations (Hallinger et al., 2011; Mayer, 2008). In order for the IB philosophy to align with its current practice, and to better serve the increasingly diverse student population undertaking the program, pedagogies need to change to become more student-centered and integrated, and less driven by content and examinations.
Chapter III: Methodology

This study gathered the perceptions and experiences of IBDP teachers in identified constructivist IBDP classrooms. Therefore, this study was qualitative in design, focusing on 12 international school teachers who were teaching in different subject areas at five international schools in Asia. Data was primarily collected through interviews with each teacher.

Research Questions

Data was coded and analyzed to develop themes, in order to answer the following research questions:

1. How do IBDP teachers who have developed and implemented constructivist, student-centered learning practices in their classrooms describe and explain the development of those practices for the purpose of increasing their students’ engagement and enhancing their learning, with a specific focus on doing so within an IBDP curriculum and school culture?

2. What practices have IBDP teachers implemented and what are the outcomes of these practices above and beyond the more “traditional” means of teaching IBDP classes, as evidenced and perceived by them?

3. What areas of tension exist between constructivist pedagogies in the IBDP, and how do teachers seek to address them?

Research Design

A qualitative approach was implemented in this study. According to Creswell (2013), qualitative approaches are appropriate when variables are not easily measured, when a detailed and complex understanding of an issue is needed, and to empower individuals to share their voices on an issue. In this study, the issue -- the use of constructivist, student-centered
pedagogies in IBDP classes -- was “socially complex, variable-rich, and context-specific” (Labaree, 2003) and could not be measured quantitatively; therefore, a qualitative approach was chosen. Furthermore, teacher voices and experiences are often left out of educational research; a qualitative approach allowed the researcher to share participants’ voices regarding their implementation of these pedagogies.

In qualitative studies, a researcher inductively and deductively collects data in participants’ natural settings (Creswell, 2013), and then interprets that data to better understand how participants experienced an event by uncovering participants’ perspectives (Agee, 2009). Because participants have different backgrounds, their perspectives on a given event or experience differ. This leads to multiple realities (Creswell, 2013), which can lead to not one, but a range of understandings. Qualitative researchers, therefore, seek to understand individual participants’ diverse views of a given event and report on these holistically in order to develop a larger picture of the event (Creswell, 2013). In this study, the researcher conducted individual interviews in order to understand how participants experienced their implementation of constructivist, student-centered pedagogies in their IBDP classes. Participants came from different countries, different schools, different subject areas, and different levels of experience; therefore, their results were diverse and could not be generalized. This made qualitative research an appropriate design for this study. Participants’ views differed greatly, in terms of the specific pedagogies they employed, factors that influenced their implementation of these pedagogies, and tensions that they experienced. This study thereby provided a holistic picture of participants’ individual experiences, which readers may see as similar to or different from their own.
Research Tradition

In qualitative research, researchers are the key data collection instruments. Researchers conduct open-ended semistructured interviews and organize the data into categories, patterns, and themes (Creswell, 2013). Researchers conduct in-depth qualitative interviews in order to “see that which is not ordinarily on view and examine that which is often looked at but seldom seen” (Rubin & Rubin, 2012, p. xv). Qualitative interviewing requires that researchers enter into the participants’ worlds, as they become conversational partners who respond to each other about issues about which they are both knowledgeable (Rubin & Rubin, 2012). In this study, the researcher used interviews to better understand participants’ teaching methodologies in their IBDP classes, as well as to understand the factors that support teachers as they implement these pedagogies and the tensions that participants find in their use. This information cannot be thoroughly found through participant observation or through artifact analysis.

Participants

This study examines the experiences and perceptions of 12 IBDP teachers at five international schools in Asia. The schools studied were identified by the IB as more consistently implementing constructivist, student-centered pedagogies across their programs, and the participants were identified by their IBDP coordinators or by themselves as teachers who consistently employed constructivist pedagogies in their IBDP classes.

Participants taught at one of five schools located in China, India, Indonesia, Thailand, and Vietnam. One school served predominantly international expatriate students, three served a mix of local and expatriate students, and the fifth served only local students. The teachers who participated in the study had backgrounds in Bangladesh, India, Nepal, Peru, Poland, South Korea, the United Kingdom, and the United States. Two participants grew up in international
schools, and one was a graduate of the IBDP. Participants had teaching experience ranging from only a few years to 35 years, and were teaching or had previously taught IB English A and Korean A (both Literature and Language and Literature), English B, Spanish B and Spanish ab initio, Business Management, Economics, History, Psychology, Environmental Systems and Societies, Biology, Physics, Mathematics, and Visual Arts. Several held other leadership positions in their schools, several were IB TOK teachers, and several were IBDP examiners.

**Recruitment**

Sampling for this study was purposeful; the researcher intentionally sought participants who could inform her about constructivist pedagogies in the IBDP (Creswell, 2013). She contacted the IB, which identified 11 schools in the Asia-Pacific region that consistently employed constructivist, student-centered pedagogies in their delivery of the IBDP. From those 11 schools, the researcher eliminated one, as it was better identified as a local school in a local context. The researcher then sought to contact each of the remaining schools’ IBDP coordinators to seek their recommendations for specific teachers who regularly employed constructivist pedagogies in their IBDP classes, as detailed in Appendix A. She was able to connect with the IBDP coordinators from seven of the schools. Five IBDP coordinators gave the researcher specific teachers to contact, and the researcher contacted the teachers directly via email to determine their suitability and interest in the study, as detailed in Appendix B. Three IBDP Coordinators forwarded the researcher’s request to all IBDP teachers, allowing the teachers to self-identify as meeting the criteria and contact the researcher; she then followed up with further information, as detailed in Appendix B. In this way, 10 teachers were chosen to participate in the study. Two more teachers were identified through snowball sampling by other participants in the study.
Data Collection

Although there are no predefined data collection or data analysis methods in qualitative research, rigorous data collection procedures must be employed to provide researchers with a deep, detailed understanding of the situation being researched (Creswell, 2013). Interviews are often the primary data source for qualitative studies because they allow researchers to understand, through multiple perspectives, the experiences and interpretations of events that they may not have experienced (Rubin & Rubin, 2012). The researcher conducted 12 online semistructured interviews with IBDP teachers at five international schools in Asia. Interviews focused on the reasons that the teacher employed constructivist pedagogies, the teacher’s experiences with these pedagogies, and the benefits and challenges of implementing these pedagogies.

A semistructured interview protocol was developed for this study (Appendix D). Interviews lasted between 45 and 60 minutes each and were conducted via FaceTime, Google Hangout, and WeChat. After the first three interviews, based on emerging themes regarding the tensions that the first participants had experienced, the interview protocol was amended for the remaining nine interviews (Appendix E). The interview protocols were semistructured with main questions and sub-questions to allow for the development of new questions during data collection and analysis (Agee, 2009), and they were open-ended to encourage participants to give unrestrained and detailed responses (Creswell, 2015). The protocol aimed to better understand the ways that the participating teachers came to adopt constructivist pedagogies and practices, what these pedagogies looked like in their IBDP classrooms, and the perceived benefits of and challenges to using such pedagogies within the IBDP. Although the interview protocols were established and followed, at times the researcher needed to insert prompts and clarifying and
follow-up questions that were not in the protocol in order to keep the interview on track or to ensure that she fully understood the participants (Rubin & Rubin, 2012).

**Data Storage**

All interviews were recorded on the researcher’s password-protected iPhone. Interview recordings were immediately transferred to the researcher’s password-protected personal computer and removed from the researcher’s iPhone. Interviews were transcribed using Rev.com, and transcript files were anonymized and saved on the researcher’s personal computer. All digital files were backed up on the researcher’s password-protected cloud. Informed consent forms will be kept in a locked safe for 3 years following the completion of the study; at the conclusion of those 3 years, these will either be returned to the participants or destroyed, at the participants’ requests. All other files containing participants’ personal information have been destroyed. The data collected was stored on the researcher’s password-protected personal computer and was backed up to the researcher’s password-protected cloud.

**Data Analysis**

In this study, data collection and preliminary data analysis occurred concurrently, enabling the researcher to use completed data collection and analysis to inform future interviews and to reconsider blind spots (Miles, Huberman, & Saldaña, 2014). All interviews were audio recorded and then transcribed using Rev.com. After the transcripts were received, the researcher checked them for accuracy and sent them to the participants to check for accuracy and representation.

Qualitative data analysis involves multiple levels of abstraction (Creswell, 2013); this is detailed in the three-part coding process that the researcher employed. Interview transcripts were coded by hand. While coding, the researcher maintained a code list in which she noted the
criteria for each code. All coding followed Miles et al. (2014) and Saldaña’s (2016) process, involving first cycle initial coding to look for meaning within chunks of data. The first cycle of coding included descriptive and in vivo coding. The second cycle of coding included pattern coding, in which the researcher organized the data into chunks and looked for meaning related to the research questions in each chunk. Patterns were then used to create a thematic table, in which participants’ quotes pertaining to each pattern were compiled and analyzed; from this, themes were developed to help answer the specific research questions. These themes were used to establish significant findings. Throughout coding, data were displayed in tables that were amended as more connections were made and more data was analyzed (Miles et al., 2014).

**Trustworthiness**

In order to maintain trustworthiness, it is important that the data are accurate and credible (Rubin & Rubin, 2012). In this study, the researcher ensured accuracy by listening to the interview recordings and carefully checking the transcripts received from Rev.com. She compared the transcripts with her own notes from the interview. She sent the transcripts to each participant and asked them to indicate any areas that they felt were incorrect or where they had been misrepresented. The researcher reread each interview three times during the coding process and developed themes directly from the quotes of the participants.

In order to ensure credibility, the researcher used purposeful sampling to identify participants who were knowledgeable about teaching the IBDP in their subject area through student-centered constructivist pedagogies. These teachers’ schools were identified by the IB and the teachers themselves were either recognized by their IBDP coordinators, were self-identified, or, in two cases, were identified by their colleagues. The interviews focused on the participants’ own experiences. Each research question was addressed through multiple interview
questions, ensuring that the researcher understood the participants’ experiences from different perspectives and also ensuring consistency in each participant’s responses to the overarching research questions (Rubin & Rubin, 2012).

Limitations

This study only included participants from schools that were identified by the IB as consistently employing student-centered constructivist pedagogies in their IBDP classrooms. This study does not take into account the experiences of teachers at other schools who may also employ, possibly in a more progressive way, student-centered, constructivist pedagogies. Results may not be generalizable; applying similar pedagogies at different schools may result in different outcomes.

Additionally, due to internet limitations in the researcher’s country of residence, China, the interview software did not function optimally at times, leading to occasional breaks in the interview recordings. The researcher, using her interview notes and with the help of the participants, attempted to fill in the gaps, but some remained, leading to incomplete data.

Protection of Human Subjects

The researcher completed the Human Participants Protection Education for Research Teams course through the National Institutes of Health. Upon approval of the thesis proposal, the researcher gained approval from the Internal Review Board of Northeastern University to conduct the research. The application included a description of the research aims, as well as the data collection and analysis procedures.

The researcher obtained informed consent from all IBDP teacher participants, as detailed in Appendices C, E, and F. Identifying information about the schools was removed from the
study, and pseudonyms were assigned to all participants involved. Data was stored securely and will remain confidential.

**Summary**

This qualitative study focusing on 12 international school teachers across a range of subjects has provided a better understanding of the experiences of IBDP teachers who employ constructivist pedagogies and practices in their IBDP classrooms in alignment with the philosophy of the IBDP. It will lead to a better understanding of how students experience these pedagogies in relationship to their past and current experiences of teaching and learning. While the results of this study cannot be generalized, they can inform teaching for other IBDP teachers.
Chapter IV: Research Findings

The purpose of this study was to collect, present, and reflect on the experiences of IBDP teachers who have developed and consistently employed constructivist pedagogies in their IBDP classrooms. The following research questions guided this study:

1. How do IBDP teachers who have developed and implemented constructivist, student-centered learning practices in their classrooms describe and explain the development of those practices for the purpose of increasing their students’ engagement and enhancing their learning, with a specific focus on doing so within an IBDP curriculum and school culture?

2. What practices have IBDP teachers implemented and what are the outcomes of those practices, above and beyond the more “traditional” means of teaching IBDP classes, as evidenced and perceived by them?

3. What areas of tension exist between constructivist pedagogies in the IBDP, and how do teachers seek to address them?

This chapter begins with an overview of the study’s participants. It then examines the themes pertaining to the research questions, which were developed through data collection and analysis.

Summary of Participants and Data Collected

The participants taught at from schools from across the Asia-Pacific region that had been identified by the IB as more regularly employing progressive pedagogies. All of the schools were located in major cities. Table 1 provides a brief summary of the five schools.
Table 1

*Data about Schools from Which Participants Came*

<table>
<thead>
<tr>
<th>School</th>
<th>Location</th>
<th>Grade levels</th>
<th>Programs offered</th>
<th>Clientele</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>China</td>
<td>Early childhood-12</td>
<td>IBPYP, IBMYP, IBDP</td>
<td>Expatriate</td>
</tr>
<tr>
<td>B</td>
<td>India</td>
<td>K-12</td>
<td>IBPYP, Cambridge IGCSE, IBDP</td>
<td>National</td>
</tr>
<tr>
<td>C</td>
<td>Indonesia</td>
<td>Early childhood-12</td>
<td>IBDP, AP</td>
<td>Expatriate and national</td>
</tr>
<tr>
<td>D</td>
<td>Thailand</td>
<td>Early childhood-12</td>
<td>IBPYP, IBMYP, IBDP</td>
<td>Expatriate and national</td>
</tr>
<tr>
<td>E</td>
<td>Vietnam</td>
<td>Early childhood-12</td>
<td>IBPYP, IBMYP, IBDP</td>
<td>Expatriate and national</td>
</tr>
</tbody>
</table>

Participants from those schools were identified by their IBDP coordinator, recommended by other participants in the study, or self-identified as consistently implementing constructivist, student-centered pedagogies in their IBDP classes. A summary of the participants is as follows and also in Table 2:

**Anne.** Anne was from the United States, where she had been educated in a mostly traditional way – only one of her teachers employed student-centered pedagogies. She had been teaching at School D in Thailand for six years, where she taught IBDP English A Language and Literature and IBDP TOK, in addition to IBMYP English. Prior to that, she had taught AP Literature and general high school English in South America. She became interested in teaching in a student-centered, constructivist way from her AP English Literature teacher, who taught in a discussion-driven way, which was different than her other classes. Her philosophy of teaching was that students should be productive. She encouraged students to come up with their own ideas rather than just reactively following the teacher’s instructions, an idea that she had learned from a TOK training that she attended. One way she did this was by starting class with “daily
work,” a provocative statement or quote that students would discuss with each other, bringing their own insights to literature.

**Bhavana.** Bhavana was from Nepal, where she had been educated in a traditional way. After studying, teaching, and leading workshops in the United States, she moved back to Nepal and taught literature to university students. Her first job at the high school level was at School B, where she had been teaching off-and-on for 18 years. She had been teaching IBDP English for five years; she currently taught IBDP English A Language and Literature, and she previously taught IBDP English A Literature. She strived to teach her classes in a student-centered manner, similar to the way she had run the university-level classes and workshops. She always tried to have fun teaching, and she applied her experiences as a mother watching her daughter learn to her teaching. One feature of her IBDP classes was that she began each lesson with students analyzing poetry in a conversational, nonthreatening manner. This encouraged them to become familiar with the genre and to apply their own perspectives and experiences to the poems.

**Chaewon.** Chaewon was from South Korea, where she had been educated in a traditional Korean school before moving to an international school in China, where she completed the IBDP. She had been teaching for five years, all in the IBDP. She taught IBDP Korean A Literature and IBDP Visual Arts at an international school in Cambodia before moving to School E in Vietnam, where she taught IBDP Korean A Language and Literature and IBMYP Visual Arts. She viewed her teaching as atypical for a Korean teacher, and aimed to have a more international, student-centered style of teaching, allowing students to figure things out for themselves rather than giving them information. In both her Korean and Visual Arts courses, she provided students with the outcomes that they must demonstrate, and she allowed students to choose their own topics to study and products to create in order to demonstrate those outcomes.
Daria. Daria was from Eastern Europe, where she had been educated in a traditional Soviet school. She then attended middle and some high school at a progressive international school in the United States before returning to Eastern Europe to finish her last two years of high school. She taught in Greece for one year before moving to Indonesia, where she had been teaching English as a Second Language (ESL) at School C for 35 years. She had been teaching IBDP English B for at least 10 years. In helping to redesign the ESL program at School C, she organized the course into thematic units, and she aimed to have students learn English by using it authentically and interactively. She taught through inquiry projects in which students choose a topic based on their interests, develop a research question about that topic, and seek to answer the research question. She then could personalize her instruction based on what individual students needed at a given time in order to advance their understanding and use of English as they completed their inquiry project.

Ellen. Ellen was from the United States, but she had grown up in South America. Her education was mostly through experience, as she spent time traveling along the Amazon River and helping her parents, who worked for a nongovernmental organization (NGO). At times, she attended an informal school in a one-room school house. She attended one year of high school, as well as university, in the United States. She taught in the United States and in several international schools around the world. She had been teaching IBDP Spanish B, IBDP Spanish ab initio, and IBMYP Spanish in Vietnam for three years. Due to her own education, she focused on teaching students how to learn languages rather than on memorizing specific vocabulary or grammatical structures. Students learned through experience as they communicated by reading, writing, and speaking in Spanish. They worked independently and at their own pace; Ellen checked in with them to facilitate their learning.
Rasika. Rasika was from India and attended School B, which has always been known for being more progressive. After university, she had worked in the corporate sector and taught at business schools for 12 years before beginning her high school teaching career. She taught at two other schools in India before joining the teaching faculty at School B, where she was teaching TOK and co-teaching IBDP Business Management with Garima; she had been teaching within the IBDP for three years. Her teaching style combined creativity and research, and she tried to bring real-world scenarios and problems to her Business Management classes in order to make abstract content more authentic for her students.

Garima. Garima was from India, where she had attended a traditional high school and completed the national curriculum. She completed her MBA and worked in the business sector. She then taught business management at university for 12 years before transitioning six years ago to teaching high school at School B, where she was co-teaching her IBDP Business Management classes with Rasika. Based on the manner in which she taught at university, her teaching style had a heavy emphasis on projects and “industry-academia interaction.” However, because high school students are younger than university students, she focused a lot on developing skills, especially critical thinking skills. She linked her teaching of Business Management with the real world by having students analyze and make decisions on a range of current case studies.

Harshita. Harshita was from India, where she had attended a traditional Indian high school that focused on teaching history from only one perspective. She taught for 24 years across a range of curricula at national high schools and junior colleges. She had been teaching IBDP History at School B for the past five years. Her teaching focused on considering multiple
perspectives and a range of narratives when analyzing history. She had her students complete historical investigations on controversial topics on India and world history.

Isabel. Isabel was from the United States, where she had completed the IBDP at a local public school. She taught science and biology for several years at two public schools in the United States, one of which was a career academy for students who were not interested in traditional school. She had the opportunity to design a biotech program at that school, which strengthened her current approach to teaching. For the past four years, she had been teaching IBDP Biology and IBDP Environmental Systems and Societies at an international school in China, where her teaching was activity-based. She viewed herself as a story-teller, trying to get students to connect the various aspects of her courses into a story. She filled in the gaps, as needed, by asking directing questions for the students to answer. She viewed student engagement as being of equal importance to the teaching of content, and that engagement leads to greater retention.

Julia. Julia was from Bangladesh, where she had attended a local public school. She then moved to the United Kingdom, where she completed A-Levels and attended university. She worked in industry for several years before transitioning into teaching. She had been teaching the IBDP in a number of international schools around the world over the past 12 years. Although she previously taught IBDP Psychology, she was currently teaching IBDP Biology at an international school in China. She recognized that she was unable to self-manage when she was a student, and she aimed to teach her students to develop self-management and decision-making skills through her course. She had students complete multidisciplinary projects in which, within a given topic, they decided what they want to research and how they wanted to show what they have learned, thus teaching themselves and each other.
Kyle. Kyle was from the United Kingdom, where he had attended a traditional local school, completed A-Levels, and attended university. He taught for a year and a half in the United Kingdom before moving to the Middle East, where he taught Physics at a British international school. He then moved to Indonesia, where he had been teaching AP and IBDP Physics for the past three years. He based his teaching on Guy Claxton’s model: he presented students with a difficult task at the beginning of class and let them work out the solutions in pairs, while he supported the students, tailoring feedback as needed. In his teaching, he encouraged students to develop dispositions towards learning, including reflexivity and resilience.

Latika. Latika was from India, where she had attended a local school that was very traditional in its teaching. She taught in a variety of schools and a range of curricula and subjects; she began teaching computer science 20 years ago, and later transitioned into mathematics. Although she was taught very traditionally, she credited her father for helping her to inquire into and discover mathematics. She viewed engagement as very important for learning and aimed to make mathematics come alive for her students through a range of projects and activities, helping them to link it to other subjects in order for them to see its relevance and to understand it better.
Table 2

Data about Participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>School</th>
<th>Gender</th>
<th>IBDP subjects currently taught</th>
<th>Additional IBDP subject(s) previously taught</th>
<th>Number of years of teaching experience</th>
<th>Number of years of IBDP teaching experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anne</td>
<td>D</td>
<td>female</td>
<td>English A Language &amp; Literature, TOK</td>
<td>English A Language &amp; Literature</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Bhavana</td>
<td>B</td>
<td>female</td>
<td>English A Language &amp; Literature</td>
<td>English A Language &amp; Literature</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Chaewon</td>
<td>E</td>
<td>female</td>
<td>Korean A Language &amp; Literature</td>
<td>Korean A Language, Visual Arts</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Daria</td>
<td>C</td>
<td>female</td>
<td>English B</td>
<td>None</td>
<td>36</td>
<td>10</td>
</tr>
<tr>
<td>Ellen</td>
<td>E</td>
<td>female</td>
<td>Spanish B, Spanish ab initio</td>
<td>None</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Rasika</td>
<td>B</td>
<td>female</td>
<td>Business Management, TOK</td>
<td>None</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Garima</td>
<td>B</td>
<td>female</td>
<td>Business Management, TOK</td>
<td>None</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Harshita</td>
<td>B</td>
<td>female</td>
<td>History</td>
<td>None</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Isabel</td>
<td>A</td>
<td>female</td>
<td>Environmental Systems &amp; Societies, Biology</td>
<td>None</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Julia</td>
<td>A</td>
<td>female</td>
<td>Biology</td>
<td>Psychology</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Kyle</td>
<td>C</td>
<td>male</td>
<td>Physics</td>
<td>None</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Latika</td>
<td>B</td>
<td>female</td>
<td>Mathematics, TOK</td>
<td>None</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

The researcher conducted semistructured interviews with each participant, following the protocol detailed in Appendix D. Interviews were done via Skype, Facetime, Google Hangout, or WeChat. Each interview lasted between 45 minutes and 1 hour. Interview recordings were
transcribed by Rev.com. The researcher listened to each interview recording and checked each transcript. She then sent the transcripts to the participants to member check for accuracy. The researcher hand coded the transcripts, using in vivo coding followed by pattern coding. She entered the pattern codes and relevant quotes into a Microsoft Excel spreadsheet, and from there she extracted themes.

**Themes Related to Research Question 1**

The first research question examined the reasons that teachers began implementing constructivist, student-centered pedagogies, and the ways that they were supported and encouraged to do so. The five themes that emerged from this research question are:

- IBDP teachers’ academic and professional backgrounds led them to implement constructivist, student-centered pedagogies.
- IBDP teachers’ use of constructivist, student-centered practices stemmed from their own philosophies of education.
- IBDP teachers’ teaching practices were influenced by professional development.
- School culture greatly influenced IBDP teachers’ use of constructivist, student-centered pedagogies.
- The nature of the IBDP and the nature of specific subjects led some teachers to implement constructivist, student-centered pedagogies in their IBDP classes.

**Academic and professional backgrounds.** All participants indicated that their educational or professional backgrounds led them to teach in a more constructivist, student-centered way. Some participants had been either entirely or partially educated in a constructivist, student-centered way, and thus recognized the benefits of this style of teaching. Other participants had been educated in a traditional, teacher-centered way, and wanted to teach in a
different way. Still others had worked in industry or had taught at the university level and saw that student engagement and learning could be increased if students were constructing meaning.

**Similar educational background.** Some participants had been educated in a constructivist way and continued teaching that way because they recognized the value in this type of education. Rasika had actually studied at the school at which she was teaching, a school that had long been known as being progressive and nontraditional, in contrast with the conventional Indian school. Although the curriculum was different when she was a student, she commented that the school “employed a lot of maverick teachers, and it was quite different. Also, it was not an assessment-focused school at all.” She recognized the value of this type of education and wanted to teach her classes that way.

Ellen had perhaps the most unique background, which led to her teaching in a constructivist, student-centered way. She had lived on a boat in the Amazon and traveled for several weeks at a time with her father, who worked for an NGO. While she went to a one-room school when she was in town, her education was often real-life and experiential. Because she had not had a traditional education, she felt uncomfortable teaching in a traditional way. She commented, “I’ve never been quite good at it, and maybe it’s because of my background as a student myself. I’ve never been quite good at PowerPoint and showing and teaching grammar structures.”

**Different educational background.** Other participants had very traditional, teacher-centered educations, ones that were different from the way in which they now taught. Although several participants commented on their success in more traditional education, at some point in their educational or teaching careers they recognized that employing constructivist, student-centered pedagogies was better for student learning. They evolved to begin implementing those
pedagogies. For example, Kyle discussed his own education, in which he thought he was a successful learner because he was able to memorize the required content. He then elaborated on his change to constructivist, student-centered pedagogies:

I was so naïve, so naturally when I first started teaching, that’s how I approached it…. It was actually starting to teach that [higher] level that I had to realize, “Hey, I have to know what I’m talking about, rather than just remembering what they know.” And it was this little evolution.

Latika attended a traditional school in India at which mathematics was taught by “drill and practice…. So when I started teaching, I pretty much mimicked what I was used to.” She followed that up by commenting on her transition to constructivist, student-centered pedagogies, stating:

I became part of the co-team at a school in Delhi where we started the IB Program, and then that’s where I think my journey of trying to do mathematics a little differently started. So it’s been a long journey.

Garima also had attended a traditional school, commenting that it was “very rote-oriented, but I think I liked rote learning, so I liked being a part of it, because it was easy to score. I never thought there was another method, because I wasn’t exposed to anything.” She indicated that her teaching style changed when she began teaching management at a university: “So the course, being management, had a lot of industry-academia interaction. So I saw a very different side when I was teaching that course. A smaller number of students; a lot of emphasis on projects.” She commented that when she moved from university to teaching the IBDP at School B, she had to focus more on developing skills because the students were younger: “But then I realized that even within that realm, you could be innovative.”
**Mixed educational backgrounds.** Some participants were educated using both traditional and constructivist methods and were able to compare and contrast the two as they developed their own teaching pedagogies. They recognized the value of student-centered, constructivist pedagogies. For example, Daria had been educated in both Eastern Europe and in international schools. She commented that when she moved from a local school in Eastern Europe to a progressive international school in the United States, “I sat there and said, ‘The teacher’s asking me what I think?’ I was never asked what I thought on a topic, in the Prussian model of education.” Daria then contrasted this with her return to Eastern Europe, “I was asked to analyze a poem… I started my analysis with the words, ‘I think.’ And the teacher interrupted me and said, ‘You’re not here to think. What’s the answer?’” Daria based her teaching style on what she experienced in the United States, focusing on thinking and student voice in learning English.

Similarly, Chaewon contrasted her early education in Korea at a “typical Korean public school” with an exam-driven curriculum. She then moved to an international high school where she completed the IBDP. Based on her experience there, she decided to become an international high school teacher, and she based her teaching on some of her classes at that school, aligning “more with the Western teaching way, rather than Korean teaching strategies.”

Anne did not change schools, but she was able to discuss her literature teacher’s discussion-driven pedagogies as being different from those of her other teachers. She decided to become an English literature teacher and based many of her pedagogies on this teacher’s style, noting, “I loved literature and I loved discussing it and feeling like we had something to offer instead of just the teacher teaching us.” She then commented on her own teaching style: “I always, since the beginning, have tried to make my lessons as fun as possible.”
Professional background. Still other participants discussed how their professional backgrounds, particularly teaching in different locations or to different student populations, influenced their use of constructivist, student-centered pedagogies. Rasika commented on how her experience teaching at a university in Kathmandu led her to understand the value of constructivist, student-centered learning:

Because of the nature of the country, it was perhaps the most interactive class I’ve ever had.... Students studying literature were very very political, and they studied literature in order to become activists. So they would take what we did in [the] classroom and publish it in newspapers or want to see things from a more national perspective. So that would be perhaps the most interactive and perhaps the classroom that taught me the most.

Isabel taught for four years at a nontraditional high school for students who did not fare well in regular classes. At that school, she was responsible for developing a curriculum from scratch, with the freedom to do as she wanted, but with limited resources at her disposal. She noted: “Suddenly my whole strategy changed, because I was making it up as I was going…. I had to make it something they could make, that they could design, and that they could build.”

In summary, all participants indicated that their educational and professional backgrounds affected their desire and ability to teach using constructivist, student-centered pedagogies. For some participants, this was because they were educated in a constructivist student-centered way, either for all or part of their education. For other participants, it was because they were educated in more traditional, teacher-centered ways, but they had come to recognize that this affected student learning so they transitioned to constructivist, student-centered pedagogies. Other participants cited their professional teaching backgrounds as leading them to teach in constructivist, student-centered ways.
**Philosophies of education.** All participants’ responses indirectly or directly referred to their personal philosophies of education as a reason why they employed constructivist, student-centered pedagogies. These philosophies differed somewhat based on the subject that the participant taught.

Some participants sought to prepare students for their future education by providing them with important content. In some IBDP subjects, such as the languages, teachers have more freedom to choose topics for students to study, provided they meet syllabus skill requirements; Daria commented that she tried to choose topics in her IB English B class that she felt were important for students to know in the future. Garima focused on the importance of holistic, lifelong learning so students got the bigger interdisciplinary picture, even if this meant occasionally straying outside of the prescribed IB Business Management syllabus. She encouraged teachers to explore good ideas and students’ interests, even if it resulted in losing topics, as this was more likely to maintain students’ enthusiasm for lifelong learning.

Other participants were concerned with preparing students for their futures by showing them the importance of the subject for their future lives. This was especially evident in the IB Language B courses. For example, Daria noted how she explained to students the ways in which they would use various text types and content in their future:

I explicitly tell them, “This text type is actually gonna be useful when you do this and this.” Knowing about this topic, or knowing how to talk about this topic is gonna be very helpful for…the jobs that they might have.

With regards to her IB Spanish B and ab initio courses, Ellen commented, “I believe if they learn how to learn languages, they can potentially teach themselves everything they need to know.”

She further stated:
Teaching them how to be better language learners is far more important sometimes than really the content of all the things that we have to go through, because…they will be able to teach themselves a language later if they want to.

Some participants’ philosophies centered around preparing students for their futures by helping them develop important attitudes and skills. Harshita discussed the skills of independent learning, reflection, and inquiry as being important aspects of her IB History course, as these were skills that they would need after they left school. Julia noted the importance of allowing students to make decisions in class: “The rest of your life, you’re kind of on your own making decisions. Even when people direct you and everything, you still need to make your own decisions.”

Other participants focused on the importance of authentic, experiential learning. For example, Harshita asserted, “I believe that learning happens when you experience, and it’s very often outside the classroom.” Anne focused on the importance of students producing authentic tasks within her English class, stating: “The more flexibility and freedom you create in a classroom that they’re productive, so they’re producing their own ideas.”

Other participants focused on meeting students’ current needs. For Anne, those needs varied based on the student body, the time of year, and the goal; she noted, “I’d like to say that my teaching has always depended on what the kids need at the time and what our end goal is.” Bhavana also commented on the diverse needs of her students: “I’ve changed to doing a lot of group work, and part of that is because…some kids don’t learn that [traditional] way. I have to provide a variety so that everybody learns.” Bhavana also indicated her desire to develop in her students an eagerness to learn throughout the rigorous IBDP: “Keeping it fun for them is
extremely essential…. Keeping it not just academic, but holistic in that way is extremely essential. Just to keep them wanting to learn.”

Participants’ personal philosophies of education encouraged their use of constructivist, student-centered pedagogies. Some participants recognized that these pedagogies affected students’ future learning, while others focused on authentic and experiential learning. Still others saw the importance of meeting students’ current needs.

Professional development. Most participants indicated that professional development supported them in teaching in a constructivist, student-centered way. For some teachers, this professional development was a specific course; for others, it was simply networking and making connections with other like-minded teachers. Professional development influenced individual teachers’ teaching strategies and also supported the whole school by encouraging teachers to collectively adopt more constructivist, student-centered pedagogies. Table 3 lists the professional development that led either the teacher or the school to implement more constructivist, student-centered pedagogies in the IBDP.
### Table 3

Professional Development’s Connection to Constructivist Pedagogies

<table>
<thead>
<tr>
<th>Participant</th>
<th>Professional Development</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anne</td>
<td>Specific IB Theory of Knowledge workshop leader</td>
<td>Told Anne that students should be productive, not reactive.</td>
</tr>
<tr>
<td>Daria</td>
<td>Carol Dweck’s growth mindset</td>
<td>Daria redesigned units into inquiry projects</td>
</tr>
<tr>
<td>Rasika</td>
<td>Harvard Project Zero Cultures of Thinking by Ron Ritchhart</td>
<td>Rasika based her classroom learning experiences around this.</td>
</tr>
<tr>
<td></td>
<td>Jim Knight’s curriculum coaching</td>
<td>School B implemented curriculum coaches to help teachers develop their pedagogies.</td>
</tr>
<tr>
<td>Garima</td>
<td>Harvard Project Zero Cultures of Thinking by Ron Ritchhart</td>
<td>School B ran this course for all teachers, realizing that all learning stems from the school’s culture. Teachers redesigned their courses through inquiry.</td>
</tr>
<tr>
<td></td>
<td>IB Approaches to Teaching and Learning</td>
<td>Changed the way that Garima looked at her subject.</td>
</tr>
<tr>
<td>Harshita</td>
<td>Harvard Project Zero Cultures of Thinking by Ron Ritchhart</td>
<td>Harshita introduced thinking routines into her classes.</td>
</tr>
<tr>
<td>Isabel</td>
<td>National Science Teachers Association conference</td>
<td>Allowed Isabel to talk to other teachers and get ideas on ways to teach in a constructivist manner.</td>
</tr>
<tr>
<td>Julia</td>
<td>Visible Thinking</td>
<td>Julia integrated visible thinking routines into her teaching.</td>
</tr>
<tr>
<td></td>
<td>Lynn Erickson’s concept-based teaching</td>
<td>Julia redesigned her course around concepts.</td>
</tr>
<tr>
<td></td>
<td>Adaptive Schools</td>
<td>Gave Julia classroom techniques to use.</td>
</tr>
<tr>
<td>Kyle</td>
<td>Guy Claxton</td>
<td>Reaffirmed what School C was already trying to do. Helped Kyle see the importance of developing dispositions, rather than just teaching content.</td>
</tr>
<tr>
<td>Latika</td>
<td>Met with other like-minded mathematics teachers at other schools</td>
<td>Ignited Latika’s desire to teach differently. Gave Latika more confidence.</td>
</tr>
<tr>
<td></td>
<td>Lynn Erickson’s concept-based teaching</td>
<td>Latika started looking at mathematics concepts as transferrable and linked these concepts with skills, creating enduring understandings.</td>
</tr>
<tr>
<td></td>
<td>Carol Ann Tomlinson’s differentiated classroom</td>
<td>Made Latika recognize that not all students learn mathematics in the same way, and encouraged her to do different activities with students.</td>
</tr>
</tbody>
</table>
Professional development was the main reason some teachers transitioned to constructivist, student-centered pedagogies. Anne commented on one specific workshop leader who said something that she has carried into her teaching of English, “I had a workshop leader tell me this five or six years ago…. The students need to be productive instead of reactive. He said to be productive, you have to be open-minded.” She then noted ways that she had students produce language, rather than simply reply to language. Latika spoke about the connections she had made with other like-minded teachers, and how those continued interactions affected her teaching: “So I’ve actually reached out to many educators in the past to discuss this.” She commented on one specific teacher she had met, noting: “I think that’s where my own discovery of teaching math differently started.”

In some instances, professional development not only affected the participant, but affected the whole school, leading other teachers in the school to move towards constructivist, student-centered pedagogies. Several teachers from School B commented on the school’s use of Harvard Project Zero’s Cultures of Thinking by Ron Ritchhart as a turning point for not only individual teachers but for the overall culture of the school. Garima observed, “So this kind of changed it because it says that you can’t only have a culture of inquiry in your classroom. The whole culture of the school has to lend itself to a culture of thinking.” Kyle spoke how a whole-school professional development workshop by Guy Claxton influenced his and his colleagues’ teaching at School C: “I’d say it’s confirmed what we’re trying to do already…. But I think we all know what it should be, and we’re all trying to do what we can…. It was uncomfortable at first, but it’s good.”

Overall, participants indicated that IB subject-specific professional development focused on content and assessment and did support teachers pedagogically as they employed
constructivist, student-centered pedagogies. Anne said, “This is my problem with IB. I don’t even feel they really get into pedagogy.” She further noted:

IB workshops are good for getting the basics down of how a course should be run and how your kids are going to be marked and things like that, but I’ve never felt that it either reassured nor discouraged me.

Other participants felt that the IB professional development workshops did not promote or model constructivist, student-centered pedagogy because they were delivered mostly through PowerPoints and were instructor- and content-driven. Isabel noted, “IB training, in general, I would say is the opposite of constructivist. If the IB wants constructivism, they are not going about it the right way.”

In summary, participants indicated that professional development could be responsible for shifting their individual pedagogies from traditional, teacher-centered to constructivist, student-centered. When offered to the whole school, professional development could also help change the culture of teaching within a school. However, participants indicated that IB professional development did not focus on pedagogy as much as it did on content and assessment.

**School culture.** Overwhelmingly, participants indicated that the culture of their school greatly contributed to their use of constructivist, student-centered pedagogies in the IBDP; this culture sometimes stemmed from the school’s history. All participants specifically discussed the ways in which support from administrators was instrumental to their development and implementation of constructivist, student-centered pedagogies. Many participants also cited support from colleagues as aiding in their development of those pedagogies. Several teachers said the clientele, both students and parents, enabled them to implement these pedagogies. For
some teachers, having a strong middle school program ensured that students came to the IBDP prepared to use constructivist, student-centered pedagogies in the IBDP.

School B’s culture and history particularly supported teachers as they implemented constructivist, student-centered pedagogies. According to Bhavana, the school was “founded by a group of women in their living room who wanted to just do a different kind of education for their children.” This history and ethos of “do differently” helped develop that school’s culture of constructivist, student-centered learning. It was known in the area as “the school that does things differently.” Garima confirmed this reputation, stating: “It’s about the culture and the fabric of the school.” Rasika noted that even when the school was founded, “teaching was quite organic, as in, very project-driven.” Garima further noted that the school “always defined conventional norms and didn’t actually [ever] focus on rote learning.” She further noted that the school “always encouraged experimentation” and “empowered the teachers to go out and try anything.” Because the school was founded as and is known in the community for being organic, defying norms, and encouraging experimentation, the whole school community expected that the IBDP will be taught in a more progressive, student-centered, constructivist way.

Supportive leadership. Regardless of its historical roots, school culture can be developed by school leadership. Supportive leadership was cited as giving participants freedom and encouragement to take risks in their teaching, allowing them to try things. As Bhavana stated, “Our school is constantly telling us to do new things…. They won’t shut down any ideas, which I think is quite incredible.” Harshita summed up the importance of supportive leadership in encouraging her to try new things, commenting, “When the school supports you, you have the courage to take decisions and, okay, let’s do it.”
That support was also extended when teaching did not go as planned, when, as Ellen said, “That maybe doesn’t work and, you know, being okay with it.” Bhavana also noted, “If there are times that I get it wrong and a few of my classes have wanted, they never hold it against you. Which makes it easier for you to do stuff.” Julia echoed this sentiment of security, stating: “We feel safe enough, that they can be messy and students might get everything wrong, and as teachers then, we’re not worried about what the administrators are going to say.”

Participants also noted that leadership was supportive when it trusted teachers to do a good job and to get through the required content, while allowing teachers to teach outside of the IB syllabus when they felt it would be best. Illustrating this, Bhavana noted, “I know that not in every school can you…spend 15 minutes doing stuff that’s completely outside of the syllabus and will never be tested, but our administration would never put that down.” Julia commented on the culture of trust at School A:

The thing is, our teachers are so good at the formal assessments and knowing how to get things done, that the school has the luxury of saying to us, “No, no, open things up,” because they know that there is no way in hell we’re not going to get the skills done, the basic, the stuff that other schools would focus on, ticking all the boxes.

Kyle commented that that trust was freeing and “allows you to become who you want to be as a teacher.”

However, Latika cautioned against blindly supportive leadership, noting that administrators should understand what is going on in the classrooms and should see “value and merit,” because they are the ones who answer to the parents when there are questions about unconventional teaching methods. She noted, “If you don’t have your leadership team completely on board with what you’re doing, it’s not fair to expect them to blindly support it.”
She noted that communication and collaboration between teachers and leadership needed to be present.

The extent to which leadership encouraged the use of constructivist, student-centered pedagogies varied considerably. At School A, it was strongly encouraged, as Julia explained: “We’ve been asked this year that everybody in the school needs to try something that is much more eccentric. It’s like everybody has to do something, in a group, collaborate with other people. Do something.” However, participants at all schools noted that leadership usually encouraged a freedom of pedagogical approach, and that only some teachers at each school employed constructivist, student-centered pedagogies. As Anne explained, “There are some teachers who are very traditional and they continue to be that way.” The school gives teachers freedom and “Won’t go to them and say, ‘You need to stop lecturing; we’re a progressive school.’ They’re progressive in a sense that they let teachers choose what they feel is the best method of instruction.” Kyle noted, “I’m free to do as I like. I could sit here the whole time and get them to do worksheets if I want to.”

The approachability of leadership also supported participants in their implementation of constructivist, student-centered pedagogies. Garima commented, “I don’t think there are any limits and boundaries put down. The leadership and management being approachable, like you can walk into their offices, you can ask them. They always encourage dynamic classes.”

**Supportive colleagues.** In addition to supportive school leadership, many participants indicated that support from their colleagues helped them develop and implement constructivist, student-centered pedagogies in their IBDP classrooms. For example, Bhavana commented, “I also have very very creative colleagues, who are very supportive. Like my co-teacher is exceedingly creative by nature and is very very supportive. And because we do things together
so often, we’re constantly learning from each other.” While Bhavana commented on her colleagues in general, Garima mentioned one particular teacher who was a source of inspiration for others as they moved into constructivist, student-centered pedagogies: “She’s actually been our inspiration. She started doing imaginative things way back, when people were getting into this field.”

Participants discussed the importance of collaboration as a form of both support and inspiration. Anne commented on the importance of collaboration as a way to share ideas: “I think that the more we collaborate, the more we take from each other.” Julia noted the importance of mutual respect between colleagues: “There’s enough respect around, that you’re not worried that someone’s going to judge you on trying something a bit wacky.”

**Clientele: Students and parents.** Student and parent attitudes and support for constructivist, student-centered pedagogies in the IBDP was also cited by many participants as a reason that they were able to employ that pedagogy in their classes.

All schools in the study were in Asia and had a largely Asian clientele. Anne commented on how Asian expectations of education affected her teaching: “Because the cultural context, everybody here values education a lot. They value education; they value what teachers have to say. They want their kids to achieve.” She later stated: “The context of Asia is a big factor of me being able to teach in the way that I want.” Conversely, Bhavana commented on her students’ previous traditional education in their home country and her desire to provide a different educational experience for them in her class:

They come from this system where the teacher is the omnipotent, the encyclopedia, and the distributor of correct answers…. And they have to listen, and their opinion isn’t valid. And that’s one of the things that, when I ask the students to reflect, that’s what
they write, that they liked the class because they could listen to other kids’ opinions and that mattered to them. So it’s a completely different model.

School choice may lead parents and students to choose a school that is characterized by more constructivist, student-centered pedagogies. Many of the parents at School B had attended the school as students and had chosen to educate their children in the same system in which they had learned. Bhavana discussed how these parents’ attitudes enable her to teach in a constructivist, student-centered way: “They want to see their children learn. They’ll never come and question their teacher’s style. They have a lot of faith in that. They do want to see their children get there.” Even parents who did not attend School B made a decision to enroll their children in the school based on its reputation; as Garima commented, “You know what each school stands for, and I think this is what School B stands for, which is a conscious decision when parents put them [their children] there.” Julia commented how parents and students select her school based on its culture and reputation:

There’s so many good schools in the city. They’ve chosen this school because – whether it’s for the alternative kind of school…. [The school is] selective in a way in that – we’re quite quirky…. If parents are into that, they won’t choose, or I think at some level, the school does actually say no to some people if they think it’s a cultural completeness fit.

Teachers also commented that parent support for their pedagogies was helpful as they implemented constructivist, student-centered pedagogies in the IBDP. Garima commented, “At least I haven’t got parents coming in and telling me, ‘Teach to the test,’ because the school has always been known for focusing more on life skills, and on helping the child reach their potential.” Harshita addressed the importance of parental support, stating: “The parents also encourage us [the teachers], and they are also thrilled to know that history is not just a set of
facts. It’s just not taught through the textbook.” However, she commented on the need for parents to see merit in the teaching in a constructivist, student-centered way: “The parents have to buy into your project…. And if the parents are convinced, then I think they tend to be supportive.”

Clientele was also discussed with regards to students’ classroom behavior, and the extent to which good classroom behavior enabled teachers to teach in a more constructivist, student-centered way. Kyle commented, “We’re fortunate here because there’s hardly any classroom management issues. I’d like to see how this model would work in…back where I’m from, back in my [previous UK] school.” Julia discussed how students’ expectations and willingness to try new things enabled her to teach in this way, noting: “Some students will be uncomfortable, but generally they’d be like, ‘Yeah, alright!’ Must because they have enough trust in teachers…. Also they’re motivated enough to try something interesting…. They feel safe enough.”

**Middle school programs.** Some teachers commented on the ways in which their schools’ middle school programs prepared students to be successful in constructivist, student-centered classrooms, and also the extent to which constructivist middle school programs led to an increased demand for constructivist IBDP classes. Bhavana stated, “The younger classes are just fabulous. My God, the kind of things they do are quite mind blowing.” Garima, also at School B, commented on the expectation of students coming from middle school: “The students expect…for the class to be dynamic, because the students come from a culture, even in the lower grades, where the classes are unconventional; they expect the class to be engaging.”

Ellen also commented on how the middle school program at her school affected her implementation of constructivist, student-centered pedagogies: “School E is really, especially in the MYP years, is making quite a push to be more student-centered and a lot of student agency.”
She noted that this allowed her to move more quickly through content in the IBDP, leaving her with more time to teach constructively. She then commented on how this helped her teach language-learning skills in her IBDP classes: “If I taught those students or if those students have been in the MYP program that we’re doing, they come with some of those skill already, so you just have to reinforce them.”

In summary, school culture, including support from school administration, freedom to take risks, support and inspiration from colleagues, support from parents and students, and a strong middle school program, was one of the biggest reasons that participants were able to implement constructivist, student-centered pedagogies in their IBDP classes.

**Nature of the IBDP and specific subjects.** Several participants mentioned the nature of the IB itself, the nature of their IB subject, or the nature of their subject in general, as a reason they chose to implement constructivist, student-centered pedagogies in their IBDP classes.

**Nature of the subject.** Some teachers felt that their subject was well suited for constructivist, student-centered pedagogies. The greatest number of participants came from the languages, which may indicate that those subjects are more suited to constructivist, student-centered pedagogies. Anne, an English A teacher, commented, “It’s much easier to be student-centered and constructive when we’re studying literature, because it’s a whole lot of discussion.”

Similarly, the Individuals and Societies group was represented by three teachers. Most participants recognized that these courses were more applicable to students’ lives and tried to use real-life examples, both current and past, to illustrate the content. For example, Rasika, a Business Management teacher, pointed out: “Because I teach skill-based courses, I’m able to [teach in a constructivist, student-centered way]. Business Management is not high on content. So in fact, one can engage quite a lot in creative teaching.” She continued, “I actually very
rarely do direct content. It’s the nature of the course, I think.” Garima, another Business
Management teacher, further asserted, “My endeavor has always been that because a subject is
alive, it’s not just a theoretical subject, which is abstract, it draws from the real world around
you.”

**IBDP assessment.** In addition to the general nature of their subject, some teachers
commented that the IB external assessment in their subject required them to teach differently and
implement more constructivist, student-centered pedagogies. Anne indicated that in order to
score well in IB English Literature HL, “You need to be insightful.” She discussed how this
affected her teaching style:

For my students to really achieve…and to really learn, they have to be in a productive
zone, which means I have to be less prescriptive so that they can have the flexibility to
create their own ideas and come up with their own insights.

Garima also discussed the nature of IB case-study assessment in her IB Business Management
course: “None of the questions are theoretical…. You may know [a] point, but you contextualize
it in the case. So because that’s the whole approach of this subject, we try and keep it as real as
possible.”

Latika considered the nature of the internal assessment in the IBDP Mathematics courses,
also called the exploration, which require students to come up with and investigate their own
mathematical problem. She discussed how this internal assessment required her to teach
differently: “I think it is pretty much supporting this kind of learning, because you can only do an
exploration meaningfully if you’ve done inquiry, research, and investigations in the classroom.”

**Nature of the IBDP.** Finally, some teachers spoke of the non-prescriptive nature of the
IB in general as being a reason that they implemented constructivist, student-centered
pedagogies in their IBDP classes. Ellen addressed the freedom that the IB gives teachers to teach in their own way, commenting: “I don’t know that the IBDP really tells you how to teach; that’s one of the things that I like about it.” Isabel further elaborated on this: “I think what drew me to the IB and what still really excites me is this freedom [of] thought.”

Several participants discussed the IB philosophy of developing life-long learners as pushing them to teach in a more constructivist, student-centered way. Latika noted: “I feel IB ideologically is completely in sync [with constructivist pedagogies].”

Garima commented on the rigor of the IBDP courses, stating: “It has indeed a difficulty that IB demands pretty much university-level stuff from you. So, it’s completely changed the way I teach.” Latika then discussed what she saw as an increase in rigor, making teaching in a constructivist, student-centered way a necessity. She asserted, “I think they’re raising standards, and that’s also possibly an argument towards saying that you need to teach differently because it’s the same content, but obviously children are not able to go do questions which are different.”

The nature of the IB, the nature of various subjects, and the nature of specific courses within the IBDP have encouraged some teachers to implement constructivist, student-centered pedagogies in their IBDP classes.

**Themes Related to Research Question 2**

The second research question examined the general and specific constructivist, student-centered pedagogies that participants implemented in their IBDP classrooms. It also considered positive student and teacher outcomes of those pedagogies. The three themes that emerged from this research question are:

- IBDP teachers implemented a wide range of specific and general constructivist, student-centered pedagogies.
• IBDP students experienced a wide range of positive outcomes as a result of the implementation of constructivist, student-centered pedagogies in their IBDP classes.

• IBDP teachers experienced a wide range of positive outcomes as a result of the implementation of constructivist, student-centered pedagogies.

**Teachers implemented a wide range of pedagogies.** All teachers spoke of specific student-centered strategies that they used in their classes to enable students to construct meaning and understanding, as well as general skill and dispositional strategies that they implemented in their classes. These strategies are outlined in Table 4.
### Table 4

**Specific and General Practices that Participants Use in their IBDP Classes**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>IBDP subject(s)</th>
<th>Specific practices</th>
<th>General strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anne</td>
<td>English A</td>
<td>Daily work: Start each class having students discuss one provocative thing. Harkness discussions Annotate and discuss excerpts from texts</td>
<td>Almost all group work Direct instruction when needed</td>
</tr>
<tr>
<td></td>
<td>Language &amp; Literature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bhavana</td>
<td>English A</td>
<td>Start each class analyzing poetry. Games related to course content</td>
<td>Give clear guidelines Give students a lot of responsibility Self-evaluation Peer evaluation Students plan work for themselves</td>
</tr>
<tr>
<td></td>
<td>Language &amp; Literature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visual Arts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chaewon</td>
<td>Korean A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Language &amp; Literature</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visual Arts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daria</td>
<td>English B</td>
<td>Global Online Academy courses Record videos using FlipGrid Inquiry projects on overarching topics Create their own IB Paper 1 exercises Written assignments based on novels TED-style talks</td>
<td>Emphasize the importance of language in all subjects Personalized learning</td>
</tr>
<tr>
<td>Ellen</td>
<td>Spanish B,</td>
<td>Given an outline of content and skills, students design their own learning program</td>
<td>Individual focus on the skill of language learning Student-directed learning with teacher check-ins</td>
</tr>
<tr>
<td></td>
<td>Spanish ab initio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rasika</td>
<td>Business</td>
<td>Harkness discussions Socratic seminars</td>
<td>Focus on creativity and inventiveness Combine research Direct instruction when needed One transdisciplinary unit per term</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garima</td>
<td>Business</td>
<td>Link content to real-life case studies Conduct focus groups Interview managers of local businesses Cannes jury to learn about marketing</td>
<td>Group work Teach students to question what they read Encourage primary data collection Students involved in decision making</td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher</td>
<td>IBDP subject(s)</td>
<td>Specific practices</td>
<td>General strategies</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Harshita | History        | - Analyze sources to look at multiple perspectives  
- Read historical literature to get a better understanding of historical events  
- Experiential trip to Amritsar to study the partition of India  
- Model United Nations  
- Watch and discuss videos based on historical events  
- Panel discussions chaired by students  
- Student presentations  
- Peer teaching                                                                 | - Student inquiry into historical events  
- Direct instruction when needed                                                                                       |
| Isabel  | Environmental Systems & Societies Biology | - Link content to case studies  
- Skinner box experiments  
- Revision with students writing on windows and bathroom stalls                                                                 | - Everything is activity based - seven to eight activities each class  
- Help students to figure the content out through activities. Students bring their understanding to the whole group.  
- Teacher asks directing questions                                                                                   |
| Julia   | Biology        | - Give students three concepts. They develop an interesting research question around those concepts and make a presentation.  
- Interdisciplinary project with Psychology: Give students concepts, research methodology, and ways to demonstrate their learning. | - Give students just enough information and let them grapple.  
- Teacher intervenes when needed  
- Students choose their own pathways                                                                                   |
| Kyle    | Physics        | - Grapple tasks: Give the class with open-ended questions that are difficult to solve. Students discuss and work out answers on whiteboards. | - Incorporate disposition assessments  
- Use misconceptions as the next day's grapple task                                                                    |
| Latika  | Mathematics    | - Analyzing supermarket packaging to determine optimal volume  
- Link integration with Tolstoy’s *War and Peace*  
- Learn calculus by analyzing and creating string art  
- Explore the mathematics behind bridges  
- Studied sine curves in music                                                                                        | - Link discussions to real-life examples  
- Students discuss the concept before learning the procedure  
- Give students a challenge that they have to work backwards to solve                                                  |
The subject determined the degree to which most participants’ teaching was teacher-directed or student-directed. In the language subjects, including English A Language and Literature, Korean A Language and Literature, English B, and Spanish B, teachers more often cited individualized or personalized learning. For example, Chaewon commented, “I say, ‘This is the expectation and this is what you need to do,’ and then they need to choose their topic, their final outcome based on their interests.” Ellen commented, “I try to focus a lot on the actual skill of language learning.” Once students understood how to learn a language, she then allowed them to work through the course at their own pace and in a way that met their learning needs, noting “[It’s] absolutely [student-directed]…. It’s about really practicing, and as well they can go through the units as they like.”

However, teachers of more content-heavy subjects, such as Business Management, Environmental Systems and Societies, Biology, Physics, and Mathematics, employed more teacher-directed, but still constructivist, student-centered practices. Isabel discussed her use of teacher-planned activities: “A lot of what I do in Biology, it’s constructivist, but in little pieces, little chunks, because there’s just so much content.” She continued her explanation:

It’s not a huge, big lesson. It’s just lots of activities where they’re designed to get a kid to tell me what they think something is…. The activities I’m setting up, I think about the questions I want to ask ahead of time, and I also think about these are the connections I want to make ahead of time. That helps me a lot.

Latika explained her use of teacher-directed, student-centered constructivist pedagogies in her Mathematics classes: “I would actually throw [the students] the challenge. I would create an activity which would challenge them.”
Many participants indicated that, when needed, they used direct instruction. Sometimes this was done in order to clarify misconceptions or to help students consolidate meaning. For example, Harshita commented, “There are days when I just do revision and it’s largely driven by me, and I know, because I have to put it all together.” Isabel also stated, “Sometimes I have to be the one being like, ‘Here’s the connection.’ They all have these little pieces. Sometimes they see the connections, and that’s great. Often, when it’s a big picture kind of story, that’s my job.” Participants indicated that direct instruction was often used to ensure that students were prepared for their IB examinations.

**IBDP students experienced a wide range of positive outcomes.** Participants perceived that students experienced a range of positive outcomes through their implementation of constructivist, student-centered pedagogies. These benefits related to student learning and engagement, the development of dispositions and skills, future learning, and positive outcomes on their IBDP examination results.

**Understanding.** One of the main perceived student benefits from the use of constructivist, student-centered pedagogies was increased understanding of content, which enabled them to more easily make new connections and to transfer their learning to new situations. Regarding transfer, Latika noted, “I just find that even the students who are struggling with the process at least understand what we are doing and then actually showing them the procedure makes it far more transferable.” Constructivist, student-centered pedagogies allow students to make their own connections, which improves their understanding and is evident when they sit IB examinations. Isabel noted, “So much of what’s on the test is them having to figure stuff out. They have to make these new connections, and they’re able to because they’ve been trained all along to make those connections.”
Engagement. Perhaps the greatest benefit of constructivist, student-centered pedagogies to students is that they are engaged in class and engaged in learning. Many participants commented that student engagement was heightened when using constructivist, student-centered pedagogies. For example, Latika commented that in her IB Mathematics classes, “The moment I started bringing in these interesting practices into my classroom, I would find that they would engage.” She further reflected, “So I think one of the biggest benefits of teaching it differently is to ensure that students can’t switch off from the subject, because at least they see it in a meaningful manner.” Isabel also commented on the extent to which students are engaged in her science classes, even though they may not like the subject itself: “Even the most low-key kid, I would say, likes my class, at least some parts of it… I got that from a senior two years ago. She’s like, ‘I hated biology, but I loved your class.’”

Kyle reflected on the way in which group work and solving problems improved student engagement in his IB Physics class. This engagement took two forms, engagement with content and social engagement. With regards to content engagement, he noted, “The fact that it’s harder means that they are engaging with…higher thinking skills of the brain, which is actually more beneficial for them. But they’ll say it’s harder. But ultimately they’re learning more from it.” Perhaps more beneficial was the social engagement: “Students really enjoy working together, discussing ideas…. So actually getting them out of their seats.” Kyle further noted that by engaging with each other, they are getting more accessible, student-friendly explanations.

Latika said constructivist, student-centered pedagogies enabled mathematics to be more relevant, leading to greater engagement. She noted, “The instant you do something which involves all of this [constructivist, student-centered learning], they see meaning to it,” and stop asking the question dreaded by mathematics teachers: “Why are we doing all of this?”
Independence. Many participants noted that students developed ownership for and independence in their learning through the use of constructivist, student-centered pedagogies. Harshita noted the ways in which students took ownership of their own learning: “When you’re passionate about something, and when you give this experience to the students, I think they take ownership about it. Then inquiry comes from within. I don’t have to impose it on them.” She continued:

Some stumble [and] find it difficult. Some take it easily. Those who find it easy take it beyond class. They do their reading and they come back to me and say, “Oh, I read this.” Some of them who are visual learners or who are auditory learners, they went back and saw this video, watched this documentary. Some of them struggle and then some are just happy. I would say, in a class of five, all five pursue what they like.

Julia also commented on her students taking ownership of their learning and having choice in how they learned: “It made the students take ownership for their progress, and it gave them a taste of what planning your own learning and deciding what’s relevant and what isn’t.” Latika noted that teaching in a constructivist way will help her students become independent and learn on their own. She stated: “It’s possibly going to help students learn on their own, so you don’t really need to be the person who front loads everything. So if you make them independent learners, where they make connections, they can possibly be doing that themselves too.”

Future learning and interest in the subject. Several participants commented using constructivist, student-centered pedagogies to prepare students for future long-term learning. Julia noted, “I think we’re playing the long game here when we do things like that. We’re thinking ahead to what’s actually going to make them more successful later on, not just waiting for someone to tell them to do something.” Harshita looked at the skills that students would need
to learn in order to be successful at university, noting: “Some skills they will take into their undergrad. Critical thinking, reflection, persuasive writing, argumentative writing, and, are we empathetic?” Bhavana commented on the success that her students experienced when they went to university: “They come back [a] few years later when they are in university and say, ‘Oh my God, you guys really prepared us for this.’” Finally, Isabel commented on students developing an interest in pursuing her subject at university and professionally: “I love it when kids go off into science fields. I have a bunch of kids going into science this year, so that makes me really happy.”

**IBDP examination results.** Many participants indicated that it was difficult to determine the extent to which constructivist, student-centered pedagogies affected IBDP examination results, because of small classes, differing cohorts of students, and lack of data. However, several participants were able to cite ways in which their use of constructivist, student-centered pedagogies better prepared students for particular components of the IBDP examinations. Anne commented on how her teaching practices prepared students for the English A Language and Literature Paper 2 examination, which is comprised of six essay questions -- students choose two questions and answer them based on the books that they read throughout the course. She asserted, “It’s all about that production; they have to create an angle and they have to filter that angle through their essay. They’re not just summarizing the book; this is real analysis…. They had to show real insight.” She noted that her students’ marks have improved significantly because of her use of constructivist, student-centered pedagogies, “Instead of teaching them everything there is to know about the book, doing those discussion-centered activities or the daily work that’s really provocative to get them thinking about things, that has made a huge difference in Paper 2.” Bhavana commented that her use of poetry at the start of every class
“triggers their own desire to write.” In preparation for the English A Language and Literature Individual Oral Commentary (IOC), she noted, “That makes IOCs seem not like the most difficult thing in the world. 'Cause I do poetry daily [for] their IOC.”

Other teachers were happy with their IBDP examination results but were less specific about the ways in which results were affected by their teaching practices. Latika commented, “I’ve been teaching like this for the last eight years. The results are pretty much okay. I do have a few surprises once in a while, but it’s much, much higher than the world average.” Isabel commented, “Generally my scores are really good for the IB grade, and that’s not my main goal, so it makes me really happy.”

In summary, teachers commented on a range of benefits they perceived that students experienced as a result of their use of constructivist, student-centered pedagogies. Students developed deeper understanding of the course content and the subject. They were more engaged and developed independence in their learning, which prepared them well for university and beyond. While difficult to measure, some participants also commented on ways in which students performed better on their IBDP examinations.

IBDP teachers experienced a wide range of positive outcomes. The biggest benefit to teachers from implementing constructivist, student-centered pedagogies in their IBDP classrooms was increased personal enjoyment and a sense of satisfaction with their teaching. For example, Isabel commented, “The best part is, it’s more fun to teach this way,” while Rasika commented, “They’re happier teachers, because I think you feel emotionally more engaged if you’re doing good work and creative work.”

Several teachers said that the freedom and variety of strategies that they used in their classrooms keep them more engaged and fulfilled. Anne stated, “I’m a person who gets easily
bored. If I were to teach the same class six years in a row, every year it needs to be different…. I enjoy it better.” Garima noted satisfaction in the challenge of trying to improve each year:

I also feel it helps me as a teacher, because I think it keeps the drama and the magic of teaching alive. Otherwise, I could just get you doing the same thing year after year. So I think it kind of challenges me to see what else can I do this year that can be different compared to what I did earlier. So I think it’s good for the students, but I think it’s really, really good for the teachers.

Several participants commented on how their role as teachers changed as a result of these pedagogies. For example, Ellen noted her role as a facilitator: “I facilitate, go around, help each [student] out, maybe give some little check-ins, and then at the end of maybe a week… then we would do a bit of a check-in through the different skills.” Julia said that facilitating in this way gave her time to work with students who need it, stating: “I can help them, give them a bit of a nudge, give them some strategies, and then leave them again and then they can get on with it.” Isabel viewed her role as helping students connect what they have learned: “I see myself as a story teller. I’m trying to direct them to a story. If I can get them to see these little pieces and how they connect, great.” She further described her role: “I’m kind of filling in what they’re telling me, but then I’m asking directing questions too…. I’m not so much trying to fill in the gaps. I’m trying to get them to fill in as many as possible.” Julia indicated that her role has become more supportive, commenting: “Sometimes they forget I’m there, which is just nice. It means they’re able to guide themselves.”

In summary, teachers enjoyed implementing constructivist, student-centered pedagogies, and they appreciated the ever-changing nature of these pedagogies. They also saw their roles as teachers change from that of deliverer of information to facilitator of learning.
Themes Related to Research Question 3

This research question addressed areas of tension that participants experienced or that they felt could be experienced by teachers when implementing constructivist, student-centered pedagogies in the IBDP. The four themes that emerged from this research question are:

- **The amount of content within each IBDP course and the timing of the course are a source of tension when implementing constructivist, student-centered pedagogies in the IBDP; however, successful teachers have developed a range of ways to address this.**

- **Assessment and grade reporting are a source of tension when implementing constructivist, student-centered pedagogies in the IBDP; however, successful teachers have developed a range of ways to address this.**

- **Students can be a source of tension when implementing constructivist, student-centered pedagogies in the IBDP; however, successful teachers have developed strategies to address this.**

- **Authentic, deep learning is sometimes a source of tension when implementing constructivist, student-centered pedagogies in the IBDP; teachers could not articulate ways to address this tension.**

**The amount of content within each IBDP course and the timing of the course.** All participants indicated that the amount of content and the timing of the course could make it difficult to implement constructivist, student-centered pedagogies. Some participants were concerned about the amount of content and the need to finish the syllabus on time. For example, Latika noted, “Sometimes actually doing the amount of syllabus to be covered in those two years doesn’t seem realistic,” while Bhavana commented, “I’m always a little worried about [the] syllabus. And I’m always afraid that I won’t finish. And that pressure is always there.”
However, Kyle noted that content and timing in IBDP Physics would be a problem no matter how he taught, but he recognized that if he taught in a constructivist, student-centered way, then students retained more of that content and were better able to apply it. He commented, “Even if you lecture, you struggle with timing, because then nobody understands what you’ve just said, so you’ve got to reteach it anyway.” His solution to this tension was to focus on teaching in a constructivist, student-centered way so that students understood and could apply the content, and hope that his work in strengthening dispositions and skills would help the students answer questions about content with which they were less familiar. Similarly, Isabel noted that she struggles less with timing and content because “I don’t expect to have to say every single thing. I expect them to figure a lot out on their own. Also, I have to revise much less, because they know it.”

Some participants indicated that, due to the amount of content, they could not delve as deeply into certain topics as they would like to. For example, Kyle reflected, “I’d rather have less content but more depth. So they have to know it very well…. The way it’s done, it’s more content,” while Anne noted, “Sometimes I get carried away with the learning, and I forget I have to cover some certain things.” Latika further stated:

Yeah, sometimes that happens [I do go outside of the syllabus]. I mean, if I truly look at inquiry in the right spirit, sometimes students do get into areas that require me to go beyond. But I make it very categorically clear to them that this is not something which is within the syllabus, and if they’re still very keen and the majority want to do it, we do spend time, but we’re mindful of it. Like I wouldn’t spend hours on something which is not this [in the syllabus], because one needs to be practical. But I possibly [will] have a conversation with them [about it] later.
Ellen noted that because she allowed her students to work at their own pace in her IB Spanish B class, she had to monitor them to ensure that they did not spend too long on a specific topic. She told them, “You actually need to leave that and go on to the next thing, because otherwise you have to realize you have to cover all of these areas before you can finish your exam in May.”

Many participants indicated a need to reduce course content. Isabel noted, “I do think the IB should reduce content. I think that is an underlying problem. I think the amount that kids are expected to know is ridiculous.” Isabel noted that there is more content in certain subjects, such as the sciences, as opposed to more open subjects like the languages and IB Theatre. She asserted, “Their syllabus is a lot more open…. It’s not like, ‘Know these 10 facts, or these 200 facts, or these 2,000 facts.’ I think probably it’s [constructivist, student-centered pedagogies] more prevalent in more open disciplines.” Bhavana, however, recognized that there were differences in the amount of content across the two IB first language courses, Literature and Language and Literature:

So in my first couple of years when I’d just begun, I used to be very, very nervous because I was also teaching Literature then, which was a huge course, as opposed to Lang and Lit, which you can manage in a more creative way to manage all four parts…. So then, I think that in literature, because it has so many books that you have to do, I used to get nervous…. With Lang and Lit, I don’t find that stress as hard…. I think that’s just the nature of Literature.

Isabel also reflected on the difference between her two subjects, IB Biology, which is strictly a science subject, and IB Environmental Systems and Societies (ESS), which is a transdisciplinary Individuals and Societies and Science subject and has a lot of small specific content requirements: “[In] Bio they’re these more broad statements. They’re still memorizing
something, but it’s more like, ‘Draw this.’ ESS is like a paragraph. You have to know all these little details, and I find it quite challenging.”

Some participants acknowledged conflicted feelings about the amount of content. For example, Harshita reflected, “The DP syllabus is fantastic, but it is too concentrated. If we could reduce it by say, 40 percent, then I think there is more scope for an inquiry-based learning.” She then indicated some conflict in this statement, indicating that she felt that the large amount of content prepared students well for the level and pace of work at university. Similarly, Latika noted that she could not teach every topic to the level of detail that she would like, due to time constraints, but she required students to learn more content on their own, making them independent, lifelong learners, which is better in the long term.

Julia advocated keeping the amount of content high:

I know there’s talk about reducing content, and I think that would be terrible. If you boil it down further, there may not be anything challenging enough to even be really interesting. Students want intellectual challenge too, and if it’s all sort of skill-based challenges, sometimes students really just want something difficult; they want a difficult deep something to do with that subject. They want to know really difficult mechanisms about the kidney. People just really want to know stuff, not how to do it. It’s a complete fallacy to say, “Oh, you can look everything up on Google now; you don’t need to know things.” That’s rubbish; you need to know enough stuff. I’m not saying you can’t look things up, but to be able to look things up effectively, to really make connections, you need to understand the categories of things that exist; you need to understand what’s important within the traditional silos of learning so that you can then make the connections. And maybe those silos are changing, and that’s great; we can look at it
differently, but students can figure that out. They’re the ones that are going to be creating
the next generation of knowledge. Let them figure it out. They can do it. I’m not in
favor of reducing content load.

Participants found a range of methods for mitigating the tension between content and
timing and their use of constructivist, student-centered pedagogies. Garima indicated that she
helped students link all student-centered learning back to the required content of her IB Business
Management course: “They have to make connects back to the Business Management (BM)
concepts, and you have to very explicitly signpost and put that in and write it up on the board,
because otherwise it will get lost.” She further articulated the need to explicitly root student-
constructed learning in the Business Management syllabus by explicitly bringing it back to the
required content.

Isabel noted that in IB Biology, especially, “There’s so many details that it’s just
impossible to get through everything. I think that’s my biggest frustration.” She observed that
while teaching in a constructivist, student, centered way, “I can’t get through everything by
doing it this [constructivist] way.” Instead of trying to get through everything, she chose to focus
on the bigger ideas and not to teach some of the more minute details in the required content,
leaving her students responsible for learning them on their own: “I stick to things that I think will
be an eight-point question or a four-point question, not a one-point question.” She commented
that when these more minute details appear on an exam, they are only worth one or two points,
so it does not have a big effect on students’ grades.

Ellen addressed the tension of content and timing by allowing her students to self-pace,
monitoring them to ensure that they stayed on track: “Sometimes I do have to just say, ‘Okay,
you need to leave that, and then you make a note of that yourself that this topic, really, you
probably could do a little bit more.’” She noted that by teaching students how to learn a language, as opposed to teaching Spanish B content to all students at the same pace, the students could move as fast as they wanted. She asserted, “I think teaching the other way, you are slowing it down.”

Some teachers limited the amount of constructivist, student-centered teaching that they did. For example, Latika described her use of constructivist pedagogies in IB Mathematics, and then stated, “So these are some of the activities that I would do, but that doesn’t happen very often.” Harshita noted that she would spend most of Grade 11, the first year of the course, focusing on skill building and student-centered, constructivist learning, but that by Grade 12, she would focus more on exam preparation. She noted, “All my skill building, my scaffolding of skills, my inquiry – I think even that passion for learning happens in Year [Grade] 11 for the DP…. Year 12, I teach only content.” Similarly, Julia noted:

There are a lot of things where basically you’ve got 20 minutes to explain something, 20 minutes to do something, an hour they do the experiment, they do whatever, and then everybody moves on, and the teacher guides them through that. That is the majority of what happens. However, there are moments within the course, where there could be up to two lessons – that’s like half a week or something – or maybe the whole week, some weeks there aren’t two lessons, where it is very much like, “These are the things that need to be covered. These are the activities. Work at your own pace. Figure out how you want to do it.”

In summary, content and timing were sources of tension for teachers as they tried to implement constructivist, student-centered pedagogies in their IBDP classrooms. However, participants had found ways to address those tensions in order to implement those pedagogies.
Assessment and grade reporting. All participants also expressed concerns about the format of IBDP examinations and their high-stakes nature when implementing constructivist, student-centered pedagogies in their IBDP classrooms.

Format and structure of IBDP examinations. Several teachers commented on the misalignment between format and structure of the IBDP examinations and constructivist, student-centered teaching, especially in mathematics and the sciences. For example, Latika noted that the externally assessed examinations do not assess inquiry in the IB mathematics courses. Because that is only assessed in the internal assessment, which is worth 20 percent of the overall grade, it is not a focus for students. She indicated that the IB examinations should align with inquiry-based teaching, noting: “The teaching becomes so much easier because students find more merit to it. It’s not fair to [teach in this way] because you want them to understand, but finally the assessment doesn’t always test this kind of thinking.” Kyle questioned the IB Physics examinations: “We’re changing the way we teach, but why aren’t we changing the way we assess to complement the way we teach now?” He noted that the lower-level questions that are common on the IB Physics examinations did not align with his use of grapple tasks as a student-centered, constructivist pedagogy, adding that students were rarely asked to reach the higher levels of Bloom’s taxonomy, which requires students to truly understand and apply knowledge. Isabel noted that in some IB science examinations, particularly IB Environmental Systems and Societies, there is only one correct answer considered. She stated that through constructivism, students might arrive at multiple, equally good answers, depending on how they approached a question, but that these were not given credit in the grading scheme. She followed this up by stating: “It doesn’t surprise me there are not more constructivists in the Diploma, to be honest.”
It was not only mathematics and science teachers who noted a lack of rigor and higher-level thinking in the IB exams. Anne commented on one aspect of the IB English A Literature examination, the individual oral commentary (IOC), for which students can easily memorize a number of possible passages. She noted, “If the kid has a good memory, they could get seven on the IOC…. It should be you need the skills to get a seven, and the IOC doesn’t lend itself to that.”

Several participants from more content-heavy courses discussed the extent to which such constructivist, student-centered pedagogies did not necessarily produce the best examination results, especially when compared to rote learning and exam-focused studying. For example, when discussing her previous teaching style in IB History, Harshita noted, “I taught them, and this is what you have to study, and this is what the exam will ask you.” Kyle commented, “If a kid sat at home and got tutored every day on how to do well in the exam, they’re going to get a seven. There’s a kid who…does [constructivist physics learning] every day, might only get a five or a six.” Likewise, Latika reflected, “Is it [constructivist, student-centered learning] enough to still get that seven in your Math HL paper?… I am still not convinced that this method is better than just putting the process on the board and following it up.” Latika then cited a specific example:

I had this particularly bright student who was very engaged with all this. Did a brilliant extended essay, got an A in it. Did a fabulous exploration, but got a six. In fact he got a five in HL and he repeated and got a seven. Because what it didn’t prepare him to do was manage time. In a particular process which was most efficient, he would go into first principles for everything. All his problem solving was generated through his original thinking, rather than following a process. And that gave me an understanding, and so
when he repeated the exam, he was very, very upset, because he wanted to pursue the mathematics. I told him, “Actually, you know the math. What you’re doing is not efficient.” And sometimes you need to follow the efficient method in the exam situation. In an exploration, maybe it’s great to look at this really original way of solving a problem, but in an exam, possibly you need to follow a certain method. So the tension is that, do we want that kind of thinking?

**High-stakes nature of IBDP exams.** Several participants suggested that the importance of IBDP examination grades for students’ university admissions was a reason that more teachers did not want to implement constructivist, student-centered pedagogies. Bhavana described the importance of IBDP examination grades to students and parents:

> We live in a world where, unfortunately, grades do matter…. At the end of the day, what you’re going by is that even if you get a four in the subject, you should be happy. And if you’re okay with getting a four, then it’s for you. But that’s not how it really is. If you put in hard work and you’re still getting a four, it’s not fair.

The fear of harming students’ grades led some teachers to hesitate to implement constructivist, student-centered pedagogies. Latika noted, “The thing with the IB program is it gives you only two years, and they have to take an exam, which is a high-stakes exam. You don’t want to mess up in that point in time.” Julia also noted, “Myself and another teacher together were the only people who did [something different] for the Diploma…. People weren’t comfortable messing with the Diploma.” Rasika commented on the importance of exam results over teaching methodologies:

> If you’re highly creative in your approach but you can’t get assessment right, they’re not going to be happy. If you’re a very conventional, plain vanilla teacher, who brings in the
results, they’ll be happy. If you’re a creative teacher who also brings in the results, that’s what they like the most.

Grades are also important to the schools themselves, as they are often ranked by IBDP examination averages. Chaewon commented, “International school education is so much marketing based, and in the end, student’s final grade is such a good marketing tool for the schools, as well, and the university entrance too.” She noted that this focus on grades is contrary to the main principles of education: “We were more focused on how to grow our students to be ready for their future, not getting into the best university in the world and getting 7 or 45.”

In order to ensure that students can achieve good results on the IBDP examinations while using constructivist, student-centered pedagogies, most participants indicated that they did specifically prepare students for those assessments. Although they may teach in a constructivist, student-centered way, many participants indicated that their graded assessments were IBDP-examination-style tests or written work. Daria commented on the extent to which she specifically prepared students for the IB English A Literature examinations: “I do practice Paper 1. Paper 1 has historically been our weakest link, our weakest point…. I would probably say maybe 50:50 [preparation for the Paper 1 exam:other work].” She also noted that classwork and other assessments were preparing them for the IB examinations: “They’re practicing for the exam in pieces, but the skills that they need, they’re practicing on the topics that they like and that really interest them.” Ellen said she also assessed according to the IB examination in her IB Spanish B class, because “I think we’re not doing them the service if we don’t bring in those elements as far as the assessment…. Their ultimate goal is their assessment and how they are going to do in the assessment…. I do focus on it.” Regarding her IB Business Management
class, Garima commented, “The majority of our grades come from [IB-style] summative test so we can judge students. I don’t think that takes away from the way we teach in class.”

Participants indicated that the tension between assessments, grades, and the implementation of constructivist, student-centered pedagogies could be better addressed if the school shifted its focus and maintained its culture. For example, Daria noted, “They [parents and students] are very grade-conscious, but I think as a school in general, we are trying to make a change in the way they perceive the grades.” She noted the importance of learning as opposed to the importance of grades: “The IB grade is one thing, but your life and what you learn and pick out from every lesson, that’s something for you.” Garima, from the same school as Daria, commented on the importance of the school’s culture in diverting some of the pressure off of grades, “At School B…I haven’t got parents coming in telling me, ‘Teach to the test,’ because the school has always been known for focusing more on life skills and on helping the child reach their potential.” She continued, “So I think we’ve stuck to our culture of teaching actively and teaching for skills, and not being very exam-oriented, and the skills naturally follow.”

In summary, participants indicated that IB assessments often did not support constructivist, student-centered pedagogies. The high-stakes nature of those examinations made it difficult for teachers to take risks in their assessments, and teachers, therefore, often assessed using IB-style tests. If a school can maintain its culture and de-emphasize IB results, this could help facilitate the implementation of constructivist, student-centered pedagogies.

**Students.** Participants indicated that one barrier to the implementation of constructivist, student-centered pedagogies in the IBDP can be student-related tensions, which can take two interrelated forms: attitudes and workloads.
Student attitudes can include a desire for teacher-centered learning, the type of learning that many students are used to and comfortable with. When students are not used to constructivist, student-centered learning, they may not see the merit in it. Furthermore, students may view teacher-centered instruction as easier, both in terms of challenge and in terms of workload. For example, Anne noted that some her students, Asians in particular, did not want to go through the process of constructing meaning: they just wanted the answer.

Student attitude and willingness to participate in constructivist, student-centered pedagogies can depend in part on their overall workload and stress in the IBDP. Constructivist, student-centered learning is often more time consuming. Bhavana commented that, as students got busier in the second year of the program and had to meet requirements for the IBDP across all six subject areas, as well as TOK, CAS, and the EE, “Students begin to feel, ‘I just want to do my work and get it done with.’”

Teachers indicated that one way to mitigate the tension between student attitudes and their use of constructivist, student-centered pedagogies is to get students to understand the benefits of those pedagogies. They needed to see that these pedagogies would lead to greater understanding, and that they could have a positive effect on both their examination results and their future study of the subject. Latika commented, “I need to get them to understand [that] in doing something like this which is contextual, will [help] make them do unfamiliar questions as well…. So I think to get them to see the merit is important.”

Several participants indicated that they tried to keep homework to a minimum in order to address the tension between student workload in the IBDP and the use of constructivist, student-centered pedagogies. This meant limiting the amount of outside reading, giving easier tasks to do at home, and completing the harder and more time-consuming learning activities in class.
Garima noted that students often only did homework if it was going to be graded, because they had too much to do. Other teachers had students attend extra lessons during their free time before they went home in order to maximize the amount of work they completed at school. For example, Latika explained, “Sometimes I make them stay back in school for an hour and work as much as possible in school.”

Some teachers indicated that they used more traditional pedagogies at the more stressful points of the IBDP to eliminate some of the time-management burden for students. For example, Isabel said, “Depending on how busy they are… I don’t lecture, but I’m more likely to be like, ‘Okay, guys, here’s what you got to know.’ Because sometimes that’s the reality of this class.”

In summary, student attitudes, which were often affected by workloads, were a source of tension when implementing constructivist, student-centered pedagogies in IBDP classes. Teachers addressed this tension by explaining the benefits of such pedagogies to the students and by reducing the amount of work that they expected students to complete outside of class.

**Authentic, deep learning.** Some teachers indicated that there was a tension between the authentic, deep learning that can result from constructivist, student-centered pedagogies and the lack of such learning in the IB requirements. Anne stated, “There’s a fine line between doing whatever you have to to achieve high and authentic learning.”

Several participants commented on the lack of authentic learning in the IBDP. For example, Chaewon discussed this lack of authenticity with regards to Visual Arts, stating, “No artists actually do what you do in DP Art…. Like Vincent Van Gogh, I’m sure he didn’t do that part of [comparative] study – what DP requires students to do.” Bhavana described this tension in the Language A courses, noting that the IB Language A Literature course did not allow students to write literature, only to read it:
There is no space for grading students for creativity or for originality. So I feel especially in literature, there is so little space for creativity. So I feel that more and more, the literature course teaches you to be a consumer of literature, but very, very little, the creator of literature.

Isabel similarly discussed the lack of authenticity in designing science lab experiments:

Completing and designing and carrying out a lab…it should be fun and joyful and like, “Wow, I figured this out,” or, “Oh, this didn’t work. Crap. How do I make it work? What do I take from that?” I think there’s so much focus in the Diploma in the [lab] write up.”

In summary, some teachers cited a lack of authentic learning experiences in the IBDP as a source of tension between their use of constructivist, student-centered pedagogies and the IBDP. This tension was difficult for teachers to mitigate.

Summary of Findings

The findings for this study came from 12 semistructured interviews conducted with teachers who were either identified by their IBDP coordinator or who self-identified as consistently employing constructivist, student-centered pedagogies in their IBDP classes.

Through analysis of the data from these interviews, the following 11 findings emerged regarding teacher experiences as they implemented constructivist, student-centered pedagogies in their IBDP classrooms:

Reasons that teachers implemented constructivist, student-centered pedagogies in their IBDP classes include:

• Their own educational and professional experiences. Either teachers experienced these pedagogies in their own education and recognized their benefits, or teachers did not
experience these pedagogies in their own education and recognized that there was a better way to learn, or their professional backgrounds led them to value these pedagogies.

- Alignment of these pedagogies with their own philosophies of education.
- Inspirational and supportive professional development.
- Inspirational and supportive school culture, including administrators, colleagues, parents, and students.
- The nature of the IBDP and the nature of their subject(s).

Findings regarding the constructivist, student-centered pedagogies and their positive outcomes include:

- Teachers employed a range of specific and general pedagogies.
- Students experienced a range of positive outcomes as a result of these pedagogies, including better understanding, higher engagement, independence, interest in future study of the subject, and strong IBDP examination results in some areas.
- Teachers experienced positive outcomes as a result of these pedagogies, including sustained interest and enjoyment in teaching as their role in the classroom changed.

Findings regarding the tensions between the IBDP and the implementation of constructivist, student-centered pedagogies include:

- The amount of content and the limited time to teach it.
- The IBDP assessments and the importance of the results.
- The IBDP and authentic learning opportunities.

To summarize, participants began implementing constructivist, student-centered pedagogies due to their own philosophies of education, due to their own learning and professional experiences being similar or different from constructivist pedagogies, and due to the
nature of the IBDP and of their IBDP subjects. They were supported in implementing these pedagogies by school cultures that supported those pedagogies, by administrators who gave them the freedom and support to employ these pedagogies in a safe environment, by colleagues who both supported and inspired them, by parents who did not question their pedagogies, and by students who actively engaged in the pedagogies.

Teachers used a wide range of subject-specific, non-subject-specific, and general disposition-focused constructivist, student-centered practices in their IBDP classes. Students and teachers both experienced a range of positive outcomes. For students, these included greater engagement with and understanding of the subject, a desire to study the subject beyond the IBDP, independence in learning, and high IBDP examination results in some examination components. For teachers, positive outcomes included sustained interest in teaching their subject as their role changed from being an expert in the classroom to being a guide of learning.

Finally, teachers recognized areas of tension between the IBDP and the implementation of constructivist, student-centered pedagogies in their IBDP classes. These included the amount of content that is required by the IBDP and the lack of time to cover content while also engaging in constructivist, student-centered learning. Teachers addressed this by linking all learning back to the IBDP content, by allowing students to self-pace but helping them to regulate their pace, by foregoing some of the content, and by limiting the extent to which they employed nontraditional pedagogies. An additional tension was the structure and importance of the IBDP examinations. In order to address these tensions, teachers prepared students specifically for the IBDP examinations by having them practice for them and by giving them past IBDP examination paper questions for in-class assessments. A final tension mentioned by some participants was the lack
of authentic learning experiences in the IBDP. Participants were unable to address this, given the importance of the other two tensions.
Chapter V: Discussion of the Findings

Revisiting the Problem of Practice

The world is changing. Today’s students are digital natives who grew up with technology that allows them to access information in seconds, but they need to learn how to process and use that information. They are preparing for jobs that do not yet exist (Shirley, 2016) and are disengaging from an education that is not meeting their current or future needs.

International schools provide education to a multicultural and linguistically diverse range of connected, elite students. Many international schools implement the IBDP as a way to provide a world-recognized, academically rigorous education to their diverse and often economically advantaged student body. The IBDP is a 2-year program in which students study six subjects and meet other requirements. At the conclusion of the program, students take examinations that cover content and skills. These examinations are important for the students, as they are a gatekeeper to universities around the world. They are also important to the schools, as they are a means of ranking and sorting international schools.

The IB claims to be based on constructivist approaches (IB, 2013, 2014). However, the vast amount of content to be covered during a limited amount of time, coupled with the importance of the results of the final externally assessed International Baccalaureate examinations for students’ university admissions and the reputation of the school, leads many teachers to use traditional, teacher-centered pedagogies (Pendergast et al., 2014), superficially covering content (Alberts, 2012) while teaching to the test (Parker et al., 2013; Zhao, 2011, 2012).

Because such an education may not fully meet students’ current or future needs, they may disengage from their education (Duffy & Elwood, 2013; Schussler, 2009) and then be
unprepared to enter the changing world that awaits them after school. Teachers, too, may become disenchanted by teaching in a way that leaves little time for creativity and authenticity.

This study sought to better understand the experiences and perceptions of IBDP teachers who have implemented constructivist, student-centered pedagogies in a range of IBDP classes. Data collection focused on the reasons that participants implemented those pedagogies, what pedagogies they implemented, the areas of tension that they experienced between these pedagogies and the IBDP, and the ways that they have sought to overcome those tensions. This study is important because it will help guide other IBDP teachers who wish to implement constructivist, student-centered pedagogies in their IBDP classes. It will help schools that wish to encourage and support their teachers as they adopt these pedagogies. It may lead the IBDP to consider some of the areas of tension and ways in which the program could better support the implementation of these pedagogies. Finally and most importantly, it will help IBDP students as their education becomes more relevant, more authentic, and more applicable to their futures.

Review of the Methodology

This qualitative study examined the experiences of teachers who have implemented constructivist, student-centered pedagogies in the IBDP. The study explored the following research questions:

1. How do IBDP teachers who have developed and implemented constructivist, student-centered learning practices in their classrooms describe and explain the development of those practices for the purpose of increasing their students’ engagement and enhancing their learning, with a specific focus on doing so within an IBDP curriculum and school culture?
2. What practices have IBDP teachers implemented and what are the outcomes of those practices, above and beyond the more “traditional” means of teaching IBDP classes, as evidenced and perceived by them?

3. What areas of tension exist between constructivist pedagogies in the IBDP, and how do teachers seek to address them?

To answer these questions, the researcher worked with the IB to identify international schools in the Asia-Pacific region that were more consistently implementing constructivist, student-centered pedagogies in the IBDP. The researcher then asked each school’s IBDP coordinator to identify teachers who more consistently implemented these pedagogies. Some IBDP coordinators provided her with the contact information of potential participants, while others forwarded the request to their teachers and allowed them to self-select and contact the researcher directly. This purposeful sampling resulted in a total of 12 participants across five schools in five countries.

The researcher conducted semistructured interviews with each of the participants. Interviews were conducted online and lasted between 45 and 60 minutes. The interview protocol followed the research questions, focusing on teachers’ own experiences and perceptions. Interviews were transcribed using Rev.com. The researcher checked each transcript for accuracy and sent them to the participants to member check. The researcher hand-coded each interview using in vivo and pattern coding. She then analyzed the patterns to discover the themes presented in Chapter IV.

In this chapter, the researcher presents a discussion of major findings and connects these findings back to the theoretical framework and literature review. She then gives some further
analysis and recommendations, discusses the significance and limitations of the study, addresses the validity of the study, and provides recommendations for future research.

**Presentation and Discussion of Key Findings**

Through analyzing the data gathered through the semistructured interviews, the researcher developed themes that support the following key findings:

1. Teachers begin to implement constructivist, student-centered pedagogies for a range of reasons. They continue to implement them because they see them as valuable for students’ current and future learning and because these pedagogies align with their own philosophies of education.

2. Teachers need to feel supported and able to take risks as they seek to implement constructivist, student-centered pedagogies in their IBDP classes.

3. Teachers usually implement constructivist, student-centered pedagogies within the content and assessment requirements of the IBDP.

4. Although there are areas of tension between constructivist, student-centered pedagogies, student learning, and the IBDP, teachers who successfully implement constructivist, student-centered pedagogies in their IBDP classes are able to mitigate these tensions.

**Key finding 1.** The first key finding is that teachers begin to implement constructivist, student-centered pedagogies for a range of reasons. They continue to implement them because they see them as valuable for students’ current and future learning and because these pedagogies align with their own philosophies of education. Participants began implementing constructivist, student-centered pedagogies in their IBDP classes for a variety of reasons. Some were educated using similar pedagogies and felt that they learned well through them. Others were educated
using more traditional pedagogies. Although some of these participants admitted that they personally learned well through traditional pedagogies, they recognized that students may learn better using constructivist, student-centered pedagogies. They also noted that these pedagogies could better prepare students for university and for future work. A few participants noted that they were educated using traditional pedagogies, but that their professional background and experience, both in teaching at the university level and in working in other professions, led them to implement constructivist, student-centered pedagogies because they saw the importance in students being able to use and apply, not just to know, their subject. Some participants noted that their schools implemented constructivist, student-centered pedagogies in the younger grades, so there was an expectation from students that these pedagogies would continue. Many participants said inspirational colleagues had introduced them to these pedagogies, while some cited professional development opportunities that introduced them to and supported them in implementing these pedagogies.

No matter why participants began implementing these pedagogies, they all indicated that they continued to implement them because they saw it as important for student engagement. All participants noted that students were more engaged when they used these pedagogies. Language teachers focused on having students use and create the language. This was especially true in the Language B subjects, where teachers spent less time teaching grammatical rules, verb conjugations, and specific vocabulary, and instead had students reading, writing, and interacting with native speakers of the language. In the Language A subjects, teachers stepped outside of the required syllabus and brought in literature that was relevant and interesting to the students, encouraging them to bring their own interpretations to the literature. In the humanities, sciences, and mathematics subjects, teachers tended to have students use and apply the subject content,
often before they taught it, as a way for students to build their own understanding and make connections to previously learned content. They brought in real-life applications, case studies, and projects that were relevant to students’ lives, and they encouraged students to think about, debate, and construct learning around these tasks.

Several participants noted that student choice could engage students. Participants commented that allowing students to choose what they wanted to learn and how they wanted to learn it promoted student engagement and prepared students for their future, when they would have more choice. Several participants commented that this would encourage students to take responsibility for their own learning and to become independent lifelong learners, and one noted that keeping students interested in learning was more important than the subject-specific content that she needed to deliver.

Participants also indicated that, by implementing constructivist, student-centered pedagogies, they were better able to meet the diverse needs of their students. This improved engagement for students at all levels. This could be done at a whole-class level, with the teacher meeting the class where they were at. It could also be done at a small-group or individual-student level, which they said gave teachers more time to check in with students to assess their background knowledge and current understanding of a topic and gave them more flexibility to modify requirements to support or extend students, as needed.

**Key finding 2.** The second key finding is that teachers need to feel supported and able to take risks as they seek to implement constructivist, student-centered pedagogies in their IBDP classes. Participants all indicated ways in which support was crucial to their implementation of constructivist, student-centered pedagogies. Support from their school administration, their
colleagues, and their school’s parents and students encouraged them to take risks when implementing constructivist, student-centered pedagogies.

**Supportive administration.** Administrative support came in several forms. The primary support that participants noted was feeling trusted by their administrators. Participants noted that their administrators trusted that teachers would get through the content even when they taught outside of the required syllabus. They did not feel limited in what they taught or how they taught it. They also commented that their administrators would not hold it against them if they spent one or several lessons trying something new that ultimately did not go as planned. Participants noted that they felt safe because their administrators supported them, and that feeling enabled them to try new things that may or may not work.

A few participants commented that administration encouraged teachers to teach in more constructivist, student-centered ways, pushing all teachers in the school to try something different. Most participants, however, noted that their administrators did not encourage any one specific type of pedagogy; rather they supported teachers’ choices to teach as they felt best, be it in constructivist, student-centered or very traditional, teacher-centered ways.

One participant commented that administrators were attempting to redefine success in the IBDP, not as getting a score of 44 or 45, but as preparing students for the future and encouraging them to perform to their potential. Reducing the pressure to get a high score can in turn reduce the pressure on teachers to simply cover the content, giving them the freedom to teach in more constructivist, student-centered ways.

Several participants noted that support from administration was not blind, and that they had to ensure that their administrators knew what they were doing and why they were doing it. One commented that her principal’s daughter was in her class and saw what and how she was
learning, which led to greater support of her use of constructivist, student-centered pedagogies. Another commented that she conversed regularly with her administration over several years, which has built greater support for her use of these pedagogies.

**Supportive and inspirational colleagues.** Participants also noted that their colleagues supported them as they implemented constructivist, student-centered pedagogies in their IBDP classes. This was especially important because of the sometimes high annual turnover of teachers at international schools. Collegial support came from individual teachers who mentored the participants in their development and implementation of these pedagogies. In one specific case, Rasika and Garima acted as co-teachers, each bringing different ideas and teaching methodologies to their shared IB Business Management course. Support also came from individual teachers who served as inspirational role models to others who wished to implement constructivist, student-centered pedagogies. For example, Garima commented on Latika, noting: “She’s actually been our inspiration. She started doing imaginative things way back, when people were getting into the field.” Garima noted that after she watched what Latika was doing in her mathematics classes, she wanted to teach her Business Management classes in a similar way.

Collegial support also came from departments, such as Kyle’s science department, where everyone worked to employ constructivist, student-centered pedagogies. Departmental support allowed teachers to work together on co-planning and to gather ideas from same-subject teachers about ways to restructure lessons and units.

**Supportive parents.** Parents also supported participants in their implementation of constructivist, student-centered pedagogies. They noted that parents were usually aware of how they taught, and that it was rare for a parent to ask them to change their teaching style, to focus
on the examinations, or to teach specifically to the IBDP examinations. Participants did note that, at times, they needed to explain their rationale for teaching differently from how the parents had been educated. Once parents understood the benefits of learning in a constructivist, student-centered way, they were supportive. Some participants even noted that parents wanted their children to be moved into their classes so they could experience these pedagogies.

**Student attitudes and behaviors.** Participants also noted the ways in which students’ attitudes and behaviors made it possible for them to implement constructivist, student-centered pedagogies. There were rarely discipline problems at participants’ schools, so they felt that they were able to give students more freedom. Because students were used to this type of learning, based on their experiences in younger grades and their experiences with other teachers in the IBDP, they were more willing to participate and usually did not question teachers’ not teaching to the test, going outside the required syllabus, or the extra work required to learn in a constructivist, student-centered way. Students who were new to the school, especially those coming directly from their home country or from local schools, sometimes initially found it difficult to engage with constructivist, student-centered pedagogies, but participants noted that they came to enjoy the interaction and having their thoughts and opinions valued.

**School culture.** Administrative, collegial, parent, and student support are all reflected in the school’s culture. Especially in cities with multiple international schools, which was true for all the schools in this study, schools are known for their unique cultures. Participants at School B noted that their school was founded by mothers who wanted a different type of education for their children and they were still known for being that type of school. A participant noted that School A was known as being “quirky” and valuing learning over knowledge. When parents and students choose a school, they likely are already familiar with the school’s philosophy and
culture, and therefore, they are opting into a school in which students will learn in a more constructivist, student-centered way. They are therefore more likely to be supportive of the teachers. Administrators need to maintain that culture and continue supporting teachers.

**Key finding 3.** The third key finding is that teachers usually implement constructivist, student-centered pedagogies within the content and assessment requirements of the IBDP. All participants self-identified or were identified by their IBDP coordinators as consistently implementing constructivist, student-centered pedagogies in their IBDP classes. All of them did so within the content and assessment requirements of the IBDP. This was evident in a number of ways.

Although the participants noted the benefits of using constructivist, student-centered pedagogies, most of them limited the extent to which they employed these pedagogies, also including some traditional teacher-centered instruction in order to meet content requirements of the IBDP syllabi. For example, Harshita noted that she taught using constructivist historical investigations during the first year of her IB History course, but during the second year she focused almost entirely on preparing students for their IB examination. Julia commented that she used a range of teaching styles, but that she did one very student-centered, constructivist, interdisciplinary project. Other participants implemented shorter constructivist, student-centered activities throughout their course and constantly linked these back to the course content to ensure that students were learning the required content. Participants also limited their use of constructivist, student-centered pedagogies when they noticed that students were feeling stressed or had a lot of other work to do, because they recognized that constructivist student-centered pedagogies take more time for students to complete.
Finally, although the participants taught using constructivist, student-centered pedagogies, their graded assessments were focused on the IBDP examinations. Work that students did on the constructivist, student-centered pedagogies was often ungraded or was used formatively; it did not contribute to students’ reported grades. Summative assessments usually used IBDP examination-style questions. Only the IB internal assessments for each course were more directly linked to the pedagogies that the teachers employed.

**Key finding 4.** The fourth key finding is that, although there are areas of tension between constructivist, student-centered pedagogies, student learning, and the IBDP, teachers who successfully implement constructivist, student-centered pedagogies in their IBDP classes are able to mitigate these tensions. All participants cited a range of tensions regarding their use of constructivist, student-centered pedagogies and student learning in the IBDP. The most commonly discussed tension was the amount of content that teachers must cover over the 2-year timeframe. Pressure to get through this content limited the extent to which teachers could employ constructivist, student-centered pedagogies. A related tension was the high-stakes nature of the IBDP examination results, which serve as a gatekeeper to students’ access to universities as well as a way to rank and measure schools. Additional tensions cited included the nature of the IBDP examinations, student motivation and workload, and parent support. Successful teachers were able to discuss ways in which they mitigated and minimized these tensions in order to teach the IBDP in a constructivist, student-centered way.

**Content and timing.** Most participants noted their concern with finishing the syllabus, given the vast amount of content and limited timing of their course. This concern was compounded when teachers wanted to teach content they considered valuable for the students to know or that students were interested in, but was not in the syllabus. This tension was addressed
in several ways. Many participants limited the amount of constructivist, student-centered learning they used within their classes. Some only focused on this for the first year of the 2-year course, focusing on more teacher-centered content coverage and examination preparation during the second year. Others focused on doing limited amounts of constructivist, student-centered learning within a given semester or a given unit. Still others allowed students to delve more deeply into topics, both within and outside of the syllabus, but they helped the students pace themselves in order to ensure that they covered all of the required content. Students might start an inquiry into a topic, but they might not get to explore it as deeply as they would like.

Some participants taught in a constructivist, student-centered way throughout the 2-year course. Instead of trying to cover everything, one participant focused on the more important bigger-picture areas and left the more specific but less important details out, hoping that these would not be tested as much. Another participant recognized that he was not covering everything in great detail, but he hoped that the skills students were learning through his implementation of constructivist, student-centered pedagogies would enable them to answer the questions on the IB examination logically, even if they did not know all of the details.

Participants noted the importance of making a scheme of work and trying to stick to it to ensure that the entire syllabus was covered. This helped them to pace both themselves and their students, ensuring that they did not spend too much time on any particular topic.

**Importance of results.** IBDP examination results are important to students and parents, as they partially or wholly determine a student’s university acceptance. For this and other reasons, students and parents care about grades. In addition, IBDP examination results are often used to unofficially rank schools. Especially in cities where parents and students have a range of choices, IBDP results can alter the enrollment of a school. Participants noted that this was in
tension with their implementation of constructivist, student-centered pedagogies in several ways. First, in constructivist, student-centered pedagogies, grades often are not as important as the final outcome, while in the IBDP examinations and with university placements, grades are, in many ways, more important than understanding. Second, constructivist, student-centered pedagogies are not assessed in many IBDP examination components, so there was less impetus for teachers to teach or assess in this way. Finally, there could be pressure on teachers from the school to get good IBDP examination results.

In order to prepare students to be successful on the IBDP examinations, most participants commented that they based their graded assessments on the IBDP examinations. While participants spoke against teaching to the test, and they hesitated to give too many past papers, most participants indicated that graded assessments in their classes were modeled on IB examination papers, with some writing their own test items and others using past-paper questions. Much of the constructivist, student-centered work that students completed for these teachers was used as formative assessment; it was often ungraded or did not contribute to students’ overall grades. The exception to this was work that was done for the IB internal assessments (IAs).

*Nature of IBDP assessment.* Many participants noted that, although the IB was promoting constructivism and inquiry, it was not assessing in ways that promoted those pedagogies. Several participants did note that certain components of their subject’s assessment aligned with this type of learning, such as Paper 2 in the Language A courses and the internal assessments in most courses. One participant stated that, in his subject, the IBDP examinations tended to assess lower-level skills and rarely asked students to create, design, evaluate, or analyze. Several participants commented that IBDP examinations often required one right
answer or the use of certain key words or phrases in a written response, so a student might give a different, equally correct answer and not get points for it. This was especially true of students who were better critical thinkers, with two participants noting that students were penalized by thinking outside of the box.

Despite IBDP examinations often not lending themselves towards constructivist, student-centered learning, participants were able to justify their use of these pedagogies, noting that through these pedagogies, students were learning analysis and thinking skills that should enable them to do well, both on the IBDP examinations and in future learning. Participants did, however, note the importance of teaching students to answer IBDP assessments according to what the examiner wanted, because this was the way to maximize students’ points. In subjects where some IBDP examination components promoted constructivist, student-centered learning while others did not, teachers noted the need to take the good with the bad, and to focus on the assessment components that did align with their teaching.

**Student motivation and workload.** Many students and parents emphasized the IBDP examination results. Participants commented that they often did not formally assess constructivist, student-centered learning IBDP classes, instead basing graded assessments on the IBDP examinations. Because it did not affect their school grade, and because it often was not assessed in the IBDP examinations, some students would not put as much time or effort into or see the importance in learning in a constructivist, student-centered way. Furthermore, several participants mentioned that the IBDP is a very demanding program, with students completing six subjects at the university or pre-university level in addition to the other components of CAS, TOK, and EE. During this time, students also must be preparing their university applications and essays, and many are preparing for university entrance examinations. As students get busier,
they have less time to dedicate to their IBDP studies. Participants noted that at these times, students are more likely to just want to be told what they need to know or do; they do not necessarily want or have time to do constructivist, student-centered learning, which often takes more time and effort.

In order to address this tension, teachers stated that they often assigned little homework, aiming instead for students to do most of their learning in class. When this was not possible, they tried to assign simpler homework for students to do at home. Several participants commented that when students got really busy, they would resort to teacher-centered teaching. One added that she tried to do this only on topics that they would look at again later in the course, as she felt students did not learn as well in this way.

Furthermore, some students did not see merit in constructivist, student-centered learning. Participants noted that, in general, the culture of their schools was such that students and parents knew that these pedagogies would be used, at least some of the time, and chose the schools accordingly. They also noted that the Asian culture of the schools placed great emphasis on education, and that students usually did what was expected of them, including constructivist, student-centered learning. However, several participants cited times when student motivation waned or when students hesitated to participate in constructivist, student-centered learning. Participants commented that they had to explain the benefits of this type of learning and, in some cases, had to scaffold the learning more for these hesitant or less motivated students.

**Discussion of Findings in Relation to the Theoretical Framework**

The researcher applied constructivist learning theories to the study of pedagogies employed in the IBDP. Constructivist learning theories posit that students learn by constructing their own meaning, building upon their prior knowledge and experiences (Glatthorn et al., 2016).
There are two main branches of constructivist learning: Piaget’s cognitive constructivism and Vygotsky’s social constructivism. Piaget asserted that as students take in new knowledge, they exist in a state of disequilibrium until they are able to adapt and construct meaning with that knowledge (Aubrey & Riley, 2016; Schrader, 2015). This leads to new levels of thinking and understanding that were not previously possible (Carey et al., 2015; Schrader, 2015). Vygotsky, however, considered the way in which learning occurs through interactions with others, particularly with more knowledgeable peers or expert adults. According to Vygotsky’s theory, students first learn knowledge in a social context and then, as they internalize it, come to understand that knowledge (Lourenço, 2012). Although Piaget and Vygotsky are at times dichotomized, their theories share several commonalities and can complement and inform each other (Cobb, 1994). The participants in this study leaned more towards Vygotsky’s theory of social constructivism.

Pedagogically, according to Vygotsky’s theory of social constructivism, teachers should create activities that enable students to dialogue and work in groups as they develop understanding. All participants cited a wide range of ways in which students do this in their constructivist, student-centered classes. These included provocative discussions in IB English and IB Physics, historical investigation in IB History, a Psychology-Biology joint project, and the use of real-life case studies in IB Business and IB ESS. As they worked with their peers and teachers, students were able to discuss their ideas and hear others’ ideas as they developed their own understanding of a topic (Claxton, 2007). This was especially evident in Isabel’s IB ESS and IB Biology classes, where she noted that students were able to fix each other’s misconceptions. In addition to influencing what students know, this social construction of knowledge affects students’ ways of learning (Claxton, 2007). This was particularly evident, in
Ellen’s IB Spanish B and ab initio classes, in which students worked in groups to learn content and to develop strategies for learning, remembering, and using the language. It was also noted that students in Kyle’s IB Physics classes often worked with partners to talk through ways of solving complex physics problems. These *grapple tasks* led not only to their understanding of physics but also to their perceiving different ways of approaching and solving problems.

Instruction in Vygotsky’s social constructivism is often more guided and scaffolded than in Piaget’s cognitive constructivism (Lourenço, 2012; Schrader, 2015). Because participants were working within the framework of the IBDP, and because there was still a focus on covering content in order to prepare students for the upcoming examinations, all participants provided structure and scaffolding to their students, and could, therefore, fall more in line with Vygotsky’s theory. Participants cited ways in which they structured their courses to ensure that they maintained an acceptable pace in order to finish the syllabus. Even in courses that allowed more student choice, participants noted that they had to help students with pacing, encouraging them to move on to the next topic if they stayed too long investigating something. Additionally, within a specific topic or lesson, participants always planned the learning activities, to varying degrees of specificity, in order to ensure that they were leading students to learn the required content. Only in the IB-required internal assessments for most courses were students given free rein to choose their own topics to investigate. Finally, within a given lesson or constructivist learning activity, teachers constantly checked student understanding, providing scaffolded support or prompts in order to encourage students to construct the correct knowledge that would be tested on the IB examinations. There was little time or space for students to freely construct incorrect interpretations, based on their own experiences.
Piaget’s theory of cognitive constructivism encourages teachers to design complex and authentic tasks based on students’ existing understanding, allowing students to act as experts and make discoveries that allow them to construct their own understanding (Glatthorn et al. 2016). Although some participants were able to cite ways in which this occurred in their classes, in particular in the first year of Harshita’s IB History course, in which the students completed authentic historical investigations, this was not the norm. Participants indicated that this lack of authentic tasks and student discovery was because of the time that this type of learning required and the amount of content that they needed to cover. Furthermore, because they needed to prepare students to take the examination, participants based their class assessments, both content and structure, on the IBDP examinations rather than on authentic tasks.

Piaget and Vygotsky’s constructivist theories both assert that students’ motivation to learn comes from their internal desire for knowledge (Schrader, 2015). Participants indicated that students’ motivation to learn was in part intrinsic, with students actively and fully participating in learning activities that went outside of the prescribed IBDP syllabus. However, participants noted that, especially when they got busy with the requirements of the IBDP, some students’ intrinsic motivation to learn waned and they wanted the teacher to give them the required information. Participants addressed this tension by clarifying the merit in constructivist, student-centered learning, by allowing students to interact and engage with each other, and by using direct instruction at times. Some participants also noted that, while students were generally motivated to expand their knowledge, they were also extrinsically motivated by grades and university admissions requirements.

In addition to changing how students learn, constructivist theories also consider the changing role of the teacher, from a central knowledge figure to a co-constructor of knowledge
who provides various levels of instruction when needed. Participants described their role in a variety of ways, including acting as a facilitator and as a story teller whose “job is to build a unit” so that the students can “see why it’s important.” One participant commented that her role as a teacher was less important now than it had been in teacher-centered instruction. Participants noted that teaching in this way was more work, as they had to prepare more, but it was also more fulfilling, emotionally engaging, and fun. Several participants commented that, while they did allow students to discover their own meanings, they needed to correct student misconceptions quickly. Elkind (2005) and Krahenbuhl (2016) stated that this was important so that students did not store misconceptions in their more permanent long-term memory. Participants commented that they needed to address misconceptions so that students did not stray too far from the correct course content or take too long to fix those misconceptions. Most teachers noted that, although they usually used constructivist, student-centered pedagogies, they did teach as needed based on students’ needs, time constraints, and preparation for IBDP examinations.

Critics of constructivism note the need for teachers to possess both pedagogical and content knowledge, and cite a disconnect between teacher preparation programs and classroom experiences (Elkind, 2005). Although participants had a range of teaching experience, they all seemed to possess solid knowledge of both. No participants indicated that they had been taught to use constructivist principles; rather, they modeled their teaching on teachers that they had had, on inspirational colleagues, or on peers they met through professional development. Collegial support, both in content and in pedagogy, was important for participants to develop their teaching pedagogies within their subject areas. Most participants noted the extent to which they worked with colleagues within their departments or schools. In many schools, the push towards
doing something different, whether it was called constructivism or not, was school-wide and supported by administration and parents.

Critics also note that constructivist, student-centered pedagogies may not be best for all teachers or all students and may not be accepted by all cultures (V. Richardson, 2003). The participants taught at five very diverse international schools around Asia and had students from a wide range of nationalities. While several participants noted that particular nationalities were more hesitant to participate in constructivist, student-centered pedagogies, in general, parents and students were aware that the culture of the school supported these pedagogies. Once they saw the value in them and the support provided to them, students were more eager to participate. Participants also noted that they tried to vary their teaching methodologies in order to meet the needs of their diverse learners, which included, at times, providing teacher-centered instruction. Furthermore, participants at all five schools indicated that, although these pedagogies were encouraged by their schools’ administrations, they were not forced on the teachers and teachers could continue to teach in teacher-centered, traditional ways if they so chose.

Elkind (2004) noted that test-driven curricula do not promote the use of constructivist, student-centered pedagogies. Participants in this study were all using these pedagogies in the test-driven IBDP. However, their use of these pedagogies was limited by course content and timing, as well as by the total amount of work that students had to complete across the 2-year program. Participants demonstrated that it is possible to teach in a constructivist, student-centered way, but in the test-based IBDP curriculum they had to implement these pedagogies within the constraints of the curriculum in order to meet its requirements.
Discussion of Findings in Relation to the Literature Review

Chapter II examined international schools, including international school populations and school choice; international curricula, specifically the International Baccalaureate Diploma Program; and new constructivist pedagogies. In this section, the researcher aligns the major findings of the study with those three areas of literature.

**International schools.** The participants taught at international schools in Asia that were identified by the IB as more consistently implementing constructivist, student-centered pedagogies. Consistent with Berting (2010), MacDonald (2007, 2009), and Walker (2015), it was difficult to put parameters on what constitutes an international school, and participating schools in this study had some diversity of clientele. Three of the schools, C, D, and E, served a mix of local and international students. School A catered only to expatriate students, due to government regulations, although participants noted that they had an increasing number of self-reported foreign-passport holding Chinese nationals, albeit fewer than other schools in the city (Wright & Lee, 2014b). Therefore, Schools A, C, D, and E could be classified as expatriate international schools. School B was the only school in the study that was considered a local international school with a non-nationalized curriculum (Velliaris & Willis, 2013). Students at School B were primarily Indian nationals who intended to study overseas for university and who viewed an international school as a way to help prepare them for that (Gilbertson, 2014; Haywood, 2015; Lauder, 2015; Potter & Hayden, 2004). None of the schools from which participants came focused on a nationalized curriculum at any grade level, and none were franchised, corporate, or for-profit schools.

All participants came from schools in large cities where there were a variety of international schools; therefore, parents and students could choose which school to attend. This
was an important factor in teachers’ ability to implement constructivist, student-centered pedagogies in their IBDP classes. Because parents chose schools based on their unique reputation, their culture (MacKenzie, 2009, 2010; Potter & Hayden, 2004), and their congruency with their educational values (Velliaris & Willis, 2013), participants noted that parents were already aware of what the school stood for and for the ways in which students would be taught. Because parents and students had already bought into the school’s culture and educational values, teachers felt more supported in their implementation of constructivist, student-centered pedagogies. In addition, because the schools were known for more than simply their IBDP results, there was less pressure for teachers to focus only on those results as a means of maintaining or improving the school’s reputation (Lee et al., 2012; Zhao, 2011).

Participants did note that some students who recently came to their schools from local schools in their home country experienced some dissonance between the educational systems and what was expected of them (Gan, 2009; J. Robinson & Guan, 2012; P. Tucker & Fail, 2007). These students were more likely to want the teacher to give them information. Daria noted that in her IB English B class, a language acquisition class in which more of the students were new to the school and to international education, some of the students found it difficult to participate in constructivist, student-centered English lessons. As she said, “The shy Japanese girls – it’s very difficult for them to stand up and talk in front of an audience.” She discussed ways in which she helped to address that dissonance, including allowing them to do practice recordings using small cameras or using Flipgrid. Chaewon noted the cultural dissonance experienced by some of her IB Korean Literature students; however, in her case, the dissonance was amplified by the students’ expectations of what a Korean teacher should be like. Although the students may have
expected the use of constructivist, student-centered pedagogies in their other classes, they expected traditional, teacher-led pedagogies from their Korean teacher.

**International curricula.** All participants worked at schools that implemented the IBDP, often in combination with other international curricula. Some schools also offered other pathways to graduation. For example, School A offered a school-based diploma with a capstone project, while School C offered the AP alongside the IBDP. The international programs that led into the IBDP varied, with three schools offering the IB MYP, one offering the Cambridge IGCSE, and one offering its own school-developed curriculum. Participants taught subjects in all six of the IBDP subject groups; several participants also taught TOK, although their uses of constructivist pedagogies in that course were not included in this study.

The IB states that teaching and learning throughout its programs is driven by inquiry, action, and reflection through a conceptual, connected curriculum (IB, 2013, 2015). However, the emphasis on required content within discrete subjects (Cambridge, 2012; Hallinger et al., 2011; IB, 2015) often leads to the use of more passive, traditional, teacher-centered pedagogies that seek to prepare students for the IBDP examinations (Pendergast et al., 2014). This disconnect between philosophy and practice in the IBDP can be difficult to bridge. However, the participants have demonstrated that it is possible to teach the IBDP across all subject groups in a constructivist, student-centered way. Participants used a range of pedagogies, some general and some subject-specific, which led to greater student engagement, greater retention of knowledge, and greater application of their learning.

In addition to teaching content, many participants commented that these pedagogies were preparing students for lifelong learning and were developing in them a range of skills that would prepare them for university and entry into the working world. Participants emphasized the IB’s
Approaches to Teaching and Learning (ATL) skills that the IB is seeking to explicitly develop in its learners (IB, 2014, 2015; Wright & Lee, 2014a).

Although all participants were successful in implementing constructivist, student-centered pedagogies in the IBDP, they all also noted areas of tension. Instead of viewing these tensions as excuses to justify teaching in a traditional, teacher-centered way, they creatively sought ways to address these tensions. One of the biggest concerns with the implementation of constructivist, student-centered pedagogies in the IBDP is the amount of content that students must learn over a 2-year timeframe (Cambridge, 2012; Hallinger et al., 2011; IB, 2015).

Participants addressed this tension by limiting the amount of constructivist, student-centered teaching; by using direct instruction when needed; by helping to pace students; by linking constructivist; student-centered learning back to the IBDP required content; and by focusing on teacher-directed inquiry, as opposed to student-led inquiry. Another commonly cited concern is the importance of IBDP examination results for university admissions (Hallinger et al., 2011). In order to ensure that students were prepared for the format of examinations, participants gave in-class assessments that were based on the IBDP examinations, using the work done through constructivist, student-centered pedagogies as formative assessment. To address concerns about student motivation and heavy student workloads, teachers explained the rationale for using certain pedagogies. They also sought to make their teaching fun and engaging. When students got especially busy with the requirements of the IBDP, participants tended to use more teacher-centered instruction in order to ease the cognitive load and the workload for students.

Participants were generally unable to comment about how their results compared to those of traditional, teacher-centered classes. This was because the teachers had not taught in that way, and in some instances, did not have any colleagues who taught the class that way, so they had
nothing to compare to. However, they consistently indicated that they felt that these pedagogies prepared students well for their IBDP examinations, and some participants could cite specific components for which students were better prepared, such as the IB Language A Paper 2 examination.

**New constructivist pedagogies.** Although participants implemented a range of constructivist, student-centered pedagogies in their IBDP classes, the tensions between the IBDP and the implementation of constructivist pedagogies significantly limited the extent to which they were able to consistently implement those pedagogies across the 2-year courses. Because of these tensions, no teachers were able to consistently implement any of the new constructivist pedagogies detailed in Chapter II, such as deeper learning, inquiry-based learning, project-based learning, problem-based learning, design learning, authentic learning (Newmann & Associates, 1996), or productive pedagogies (Hayes et al., 2006). While the pedagogies implemented by participants did, to an extent, focus on how students learned, there was still a heavy emphasis on what they learned, as dictated by the IB syllabi for each course (Claxton, 2007; Malik, 2009). In most instances, the pedagogies implemented were very much still within one subject area and did not lead to understanding across subjects (Erickson, 2002), except for the interdisciplinary Biology-Psychology project that Julia used. Although students constructed knowledge that was new to them, they did not usually create new knowledge or solve real-world problems (Fullan & Langworthy, 2014). In no instance did participants envision a new, deeper way of doing school (Shirley, 2016); rather, they implemented a new way of sometimes doing the IBDP.

Perhaps the biggest hurdle to the implementation of the new constructivist pedagogies was the prescribed content of the IBDP examinations, which made it impossible to truly implement deeper learning, project-based learning, problem-based learning, or inquiry-based
learning. Because teachers were told what students must know for those examinations, it was impossible for students to learn as deeply as they would like to about other topics of their choosing, because this would take time away from the required topics. Ellen noted that when her students spent too much time learning about one thing, she had to redirect them to ensure that they remained on pace with the course content. Project- and problem-based learning require subject content to be discovered through the posing and solving of authentic projects and problems. However, the IBDP content does not always lend itself to projects or problems, and, as with all of the new constructivist pedagogies, there is little time for this type of learning to occur. For true inquiry-based learning to occur, students should develop their own questions (Glatthorn et al., 2016) and create knowledge as they answer those questions (Levy & Petrulis, 2012) through a cycle of inquiry (Pedaste et al., 2015). However, the prescribed content of the courses requires that students inquire into specific topics and come up with results in order to learn specified outcomes. The only area in which students can conduct their own inquiry is the internal assessment, although this still must be linked to the course content, and it is only for a limited amount of time. Therefore, although the IB claims to be driven by a cycle of inquiry, action, and reflection (IB, 2013, 2015), there is, often, still a gap between philosophy and practice (Dostál, 2015).

**Challenges.** Having established that participants did not implement the new constructivist pedagogies, the remainder of this section will apply the challenges of implementing the new constructivist pedagogies outlined in Chapter II to participants’ experiences in implementing constructivist, student-centered pedagogies in their IBDP classes. The challenges to implementing the new constructivist pedagogies outlined in Chapter II are very much evident in the experiences of participants. With regards to infrastructure, all
participants were working in schools that had traditional structures of discrete subjects (Martinez & McGrath, 2014), which limited the extent to which they could implement the new constructivist pedagogies. The time required for students to learn through the new constructivist pedagogies (Dóstal, 2015) was neither available within the school schedules (AEE, 2011; Boyer, 1995; Martinez & McGrath, 2014) nor within the already full 2-year IBDP course, as it would take away from time spent learning the required content (Dennis & O’Hair, 2010).

All participants noted the challenge of the summative assessments and the required content as of concern while they implemented constructivist, student-centered pedagogies. This mandated curriculum does not leave time for students to learn through the new constructivist pedagogies (Hattie & Yates 2014), which can be more time consuming than the pedagogies that participants were employing. Furthermore, constructivist pedagogies are not assessed on the IBDP examinations, nor are they recognized by universities; therefore, they are difficult for teachers or schools to emphasize (Wagner, 2012). Participants’ use of constructivist, student-centered pedagogies was rarely directly examined, but they still found ways to prepare students for success on their IBDP examinations. The new pedagogies are even less focused on examined content and even more focused on the process that students go through to learn; they are, therefore, more difficult to implement within the confines of the IBDP. While participants noted that students were learning a range of skills and habits of mind (Gunderman, 2012), which could be increased through the use of the new constructivist pedagogies, these too, were not assessed directly on the IBDP examinations, and were therefore not a primary focus of teachers.

Because they were already identified as implementing constructivist, student-centered pedagogies, and because these pedagogies aligned with their own experiences and with their philosophies of education, participants easily accepted constructivist pedagogies. Several
participants noted that they would like to implement more progressive pedagogies, such as the new constructivist pedagogies, but that they were unable to do so because of tensions between these pedagogies and the IBDP. Participants did, however, note that these pedagogies were not best for all teachers, commenting that some teachers, especially those who had been teaching longer, did not want to change (Dennis & O’Hair, 2010), that some teachers were better at teacher-centered instruction, and that schools supported them in this. Furthermore, participants noted that teachers did not want to “mess with the IBDP,” due to the high-stakes nature of the program’s assessments. Constructivist pedagogies, including the new constructivist pedagogies, require that teachers deal with unpredictability (Boaler, 2015; Hayes Jacobs, 2010a, Johnson et al., 2009), give up control (Wagner, 2012), and become co-inquirers with their students (Gunderman, 2012; Johnson et al., 2009, W. Richardson & Dixon, 2017). Participants all indicated that they had done this, but they recognized that this was difficult for some teachers. They cited the support of their school administration, especially the freedom to try new things even if they did not always work out (Johnson et al., 2009), as being instrumental in their ability to do this.

Most participants were not specifically trained in the implementation of constructivist, student-centered pedagogies; rather they learned of these pedagogies through their own educational backgrounds or inspirational colleagues. Most teachers could cite professional development that helped them implement these pedagogies. This demonstrates that teachers need to be trained in these and newer constructivist pedagogies, not only at the beginning of their careers but throughout their careers, in order to feel supported in their implementation of these pedagogies (AEE, 2011). Participants cited colleagues and their subject departments as being instrumental in supporting their implementation of these pedagogies; this aligns with Gill’s
(2014) call for ongoing support from professional communities. Participants clearly recognized the value of constructivist, student-centered pedagogies, but they represented a minority of IBDP teachers. Greater professional development is needed to introduce teachers to these pedagogies as an alternative to content delivery and to enable them to learn from each other (Boss et al., 2011; Newmann & Associates, 1996).

Students and parents in participants’ schools accepted the use of constructivist, student-centered pedagogies, which was a primary support for teachers who implemented those pedagogies. This goes against Taylor’s (2015) claim that parent and student attitudes could be an obstacle to implementing these pedagogies. However, this may be because parents and students chose the participants’ schools based in part on their use of those pedagogies and the schools’ cultures. Therefore, the resistance that might be found at other schools was not usually present. Participants did note that when parents and students were not on board with the use of constructivist, student-centered pedagogies, they explained the rationale to parents and students, and this sometimes helped garner support. This was especially true when students experienced cultural and educational dissonance as they transitioned from their home country into the more constructivist international-school environment (Raiser et al., as cited in Kuhn & Pease, 2008). Additionally, they scaffolded content for the students, and provided extra support and guidance as needed (Beringer, 2007). Finally, because many students participated in middle school programs at the same school, such as the IBMYP, which focuses on constructivist, student-centered pedagogies, their learning through those pedagogies was scaffolded, so they came to the IBDP prepared to continue using and expanding on those pedagogies (Dostál, 2015).
Conclusion

The purpose of this study was to collect, present, and reflect on the experiences of IBDP teachers who have developed and consistently employed constructivist pedagogies in their IBDP classrooms. This study was a qualitative study that addressed the following three research questions:

1. How do IBDP teachers who have developed and implemented constructivist, student-centered learning practices in their classrooms describe and explain the development of those practices for the purpose of increasing their students’ engagement and enhancing their learning, with a specific focus on doing so within an IBDP curriculum and school culture?

2. What practices have IBDP teachers implemented and what are the outcomes of those practices, above and beyond the more “traditional” means of teaching IBDP classes, as evidenced and perceived by them?

3. What areas of tension exist between constructivist pedagogies in the IBDP, and how do teachers seek to address them?

To better understand these questions, the researcher identified 12 IBDP teachers from five international schools in five countries in Asia. The researcher gathered data by conducting online interviews with each participant to learn about his or her experiences with implementing constructivist, student-centered pedagogies in his or her IBDP classes. The researcher used Rev.com to transcribe the data, and then used a multistep coding process to identify patterns and themes within the data.
After an analysis of the data, four key findings emerged:

1. Teachers begin to implement constructivist, student-centered pedagogies for a range of reasons. They continue to implement them because they see them as valuable for students’ current and future learning and because these pedagogies align with their own philosophies of education.

2. Teachers need to feel supported and able to take risks as they seek to implement constructivist, student-centered pedagogies in their IBDP classes.

3. Teachers usually implement constructivist, student-centered pedagogies within the content and assessment requirements of the IBDP.

4. Although there are areas of tension between constructivist, student-centered pedagogies, student learning, and the IBDP, teachers who successfully implement constructivist, student-centered pedagogies in their IBDP classes are able to mitigate these tensions.

These findings were then discussed in relation to both the theoretical framework and the literature review.

**Significance of the Study**

This study examined the experiences and perceptions of teachers who have implemented constructivist, student-centered pedagogies in their IBDP classes. This study considered the reasons that teachers implemented these pedagogies, ways in which they were supported in the implementation of these pedagogies, the specific and general pedagogies that they have implemented, areas of tension between the use of these pedagogies and the IBDP, and ways in which they addressed these tensions.
Through interviews, participants revealed that they began implementing constructivist, student-centered pedagogies for a range of reasons stemming from their own educational and professional backgrounds. They continued to implement these pedagogies because they led to greater student engagement and retention of knowledge and because they would be useful to students’ future learning. They acknowledged the importance of professional development and collegial support and inspiration; school culture; and support from administration, parents, and students in encouraging them to continue implementing these pedagogies. They implemented a wide range of general and specific pedagogies, often based on their subject area. They all agreed that there were tensions between their use of these pedagogies and the required content, timing, and assessment of the IBDP, but they sought ways to negotiate these tensions.

The results of this study are significant for a number of reasons. First, the small number of schools (12) identified by the IB as consistently implementing constructivist, student-centered pedagogies across the Asia-Pacific region, as well as the small number of participants from those schools (12), is evidence that constructivist, student-centered pedagogies are not regularly implemented in the IBDP. The IB claims that teaching and learning in all of its programs is based on a cycle of inquiry, action, and reflection (IB, 2013, 2015), but this is not as evident in the IBDP as it is in the IBPYP or IBMYP. However, the participants in this study demonstrated that it is possible to implement constructivist, student-centered pedagogies and to address the tensions that are often found to be barriers to the implementation of those pedagogies. Expanding the implementation of these pedagogies to more teachers and more students across more schools might better prepare IBDP graduates for the uncertain future that they will enter and might help them develop the Approaches to Learning that the IB promotes.
Limitations of the Study

Because it is qualitative, focusing on participants’ unique experiences, the results of this study are not generalizable. Some specific limitations also make the results difficult to generalize.

The first limitation is the schools themselves. All schools included in this study are international schools in the IB Asia-Pacific region. Most of these schools had diverse student and teaching bodies and transient populations. Several participants discussed the importance of their students, of Asian attitudes towards education, and of their colleagues in their implementation of these pedagogies. Teachers at local or national schools may not share the same perspectives as the participants in this study. In addition, all schools represented in this study were recognized by the IB as already more regularly implementing constructivist, student-centered pedagogies in the IBDP. It is, therefore, recognized that the participants came from schools where they were not the only teacher implementing these pedagogies: they all had administrative and collegial support and were surrounded by a culture that supported these pedagogies. Therefore, the results of this study may not apply to teachers at schools that do not consistently implement constructivist, student-centered pedagogies or teachers who are one of the few at their school implementing these pedagogies.

The second limitation is the participants themselves. All participants were either identified by their IBDP coordinators or self-identified as consistently and successfully implementing constructivist, student-centered pedagogies in their IBDP classes. Teachers who are new to implementing these pedagogies may have different experiences and perspectives on the implementation of these pedagogies. Newmann & Associates (1996) found that even when teachers claimed to use new authentic pedagogies, they did not use them as frequently or as well
as expected. This could be true of participants in this study, who either self-identified or were identified by their IBDP coordinators as consistently implementing constructivist, student-centered pedagogies. Consistency of implementation of constructivist, student-centered pedagogies varied across participants. Some implemented them throughout the 2-year course, while others implemented them once a semester, or for the first year but not the second.

A third limitation is the use of the terminology constructivist, student-centered pedagogy. The researcher chose not to define specific pedagogies for participants, allowing participants to speak about what pedagogies they implemented that satisfied their own definition of those terms. Therefore, what one teacher might define as constructivist and student centered might be considered either more progressive or more traditional by another teacher.

Finally, a fourth limitation is the method of data collection: online interviews. The researcher developed a good rapport with participants before beginning each interview, but she recognizes that there may still be some misinterpretations due to the use of the internet as a communication tool. Furthermore, the researcher lived in China, where the internet is heavily restricted and where communication through the internet can be difficult. Some interview recordings were unclear in parts and some transcripts had phrases marked “inaudible” by Rev.com. The researcher used the interview recordings and her research memos to try to fill in the missing parts, and she asked participants to also make adjustments, but some parts remained unclear. While this did not detract from the understanding gleaned from the interviews, it is still a limitation of the study.

Validity of the Study

In order to establish validity of results, the researcher sought teachers from a range of schools across Asia and from all six subject areas of the IBDP. During recruitment and again
prior to interviewing, she informed and reminded participants of the purpose of the study, as well as her positionality, her research questions, and her biases in the study. She assured participants that their comments would remain anonymous and that identifying features of them and their schools would be removed. Since the researcher was herself an IBDP teacher and coordinator, participants felt comfortable responding to her questions.

Throughout the data collection and analysis process, the researcher maintained a reflective journal. She also had participants member check the transcripts of their interviews, and she followed up with participants when she had further questions or needed clarifications as she analyzed the data. She triangulated some of the data with documents provided by participants and with information available on the schools’ websites, as needed. These measures helped ensure the validity of the findings.

**Future Research Considerations**

This study presents the experiences and perceptions of 12 teachers at five IB schools in the Asia-Pacific region who were identified as consistently implementing constructivist, student-centered pedagogies within schools that were themselves identified as consistently implementing these pedagogies. This study was limited in scope, both in number and type of schools represented and in number of participants. In order to better inform teachers, administrators, and the IB of the benefits and challenges of implementing these pedagogies in the context of the IBDP, it is recommended that similar studies be conducted across a wider range of schools that implement the IBDP, including local schools, national schools in an international context, and a greater number and variety of international schools. The schools in this study were all located in large cities that have a wide range of international schools; it would be interesting to consider the use of constructivist, student-centered pedagogies in schools that are located in cities that have
only one international school. It would also be interesting to look at the culture and mother

tongue of both teachers and students to determine whether this affects the implementation of
constructivist, student-centered pedagogies. In addition, this study was limited in that all
participants were working at schools whose cultures supported their implementation of these
pedagogies; future studies should consider the experiences of teachers who are alone in
implementing these pedagogies, as both the benefits and the tensions they experience may differ
considerably from those presented in this study.

The teachers interviewed for this study taught a range of subjects, with experience in all
six of the IBDP subject groups. However, there was greater representation in some subject areas
than others, and there were many specific subjects that no participants taught. Future studies
could include a wider range of subjects to give greater insight into the ways in which
constructivist, student-centered pedagogies are implemented in different subject areas. Future
research could also focus on teachers in one subject group or in one specific subject to give
insight into subject-specific, constructivist, student-centered pedagogies. Also, because some
participants indicated that certain components of the assessment in their courses promoted the
use of constructivist, student-centered pedagogies, future studies could look at the influence of
these pedagogies on certain examination papers or on the internal assessments for each course.

Data collection for this study consisted only of unstructured online interviews. Future
studies could include observations of teachers implementing these pedagogies. Such
observations might give insight as to how they implement specific pedagogies in the IBDP, and
it might also provide a glimpse of students’ experiences with these pedagogies.

This study included only the experiences of teachers who implemented constructivist,
student-centered pedagogies in the IBDP; it did not consider student experiences or administrator
or parent perceptions of these pedagogies. Future research could consider the experiences and perceptions of all stakeholders, as this would give a more robust picture of both the successes and areas of tension in implementing constructivist, student-centered pedagogies in the IBDP. Quantitative studies focusing on the actual effect of constructivist, student-centered pedagogies on IBDP examination results might help promote change to teaching and learning in the IBDP.

**Recommendations**

After reviewing participants’ experiences and the research findings, the researcher makes the following recommendations for teachers who wish to implement constructivist, student-centered pedagogies in their IBDP classes:

- Recognize the areas of tension between the IBDP and constructivist, student-centered pedagogies, and seek ways to overcome these.
- Seek professional development outside of the IBDP to support the development and implementation of constructivist, student-centered pedagogies.
- Seek collegial support from peers who are already implementing or who also wish to implement constructivist, student-centered pedagogies in their IBDP classes.
- Start small. Change one project or one unit into a constructivist, student-centered project or unit. Expand implementation from there.

The researcher makes the following recommendations for schools that wish to increase the implementation of constructivist, student-centered pedagogies in their IBDP classes:

- Develop a culture of trust and support between administrators and teachers, and among teachers.
- Develop a school culture that focuses more on student learning and less on IBDP examination results.
• Find out what teachers are doing in their classes. Back them up if parents question their use of constructivist, student-centered pedagogies.

• Provide professional development to interested teachers or to the whole school to support the implementation of constructivist, student-centered pedagogies.

Finally, the researcher makes the following recommendations to the IB in order to increase the implementation of inquiry-based learning and other constructivist, student-centered pedagogies in the IBDP:

• Align IBDP assessment with inquiry-based learning or other constructivist, student-centered pedagogies. This would include more authentic assessments with less focus on content knowledge.

• Increase the amount of time and weighting given to student-directed internal assessments.

• Increase the amount of IB professional development that focuses on constructivist, student-centered pedagogies in all categories of professional development.

**Recognize the areas of tension and seek ways to overcome them.** Most IB teachers will recognize the difficulty in finishing the required content of any subject, regardless of the pedagogy employed. They will note that IBDP assessments do not necessarily require or encourage the use of constructivist, student-centered pedagogies. They will further note that the high-stakes nature of IBDP assessments make ensuring student success on these exams of utmost importance. However, the participants did not view these as excuses. Rather, they sought ways to address these tensions in order to teach in a constructivist, student-centered way while still finishing content and preparing students for examinations.
Seek professional development outside of the IBDP. Participants noted the ways that non-IB professional development supported them as they worked to implement constructivist, student-centered pedagogies. Teachers who are interested in implementing these pedagogies should look to professional development offerings, such as those detailed in Chapter IV, for inspiration, support, and teaching ideas within their subjects and across their school.

Seek collegial support from peers. Participants noted the importance of their colleagues as they implemented constructivist, student-centered pedagogies in their IBDP classes. Teachers who wish to implement these pedagogies should seek support from same-subject teachers, who can give them teaching ideas and help to co-plan lessons. They should also look to colleagues outside their departments who may have inspirational teaching styles. In particular, employing a mentor or co-teaching model, similar to those implemented at School B, may be helpful for teachers who are new to constructivist, student-centered pedagogies.

Start with one project or one unit and expand implementation from there. Many participants did not approach their entire 2-year course in a constructivist, student-centered way. Some chose one unit, or activities within a unit, to teach in this way. For teachers who are worried about getting through content, or for teachers who are unsure of how their students will respond, starting small can enable both them and their students to become more comfortable with constructivist, student-centered pedagogies; with the changing role of the teacher; and with the requirements of students. As the teacher grows more comfortable with the pedagogy and with the pacing of the course, he can increase the use of these pedagogies.

Develop a culture of trust and support. All participants noted the importance of a trusting atmosphere between administrators and teachers and among teachers. Administrators who wish to increase the use of constructivist, student-centered pedagogies within their school
need to create an atmosphere in which teachers feel safe to experiment, safe to teach outside the syllabus, and safe to make mistakes without judgment. Teachers also need to feel comfortable collaborating with their colleagues to develop lessons and to observe each other. Administrators should create time for this, in order to increase collaboration and sharing of best practices.

**Develop a school culture focused on student learning.** Participants were confident that the implementation of constructivist, student-centered pedagogies enabled students to be well prepared for their IBDP examinations. However, they stressed the importance of not focusing only on IBDP examination results. When teachers focus on these results, they are more likely to teach only the required content and to teach to the test. When the school culture focuses more on student learning, teachers have the freedom to teach above and beyond the syllabus and to use their professional judgment when planning and executing lessons. When the school culture supports this, parents and students are less likely to question it, and the school becomes known for doing something different in the IBDP.

**Find out what teachers are doing in their classes and back them up.** As Latika noted, she could not expect her administrators to support her blindly. They knew what their teachers were doing, and they understood why they were doing it. In order to support teachers, especially when parents and students may question their use of constructivist, student-centered pedagogies, administrators should know what is happening in each classroom, and they should be able to recognize the value of it. Administrators should encourage their teachers to talk with them about their pedagogies, and to ask questions and seek support when needed.

**Provide professional development to interested teachers or the whole school.** All participants noted the importance of professional development in their implementation of constructivist, student-centered pedagogies. Most teachers commented on professional
development that they had attended, or, in some cases, that the whole school had attended, as a way to shift both the pedagogies and the culture of the school. This encouraged a whole-school approach to implanting constructivist, student-centered pedagogies. Examples of this were Guy Claxton’s professional development sessions at School C and the Creating Cultures of Thinking course by Ron Ritchhart at School B.

**Align IBDP assessment with authentic assessments.** The IB can also push teachers to implement constructivist, student-centered pedagogies by developing IBDP assessments that require the use of deeper thinking and inquiry. They can also include more authentic assessment items on IBDP examinations.

**Increase the emphasis on student-directed internal assessments.** Currently, most IBDP IAs are weighted at 20 percent of the overall IBDP grade. If the IB were to increase this percentage, teachers would be more inclined to dedicate more time to the type of student-led inquiry that is required by the IAs. In addition, if more time were dedicated to the IA, teachers could develop practice inquiry projects that would better prepare students for both the IA and for inquiry at later stages of learning.

**Focus on constructivist, student-centered pedagogies in professional development.** Most participants noted that IB professional development does not focus on constructivist, student-centered learning: neither in content, which is mostly focused on how to teach and assess the course, nor in the delivery of the workshop, which is mostly done through PowerPoint presentations. If the IB wants to increase inquiry-based learning in the IBDP, teachers need to see it modeled at IB professional development and they need to learn about the inquiry process. Teachers recognized the need to cover content at IB professional development workshops, but
this could be done in a more inquiry-based way. Higher-level workshops could focus completely on developing inquiry-based and constructivist, student-centered learning in IBDP courses.

**Personal Comments**

I became interested in the implementation of constructivist, student-centered pedagogies several years ago, when I began teaching the IB Math Studies course. As the only teacher at my school who was teaching that course, I recognized it as an opportunity for me to do something different to engage students who generally do not enjoy mathematics. I sought to implement more student-centered project work into the class. However, I was conflicted between my desire to let students explore patterns within mathematics and the need to teach the specific content to prepare students for exams. In discussing this with colleagues, I found that this was a common concern across the various subjects. I further recognized this problem when I visited several IB schools on accreditation visits. On these visits, I observed the wonderful, creative, constructivist practices that teachers used in their elementary and middle school classes, but I found that IBDP classes were mostly teacher-centered -- and even when they were student-centered, they were almost always teacher-directed. In an effort to improve my own teaching and understanding, I wanted to learn why, and I wanted to learn what those who were successful were doing.

When I began conceiving this study, I had originally intended to conduct case studies on three teachers and their students at three schools. After discussing my research questions with the head of research at the IB and after identifying 12 participants with diverse backgrounds, I felt this would be limiting, in that I would be looking at, at most, three subjects. Furthermore, because participants were at schools that regularly implemented such pedagogies, I did not know whether student focus groups would provide much information about their experiences with different pedagogies, because they might be used to these pedagogies and might not have
experienced anything different. I decided to instead focus on a diverse range of teacher experiences across many subjects.

I had dreams of finding IBDP teachers who were teaching purely through inquiry-based learning, with students choosing their own questions to investigate, or who were designing their entire course around problems that students could solve. I purposely left my definition of constructivist, student-centered pedagogies open, because I did not know what I would find and I certainly did not want to limit participants to only a few specific pedagogies. What I discovered, however, was that, although participants did regularly implement constructivist, student-centered pedagogies in the IBDP, they still needed to get through the IBDP-required content and prepare students for their IBDP examinations. This limited the extent to which they could implement the newer, more progressive, constructivist, student-centered pedagogies. At the same time, I found that, in interviewing each participant, I took away smaller, less daunting things that I, or any other IBDP teacher, could implement into my IBDP classes. Teachers do not need to overhaul their entire course to introduce these pedagogies: they only need to make small, incremental changes over time to improve student engagement and student interest in their subjects.
References


Alliance for Excellent Education. (2011). *A time for deeper learning: Preparing students for a changing world*. Washington, DC.


Berting, R. (2010). From local or international to colloquial to cosmopolitan: Refining how we look at the populations of international schools. *International Schools Journal, 29*(2), 30-35.


doi:10.1080/01596300802643090


In M. Hayden, J. Levy, & J. Thompson (Eds.), *The SAGE handbook of research in international education (2nd ed., pp. 325-336).* Thousand Oaks, CA: SAGE.


doi:10.1080/00098655.2016.1191311


Poole, A. (2018). “We are a Chinese school”: Constructing school identity from the lived experiences of expatriate and Chinese teaching faculty in a Type C international school in Shanghai, China. *International Journal of Progressive Education, 14*(1), 105-121.


doi:10.1002/tl.20160


Appendix A

Email to IBDP Coordinators at Schools which Employ Constructivist Pedagogies

Dear IBDP Coordinator,

I am the IBDP Coordinator at Yew Chung International School of Shanghai. I am in the process of completing my doctoral thesis at Northeastern University in Boston, MA. I am studying teaching styles in IBDP classrooms. Although the IBDP is based on student-centered, constructivist principles, my observation is that many IBDP classes in many schools tend to be mostly teacher centered and content focused. However, the IB Asia Pacific Office identified School X as being more progressive and student-centered in its teaching of the IBDP, and they recommended I contact you.

I am seeking your help to identify any IBDP teachers who do something different. I am looking for teachers who consistently employ more recent student-centered pedagogies, including, but not limited to inquiry-based learning (IBL), project-based learning (PBL), problem-based learning, or deeper learning methodologies. If you have any IBDP subject teachers at your school that you would recommend that I contact for further information as to their experiences in using these student-centered pedagogies, please reply to this email so that I can learn more about their teaching and so that I can find out the best way to contact them.

Sincerely,

Maria Sieve
sieve.m@husky.neu.edu
Appendix B

Email to Teachers Who Are Identified as Using Constructivist Pedagogies

Dear Mr./Mrs. X,

I am the IBDP Coordinator at Yew Chung International School of Shanghai. I am in the process of completing my doctoral thesis at Northeastern University in Boston, MA. I am studying constructivist pedagogies in IBDP classrooms.

You have been identified by your IBDP Coordinator as using progressive, student-centered pedagogies in your IBDP classrooms. I would like to follow up with you to learn more about your experiences teaching using student-centered methods, and to learn about any successes or challenges that you have had in using such teaching methods.

The study will consist of an interview of approximately one hour. If you are located in China, and are willing, I would like to conduct the interview in person, and complete several observations of your IBDP class in action. If you are not in China, or if this is not convenient, then I would like to conduct the interview via Google Hangout or Skype.

If you are willing to participate, please email me at sieve.m@husky.neu.edu. Thank you for your consideration.

Sincerely,

Maria Sieve
sieve.m@husky.neu.edu
Appendix C
Signed Informed Consent Document

Institution: Northeastern University, College of Professional Studies

Investigators: Dr. Chris Unger (Principal Investigator), Maria Sieve (Student Investigator)

Project Title: Constructivist pedagogies in the International Baccalaureate Diploma Program (IBDP): Teacher and student experiences

Informed Consent to Participate in a Research Study

We are inviting you to take part in a research study. This form will tell you about the study, but the researcher will explain it to you first. You may ask me any questions that you have. When you are ready to make a decision, you may tell me if you want to participate or not. You do not have to participate if you do not want to. If you decide to participate, you will be asked to sign this statement and will receive a copy to keep.

Why am I being asked to take part in this research study?

You have been identified by your International Baccalaureate Diploma Program (IBDP) Coordinator as consistently using student-centered pedagogies in your IBDP classes.

Why is this research study being done?

The purpose of this research study is to collect, present, and reflect on the experiences of IBDP teachers who have developed and consistently employ constructivist pedagogies in their IBDP classrooms, and to collect, present, and reflect on the ways in which students experience these pedagogies.

What will I be asked to do?

If you decide to participate in this study, I will ask you questions related to your teaching and assessment in your IBDP classes, and what you perceive to be the benefits and drawbacks of your teachings style. I will also ask to look at samples of your planning and assessment, as well as anonymous samples of student work. The interview will be audio recorded. All information shared in the interview will be kept confidential.

Where will this take place and how much time will it take?

Depending on your location, the interview will take place either in person, at your school, or through the internet. It will take at a time convenient to you and will last approximately one
Will there be any risk or discomfort to me?

There are no foreseeable risks or discomforts to you for taking part in this study. All input you will be providing will be kept confidential.

Will I benefit by being in this research?

There are no direct benefits to you from participating in this study. However, your responses may help us to learn more about how to employ student-centered pedagogies into the IBDP. At the conclusion of the study, I will offer to connect the participants if they so wish.

Who will see the information about me?

Your part in the study will be handled confidentially. Any reports or publications based on this research will neither identify you nor your school. To protect the identity of participants, I will use pseudonyms for participants and schools to provide anonymity, and I will generalize descriptions rather than provide specific names for any input cited within the case study.

If I do not want to take part in the study, what choices do I have?

If you do not want to participate, you do not have to sign this form.

What will happen if I suffer any harm from this research?

There are no significant risks involved in being a participant in this study.

Can I stop my participation in this study?

Your participation in this study is completely voluntary. You do not have to participate if you do not want to, and you can refuse to answer any of the questions. Even if you begin the study, you may quit at any time. There will be no penalty or cost for discontinuing your participation in the study.

Who can I contact if I have questions or problems?

If you have any questions about this study, please feel free to contact Maria Sieve, the person mainly responsible for the research, via email at sieve.m@husky.neu.edu or +86 18616572537. You can also contact Chris Unger, the principal investigator, at c.unger@neu.edu or +1 857-272-8941.

Who can I contact about my rights as a participant?
If you have any questions regarding your rights as a research participant, please contact Nan C. Regina, Director, Human Subject Research Protection, 960 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: 617.373.4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

**Will I be paid for my participation?**
There is no compensation for participation in this study.

**Will it cost me anything to participate?**
There is no cost to participate in this study.

**Is there anything else I need to know?**
If you choose to participate in this study, you will join with 2-4 peers to present your teaching pedagogies, which will enable the researcher to better understand how student-centered learning occurs in the context of the IBDP.

**I agree to take part in this research.**

____________________________________  ______________
Electronic signature of person agreeing to take part             Date
Appendix D
Interview Protocol
Interviews 1-3

Teacher:

School:

Interview date & time:

Interview duration:

Introduction: My name is Maria Sieve and I am an IBDP Coordinator at Yew Chung International School of Shanghai. I am also writing my doctoral thesis at Northeastern University on different teaching styles in the IBDP. I want to thank you for taking the time to participate in my interview. Before we begin, I want to review a few things. I want to assure you that all information will remain completely confidential and anonymous. I will be giving you a pseudonym and I will not include anything that will make your identity or your school’s identity identifiable. Second, I’d like to ask your permission to record this session. I will prepare a transcript that I can email you for your review before it is used. Third, the interview contains nine questions that should take about us about an hour. At any point, if you’re uncomfortable with a question or do not understand and need me to rephrase, please feel free to let me know. If these conditions seem agreeable, then I’d like to begin the interview and turn on my recording device.

1. Describe your background:
   a. Where are you from?
   b. How long have you been abroad?
   c. Where else have you taught?
   d. What subjects/grades do/have you taught?
   e. What was teaching and learning like when you were in high school?

2. How do you teach?
   a. How do you engage students?
   b. How do you design your lessons?
   c. What do you do that best facilitates learning?
   d. Describe your class. How does it look? How does it sound?

3. Have you always taught in this way?
   a. What led you to teach in this way?
   b. How is the way you taught now different from how you used to teach?
c. Have you attended IBDP training in your subject? Do you feel that it has supported or contradicted your teaching style in any way? Has it changed your perspective of teaching in the IBDP?

4. What are some examples of what you are doing in your IBDP classes?
   a. What does good learning look like in your class?
   b. How do you assess student learning in your class?

5. What are the benefits to teaching in this way? For you? For the students?

6. What are some drawbacks to teaching this way? Within the context of the IBDP?
   a. How are your IBDP results? Are they generally better, worse, or in line with those from other teachers in your school?

7. How do you see your teaching as different from that of other IBDP teachers?

8. How supportive is the administration of your teaching style?
   a. Does your administration know that you teach in this way?
   b. Have you had any instances in which parents or students were concerned with your teaching style and preparation for the IBDP examinations? Describe these.
   c. Do your school’s policies support your teaching style?
   d. Does the school’s culture and mission support your teaching style?

I would like to look more closely at some of the work your students do. Would it be possible for you to provide me with some sample unit plans, assessment tasks, and anonymous samples of student work and assessments from your IBDP classes?

As I analyze data from various interviews, would you be willing to do a short, 30-minute follow up interview to further explore findings and to clarify any misconceptions that I may have?
Appendix E
Interview Protocol
Interviews 4-10

Teacher:

School:

Interview date & time:

Interview duration:

Introduction: My name is Maria Sieve and I am an IBDP Coordinator at Yew Chung International School of Shanghai. I am also writing my doctoral thesis at Northeastern University on different teaching styles in the IBDP. I became interested in this topic for several reasons. I am teaching math and am trying to move towards more project-based learning, but I find it difficult to balance content with projects; I have a hard time designing projects to fit some topics, and rarely am I able to have students come up with their own projects. So I’d like to learn more about what other teachers are doing. I want to thank you for taking the time to participate in my interview.

Before we begin, I want to review a few things. First, do you have any questions about the informed consent form? I want to assure you that all information will remain completely confidential and anonymous. I will be giving you a pseudonym and I will not include anything that will make your identity or your school’s identity identifiable. Second, I’d like to ask your permission to record this session. I will prepare a transcript that I can email you for your review before it is used. Third, the interview contains ten questions that should take about an hour. At any point, if you’re uncomfortable with a question or do not understand and need me to rephrase, please feel free to let me know. If these conditions seem agreeable, then I’d like to begin the interview and turn on my recording device.

1. Describe your background:
   a. Where are you from?
   b. How long have you been abroad?
   c. Where else have you taught?
   d. What subjects/grades do/have you taught?
   e. What was teaching and learning like when you were in high school?

2. How do you teach?
   a. How do you engage students?
   b. How do you design your lessons?
c. What do you do that best facilitates learning?
d. Describe your class. How does it look? How does it sound?

3. Have you always taught in this way?
   a. What led you to teach in this way?
   b. How is the way you taught now different from how you used to teach?
   c. Have you attended IBDP training in your subject? Do you feel that it has supported or contradicted your teaching style in any way? Has it changed your perspective of teaching in the IBDP?

4. What are some examples of what you are doing in your IBDP classes?
   a. What does good learning look like in your class?
   b. How do you assess student learning in your class?

5. What are the benefits to teaching in this way? For you? For the students?

6. What are some drawbacks to teaching this way? Within the context of the IBDP?
   a. How are your IBDP results? Are they generally better, worse, or in line with those from other teachers in your school?
   b. To what extent is it more/less work for you as a teacher?
   c. To what extent is it more/less work for the students?

7. How do students respond to your teaching style?
   a. Does this change as they have you for longer?
   b. Are they used to teachers teaching in this way?
   c. How do you time the course?

8. How supportive is the administration of your teaching style?
   a. Does your administration know that you teach in this way?
   b. Have you had any instances in which parents or students were concerned with your teaching style and preparation for the IBDP examinations? Describe these.
   c. Do your school’s policies support your teaching style?
   d. Does the school’s culture and mission support your teaching style?

9. Are you an anomaly, or do other teachers teach like you do?

10. What are the areas of tension between teaching this way and the teaching the IBDP?
    a. What was the biggest challenge for you?
    b. What do you think is the challenge for other teachers?
    c. How have you been trying to meet those challenges?
    d. Where do you want to be that you haven’t been yet?
    e. What supports have you had to get you where you are? What have you had to overcome?
11. Everybody argues that they can’t teach any differently because they have to cover the content. Would you argue that you should get rid of the content, or would you argue that you can teach differently, and that there are ways to cover the content and teach differently.

I would like to look more closely at some of the work you and your students do. Would it be possible for you to provide me with some sample unit plans, assessment tasks, and anonymous samples of student work and assessments from your IBDP classes?

As I analyze data from various interviews, would you be willing to do a short, 30-minute follow up interview to further explore findings and to clarify any misconceptions that I may have?