TEACHER MOTIVATION MATTERS: AN HLM APPROACH TO UNDERSTANDING MOTIVATION TOWARDS THE INTERNATIONAL BACCALAUREATE MIDDLE YEARS PROGRAMME

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DOCTOR OF PHILOSOPHY IN URBAN EDUCATION
at the
CLEVELAND STATE UNIVERSITY
August 2017
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For my beloved Suzie, who has taught me the joy of life’s journeys both within and without.

And for Maddox and Zoe, who daily inscribe the value of a family we choose on my heart.
ACKNOWLEDGEMENTS

My most sincere gratitude to my advisor, Dr. Marius Boboc, for his coaching over the course of my experience at CSU and this dissertation. His willingness to share his experience and expertise was invaluable to this process, one of which would not have been completed without such guidance. Dr. Boboc’s responsiveness and commitment, despite ongoing changes to his post, were consistently commendable. Similar praise must be heaped upon Dr. Laura Northrop, methodologist, whose help enabled me to use complex and necessary statistics to accurately reflect the difficulty of this study. Her “can-do,” “yes I will,” “glad to help” attitude made this experience possible. Together, Drs. Boboc and Northrop made this research an authentic exercise in learning and an introduction to the exciting trials and tribulations of educational inquiry.

I would like to express further thanks to Dr. Megan Hatch and Dr. Karl Wheatley for their committee membership, ongoing feedback, and positive support. Their contributions can be seen throughout this research, from enhanced clarity in the literature review to improved methodology. Together, these educators have cemented CSU as a place of deep learning and growth for me.

Suzie, Max, Zoe, family, friends, and colleagues at-large kept my flame going. Their patience and encouragement as I wondered and wandered through this experience is what allowed me to achieve my dream. They braced my will-power and resilience when things were most difficult, ensuring I woke up another day ready to tackle what oftentimes felt impossible. And while I imposed this voyage upon myself, it could only be done in light of the high expectations my parents laid before me since childhood. What began as a microscope set culminated in a PhD, revealing the power of inquiry encouraged and the role parents play in a life of learning loved.
TEACHER MOTIVATION MATTERS: AN HLM APPROACH TO UNDERSTANDING MOTIVATION TOWARDS THE INTERNATIONAL BACCALAUREATE MIDDLE YEARS PROGRAMME

ABSTRACT

JOHN MURPHY MOORE

The International Baccalaureate Organization’s Middle Years Programme (IBMYP) has experienced explosive growth in the United States since its early stages in 1994. Despite its aggressive expansion, little research has explored the relationship between teachers and the program, ignoring the role of motivation in the ways in which the external standards and practices of the program are internalized and enacted. External regulation threatens teachers’ autonomous motivation and is thus associated with compliance attitudes, increased burnout, and less autonomy-support in the classroom. Conversely, teachers who experience more autonomous motivation are generally more creative, resist burnout, and inspire lifelong learning in students.

This research aimed to identify factors which predicted heightened degrees of autonomous motivation in IBMYP teachers, providing practical insight for schools as they continually strive to implement the program. Factors were examined at two levels with teacher-level factors nested within school-level factors and tested for their predictive value through hierarchical linear modeling (HLM). Teacher-level data was gathered through reliable questionnaires that collected data about participants’ motivational array towards the IBMYP standards and practices in addition to descriptive factors related to these outcomes. School-level data was collected via questionnaire from each participating school’s IBMYP coordinator, the program pedagogical liaison and leader.
Results indicated that the program coordinator’s perceived competence, the amount of time they have dedicated to coordinating the program, the number or workshops a teacher has participated in, and the year at which the IBMYP terminates positively related to higher degrees of autonomous motivation towards varying aspects of the program. Increases in a school’s IBMYP-focused professional learning days predicted increases to autonomous motivation towards the program at-large, teaching and learning, and assessment, yet overall increases in a school’s total number of professional learning days predicted decreases in teachers’ autonomous motivation towards program assessment.

Practitioners of the IBMYP may utilize these results to enhance their structure and policies to facilitate increases in autonomous motivation towards the IBMYP. By doing so, teachers are likely to internalize more control of the program and approach its implementation in more creative, resilient, value-aligned ways.
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CHAPTER I
INTRODUCTION AND PURPOSE

Introduction

The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.

To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment.

These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right. (IBO, 2016b)

Creating a “better and more peaceful world” may be a difficult challenge, but the International Baccalaureate Organization’s (IBO) mission is to do just that. This ideal is fueled by the hope that young people, through a rigorous, worldly education, will become a generation of global citizens who embrace differences and work together towards a brighter future for all. The organization provides this lofty mission, training, and implementation guidance to that end, but who is actually getting this transformative work
done? Oft maligned by policies and ignored by research, it is teachers who serve as the bridge from the IBO’s goal to actuality, providing a strong impetus for learning more about the phenomenon of being an IB educator.

Partially due to the resonance between the IBO’s mission and the goals of many K-12 practitioners (Speradino, 2010), the International Baccalaureate Middle Years Programme (IBMYP) has experienced explosive growth across the United States in the last 20 years. Despite this boom, the research community has been sluggish to respond, leaving IBMYP interested parties without an explanation of the power of the program or its effects on school communities. Few studies of the program have been performed by anyone but those whom Bunnell (2011) calls “IB protagonists and associated ‘internal’ journals” (p. 266), making many of the research claims dubious in the minds of skeptics. Despite a lack of quality research to explain its growth, justify its adoption, or predict its outcomes, America is today adopting the IBMYP at a greater rate than ever before (Halavati, 2016). For the quality and longevity of the program as well as schools’ ability to implement it, the time is overdue for a critical analysis of the program’s standards and practices and the teachers who implement them. These standards and practices (i.e., guidelines) show school communities how to pursue the IBMYP model, a popular choice in today’s reform-oriented culture (Speradino, 2010). Currently, the IBMYP is offered in 1,149 schools in 101 countries (IBO, 2016b), implemented by countless educators and impacting over one hundred thousand students worldwide, all of whose experiences are guided by the IBO’s standards and practices. In that context, understanding the role that these standards and practices play within a school and among its teachers is absolutely vital. Our lack of adequate research notwithstanding, the IBMYP is poised for continued
growth into the future, anticipated to serve 2.5 million children in 10,000 schools worldwide by the year 2020. To reach their goal, the IBO is gearing up to attract an additional 7,000 schools, approximately 2,000 of which will offer the IBMYP (Bunnell, 2011, p. 268). This precipice of continued growth presents an opportune time to explore the influence of the IBMYP on teachers and how schools may perform ongoing implementation of the program with fidelity and success.

Few others have recognized the vacuum of research regarding this rapidly expanding program, and what little exists has merely broached a tenuous foundation for others to build upon. Pre-existing research has largely focused on outcomes of the IBMYP based on student achievement, a measuring stick the IBO warns against using due to its failure to capture the most important aspects of the program. Jackson (2006) suggests that this stance has stymied researchers against examining the IBMYP because it limits the ability to study its effectiveness with a simple, clean outcome variable (i.e., results on standardized tests). This serves as an ill excuse for avoiding IBMYP research, however, as the relationship between the IBMYP and teachers is arguably as important and informative as the relationship between the IBMYP and students. If “the IBO does not consider standardized tests as a measure of program success” (Jackson, 2006, p. 6), perhaps examining the interplay between the IBMYP and teachers as an outcome can serve as a revolutionary way to inform judgments about the program.

Teachers are the main mediators between the IBMYP and students as they enact the IBMYP standards and practices to deliver its educational mission. Despite teachers’ central role in the IBMYP, the vast majority of research on the program has missed this critical step – far too often the literature has focused on the outputs of the program.
without considering its inputs (i.e., the standards and practices) or those who are responsible for its ongoing implementation (i.e., teachers). It is the educators conducting the program standards and practices and the ways in which they bring them to life that leads to gains in student development or success. Teachers are the emissaries transmitting the IBO’s mission to students, creating the possibility of a more peaceful world through education. There is evidence, however, that these envoys enact the program in myriad ways (Hutchings, 2010; Robertson, 2011; Walters, 2007), and teachers’ motivation may be a critical determinant of the ways in which the program is implemented (Walters, 2007). Motivation in any form is best defined as a psychological state wherein a “person believes that engaging in the behavior will result in some desired experience or outcome” (Eyal & Roth, 2010, p. 258), a definition which encompasses several forms of motivation that are explored in this research. Despite knowledge that motivation may mediate program implementation and the type of behaviors teachers engage in to reach desired outcomes, little is known about what factors predict heightened motivation towards the IBMYP or what aspects of the program enable motivation towards teaching.

Daniels (2016) points out this recurring misstep in the literature: “While [student] engagement and motivation are typically explored as they relate to learners, teachers must also be fully engaged in their practice if they are to create motivating learning environments for their students” (p. 61). Too often motivational research rejects exploring teachers’ motivation in favor of students’, yet that miscalculation results in a lack of controllable, predictable factors that may explain differences within the spectrum of motivation teachers exhibit. This error is made more salient in light of findings that teachers’ motivational attitudes towards a reform are more crucial to implementing the
reform than the qualities of the reform itself (Zemmelman, Daniels, & Hyde, 2003). Juxtaposing the importance of teachers’ motivational psychology in program implementation next to this severe lack of research begs further investigation into the relationship between IBMYP and motivations. This becomes particularly timely in anticipation of the IBMYP’s soon-to-launch expansion across the world.

Hutchings (2010) and Walters (2007) scratched the surface of the relationship between the IBMYP and educators, striking new ground and providing an avenue for additional research. Hutchings (2010) examined differences in teaching strategies between IBMYP teachers and traditional educators in a large urban school district, finding that the practices of instructional differentiation, assessment for understanding, instances of classroom management, and the encouragement of responsibility were more frequently displayed by IBMYP educators. This provides evidence that there is some substantial difference between the experiences and behaviors of IBMYP and non-IBMYP educators. These differences were discovered in classroom behaviors, suggesting too that there is a degree of difference in prerequisite motivation as well. Elucidating some of those differences, Walters (2007) specifically dug into the minds of IBMYP teachers through a series of semi-structured interviews, exploring how behavioral differences may arise from differences in teacher motivations within an IBMYP school. In this way, Walters (2007) gave voice to teachers as they acknowledged the key role motivation plays in the ongoing implementation of the program, a necessary component if one is to engage in the practices Hutchings (2010) found unique to these educators. As one teacher confessed during Walters’ (2007) interview,
If you are not a self-starter or not willing to get out there and do things on your own and are looking for a set curriculum, this is not the program for you. It definitely is something you have to be highly motivated to do; it requires a lot of thinking on our part because it is not a canned program. (p. 124)

What factors enable such motivated “self-starter” behavior? Furthermore, which aspects of the IBMYP garner it? Finding answers to such questions matters when considering the associated value of educator motivation, particularly in the exploration and implementation of the IBO’s innovative program of great promise. If we presume that the teachers in Walters’ (2007) study are describing more autonomous or internally generated forms of motivation, we can expect some of the outcomes of such motivation to include increased teacher creativity (Deci, Vallerand, Pelletier, & Ryan, 1991), more autonomy-support of students (Deci, Schwartz, Sheinman, & Ryan, 1981), and reductions in burnout (Eyal & Roth, 2011; Fernet, Guay, Senécal & Austin, 2012). These are outcomes worth pursuing which could be facilitated through the careful cultivation of relevant factors towards the motivation of teachers.

Walters (2007) suggests that teacher motivation is a predominant force in the ongoing implementation of the IBMYP, yet school administrators (and in this case, the research community) oftentimes fail to recognize the necessary teacher motivation to implement programming (Meyerson, Ohlhausen, & Sexton, 1992). Walters (2007) highlights this irony in his exclamation that “teacher motivation is a stronger corollary to the success of education innovations than a history of successful implementation in varied settings” (p. 10). Particularly in programs such as the IBMYP, which requires significant additional work on the part of the teacher (Field, 2011; Hutchings, 2007;
Jackson, 2006; Robertson, 2011; Walters, 2007) and is oft misunderstood due to its nebulous philosophy and requirements (Bunnel, 2011), having highly motivated teachers who are willing to wrestle with challenges and strive to overcome them is vital to the quality implementation of programming (Roth, Assor, Kanat-Maymon, & Kaplan, 2007).

Summarily, after looking across all IBMYP teacher interviews in his landmark study on educators in the program, Walters (2007) reiterated two common factors for implanting the curriculum:

First, teachers must respond to the increased amounts and levels of work as well as the time commitment for the IB MYP implementation. Second, the IB MYP Philosophy [sic] requires teachers to commit to lifelong learning in order to encourage the same in their students (p. 126).

How teachers respond to the increased endeavors of their work, time commitment, and interest in lifelong learning may very well intersect with their degree of motivation towards the program, offering further import to this line of research.

**Statement of the Problem**

American teachers are overworked and underappreciated (OECD, 2014), yet the implementation of IBMYP requires them to do even more through the ongoing alignment of teaching practices and curriculum with the IBMYP framework. There are teachers who are tempered by the program and engage in its requirements while others offer resistance. Some educators approach the IBMYP as a way to reinvent their teaching and learning principles while others view it as another layer of additional requirements. While there are those who enjoy the work or find it interesting, there are certainly teachers who are merely compliant in their approach. Autonomous motivation, or the degree to which
one’s motivation and regulation lies within the self, can explain some of this variation, yet little is known about which factors may predict differences in autonomous motivation within the context of the IBMYP. If such factors exist, determining what they are and how they influence teachers’ approaches to IBMYP implementation is vital towards generating the self-starter behavior and other motivational prerequisites for autonomously-driven programs.

The value of understanding autonomous motivation for program implementation cannot be overemphasized. Teacher motivation that is autonomous in nature (as opposed to extrinsically controlled) relates to a vast array of positive outcomes, ranging from increases in creativity (Deci, Vallerand, Pelletier, & Ryan, 1991) to reductions in teacher burnout (Eyal & Roth, 2011; Fernet, Guay, Senécal & Austin, 2012). Recepoğlu (2013) reiterated the importance of autonomous teacher motivation in an age of accountability as he claims that “teachers who have a high motivation work efficiently and effectively” and that “a high job motivation of teachers can have a positive impact on the achievements of students” (p. 107), providing multiple pragmatic platforms for the study’s pursuit. These outcomes are made possible by the mediating effects motivation has on the behaviors of teachers, providing the impetus for constant reflection and enhancement of instructional practices by creative means. Recognizing the need to better understand teacher motivation in the context of upcoming teacher shortages and the generally negative view of teaching in America, Watt and Richardson (2008) attempted to rally the research community’s attention towards it. They make clear that “identifying which motivations relate to teacher engagement, commitment and persistence is a critical next step in light
of workforce issues and pressures to understand the factors and processes underlying teacher quality” (p. 408), yet a groundswell of such research has yet to materialize.

Viewed in another light, the importance of understanding teacher motivation becomes ever more imperative when considering how many teachers are not motivated towards their work. Mertler (2001) captures this concern in his finding that 37% of surveyed teachers ($N = 969$) would not enter the teaching profession given the chance to choose a different career, leading him to wonder about the quality of education happening in those classrooms. This “crisis” (p. 5), among additional reasons such as new program implementation and teacher shortages, is why others such as Seebaluck and Seegum (2013) suggest that “identifying the sources of demotivation among teachers and eventually improving their working conditions should not be considered as an optional extra, but a key component of the educational system” (p. 459).

To cement the significance of this line of research in the context of the IBMYP, one must only consider the results of a curriculum built on compliance and low autonomous motivation. Teachers that are compliant towards their work influence students to be compliant towards theirs, decreasing their self-determination and motivation towards learning (Atkinson, 2010; Daniels, 2016; Wild, Enzle & Hawkins, 1992). If the IBMYP standards and practices (i.e., program guidelines) are embedded in an extrinsically-driven fashion, the negative effects can be broad in scope: “all of these intrusions [e.g. IBMYP standards and practices] on the teachers’ sense of self-determination are likely to lead them to be more controlling with their students. That, in turn, will have negative effects on the students’ self-determination, conceptual learning, and personal adjustment” (Deci et al., 1991, p. 340). This reduction in autonomous
motivation also predicts increases in teacher burnout, exacerbating the workforce shortage and negative perceptions of educators. Tragically too, this could contribute to a generation of young people who are less autonomously motivated to learn (Wild, Enzle & Hawkins, 1992), anathema to the mission of the IBO and its desire to instill lifelong learning in students. More broadly, “given the significant role of autonomous motivation in adaptation, quality of learning, quality of teaching, and students’ and teachers’ performance and well-being, the importance of this phenomenon for educators cannot be overemphasized” (Eyal & Roth, 2011, p. 267).

Despite the rallying cry for the importance of understanding teacher’s autonomous motivation, the existing research is nearly devoid of the IBMYP, a quickly growing program that impacts thousands of teachers and many more students. Very little is known about the interrelationships between the myriad aspects of the program, teacher and school-based factors related to motivation in such a program, and teachers’ motivational dispositions towards their work. For the longevity and quality of the International Baccalaureate itself, the well-being of educators in these settings, retention-rates of educators in these schools, student achievement, aspirations of lifelong learning in the Middle Years Programme, and more, understanding the motivational relationships teachers have with the IBMYP is a crucial first step in understanding all else.

**Purpose of the Study**

The purpose of this study was to identify factors that predict heightened degrees of autonomous motivation towards the constructs of the International Baccalaureate’s Middle Years Programme (IBMYP) standards and practices (i.e., program guidelines). In essence, this endeavor was intended to provide insight into the extent to which teachers
feel autonomously motivated towards the IBMYP, allowing schools to manage factors that predict heightened autonomous motivations towards the program. Both teacher-based and school-based factors were analyzed through Hierarchical Linear Modeling (Raudenbush & Byrk, 2002) in order to examine how these factors related in a nested fashion, teacher-level variables grouped within school-level clusters. Understanding which factors and in which combinations predicted higher degrees of autonomous motivation towards specific dimensions of the IBMYP can provide schools with a better foundation on which to continuously implement a program, utilizing strategies that predict integration of and engagement in the IBMYP standards and practices. While reform in general presents challenges for many educators (Donnell & Gettinger, 2015; Bowers & Carlton-Parsons, 2016), Walters’ (2007) teacher interviews clearly indicate that teachers need to be “self-motivated” to work in an IBMYP school and implement its standards and practices. His descriptions and explanations, however, are bereft of which aspects of the program teachers felt motivated towards or which factors related to their motivation (e.g., training or amount of collaborative time). Investigating such variables can provide schools with concrete factors that may be utilized to predict higher degrees of autonomous motivation towards IBMYP implementation and all of the benefits that come therein.

**Research Questions**

This study collected information about the degree of autonomous motivation teachers had towards the International Baccalaureate Middle Years Programme (IBMYP) standards and practices as well as teacher-based and school-based factors that may have been predictive of said motivation. Reliability of the constructs of the IBMYP standards
and practices was first determined and then related to each teacher and school-based factor to seek predictable relationships between them. Research questions for this study were:

1. To what extent do teacher-based variables predict teachers’ degree of autonomous motivation towards each dimension of the IBMYP standards and practices?
2. To what extent do school-based variables predict teachers’ degree of autonomous motivation towards each dimension of the IBMYP standards and practices?

**Significance of the Study**

This study aimed to break new grounds in providing schools with concrete ways of working towards successful IBMYP implementation through the vehicle of autonomous motivation. IBMYP implementation is never-ending as schools cycle through constant reflection, revision, and evaluation of how the program standards and practices are being performed, suggesting that the significance of this study is useful for schools at any point in their IBMYP journey. Autonomous motivation matters for quality teaching and ongoing program implementation, but it is oft misunderstood or miscommunicated through research endeavors. This study utilized self-determination theory (Deci & Ryan, 1985) to clearly differentiate between several degrees of motivation towards multiple dimensions of the IBMYP. The study went further to determine teacher-level and school-level factors that predicted heightened levels of autonomous motivation. Increases in autonomous motivation predict approaches to the IBMYP standards and practices that display creativity and engagement (Deci, Vallerand,
Pelletier, & Ryan, 1991), reduce teacher burnout (Anderson & Iwanicki, 1984; Eyal & Roth, 2011; Fernet, Guay, Senécal & Austin, 2012), increase autonomy-support to students (Deci, Schwartz, Sheinman, & Ryan, 1981) and increase teacher retention (Eyal & Roth, 2011). Supported by factors that increase autonomous motivation, teachers can thrive in an environment that embraces the “open-mindedness, intellectual risk-taking, and ongoing professional inquiry that MYP teachers bring to their teaching” (Field, 2011, p. 76).

Though the IBMYP is externally driven by requiring adherence to its standards and practices, it may be possible to implement it in such a way that its dimensions, such as program philosophy or teaching and learning principles, can become integrated or internalized into a teacher’s self, leading to “the qualities that are associated with intrinsically motivated behavior” (Deci, Vallerand, Pelletier, & Ryan, 1991, p. 33). In other words, there may be avenues for taking this external program and making it more autonomous (e.g., intrinsic) for educators, enabling the benefits associated with such motivation. Doing so matters greatly in creating a program in which teachers display the autonomous or intrinsically driven qualities of “behaving accordingly, being creative, and displaying conceptual or intuitive understanding” (Deci et al., 1991, p. 33), supporting the requirement of teachers in the IBMYP to be creative professionals (Robertson, 2011). By developing an IBMYP culture based on more autonomous forms of motivation, students are more likely to experience classrooms which are in turn autonomous, leading to enhanced engagement, desires for learning, and the possibility of increased student achievement. Exploring this premise within the IBO’s Middle Years Programme first (as opposed to their other programs) makes good sense, as it is “most likely [sic] the biggest
IB program in terms of contact with children…for most students, exposure to the IB probably comes from the MYP” (Bunnell, 2011, p. 263).

Creating a program that enables and enriches autonomous motivation can only be done through more tactical and tactful program implementation that uses self-determination theory and the factors that predict autonomous motivation as a guide, seeking an understanding of the nuanced and multi-faceted continuum of motivation to enhance how the IBMYP is done. As Eyal and Roth (2011) suggest, teachers can be made to implement programs in myriad ways, but building a system that supports the development of autonomous motivation predicts far too many benefits to ignore:

Although controlled motivation can lead teachers to comply with the systems standards, it is the autonomous motivation that transforms their jobs into meaningful experiences, drives them to practice autonomy-supportive teaching, protects them from burnout, increases their well-being, improves their effectiveness, and fosters their retention in the system. (p. 269)

Implementing the program in an autonomously-oriented way may also create a positively perceived working condition that is based on a culture of professional creativity, attracting new teachers to a school in a way that is far beyond the possibility of salary alone (Bacolod, 2007). Prior to this study, factors that predict autonomously regulated motivations towards the dimensions of the IBMYP were unknown, providing little opportunity outside of mere guesswork to understand how to create a culture of autonomous motivation towards the IBMYP. As Walters (2007) discovered in his interviews, “little research exists about factors influencing teachers’ motivation to personally initiate and implement IB MYPS…” (p. 11); this lack of understanding has
handicapped the development of program implementation and the psychological well-being of teachers within IBMYPs, despite clear research that informs us that “teachers need supports that encourage their intrinsic, or internal, motivation” (Iliya & Ifeoma, 2015, p. 10). With a meaningful rationale, an emphasis on autonomy, and other supports focused on the right factors, even external demands such as the IBMYP standards and practices can become internalized and integrated (Deci, Eghari, Patrick, & Leone, 1994), resulting in an IBMYP wherein teachers feel more autonomously in control of their work (i.e., display an internally perceived locus of causality).

The alternative to an autonomously motivated teaching force introduces far too much risk to a school’s program; implementing such a complex, philosophically-charged program in the absence of factors that enable autonomous motivation is a prescription for failure through a focus on compliance. The IBMYP inherently has extensive, externally generated requirements that, if not buffered by factors and an environment related to higher degrees of autonomous motivation, may leave educators feeling constricted or externally controlled. This degree of control trickles down from the IBMYP standards and practices, reaching into the experiences of educators through the administrative demands that they lay forth. As Robertson (2011) explains in her analysis of the IBMYP, “such administrative work is dictated by accountability mechanisms, eg [sic], authorization, evaluation, and moderation. These mechanisms then can exert a controlling presence in the work of coordinators and, in turn, in the work of teachers” (p. 151). The International Baccalaureate Organization (IBO) themselves recognize the threat of these administrative demands and have acknowledged their potentially deleterious effects on teachers’ feelings towards implementation (Harrison, Albright, & Manlove, 2016). This
degree of control and administrative oversight infringes upon the autonomy and intrinsic motivation of IBMYP educators, a problem that cannot be overstated or ignored. Griffin (2010) brings to light the importance of such awareness as he cries for the need to determine what factors can alleviate such intrusion: “if specific elements of a teacher’s job that lead to job dissatisfaction can be identified, it may be possible to address these areas in hopes of bringing about positive classroom changes” (p. 68). This concept reiterates the need to discover factors that predict heightened autonomous motivation and in turn job satisfaction and success.

The IBMYP standards and practices invite interpretation and allow for a variety of implementation strategies. A simple example using one of the practices illustrates how valuable autonomous motivation is in enacting the program requirements. Practice C3.5 states that “teaching and learning uses a range and variety of strategies” (IBO, 2016a, p. 5), yet does not stipulate what defines a range, variety, or what may even be considered a “teaching strategy.” One can imagine that a compliance mentality may yield relatively little variety, perhaps including both direct instruction and some small degree of student-centered work. Conversely, a highly autonomous educator may implement this practice with vigor and creativity, viewing it as a springboard for utilizing cooperative learning, inquiry, seminars, technology integration, direct instruction and more, striving to fulfill the aspirations of the practice to engage students in a range and variety of strategies. Self-determination theory posits that increased autonomous motivation will yield behaviors that align with the aspirational disposition of the IBMYP rather than that of minimal compliance related to low degrees of autonomous motivation.
The significance of this study was first derived from its novelty and secondly from its yield of practical knowledge to schools that are interested in the IBMYP or in enhancing their existing program. As Field (2011) explains from her work within IBMYP schools, “it will be the ‘creative teacher professionalism’ of teachers – that open-mindedness, intellectual risk-taking, and ongoing professional inquiry that MYP teachers bring to their teaching – that will have a major impact upon whether or not meaningful learning can be facilitated.” (p. 76) The creative teacher professionalism she speaks of can only be garnered in an autonomy-supportive environment that leads to more internalized control of the IBMYP standards and practices. This study indicates which teacher and school-based factors may predict gains in teacher autonomous motivation towards each dimension of the IBMYP standards and practices. By utilizing this information, schools can build programs that attract, develop, and retain autonomously motivated teachers, modifying relevant factors to not only implement the program in a successful way but to increase student achievement and lifelong learning as well.

**Organization of the Dissertation**

Chapter I describes the problem to be explored through this research as well as its importance. Chapter I also defines the study’s research questions, limitations, and a definition of terms used throughout the research.

Chapter II provides a literature review on the pertinent topics to this research. The first series of topics put the study in context through an introduction to the International Baccalaureate Organization’s Middle Years Programme, a brief history of its time, its standards and practices (i.e., program guidelines and requirements) and the program’s implementation structure. The literature review then focuses on the theoretical
underpinnings of this research, beginning with an overview of self-determination theory and its sub-theory, followed by pre-existing knowledge on teacher motivation.

Chapter III includes the study’s methodology, data collection procedures, questionnaire development and variables.

Chapter IV includes research findings from the study focused on each research question.

Chapter V summarizes the study and its results, concluding with a discussion of results and their implications for researchers and practitioners.

**Limitations of the Study**

The following limitations must be considered as relevant factors when interpreting results.

1. The principal investigator is a six-year IBMYP coordinator and has been trained many times by the International Baccalaureate Organization. Care was taken to identify and address any influence this subjectivity may have had on methodology, yet the experience and background knowledge was utilized during the understanding and discussion of results.

2. The data collection instruments did not consider student or principal factors. It is possible that teacher-level and school-level factors may be mediated by student or principal factors and should be considered in further research that builds upon this endeavor.

3. The instruments did not collect information associated with contextual factors outside of the IBMYP standards and practices. It is possible that other school
programs or situations in addition to the IBMYP relate to teachers’ motivations towards the IBMYP.

4. The instrument required participants to self-report their motivation. There is some evidence that measures of participant motivation and participant’s beliefs in their motivation may differ (Hoy, 2008, p. 493).

5. Each participant volunteered to complete the questionnaire, thus results may be representative of participants who are more highly motivated than the average teacher (Visser-Wijnveen, Stes, & Van Petegem, 2012, p.433). As such, the total population of IBMYP teachers may be less motivated than what is reported here based upon a smaller subset of participants who are likely motivated enough to complete the survey. Unless mandatory, teachers who are the least motivated may choose not to complete the questionnaire, meaning that those least motivated are underrepresented. To get a true reflection of the population, a questionnaire would have to be developed which externally measures motivation through observations or otherwise and performed randomly on a large sample of teachers. The impracticality of this favors the use of voluntary questionnaires, but one must be cautious in seeking to use the results of such questionnaires to make generalizations about the motivations of teachers.

6. The IBMYP has a steep learning curve (Walters, 2007; Bunnell, 2011; Robertson, 2011). It is possible that newer IBMYP teachers do not have a full understanding of the IBMYP standards & practices and may not therefore be able to categorize each of them according to their degree of autonomous
motivation. If extensive, this would make discernable patterns in results more difficult, as some participants would overestimate and others underestimate motivation towards aspects of the program they don’t yet understand.

7. This study does not control for the impact of professional learning activities outside of official IBO trainings. Other activities may overlap with IBMYP requirements, building competence towards the program outside of information captured by the questionnaire. A teacher who has attended a non-IBMYP training on inquiry, for example, may feel more competent (and therefore autonomously motivated) towards the program, and yet the influence of that variable would not be captured as a predictor variable.

8. This study sought to determine relationships between teacher and school-based variables and the degree of autonomous motivation towards the IBMYP standards and practices, not identify cause and effect.

Definitions of Terms

Amotivation: “A state of lacking an intention to act” (Ryan & Deci, 2000, p. 61). Derived from a lack of value for the activity (Ryan, 1995), a lack of perceived competence (Deci, 1975), or not believing that the action will result in a desirable outcome (Seligman, 1975).

**Autonomy:** Perceiving the locus of causality for behaviors as oneself; choosing and acting in ways that align with one’s own needs and desires (Deci & Vansteenkiste, 2004). Positively correlates with intrinsic motivation (Deci, 1971).

**Cognitive Evaluation Theory (CET):** A sub-theory of self-determination theory which explains differences in the degrees of intrinsic motivation based on external factors such as feelings of competence, autonomy and relatedness (Deci, 1975; Deci & Ryan, 1985).

**Competence:** Perceived mastery and ability to control an outcome; positively correlates with intrinsic motivation (Deci, 1971).

**External Regulation:** The least autonomous form of motivation that results in behavior that is performed to obtain some external reward or to meet an external demand (Ryan & Deci, 2000).

**Extrinsic Motivation:** Psychological state which generates behavior that is performed “because it leads to a separable outcome” (Ryan & Deci, 2000, p. 55).

**Identified Regulation:** Extrinsic motivation that results in behavior based on personal importance with a more internal locus of causality; performed to achieve some instrumental result (Ryan & Deci, 2000).

**IBMYP Implementation:** Putting the IBMYP standards and practices into action is a never-ending “journey” in which schools work to continually enhance their program. This process begins with IBMYP candidacy, proceeds to an authorization trial, and, once authorized, enters recurring five-year evaluation cycles.

**Integrated Motivation:** The most autonomous form of extrinsic motivation where the cause for behavior is aligned with one’s values and needs yet performed for some
instrumental outcome, not for the interest and enjoyment in and of itself (Ryan & Deci, 2000).

*International Baccalaureate Middle Years Programme (IBMYP)*: A framework of learning for 11-16 year olds that encourages practical connections between learning and global contexts through conceptual and inquiry-based education practices. (IBO, 2014d).

*International Baccalaureate Middle Years: Programme standards & practices*

A series of expectations and guidelines that provides what it means to be an IB World School. This is done through the articulation of requirements for program authorization and evaluation (IBO, 2014c).

*Intrinsic Motivation*: Psychological state that generates behavior which has no apparent external rewards and is performed because it “inherently interesting or enjoyable” (Ryan & Deci, 2000, p. 55). Furthermore, intrinsic motivation is based on “the human need for being competent and self-determining” (Deci, 1975, p. 131). Highest form of autonomous motivation (Roth, Assor, Kanat-Maymon, & Haplan, 2006).

*Introjected Regulation*: Extrinsic motivation that is characterized by low degrees of autonomy that cause actions arising from external pressure, guilt avoidance, anxiety, pride and otherwise manipulated by self-esteem in society (Ryan & Deci, 2000).

*Organismic Integration Theory (OIT)*: Theory which details different forms of extrinsic motivation based on the degree of autonomy and locus of causality (Deci & Ryan, 1985).

*Perceived Locus of Causality*: The origins of motives and effect, namely personal causation (i.e., intention) and impersonal causation (i.e., environmental) (deCharms,
1968; Heider, 1958). An internal perceived locus of causality is derived from an individual feeling the originator of an outcome, whereas an external perceived locus of causality is derived from a feeling of being a “pawn” in an externally-generated outcome (Roth, Assor, Kanat-Maymon, & Haplan, 2006).

**Relatedness:** Feelings of connectedness with others (Baumeister & Leary, 1995); positively correlates with intrinsic motivation (Grolnick & Ryan, 1989).

**Self-Determination Theory:** Macro-theory that categorizes motivated behavior based on degrees of self-determination and autonomy. Distinguishes four levels of extrinsic motivation based on the degree of autonomy and the perceived locus of causality. Extrinsic motivation is a distinct form of motivation outside of amotivation and intrinsic motivation (Deci & Ryan, 1985).
CHAPTER II
REVIEW OF THE LITERATURE

This chapter consists of a literature review in three sections: 1) The International Baccalaureate Middle Years Programme, 2) Self-determination theory, and 3) teacher motivation. Together, these three arcs provided a context for the study.

The International Baccalaureate Middle Years Programme (IBMYP)

Introduction to the IBMYP. The International Baccalaureate’s Middle Years Programme (IBMYP) is geared towards children aged 11-16, emphasizing intellectual challenge through “practical connections between their studies and the real world, preparing them for success in further study and in life” (IBO, 2016b). As of 2016, the IBMYP exists in 1,149 schools in 101 countries across the world (IBO, 2016b), with a significant concentration in North America. American schools in particular have shown a special attraction towards the IBMYP, as nearly half of all IBMYP schools are located in the USA (Bunnell, 2011, p. 270).

As elaborated in the IBMYP’s guidebook, From Principles to Practice, (IBO, 2014b), the program is grounded in holistic educational practices, communication development, and international mindedness. These founding principles are expressed and experienced through each aspect of the IBMYP’s curriculum model. The model, shown
in Figure 1, incorporates many of the unique aspects of the IBMYP and visually relates them as a series of concentric rings. These rings, taken altogether, represent the curriculum of the IBMYP and encompass the evolution required for teachers and schools to undertake: “IB MYP implementation requires significant change in approaches to teaching, professional development practices, curriculum, philosophy, planning, teaming, and delivery of instruction” (Walters, 2007, p. 4). Note that subject areas represent just one aspect of the multifaceted program, offering insight into the complexity and difficulty of implementing the program. As one teacher offers in Robertson’s (2011) research on the implementation of the IBMYP, “The MYP is difficult to implement, not because it hasn’t been thought through, but because it requires a lot of work, more than just in your subject” (p. 147). The layers clearly present what “more than just in your subject” entails.

![Figure 1. The IBMYP curriculum model. Reprinted with permission from “Logos and programme models,” by the International Baccalaureate Organization, 2016. Copyright 2005-2017 by the International Baccalaureate Organization. (http://www.ibo.org/digital-toolkit/logos-and-programme-models/).](image-url)
The outermost layer depicts the program’s name as well as “international-mindedness.” The concept of international-mindedness forms a symbolic umbrella that encompasses all other aspects of the program, encircling it with the ideal of developing “learning environments that value the world as the broadest context for learning” (IBO, 2014d, p. 12). International-mindedness appears again and again in the IBO’s emphasis on multilingualism, intercultural understanding, global engagement and the use of global contexts for understanding academic content. The IBO weaves a thread that connects this outermost layer to its core with the assertion that to be internationally-minded requires individuals to develop and exhibit the learner profile, a set of character attributes displayed at the core of the model.

Peeling back the outermost layer reveals the eight subject groups required to be taught in the IBMYP: Language and Literature (i.e., America’s English language arts), Individuals and Societies (i.e., America’s social studies), Mathematics, Design (e.g., problem-based learning), Arts (both visual and performing), Sciences, Physical and Health Education, and Language Acquisition (i.e., World language studies). These eight subject groups are equally integral to the IBMYP and serve as vehicles for the promotion of the attributes and skills espoused by the IBO as shown by the layers within. This philosophy matches a progressive view of middle childhood education that strives for an interdisciplinary approach between subject areas, building upon the format of learning in the elementary grades. This progressive view allows schools to “…continue a commitment to an integrated curriculum. Integrated curriculum builds upon the foundation that is established through a primary school curriculum, with a focus on projects or themes” (Cartmel, 2013, p. 5). The IBMYP’s eight equal subject areas make
clear their commitment to an integrated curriculum that displays a broad balance between the traditional core of academic studies (e.g., science and math), arts and physical and health education.

Moving towards the interior of the curriculum model exposes the action and service components of the IBMYP and how they culminate in the community and personal project. For programs terminating in 8th grade (i.e., year 3 of the program), students must participate in a service-oriented project that displays the knowledge and learning skills gained during their time in the IBMYP. The community project “gives students an opportunity to develop awareness of needs in various communities and address those needs through service learning” (IBO, 2014d, p. 6). For IBMYPs terminating in the 10th grade (i.e., year 5 of the program), a more independent, rigorous, personal inquiry is required that displays the knowledge and learning skills students gained from their five years in the program. As a culminating experience, the personal project “encourages students to practice and strengthen their ATL [approaches to learning] skills, to consolidate prior and subject-specific learning, and to develop an area of personal interest” (IBO, 2014d, p. 6). Both the community and personal project are intended to represent the fruition of learning in the IBMYP.

Further inwards reveals other key aspects of the IBMYP: approaches to teaching, global contexts, approaches to learning, and concepts across various disciplines. These four points represent daily prescriptions for both teachers and students in their experience of the IBMYP, including both what teachers do and how students learn.
A sampling of approaches to teaching in the IBMYP are outlined below. While this list is not exclusive or exhaustive, it provides an idea of the type of student-centered teaching endorsed by the IBMYP along the following lines:

- inquiry-based—provoking curiosity in order to structure and sustain exploration
- concept-driven—planning and teaching through concepts that are transferable to new contexts
- contextualized—reaching beyond the scope of individual subjects to establish relevance
- collaborative—promoting effective teamwork and purposeful/productive collaboration
- differentiated—providing access to learning for a diversity of learners
- informed by assessment—balancing assessment of, and for, learning. (IBO, 2014d, p. 72)

Teachers are expected to utilize these pedagogical principles in a balanced way across each of the eight subject-areas. While no specific teaching strategy is listed (e.g., direct instruction), these approaches are stringent enough to provide guidance while allowing teachers the freedom and flexibility to utilize or develop strategies that are within the approaches above.

Global contexts give life to the IBMYP’s ambition of orchestrating relevance between what students are learning in the subject areas and their applications to real-world contexts. The IBO goes so far to say that “students at the MYP age range learn best when their learning experiences have context and are connected to their lives and to the
world that they have experienced” (IBO, 2014d, p. 18). The IBMYP requires that teachers utilize global contexts to provide engaging and inspiring experiences that connect student learning with the greater world, answering the age-old question of “Why are we learning this?” grounded in international-mindedness.

The approaches to learning skills represent abilities that students are intended to develop which help them “learn how to learn” (IBO, 2014d, p. 20). Through these approaches, students can develop the “self-knowledge and skills they need to enjoy a lifetime of learning” (IBO, 2014d, p. 20), no matter what twists and turns that life may take. The approaches to learning are made concrete through a set of prescribed skills in 5 categories: a) communication, b) social, c) self-management, d) research and e) thinking. Like the approaches to teaching, these approaches to learning provide a general framework that allows teachers and schools to contextualize what the skill set and learning targets look like in their school community. The IBMYP requirement is that those skill categories are explicitly taught; how, when and in what context depends upon the school and teacher’s discretion.

Concepts complete this layer of the curriculum map, providing a means of interdisciplinary learning and a breadth of understanding that is transferable in nature. Concepts offer a way of organizing ideas both within and across subject groups, as well as breaching national and cultural boundaries (IBO, 2014d, p. 13). They also provide an entryway into content for students, no matter their level of preparedness or prior knowledge: “They [concepts] place no limits on the breadth of knowledge or on depth of understanding, and therefore provide access to every student, regardless of individual aptitude and abilities” (IBO, 2014d, p. 56).
The IBO has chosen 16 “key concepts” to be explored in the IBMYP, representing “broad, organizing, powerful ideas that have relevance within and across subjects and discipline” (IBO, 2014d, p. 15). Additionally, the IBO has provided teachers with a list of related concepts, each relevant to a particular discipline. While key concepts are particularly good at providing access to a breadth of understanding, “related concepts” allow students to go deeper into specific content to develop deeper understanding in a subject area. The requirement to teach these key and related concepts presents a great challenge for many teachers and schools. Speradino’s (2010) investigation of IBMYP implementation found that the shift to conceptual teaching from a more traditional approach is one of the most difficult aspects of the IBMYP, requiring the “greatest pedagogical shift” (p. 143) on the road to becoming an IBMYP.

The core of the curriculum model represents the student, further embodying the IBMYP’s belief that teaching and learning ought to be “student-centered.” Central to the model is “the learner profile,” an IBO trademark that comprises a set of attributes that IB learners strive to be with the guidance of educators. This list of 10 character traits represents “the IB’s mission in action,” (IBO, 2014d, p. 9), resulting in people who are internationally minded and display a “broad range of human capacities and responsibilities that go beyond a concern for intellectual development and academic content” (IBO, 2014d, p. 9). The IB learner profile encourages students to become inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced and reflective. The IBO’s mandate of character development aligns with the values Cartmel (2013) describes necessary for a successful middle school program:
The focus within the learning process in the middle years should be on the individual student, acknowledging that young people have their own needs and interests. In development and delivery of curriculum, teachers need to be sensitive to these needs and interests. (p. 6)

The IBMYP’s resonance with Cartmel’s stance is easily viewed in their program model, centered on the student as a core around which all other curriculum, philosophy and practice revolve.

Many educational practitioners will note the absence of assessment in the curriculum model. This is not because assessment standards do not exist in the IBMYP but rather because teachers create and perform all assessments internally (formative and summative), following guidelines in the form of assessment criteria lay forth by the IBMYP. Although the IBO offers guidance in terms of objectives and principles, the burden of responsibility for collectively developing assessments falls on the teacher (Walters, 2007, p. 36).

Despite its absence in the curriculum model, the IBO identifies assessment as a main strand to “initiate and drive school change” (IBO, 2014d, p. 29). Specifically, teachers design assessments to provide feedback to students on IBMYP-generated criteria that are specific to each subject area. These criteria are related to the IBMYP’s established aims and objectives for the subject area leading to “teaching and learning that is grounded in inquiry” (IBO, 2014d, p. 29). While teachers have the burden of creating assessments, the criteria on which these assessments are aligned are externally generated by the IBO, possibly representing a factor that inherently takes the perceived locus of causality from the autonomy of the educator and places it in the hands of an external
body. There is a degree of threat to autonomous motivation here, providing additional impetus to the continued research about the ways in which the IBMYP risks reducing teacher’s intrinsic motivations.

The layers of the IBMYP curriculum model, plus assessment, provide an entryway into understanding the complexity of the IBMYP as well as its threats to educators’ sense of intrinsic motivation. The IBMYP exists in myriad schools across the world, working through the same curriculum model and presumably sharing related experiences and concerns. Exploring the intersection of these aspects of the IBMYP and teachers’ motivations will be critical for its continued expansion and the quality of implementation.

**History of the IBMYP.** The Middle Years Programme does not stand alone, however, and its history is best understood in light of the International Baccalaureate’s flagship program: The Diploma Programme (IBDP). The IBDP was founded in 1968 to serve students aged 16-19 and act as a means of ensuring international mobility in higher education to its students (IBO, 2016b). IBDP graduates receive an IB Diploma, vouching standardized, high levels of academic achievement that is widely recognized by universities around the World. In this way, a student graduating from a university in one country gains credentialed access to universities in others using the International Baccalaureate Diploma Programme as a benchmark of success.

In the late 1970s, however, a conflux of issues surrounding student preparedness for the IBDP arose that would eventually give rise to the IBMYP. According to *The History of the Middle Years Programme* (IBO, 2010a), teachers at international schools offering the IBDP recognized that the more traditional approaches to teaching and
learning were not preparing students appropriately for the rigor necessary for students to successfully complete an IBDP. Without any direct intent (although connections were clear), the International Schools Association (ISA) came together at their 1980 annual conference at Moshi, Tanzania, to lay some curricular groundwork on how to better prepare students for the IBDP (IBO, 2010a). It was at this conference in which the early beginnings of the IBMYP were generated with “an emphasis on student-centered activities and a willingness to consider integrating subjects to promote interdisciplinarity” (IBO, 2010a, p. 4). Following the conference, an ISA curriculum committee began developing curricula in several subject areas which would address the academic demands of preparing students for the IBDP. These curricula first took the form of two-year “pre-IBDP” courses with a “student-centered” and “interdisciplinary” approach first discussed at the 1980 conference.

By 1983, the concept of the two-year pre-IBDP preparation program had expanded to a five-year program geared towards students aged 11-16. The foundation as a program to simply prepare students for the IBDP had expanded to one that included an interdisciplinary approach towards addressing global issues and global responsibility (IBO, 2010a, p. 9), finding a kindred spirit in progressive theories of middle childhood education. While this internationally-minded curriculum would still do well to prepare students for the IBDP, it was now a burgeoning program in its own right, expanding beyond its original intent.

Finally, in 1988, the International Schools Association (ISA) completed the development of a curricular prototype for the 5-year program based on their founding principles and sought pilot schools. The handful of pilot schools was completely
voluntary and received no compensation for implementation, allowing schools to self-select into this fledgling program. The pilot was a struggle, and teachers found it difficult to perform the ISA’s intended curriculum (IBO, 2010a). To that end, several of the schools came together to form their own association of support, sharing materials and resources while articulating the ways in which the curriculum could work. Despite struggles, this association kept the ISA’s curriculum and vision alive long enough to gain the attention of the International Baccalaureate Organization, the parent structure of the Diploma Programme (IBO, 2010a, p. 19). In this way, ISA’s work turned full circle: it began as a 2-year pre-IBDP endeavor, expanded to a 5-year independent curriculum, met both struggle and success as a pilot, then caught the eye of the IBO as a potential opportunity for continued growth of their organization.

With the support of the pilot schools and their burgeoning association as well as the blessing of the IBO, the ISA published an updated version of their curriculum in 1991 with direct connections to the IB Diploma Program. This represented somewhat of a shift from a program that could prepare students for the IBDP to one that explicitly did. Many of the trademarks of the IBDP were now integrated into the ISA’s 5-year program, such as an independent, capstone project and specific “approaches to learning skills” that aligned with those in the IBDP (IBO, 2010a, p. 22).

Lacking a reliable funding structure and dedicated staff in 1991, the ISA leadership recognized the value in the IBO itself assuming responsibility for the curriculum that they had created. By 1992, the IBO had agreed to take on the ISA’s curriculum and by 1994 had integrated in into their organizational structure at the
International Baccalaureate Middle Years Programme. During its first year as IBMYP in 1994, 15 schools were authorized by the IBO to offer the program (IBO, 2010a).

The IBDP, which by that time had been in existence for 24 years, took the lion’s share of the IBO’s resources and attention. This resulted in a struggling start for the IBMYP, despite its curricular alignment with the IBDP. While the IBMYP represented much of what the IBO believed philosophically, it was not prepared at that time to take it on (IBO, 2010a, p. 25). Recognizing the risk involved in not supporting it sufficiently, the IBO hired subject-area leaders to create myriad curriculum support materials to guide teachers on how to engage students in the IBMYP curriculum.

During this tenuous time, the curriculum developers leaned heavily on popular constructivist theory to round out their guidebooks on teaching in the IBMYP. This grounding would strengthen the student-centered and interdisciplinary approaches the ISA intended with its curriculum. Continued work fine-tuned the alignment of the IBMYP with the IBDP while still maintaining the integrity and philosophical approaches of the two distinct programs.

With a clearly articulated curriculum in place, more schools around with the world expressed interest in adopting the IBMYP. The IBO was faced with a new problem – how do they ensure consistency, fidelity and authenticity of their curricular implementation in this growing number of schools? In April 2002, 10 proposed standards for program evaluation were introduced (IBO, 2010, p. 31), giving schools the ability to critically reflect on their performance as an IBMYP school during evaluation periods. These standards also sought to address the perception that “the IBMYP was the most difficult and complex programme to implement,” slowing its growth when compared to
the IBDP (IBO, 2010a, p. 35). Addressing these concerns through the standards, new publications of additional teacher-support materials, and the implementation of curriculum flexibility in 2002 put the IBMYP back on a path of growth. The curricular flexibility, which relaxed previous rules about the requirement of offering the IBMYP as a 5-year program only, proved to be a significant factor in the IBMYP’s growth (IBO, 2010a, p. 32).

Finally, in 2010, the IBO published its first *Programme standards and practices* (IBO, 2014c), articulating the most current iteration of expectations for IBMYP practitioners (IBO, 2010a, p. 31). These standards and practices articulate the expectations of being an IBMYP institution, outlining requirements of stakeholders ranging from the governing body of a school to its teachers. These standards and practices have evolved far beyond the initial intent of the ISA as developing a program to prepare students for the rigor of the IBDP. Today, they represent an elaborate program of its own integrity and intent that has been thoroughly aligned with the IBDP through years of curriculum review.

**The IBMYP standards and practices.** The IBMYP standards and practices have evolved over time to provide school districts with distinct targets on the continuum of program implementation. The International Baccalaureate (IB) articulates that its standards and practices serve as the foundation of what it means to be an IB World School, providing “a set of criteria against which both the IB World School and the IB can evaluate success in the implementation of…the Middle Years Programme” (IBO, 2014c, p. 1). Specifically, program standards include general requirements whereas practices elucidate the standard “in practice.” Each of the standards and practices are pre-
requisites for “successful implementation of the…IB programme” (IBO, 2014c, p. 1) and symbolically represent the degree to which the school espouses the ideals and performs the actions of an IBMYP. IBMYP schools implement these standards and practices at varying levels in a continuum, and the IBO recognizes that this implementation is a journey, not a destination. To that end, IBO evaluators judge IBMYP schools against this set of criteria, providing feedback on the ongoing development of the program in the school. It is through this evaluation of the standards and practices that the IB ensures that schools have implemented the IBMYP with both quality and fidelity.

The IBMYP standards and practices consist of statements representing criteria of the program that schools seek to achieve as an IBMYP school. The statements are vague in nature and allow for myriad strategies of implementation. A brief list of standards and practices excerpted from the Programme standards and practices (IBO, 2014c) provides insight into their vague and varying nature:

- Collaborative planning and reflection ensures that all teachers have an overview of students’ learning experiences (p. 27),
- Collaborative planning and reflection addresses the IB learner profile attributes (p. 27),
- The curriculum fosters disciplinary and interdisciplinary understanding (p. 29),
- The written curriculum identifies the knowledge, concepts, skills and attitudes to be developed over time (p. 29),
- The written curriculum incorporates relevant experiences for students (p. 30),
- Teaching and learning uses a range and variety of strategies (p. 33),
• Teaching and learning fosters a stimulating learning environment based on understanding and respect (p. 33),
• The school uses a range of strategies and tools to assess student learning (p. 34), and
• The school analyses assessment data to inform teaching and learning (p. 35).

This sampling of the standards and practices represent the many different ways in which teachers are impacted in a daily way with the implementation of the IBMYP. Each of the above samples, and many more, represent the demands that the IBMYP places on teachers, ranging from the requirement of collaboration to teaching, learning, and assessment. This short sample also provides evidence to the multiple claims about the high difficulty of IBMYP implementation (Robertson, 2011; Speradino, 2010; Walters, 2007).

The *Guide to school authorization: Middle Years Programme* (IBO, 2015b) provides specific guidance on the expectations of an aspiring IBMYP school in accordance with the standards and practices. During the process of becoming an IBMYP school, educators deeply reflect on their achievement across the relevant standards and practices, providing evidence for their successes against each criterion. The IBO then schedules a school visit in order to evaluate the school’s authenticity in striving to achieve the criteria, resulting in program authorization or a series of “matters to be addressed” (IBO, 2015b, p. 7). Matters to be addressed represent areas of the standards and practices in which the school struggles to achieve in a significant way. To help along the journey, the IBO also provides feedback in the form of “commendations” and “recommendations.” These monikers are written for specific standards and practices that
the evaluators feel are strong representations of the IBO’s intent (commendations) or areas in need of attention for further development (recommendations). The list of the IBMYP standards and practices are listed in full in Appendix F.

**IBMYP implementation.** The implementation of an IBMYP requires significant change on the part of a school, impacting the everyday life of its educators (Walters, 2007). Initial implementation has a relatively straightforward timeline: 1) school consideration phase and feasibility study, 2) request for candidacy and the IBO’s decision, 3) candidacy, and 4) authorization to be an IBMYP. Implementation does not end with authorization, however, as the IBO (2015b) recognizes that implementing the IBMYP is an ongoing “journey” (p. 13) and that schools will meet the standards and practices to “varying degrees along the way” (p. 13). These first steps are merely “trial implementation” (IBO, 2015b, p.2) leading to the never-ending implementation of the programme over time.

Each of the early phases has extensive requirements ranging from changes in the way curriculum is written to the professional development of subject area teachers and school leaders. Bunnell (2011) predicts that nearly 3000 of the International Baccalaureate’s 10,000 anticipated schools in 2020 will offer the IBMYP, meaning that each will have undergone its very own implementation experience and strategy along the timeline. With that scale in mind, understanding the IBMYP through the lens of implementation becomes valuable. Figure 2 provides a more detailed edition of the timeline listed above.
Figure 2. Stages of the IBMYP authorization process. Reprinted with permission from Guide to school authorization: The Middle Years Programme (p. 2), by the International Baccalaureate Organization, 2015, Cardiff, Wales: International Baccalaureate. Copyright 2015 by the International Baccalaureate Organization.

The top half of the figure represents the main phases of implementation; each block an isolated stage in which the IB reviews a school’s candidacy before allowing progress on to the next stage. The italics in each block represent the major documentation the school must submit to the IB for review. In the candidate phase, schools are tasked with implementing a preliminary set of the standards and practices, receiving feedback from an IB consultant. The school then collects evidence of progress towards those standards and practices, submits the Application for authorization, and schedules a “verification” visit by the IBO. The IBO reviews the application for authorization, verifies its findings through the site visit, then awards schools commendations, recommendations and matters to be addressed based on the relevant standards and practices. Pending no matters to be addressed, the school is recommended to become an
IBMYP and is officially authorized. This will cause the school to enter an evaluation cycle in which the IBO reviews implementation progress on each standard and practice to provide feedback for the ongoing development of the program.

The lower half of the figure displays the professional learning requirements for IBMYP implementation. During the consideration phase, a head of school or other designee must attend a category one training. This lays the groundwork of what the IBMYP is and justifies reasons to pursue it. Once the school is approved to move into the candidacy phase, teachers are encouraged to attend training. At least one teacher per subject area must be trained by the IB, a minimum requirement for authorization (IBO, 2015b). While the IB encourages as many teachers to attend training as possible, the minimum standard of one per subject area carries throughout the lifetime of an IBMYP; this is represented by the “ongoing professional development” in the last arrow in the figure. Training is exceptionally important considering how “nebulous” the IBMYP is (Bunnell, 2011), and the necessary shift in pedagogy for many educators it requires (Speradino, 2010).

Ultimately, schools and school districts choose to engage in IBMYP implementation because they see value in becoming IBMYP. Speradino (2010) investigated the motives for becoming IBMYP, finding 12 major reasons schools chose to implement the program:

- The IBMYP’s “innovative program features” (p. 143), such as interdisciplinary approaches, personal project, community service requirements, etc.;
• Schools with other IBO programmes, such as the Primary Years Programme and the Diploma Programme, sought the IBMYP to connect with existing programs;
• The IBMYP matched well with the school’s current mission statement;
• The IBMYP could be used to increase international-mindedness of the school community;
• The program represents high degrees of challenge for students;
• The program generates some worldwide recognition and notoriety and “prestige” (p. 144);
• The program has clear teacher guidelines and offers professional development aligned with those guidelines;
• Doing the IBMYP presents opportunities to connect with other IBO schools;
• The IBO provides feedback on written curriculum and internal assessments;
• The program has flexibility in what content knowledge is taught and how it could be assessed;
• If desired, students in Year 5 could take external assessments and potentially receive MYP certificates of achievement; and
• The IBMYP represented a deviation from other local or national curriculum.

A follow-up survey by Wright, Lee, Tang and Chak Pong Tsui (2016) utilized the above factors alongside some of their own intuitions to expand the understanding of why schools do the IBMYP. They did so by asking IBMYP coordinators to rate the value of different factors in how strongly they influenced a school’s decision to become an IBMYP. Wright et al. found that the pedagogy encouraged by the IBMYP was the most
widely supported justification, a new entry into the list, with 88.4% of the 228 participants rating this value as important. Pedagogy here is described as “a constructivist approach, including student inquiry into significant content in real-world contexts” (Wright et al., 2016, p. 8).

Of the factors, only two are specifically aimed at teachers and their roles. Speradino (2010) cites teacher guidelines and training requirements as one of the important factors and Wright et al. (2016) adds desirable pedagogy. These factors represent potential threats to teacher motivation in the form of external regulation, drawing the perceived locus of causality of classroom practices away from the teacher and into the guidelines of the program. This shift is demanding on teachers in ways that they may be unaccustomed to. Robertson’s (2011) interviews with educators reveal some of this tension: as one interviewee ponders, “the MYP is difficult to implement, not because it hasn’t been thought through, but because it requires a lot of work, more than just in your subject. It requires lots of communication, experimentation” (p. 147). This communication and experimentation is reflective of the demands of the “guidelines” and “pedagogy,” challenging teachers to change and supporting them through training requirements.

In addition to the philosophical and pedagogical changes becoming an IBMYP may incur, implementation requires extensive documentation as well, representing a large administrative demand on program coordinators and teachers. Robertson’s (2011) interview series about perspectives on implementation expose some challenges of the journey to becoming an IBMYP. Robertson recognizes the threat that these requirements have on educators, explaining that “these mechanisms…can exert a controlling presence
in the work of coordinators and, in turn, in the work of teachers” (p. 151). The challenge of implementation is captured in this controlling presence between program coordinators and teachers, recognizing that school administrators may sometimes have to step in during implementation and make teachers embrace IBMYP implementation through compliance. This provides a problematic situation for trying to implement the IBMYP in ways that enhance autonomous motivation, and this tension is captured in Robertson’s description of what happens when teachers are not enthused about the program: “As much as they [program coordinators] sometimes ‘nagged’ and tried to ‘chase down’ non-compliant teachers, coordinators were ultimately reliant on their senior managers to call these teachers to account” (p. 152). “Calling teachers into account” may include disciplinary proceedings or downgrades on evaluations, further developing an external perceived locus of causality, diminishing the possibility of being autonomously motivated about the program.

The IBO (2015) provides a schematic and timeline for IBMYP implementation, including necessary documentation and checkpoints for progress. Speradino (2010) and Wright et al. (2016) provide some of the reasons schools choose to engage in this process, with Robertson (2011) painting a portrait of some of the tensions that arise therein. Robertson acknowledges that the beginning of implementation is characteristically challenging, yet offers hope in that “constructive discourse appears to be more powerful during and after phases of implementation, than before” (p. 155), meaning those who stick with implementation tend to have richer conversations and learning on the other side.
Literature on Self-determination Theory

Motivation is nuanced and complex, muddied by the fact that “people have not only different amounts, but also different kinds of motivation. That is, they vary not only in level of motivation (i.e., how much motivation), but also in the orientation of that motivation (i.e., what type of motivation)” (Ryan & Deci, 2000, p. 54). Deci and Ryan’s (1985) self-determination theory (SDT) is a macro-theory that explores both intrinsic and extrinsic motivations, providing a structured analysis of the multiple layers of motivation that interplay in the convoluted lives of teachers:

humans are motivationally complex. It is therefore not sufficient to talk about motivation in general to describe a person. Rather, we should refer to a collection of motivations that vary in types and levels of generality. (Vallerand, 1997, p. 276)

SDT provides the benefit of unifying the breadth of extrinsic and intrinsic motivation into one theoretical framework, exploring motivation as a spectrum. This is a different and more useful approach than how the study of motivation has been traditionally approached: “Although there may be a commonsense notion of what constitutes extrinsic and intrinsic…theoreticians have found the terms somewhat problematic” (Johnson, 1986, p. 56) due to the lack of a useful theoretical construct. This confusion made it difficult for research to build atop other research, as different investigators relied on different interpretations or theory to analyze motivations, as reported by Richardson and Watt (2014):

The absence of an agreed upon theoretical and analytical framework meant that what constituted intrinsic, altruistic, extrinsic, or other categories of motivation
had been variously operationalized, resulting in a lack of definitional precision and inconsistencies across studies, making problematic the comparison of findings from one study to another. (p. 3)

Coalescing research through the use of SDT provides a common lens through which motivation can be better understood, allowing connections across research and the proliferation of quality research.

Additionally, SDT provides a framework for the interpretation of how behavior aligns with different archetypes of motivation. The dichotomy of motivation as either extrinsic or intrinsic does not allow for understanding complex intersections of external and internal factors, unlike SDT which provides a continuum of motivation based on degrees of autonomy and perceptions of causality. Deci (1976) provides an illuminating example of the complex interplay of motivating factors and behaviors during his early work towards developing SDT:

One must keep the internal state distinct from the behavior that it motivates.

Further one must distinguish a behavior when it is intrinsically motivated from the same behavior when it is extrinsically motivated. Let us imagine a behavior – say, playing a flute. Suppose that behavior is intrinsically motivating for a person who does it often simply because she enjoys it. If someone offers to pay her for playing the flute and she agrees to play for the money, we cannot say that she is doing it because she is intrinsically motivated…to say that extrinsically rewarded behavior is a reflection of intrinsic motivation is misleading. (p. 139)

Teachers, who get paid for their work with children, make for particularly difficult individuals to assess; while they may report an intrinsic interest in teaching,
motivational theory cannot discredit the extrinsic impact of payment on their motivations. By choosing SDT and operationalizing the continuum of motivations, however, why teachers teach in the way that they do and what motivates them to do so can become clearer. Of the current theoretical frameworks, self-determination theory (SDT) provides the most applicable structure for understanding the research on teacher motivation through its provision of clear definitions and stretch (i.e., continuum) of many aspects of motivation founded on psychological bases.

Through SDT, teachers can be viewed on a spectrum of motivation, ranging from amotivated to intrinsically motivated or one of the four sub-categories of extrinsically motivated in between. The sub-categories of extrinsic motivation are unique to SDT and yet valuable for understanding organizational policy; “SDT proposes that there are varied types of extrinsic motivation, some of which do, indeed, represent impoverished forms of motivation and some of which represent active, agentic states” (Deci & Ryan, 2000, p. 55). While some educational programs or policies seek compliance and result in “impoverished forms of motivation,” better-crafted implementation, while still extrinsic, can result in “active states” of engagement and motivation from teachers.

The way in which motivation is regulated is explicitly derived through exploring the perceived locus of causality (deCharms, 1968) by the motivated party. The locus of causality relates to whereupon the impetus for behavior resides, either internally (linked with more autonomous forms of motivation) or from an external force (linked with more controlled forms of motivation). Caution must be used, however, as SDT posits that the locus of causality is more than just determining whether “I choose to do it” or “someone else is making me do it.” The different forms of extrinsic motivation depend on the
degree to which the perceived locus of causality is internal, modified by the ability to align, internalize and integrate extrinsic forces into one’s own perception of control. In this way, external factors can display a wide range on the spectrum of autonomy, an important factor in the way that program policy is made and communicated. These different forms of motivation, according to SDT, are explored below.

Rather than the common “extrinsic” versus “intrinsic” categorization of motivations, SDT posits that there is a theoretical umbrella of “controlled” and “autonomous” motivations that can be further delineated into a range of extrinsically and intrinsically determined motivation (see Figure 3). “Controlled” motivations are those that are extrinsic, including motivations that are regulated externally, have become introjected, have been identified with, or have been internalized. Deci and Ryan’s (1985) diffraction and development of external motivation as a continuum acted as a watershed moment in the understanding of motivation, providing the possibility of a universal construct for studies involving extrinsic motivation: “One cannot underestimate the theoretical contribution of Deci and Ryan with respect to the multidimensionality of extrinsic motivation. Before their contribution, researchers saw behavior in black and white, as either intrinsic or extrinsic in nature” (Vallerand, 1997, p. 282).
<table>
<thead>
<tr>
<th>Degree of Autonomous Motivation</th>
<th>Low</th>
<th>High</th>
</tr>
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<tr>
<td><strong>Regulatory Style</strong></td>
<td><strong>Amotivation</strong></td>
<td><strong>Extrinsic Motivation</strong></td>
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<td>(sub-category)</td>
<td>External</td>
<td>Introduction</td>
</tr>
<tr>
<td>Related processes</td>
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<tr>
<td>Perceived non-contingency</td>
<td>Salience of extrinsic rewards or punishments</td>
<td>Ego involvement</td>
</tr>
<tr>
<td>Low perceived competence, nonrelevance, nonintentionality</td>
<td>Compliance/Reactance</td>
<td>Focus on approval from self or others</td>
</tr>
<tr>
<td>Perceived locus of causality</td>
<td>Impersonal</td>
<td>External</td>
</tr>
<tr>
<td>Example (as a quotation)</td>
<td>“I do not see the purpose or relevance of this.”</td>
<td>“This is a requirement of my job.”</td>
</tr>
</tbody>
</table>

**Figure 3.** A taxonomy of human motivation. Adapted from “The ‘what’ and ‘why’ of goal pursuits: Human needs and the self-determination of behavior,” by Ryan & Deci, 2000, Psychological Inquiry, 11(4), 227, p. 61.
In general, controlled motivations are those that “refer to behaviors performed with a sense of pressure or compulsion” (Roth, 2014, p. 37), regardless of whether the compulsion comes from within or without. The litmus test to determine if a behavior is extrinsic is to determine if the subject is “engaged in [the behaviors] as a means to an end and not for their own sake” (Deci, 1975); any action that is not performed for its own sake is considered extrinsic. Extrinsic motivations that are regulated “externally” are linked with rewards and constraints, leading to cases in which the resulting behavior is “performed to satisfy an external demand or obtain an externally imposed reward contingency” (Ryan & Deci, 2000, p. 61) and only maintained “in the presence of the controlling person such as a parent, teacher, or employer” (Roth, 2014, p. 37). Vallerand et al. (1992) provide a simple example of externally regulated behavior: “I study the night before because my parents force me to” (p. 1006). Without the forceful constraint and active presence of the parents, the behavior of studying would subside, as the motivation towards the task was merely driven by external regulation. For a teacher in the IBMYP, this may mean demonstrating a standard and practice because it is a job requirement only. The behaviors utility is in maintenance of employment, which underscores compliance and is likely to lack creativity or authentic engagement. An IBMYP teacher whose motivation is being externally regulated may recognize that they must comply with the standard and practices because it is what is required of being an IBMYP teacher, yet the motive for the behavior is clearly outside of the self.

A more complex form of controlled motivations leads to behaviors that have been introjected, a step towards autonomy in the continuum of motivation according to SDT. Introjection occurs when “the individual begins to internalize the reasons for his or her
actions,” but “is not truly self-determined since it is limited to the internalization of past external contingencies” (Vallerand et al., 1992, p. 1006). Here we see the perceived locus of causality shift more towards the self, but its connections with external factors plays too great a role to suggest that the behavior is truly autonomous. During introjection, the individual “takes on the externally expected behaviors’ value and regulation but does not accept them as one’s own” (Roth, 2014, p. 37). This “compulsion” to behave in such a way can be ego-related and work to heighten self-esteem in one’s social context.

Vallerand et al. (1992) provide an example of introjected motivation: “I study the night before exams because that is what good students are supposed to do” (p. 1006). The compulsion to study seems internally driven, and yet this is due to the social context and pressure derived from external factors that the subject has introjected. For an IBMYP teacher, introjected regulation of motivation towards the standards and practices may acquiesce that there is a personal connection to the requirement but only insofar as the teacher needs to “look good,” maintain reputation, or to be part of the teaching team. The value placed on the IBMYP is in the context of others judgments, not one’s own perception of the program.

Another step towards autonomous motivations are those with which the participant has “identified.” Here, the behavior is “perceived as chosen by oneself” (Vallerand et al., 1992, p. 1007) due to its value and importance as perceived by the individual. Identified motivations are still a form of controlled motivation, however, as the behavior is still a “means to an end.” The following example reflects a more internal locus of causality, yet the driving force is still related to some external factor, thus controlled: “I’ve chosen to study tonight because it is something important to me.”
The subject has chosen to study, but not for its own inherent value, rather to achieve some self-selected goal. An IBMYP teacher may be motivated to perform a standard and practice as a means for a positive teacher evaluation or because it serves as an important part of being a teacher in that setting. The teacher does not experience resonance between the program and their own personal vision of teaching, yet they internally acknowledge that the program is an important aspect of being a teacher in their school and thus engage as such.

The final form of controlled motivations is the most autonomous, as these motivations have been “integrated” and hold deep connections with one’s own values, choices, and desires; in other words, integrated motivations “have been fully assimilated to the self” (Ryan & Deci, 2000, p. 62). This behavior seems very autonomous to the individual, as the “activity is experienced as deeply internalized and autonomous because it has been reciprocally assimilated with other aspects of the person’s self” (Roth, 2014, p. 37). Motivations regulated by integration are still considered controlled, however, as explained by Ryan and Deci (2000): “they [integrated behaviors] are still extrinsic because behavior motivated by integrated regulation is done for its presumed instrumental value with respect to some outcome that is separate from the behavior, even though it is volitional and valued by the self” (p. 62). Here, instrumental value describes behavior that acts as the “means to an end.” Even though the end is in fact highly desired by the individual, the behavior is not done for its own value. An example of this may be a case when a student studies desperately for the ACT to get into their “dream college.” The act of studying is highly linked with their desire to get into a college, and yet, they are not studying for the inherent pleasure of it, rather as an “instrument” to achieve a
desired outcome. For an IBMYP teacher, the program serves as a means to be a high-quality teacher in their school and “fits” with their personal vision for teaching.

Integrated regulation means that an externally generated impetus may hold personal value and merit, yet the behavior is merely a step towards some other desired outcome. Teachers may identify the value of and engage in grading to serve the greater good of providing student feedback, yet the act of grading is merely a stepping stone towards some other goal. Grading is important, but only to the extent to which it serves some personally generated desire.

Intrinsic motivation, the final category of motivation, is in fact fully autonomous and centers the perceived locus of causality within the self. Deci’s (1975) seminal work introduced the SDT concept of intrinsic motivation as “activities for which there is no apparent reward except the activity itself” (p. 23), and goes on to elaborate the connection to SDT by describing intrinsic motivation as manifested by “behaviors which a person engages in to feel competent and self-determining” (p. 61). Later works expound on the concept of intrinsic motivations and its import to human development: “This natural motivational tendency is a critical element in cognitive, social, and physical development because it is through acting on one’s inherent interests that one grows in knowledge and skills…a significant feature of human nature that affects performance, persistence, and well-being across life’s epochs” (Ryan & Deci, 2000, p. 56). This natural drive which proves so important “across life’s epochs” is psychologically based on cognitive evaluation theory (Deci, 1975; Deci & Ryan, 1985; Ryan & Deci, 2000) explaining the “why” of motivated behaviors through a connection with the human needs of autonomy, competence, and relatedness. Each of these needs plays out in the context of teaching,
providing a psychological connection between teacher motivations and broader factors. For an IBMYP educator, this final category represents motivations towards the standards and practices which result in behaviors that are performed for the sheer joy of the experience. The litmus test for intrinsic motivation would be to strip away all other related inputs, outcomes, and otherwise to examine the behavior in its purest form. After removing the influence of the IBMYP, evaluations and student outcomes, if the teacher would still perform the practice for the experience in and of itself, the behavior may very well be intrinsically motivated.

Programs which take into account the spectrum of motivation may have the ability to influence the positive growth of autonomous motivations in teachers, a concept that is currently underused. Using self-determination theory as a way of understanding motivations allows for the dissection of programs and their perceived influence on motivation. More broadly, “given the significant role of autonomous motivation in adaptation, quality of learning, quality of teaching, and students’ and teachers’ performance and well-being, the importance of this phenomenon for educators cannot be overemphasized” (Eyal & Roth, 2010, p. 267). While the IBMYP is externally driven, it is possible to implement it in such a way that its components can become integrated or internalized into the teacher’s self, leading to “the qualities that are associated with intrinsically motivated behavior” (Deci, Vallerand, Pelletier, & Ryan, 1991, p.33). SDT proves valuable for its multi-layered depth as a theory, citing a range of possible motivational categories as well as connecting motivations with need. Using SDT allows for the alignment of current research on teacher motivations, finding useful connections
and meaning-making across time and research topic. To allow for these connections, the three needs, which provide a basis for the factors to explore, are explored below.

**Cognitive evaluation theory.** Cognitive evaluation theory (CET) acts as a sub-theory of self-determination theory (SDT) to explain variations in intrinsic motivation based on three psychological needs: a) autonomy, b) competence, and c) relatedness. Deci (1975) introduced cognitive evaluation theory as an explanatory step in exploring how external, socially-based constructs or factors relate to an individual’s experience of self-determined forms of motivation (i.e., autonomous). Experiences, people or contexts that increase an individual’s feelings of autonomy, competence and relatedness stimulate more autonomous forms of motivation (i.e., intrinsic, integrated and identified), whereas factors which reduce those needs facilitate less autonomous forms of motivation (i.e., introjected, external) and amotivation (Vallerand, 1997, p. 300). In the decades following Deci’s introduction of CET, a series of laboratory experiments, described below, offered evidence of how external factors affecting the three psychological needs influence degrees of self-determined forms of motivation.

Autonomy reflects the psychological need to make choices based on one’s own desires, with it being “high when behavioral engagement corresponds with one’s values, interests, and needs” (Roth, 2014, p. 43). The importance of autonomy to motivation became clear through experimentation on the effects of external incentives, such as money and rewards, on the perceived locus of causality during free-choice tasks (method of evaluating intrinsic behavior). When external incentives are introduced into otherwise autonomous tasks, the motivation becomes more external and thus controlled: “when extrinsic awards are introduced for doing intrinsically interesting activity, people tend to
feel controlled by the rewards, prompting a shift in the perceived locus of causality for the behavior from internal to external” (Deci & Ryan, 2000, p. 234). This shift ultimately reduces intrinsic motivations. Autonomy is additionally undermined by threats, surveillance, evaluation, and deadlines, “presumably because they also prompted a shift toward a more external perceived locus of causality” (Deci & Ryan, 2000, p. 234). The role of autonomy in CET has been experimentally confirmed by Reeve & Deci (1996) when they manipulated the emphasis of winning in gameplay. When fun is emphasized, participants chose to play the game more and displayed more self-determined forms of motivation. Conversely, when winning was emphasized, representing an externally perceived locus of causality and pressure from the researcher, participants played less during subsequent free-play opportunities and were found to have less self-determined forms of motivation.

Competence represents another critical need within CET; when people feel competent at a task they tend to increase in autonomous motivation towards the completion of said task. When a lack of competence is felt, autonomous motivation towards the behavior diminishes. This relationship is based on elaborate research on the effects of positive and negative reinforcement on the desire to complete tasks (Deci & Ryan, 2000). The balance between autonomy and competence is tenuous, however, as positive feedback can enhance competence and yet undermine autonomy. Negative feedback reduces feeling of competence which predicts a reduction in autonomous motivation towards tasks. The role of competence in CET and SDT has been experimentally verified in many studies through manipulation of feedback on tasks (Harackiewicz & Larson, 1986; Vallerand & Reid, 1984; Vallerand & Reid, 1988;
Positive feedback, which increases perceptions of competence, increases self-determined forms of motivation, whereas negative feedback, which conveys a lack of competence, reduces self-determined forms of motivation. One mediating factor in the balance between competence and autonomy is the source of feedback, however, illuminating the importance of relatedness, the third psychological “need” (Ryan, 1982).

Some behaviors are stimulated through relationships with others and the perception of their values, thus relatedness is viewed as a critical need for understanding motivation;

…because extrinsically motivated behaviors are not inherently interesting and thus must initially be externally prompted, the primary reason people are likely to be willing to do the behaviors is that they are valued by significant others to whom they feel (or would like to feel) connected, whether that be a family, a peer group, or a society. (Deci & Ryan, 2000, p. 64)

When an individual is feeling highly related to others that initiate behaviors, the individual may yet perceive a more internal locus of causality even if they feel low control towards the task. In this case, relatedness mediates the degree of autonomy towards extrinsic motivation based upon connections with others. The need of relatedness was experimentally confirmed by Blanchard and Vallerand (1996) by measuring perceptions of team cohesion and using that as a factor to predict self-determined motivations in relations to tasks. Ryan’s (1982) work illuminates the intersection of relatedness with the other needs, particularly that perceptions of relatedness exacerbate the perceptions of competence and autonomy. This could be a powerful factor in
considering motivation towards policy or program implementation and reform; teachers who feel highly related to leaders, society and/or their school may approach things with more autonomous motivation simply because of connectedness, another research area worthy of further exploration.

Cognitive evaluation theory underpins self-determination theory, offering an explanation about why individuals display varying degrees of autonomous motivation based on the three psychological needs. The first need, autonomy, represents an individual’s perceptions of choice and causality in regards to an outcome. Autonomy asks the self “do I have the ability to choose what happens?” The second need, competence, represents an individual’s knowledge and efficacy towards a behavior or outcome. Competence asks the self “do I have the knowledge to control what happens?” The third need, relatedness, represents the influence of others on an individual’s perceptions about and desires towards a task. Relatedness asks the self “are others with whom I admire motivated towards this task?” The three needs enable feelings of self-determination and autonomous motivation; as feelings of autonomy, competence and relatedness increase, as does autonomous motivation.

**Literature on Teacher Motivation**

Teacher autonomous motivation matters for a variety of reasons. Teachers that are autonomously motivated support the autonomy of students (Deci, Vallerand, Pelletier, & Ryan, 1991), have more motivated students (Atkinson, 2010; Daniels, 2016; Wild, Enzle & Hawkins, 1992), experience reductions in burn-out (Anderson & Iwanicki, 1984; Eyal & Roth, 2010), and may even predict higher achievement levels on student standardized tests (Hayden, 2011). Despite these rich findings about the importance of teacher
motivation, research to examine factors related to the motivations of teachers is rare; “even though there are thousands of publications about motivation, few have addressed the motivation of teachers, with the exception of writings about teachers’ sense of efficacy or teachers’ job satisfaction” (Hoy, 2008, p. 492). A much-ignored piece of this discussion is the possible concatenation of environmental or school-level factors, including school-based programs such as the IBMYP, which may be related to teacher motivation in a way that is distinctly different from teacher-level factors. In addition to elective programs and other self-selected environmental factors, American schools are now wrestling with National and State-wide pushes for high-stakes testing, evaluation reform, funding challenges, imposed standards (on top of the IBMYP) and other factors have impact on teachers and their motivations to teach (Retelsdorf, Köller, & Möller, 2011). To what extent and how is yet to be understood.

Part of the challenge of understanding teacher motivation is universally defining it, further complicated by its various definitions across the literature. At its core, motivation in any form is derived from “when the person believes that engaging in the behavior will result in some desired experience or outcome” (Eyal & Roth, 2010, p. 258), a definition which encompasses both intrinsic and extrinsic motivations. Conversely, amotivation is the “state of lacking an intention to act…behavior lacks intentionality and a sense of personal causation. Amotivation results from not valuing an activity, not feeling competent to do it, or not believing it will yield a desired outcome” (Ryan & Deci, 2000, p. 61).
It is important to note that teachers may comply with educational policy and yet be entrenched in an amotivated state, leading them to abide routinely or compliantly to demands but without motivation, endurance, or creativity.

Literature that does not use self-determination theory (SDT) largely depicts motivation as either intrinsic or extrinsic. Recepoğlu (2013) provides additional insight into intrinsic motivation by describing it as “an incentive that is shaped by person’s interest for a duty or a job he/she is going to do, his/her curiosity or the satisfaction he/she wants to have” (p. 105). Visser-Wijnveen, Stes, and Van Petegem (2012) elucidate that intrinsic motivation is an umbrella term that also includes the concepts of “efficacy, interest and effort” (p. 422). Conversely, “extrinsic motivation refers to meeting the needs indirectly by money or such things…therefore, extrinsic motivation is caused by prize and punishment” (Recepoğlu, 2013, p. 105). For a teacher, these extrinsic factors may include salary, holidays, and school schedules which allow or provide for the individual to accomplish other life goals (e.g. raise a family or take vacation). These generalized definitions fall within the scope of SDT, allowing connections between literature on generic teacher motivation and SDT where possible. Literature specific to teacher motivation is examined below, centered on pre-service teacher motivation, outcomes related to teacher motivation, and predictive factors of teacher motivation.

**Pre-service teacher motivation.** The role of motivation in teaching is broad in scope, beginning with its relationship with people who choose to become a teacher. Pre-service teachers largely cite intrinsic motivation (the highest form of autonomous motivation) as the primary source for their career choice, recognizing the importance of “enjoying” their work in and of itself and perceived capability (i.e., competence) (Konig
& Rothland, 2012). While described as intrinsic in the study, the opportunity to influence others and the potential of job security are also highly valued by pre-service teachers (Konig & Rothland, 2012) yet are extrinsic in nature when considering SDT. This aggregation of extrinsic and intrinsic factors may explain why Konig and Rothland discovered that the amount of intrinsic motivation does not relate to pre-service teacher knowledge on how to teach, contradicting previous research. In this way, Konig and Rothland (2012) represent a dissenting voice on the importance of intrinsic motivation in people who want to become teachers: “In general we found little empirical evidence for direct effects of motivations on the learning gain of pre-service teachers” (p. 306). With extrinsic factors wrapped up in the predictive variables, however, these results are difficult to assess. Striking, however, was the discovery that those who reported low motivation towards teaching in general, regardless of the categorization of intrinsic or extrinsic factors, overcame any negative impact on their knowledge of how to teach at the start of their formal preparation program:

Choosing teaching as a fallback career was negatively correlated with general pedagogical knowledge at the first, but not at the second occasion of measurement. This could provide important relevant information that fallback career motivations do not have an enduring negative effect. (p. 306)

This finding suggests that current teachers, even those who exhibit low motivation towards education and find themselves as teachers through “Plan B,” at least know as much about pedagogy as those who have innate passion and desire to be teachers. While “intrinsically motivated pre-service teachers reported higher pedagogical competence than their less intrinsically motivated peers” (Konig & Rothland, 2012, p. 291), this self-
reported perception is not accurate and should not be an indicator of a teacher’s knowledge of classroom methodology. This finding reveals the dialectical nature of autonomous motivation and perceived competence, even if the competence in comparison with others is not higher in actuality.

An overarching theme of the research in this realm states that pre-service teachers undergo passive and active dissuasion to become teachers, and yet they persist in pursuing the career depending on the influences of motivation: “Participants reported relatively strong experiences of social dissuasion from teaching. For whatever reason, others had advised them not to go into teaching” (Richardson, Karabenick & Watt, 2006, p. 51). Motivation provides some sort of buffering effect for overcoming this social dissuasion, and there is evidence that this resilience is derived overwhelmingly from intrinsic factors. Watt and Richardson (2008) found that pre-service educators only rarely mention extrinsic factors for becoming teachers, and those who did were “choosing teaching as a ‘fallback’ career” (p. 410). In light of Konig and Rothland’s (2012) findings, we may presume that even those who do mention extrinsic factors for becoming a teacher may have similar general pedagogical knowledge to those who enter the field for purely intrinsic reasons.

The motivations of pre-service teachers may possibly be structurally mediated, as suggested by the extrinsic factors drawing people into teaching in Hong Kong, China. Hong Kong strictly regulates teacher training to control supply and demand and ultimately pays teachers a similar wage to other professionals. This degree of regulation and pay offers teachers a certain degree of prestige, making salient extrinsic pull factors into teaching. Teaching has become a desirable and competitive career, and may be
related to the atypical motivations for teaching for its pre-service teachers (Bick, 2012). Unlike nearly all other research on pre-service teacher motivation, Bick (2012) describes how these clearly extrinsic factors are drawing people into a career in a unique way, connecting the reported motivations with the external policies of the Hong Kong education bureau. Furthermore, there was a significant subset of participants that were pragmatic, looking at the benefits of holidays, job stability, time for family, and ultimately “teaching as a safe haven” when compared with other “cutthroat and demanding” careers (p. 313). Despite this unique display of extrinsically driven responses, pre-service teachers still acknowledged that they value intrinsic motivations for the career, professing an interest in “influencing the next generation” and “enjoying being with kids” (Bick, 2012, p. 311). SDT would suggest that these externally-driven teachers would be more compliant and less autonomous in terms of teaching, yet differences in culture may confound this conclusion.

Other research has taken a more nuanced, longitudinal view of extrinsic versus intrinsic motivation in pre-service teachers. Regardless of the original motivations of pre-service teachers, extrinsic factors may become a greater priority as teachers continue their careers: “Research stresses that the best teachers stay in teaching because of intrinsic rewards, although they may be forced to leave because of poor salaries or working conditions” (Johnson, 1986, p. 73). Johnson (1986) elaborates that as teachers further their career, demands of family and desires for increased income and wealth become more prominent amongst the more idealized visions of intrinsic motivation that brought educators into the field. Johnson’s research provides a starting point to explore the evolution of motivation of a teacher’s career lifetime and the fluidity of motivation under
SDT, yet “it remains an open, although very important, research question, whether extrinsic motivations push aside previous intrinsic ones” (Konig & Rothland, 2012, p. 307). This potential tension between internal and external motivational pressures influences teacher retention, job satisfaction, and may very well intersect with the way educators engage with externalized programs with high demands such as the IB Middle Years Programme.

**Outcomes of teacher motivation.** A teacher’s motivation influences student achievement and interest in learning, outcomes of deep import. Teachers who are intrinsically motivated utilize high degrees of autonomy-supportive behavior and strategies, resulting in students who are, in turn, intrinsically motivated to learn (Pelletier, Séguin-Lévesque, & Legault, 2002). Autonomous motivation is therefore synergistic and exhibits a positive feedback loop; intrinsically motivated teachers are predicted to have students who are more intrinsically motivated, and perceptions of intrinsically motivated students stimulates more intrinsic motivation on the part of the educator (Pelletier & Vallerand, 1996). This loop is at risk of being broken when interfered with external pressures such as IBMYP standards and practices, leading educators to perform in ways that are antithetical to the goals of the program: “pressures from schools, communities, and society…can lead teachers to be more controlling and thus can be counterproductive for the goals of conceptual understanding and personal growth” (Deci, Vallerand, Pelletier, Ryan, 1991, p. 341). To the contrary, Deci et al. (1991) make the case that when teachers build intrinsic motivation in students through autonomy-supportive strategies, students are “more likely to retain their natural curiosity (their intrinsic motivation for learning) and to develop autonomous forms of self-regulation through the process of
internalization and integration.” (p.342). Conceptual understanding, personal growth, curiosity and self-regulation are hallmarks of the IBMYP, yet mandating their implementation may very well undermine the desired outcomes.

This student-teacher motivational relationship has been further confirmed using self-reported survey data through an inquiry into teachers’ and students’ perceptions of their own motivations without causal links; teachers that think of themselves as highly motivated are predicted to have students that perceive themselves as highly motivated and vice versa, without consideration to the types or forms of motivation. Atkinson (2010) analyzed survey data to find that “a positive link between pupil motivation and teacher motivation” (p. 55) was formed regardless of curriculum design or content area. Atkinson did not take into account whether the motivation was autonomous or controlled during the survey, but the corollary relationship between teacher and student motivation (in whatever form that is) is meaningful in understanding to understanding how teacher motivation relates other aspects of school.

In an attempt to put causal links to the relationships between teacher and student autonomous motivation, Wild, Enzle, and Hawkins (1992) performed a controlled experiment through an elegant setup contrasting student perceptions of a teacher’s motivation during piano lessons. In this controlled setting, Wild, Enzle, and Hawkins (1992) performed several trials between two groups, one in which students observed their piano teacher being paid for their service and one in which the issue of payment never arose. Other than the payment (an explicit factor of extrinsic motivation for the educator), the teacher and lesson were the same in each trial for each group. During the lesson, students were observed during an open-ended “free-play” session, followed by a
questionnaire to evaluate their lesson and teacher. When the two groups were compared, students of the “paid” teacher reported that their teacher displayed less interest in the lesson, less innovation and less spontaneity than the unpaid teacher, despite the fact that the teacher and lesson were the same between groups. Conversely, when the students of the unpaid teacher “became aware that their teacher was intrinsically motivated [unpaid], the teacher became an important source of information about exactly how interesting the activity was likely to be” (p. 25). This perception of more self-determined motivation mattered to students’ academic engagement; students of the intrinsically motivated teacher reported wanting to continue lessons in the future and initiated creation, experimentation and continued-learning during the free-play period, suggesting that they too developed more self-determined motivation for the task. Students of the paid teacher cited less interest in future lessons and did not initiate continued learning during the free-play period. These results are highly relevant in the role teacher motivation plays on the IB’s mission to create students who are “lifelong learners.”

While Deci, Vallerand, Pelletier, and Ryan (1991) found that “teachers’ behavior, specifically, the degree to which they are autonomy supportive versus controlling, has an important effect on students’ motivation and self-determination” (p. 340), the piano experiment suggests that merely a students’ perception of their teacher can imitate outcomes of autonomy-supportive instruction even if the lesson itself is identical to those who perceive their teacher’s motivation as controlled. The latter students may then judge their teacher as less innovative and creative, and are ultimately less interested in continuing learning. In turn, this reduction in autonomous motivation predicts increases
in teacher burnout and the development of students who are less intrinsically motivated to learn.

   Something as obvious as an external transaction of money is not necessary for students to generate ideas about how intrinsically or extrinsically motivated their teachers are or to have the positive outcomes ascribed to intrinsic educators. Subtler signals are given through conversational behaviors and interpersonal style, both subject to influence from school-based factors (Reeve, Bolt & Cai, 1999). As more autonomously motivated teachers tend to be more autonomy-supportive (Eyal & Roth, 2011), we can expect more autonomously motivated teachers to display a concatenation of diverse outcomes: quantitatively more listening to students, giving more control of learning materials to students, more resistance to giving away answers, more verbal and visual support of students own intrinsic motivations, exhibition of fewer directives, more questions about what students want to do, higher responses to student-generated questions, and the provision of more statements that elicit multiple perspectives (Reeve et al, 1999, p. 542). These results give prelude to the IB’s mission (IBO, 2016b) of developing students who experience inquiry, are active learners, are challenged by rigor and value differences.

   Student outcomes notwithstanding, burnout oftentimes takes its toll once teachers are entrenched in their profession. Burnout “refers to the association of teaching with feelings of exhaustion, lack of energy, and depletion of mental resources,” ultimately the “opposite of personal accomplishment” (Eyal & Roth, 2010, p. 262). Burnout is accompanied by the development of negative, cynical attitudes toward students (i.e., dehumanization and depersonalization) and the tendency to evaluate oneself negatively, “particularly in…regard to working with students” (Anderson & Iwanicki, 1984, p. 110).
Fortunately, more self-determined forms of motivation provide a buffer against burnout, increasing teacher retention and the psychological well-being of educators. While the causal relationship between autonomous motivation and burnout is unknown, in essence “being autonomously motivated (or self-determined) not only leads a person to generate greater efforts, but also to an experience of vitality and energy, which are the opposite of feeling drained and exhausted” (Eyal & Roth, 2010, p.262).

While negative experiences and setbacks are bound to occur in the professional lifetime of an educator, teachers that display autonomous motivation tolerate those experiences and are less likely to have “feelings of burnout and loss of vitality” (Eyal & Roth, 2010, p. 263). Conversely, extrinsically-generated motivations predict increases in burnout (Roth et al., 2007). Teachers who are motivated to teach due to its perceived ease are most likely to suffer burnout early in career and leave teaching, while those with high autonomous motivations and self-efficacy for subject-specific content predicts continued resilience against burnout (Reichl, Wach, Spinath, Brunken & Karbach, 2014).

**Factors related to teacher motivation.** The literature identifies both school-based and teacher-based factors which predict changes in levels of teacher’s motivation. Across myriad factors, changes in the level and type of motivation can be predicted, suggesting that the purposeful manipulation of those factors could result in differences in motivation. If autonomous motivation could be enhanced, the positive outcomes discussed previously (e.g., student achievement, student motivation, burnout-reduction) may be enabled. School-level factors that have been investigated in regards to teacher motivation are first explored, followed by teacher-level factors.
Geography has been discounted as a predictive factor of teacher motivation. When Mertler (2001) first investigated the relationship between school location and teachers’ evaluation of their own and others motivation, he found no differences in either self-reports of motivation or in reports of peers’ motivational disposition. Interestingly, when Mertler (2002) returned to the research by using the same survey on a larger sample he discovered a contradiction in suburban schools. Although the self-report of motivation remained the same, teachers in suburban environments perceived their colleagues as less motivated than peers at urban and rural schools. While “suburban teachers reported knowing or working with significantly more unmotivated teachers than did teachers in rural or urban settings,” (Mertler, 2002, p. 50), the actual survey data suggests that these perceptions are incorrect.

Unlike geographic location of the school, Griffin (2010) examined a slew of controllable, extrinsic factors and their relationship with teacher motivation. Positive relationships between teacher and principal or other authority positions were rated by teachers as the most highly motivating factor, suggesting that administration holds a lot of sway for the motivational tone of the school. What is unclear is what about those relationships serves to motivate educators, just that “relationships” do indeed motivate teachers. Additionally, Griffin discovered that having opportunities to advance at the school was highly motivating, representing some mix of both intrinsic desire and extrinsic reward. This advancement may include opportunities for positions higher at the school, leadership experiences or options to specialize, providing an extrinsic outlet for an intrinsic desire to advance. This indicates that options for upward mobility may be a motivating source for some teachers, presenting an opportunity for schools to create
teacher-leaderships positions that can increase teacher motivation. Griffin (2010) directly addresses the everlasting question about monetary motivators, but suggests that the degree to which financial incentives motivate teachers is based on geography, gender, and age: “Salary was reported to serve as a more important motivator for teachers in The Bahamas, male teachers, and younger teachers” (p. 68). This contradicts findings in the pre-service research which suggests that newer teachers, primarily younger individuals, value intrinsic motivators much more highly than extrinsic ones (Konig & Rothlan, 2012) and that extrinsic factors become more important with age (Johnson, 1986).

Diamantes (2004) research adds complexity to Griffin’s (2010) findings regarding the role of administrative relationships in teacher motivation. When surveying both teacher motivation and principals’ perception of teacher motivations, Diamantes found that there is oftentimes a mismatch between the two. This suggests that how principals view their relationships with teachers may differ from how teachers view them, and that principals’ assumptions about the shared values surrounding motivation may not be the same. Ironically, while principals predicted that teachers would find involvement in decision-making and freedom to choose curriculum topics as highly motivating, these factors were the rated as low motivators in comparison with “good pay” and “good working conditions” (p. 70). The pay in particular is surprising in light of the aforementioned research, as is the contradiction between “decision-making” and the motivation of leadership positions (Griffin, 2010). Diamantes’ survey did not distinguish between extrinsic and intrinsic motivators, however, in construction or analysis, and an in-depth description of the sample was not discussed. Perhaps the lack of clarity between extrinsic and intrinsic motivation clouded the ability for teachers and principals to
coalesce, and further research may improve the understanding of how principal relationships and diverse perspectives relate to teacher motivation. While generalization of the study is difficult, the conclusion that the perceptions of motivating factors do not always match reality should be noted. Diamantes offers further confusion towards the role of extrinsic factors in teachers’ lives, contradicting research that suggests teachers are overwhelmingly intrinsically oriented.

Klassen, Chong, Huan, Wong, Kates, and Hannok (2008) offer insight into factors that elicit both individual and group motivation. Klassen et al. used a questionnaire to evaluate teacher motivation in two different cultural contexts (Canada and Singapore), finding in both that “the most commonly noted sources of individual motivation were encouragement from administrators and colleagues…past experience…and feedback from students” (p. 1928). When Klassen et al. assessed for group motivations however, differences arose:

…collective motivation plays a stronger role in East Asian cultural settings, where people may rely more heavily on group-oriented motivation beliefs, like collective efficacy. Individualist cultures, of which Canada is an example, tend to emphasize independence, “I” consciousness, and individual functioning. (Klassen et al., 2008, p.1931)

When asked what contributed to the group motivation, teachers from both countries reported that it “was built by administrative support…and student performance on exams” (p. 1928), yet the value attributed to the group motivation and the quality of the group motivation was different, Singapore putting much more stock in the group aspect of motivation. Both the Eastern and Western teachers converged on factors increasing
individual motivation (encouragement, past experience and feedback), yet differed in regards to the value placed group intrinsic motivation. Klassen et al. (2008) questions whether the apparent differences in motivations are true differences or whether it is simply variance based on survey interpretation and responses “that may not reflect meaningful cross-cultural differences” (p. 1932). It is debatable whether the participants were responding as they truly felt or if there were cultural pressures and differences exposed in their responses. Regardless, Klassen et al. (2008) infer from these results that positive school climate is another factor that correlates positively with motivation, and that administrative support and whole-school performance are controllable factors contributing it to.

It is of no surprise, in light of self-determination theory (SDT), that principal leadership style and the way that he/she enacts policy are of great import when considering the motivations of teachers under his/her stead. Principals who are “autonomy supportive” activate SDT’s theorized basis of autonomy as a need (Eyal & Roth, 2011). When teachers feel autonomous, they perceive the locus of causality within themselves, directing their behavior in a way that is highly motivated and engaging. The most autonomy-supportive principals generally employ transformational leadership, working to “enlist and motivate followers to identify with the leader and to develop an affinity for collective goals and visions” (Eyal & Roth, 2011, p. 257). These leaders “articulate a clear vision, serve as a model, and provide attention and consideration to followers…providing meaning and challenge, acting enthusiastically, and supporting team spirit” (Eyal & Roth, 2011, p. 257). In this way, despite the development of the vision by the principal (an external factor), teachers can be more autonomously motivated
as they either integrate or identify with institutional goals, shifting the locus of causality unto themselves and becoming more self-determined. Vision-building continues the development of autonomous motivation through its intersection with the need of relatedness, catalyzing cohesion between faculty as they work toward a common future as it “reinforces the personal and social identification of followers within the organization…thus increases collective cohesion” (Thoonen, 2011, p. 508). This cohesion through relatedness enhances autonomous motivation to engage in teaching and teaching well, but Eyal and Roth (2011) caution that if the vision is authoritarian, unattainable or not authentic it will fail to reverberate with teachers or allow for the integration or identification of the collective force. Unattainable visions are particularly detrimental in cultivating autonomous motivations as they decrease the sense of competence, one of the three needs undergirding more autonomous motivations. Alternatively, a powerful vision can “inspire followers to sacrifice their own interests for the sake of the organization” (Eyal & Roth, 2011, p. 261) as the perceived locus of causality can be more autonomous than when imposed on the educator.

To develop and implement the vision in an autonomy-supportive way requires principal leadership that “represents an attempt to understand, recognize, and satisfy followers’ concerns and needs while treating each follower uniquely” (Thoonen, 2011, p. 508). This valuing of the individual teacher and attempt to understand their viewpoint decrease the sense of an external locus of causality and make teachers feel related with the principal and potentially competent. These two needs for autonomous motivation are fed as the principal recognizes the thoughts and beliefs of the teacher, again allowing for their internalizing of the locus of causality. Competence can further be recognized
through a transformational leader’s intellectual stimulation and tendency to push teachers to “question their own beliefs, assumptions, and values and enhance teachers’ abilities to solve individual, group and organizational problems” (Thoonen, 2011, p. 508). The principal conveys the belief that teachers can develop solutions to problems largely on their own, keying into the needs of autonomy and competence. Additionally, Davis and Wilson (2000) found that principals that display empowering behaviors (i.e., engaging teachers in organizational policy and goal decision-making) are presumed to enhance the autonomy of teachers and thus autonomous motivation. Davis and Wilson (2000) evaluated Principals’ Empowerment Behavior (PEB) and found that it was able to explain 14% of variance in teacher motivation, which in turn predicted 28% of the variance in job satisfaction and job stress. Overall, however, PEB alone did not predict job satisfaction and stress, suggesting that teacher motivation may be acting as a mediator between principal behaviors and teacher job satisfaction.

As opposed to transformative leadership, transactional or monitoring leadership is “based on rewards for compliance” (Eyal & Roth, 2011, p. 257). These leaders retain tight logistical control, behave in “micromanaging” ways, and do not expect teachers to think innovatively or develop solutions to organizational issues of their own. In this way, transactional leadership undermines autonomous motivation by reducing feelings of competence, undermining relatedness, and decreasing autonomy by making clear that the locus of causality is external (i.e., the principal). Here, principals “drive teachers to act out of extrinsic motivations, which was found to predict shallow and rigid behaviors as opposed to autonomous motivation, which was found to predict flexible and profound behaviors” (Eyal & Roth, 2011, p. 267). This leadership may develop a context in which
teachers “follow the rules,” but do so without autonomous motivation, making it near impossible for teachers to internalize or integrate external regulations set by the organization. Furthermore, principals that evaluate teachers by student performance tend to develop a performance-goal culture in schools (Ciani, Summers, & Easter, 2008, p. 536). The outcome of this on teacher motivation is that “teachers may tend to feel less community, perceive less self-efficacy for using a variety of instructional strategies, and may be more likely to use performance-oriented instructional practices,” all of which is related to “lower reports of motivation” (p. 551).

Ciani, Summers, and Easter’s (2008) factors may have connections with SDT in the realm of needs-based competency and relatedness. Firstly, a reduction in self-efficacy through the preeminence of the principal may relate to a teacher’s perceived reduction in competence and a more external locus of causality. Relatedness also takes a twofold blow as suggested by the reduction in community as reflected by individualism and competition, which in turn suggests a lack of shared-visions or the integration or internalization of external goals. In these cases, autonomous motivation is tenuous, and a focus on extrinsic motivation and the external regulation of behavior is evident.

Deci, Vallerand, Pelletier, and Ryan (1991) theoretically explain how this works in their discussion on the importance of internalization of external contingencies for the more autonomous execution of policy: “people are inherently motivated (out of the three basic needs) to internalize and integrate within themselves the regulation of uninteresting activities that are useful for effective functioning in the social world” (p.328), but that the “extent to which the process of internalization and integration proceeds effectively is a function of the social context” (p. 329). This suggests that teachers may be willing to
internalize policies or programs, such as curriculum standards or the IBMYP, but that the social context must be conducive in order to do so. Building a social context that is favorable towards teaching and teachers may be viewed as a prerequisite for effective policy-making and reform, but that is not what currently exists: “the rhetoric from Washington continues to advocate greater accountability, greater discipline, and increased use of standardized testing, all of which are means of exerting greater pressure and control” (Deci, Vallerand, Pelletier, & Ryan, 1991, p. 342). This pressure and control are not the social context to aid integration or internalization of reforms.

Conversely, Firestone’s (2014) work suggests that reform which includes accountability policies cannot be integrated and internalized with teachers’ autonomous motivations because of their inherently discrepant nature with why teachers teach; “state accountability tests used in many extrinsic incentive programs are not optimal tools to give teachers feedback that enhances their sense of competence…it is hard to design central assessments that monitor the system, distribute extrinsic incentives, and create intrinsic ones” (p. 104). In this case, Firestone (2014) argues that one accountability policy cannot have it all, suggesting that the evaluation of teachers based on student tests scores is mutually exclusive with enhancing autonomous motivations. Firestone’s assertions connect with SDT; if teachers work harder to help students achieve on standardized tests and thus be evaluated favorably, their teaching becomes instrumental, simply a means-to-an-end on the quest for higher ratings. This instrumental view of teaching locks motivations into the controlled spectrum, bringing with it the lack of flexibility and care autonomous motivation can cultivate. Evaluations such as these may
further give way to the development of cultures of performance, another organizational context which drains autonomous motivations of teachers at the school level.

Ascher (1991) builds on these sentiments by postulating that the greatest motivator for teachers is the districts’ commitment to minimizing bureaucracy (externally perceived locus of causality) while allowing for genuine collaboration and choice (internally perceived locus of causality). Teachers must have the time to work together to develop quality lessons, which provides further motivation from the success of working with the students. When teachers are bound by bureaucracy, collaborative planning time does not motivate, as it is a forced agenda from the district, not an organic development from the teachers. Ascher does not suggest that teachers be given free-time to increase their autonomous motivation, but rather makes a clear argument that districts have the onus of supporting the collaboration of teachers to work on innovative strategies with time. The traditional bureaucracy of many districts supersedes these opportunities by enforcing mandatory meetings to elicit collaboration on strict standards, pacing, and methodology, reflective of the high administrative demands of the IBMYP. Given time, a goal, and a smallness of scale, however, teachers tend to work together to develop new, functional lessons related to their increased autonomous motivation. In this way, Ascher’s conclusions provide explicit support for cultivating a school climate built on the three needs in cognitive evaluation theory: autonomy, relatedness and competency.

Additional school-level factors that relate to teacher motivation were uncovered through Pelletier, Séguin-Lévesque, and Legault’s (2002) work. Pelletier, Séguin-Lévesque, and Legault thoughtfully examined factors, or what they call “pressures,” from both above and below. In other words, how do the actions and beliefs of the school and
administration (above) and the actions and beliefs of the students (below) relate to
differences in teacher motivation and the way they support autonomy in the classroom?
Results show that teachers’ perceptions of constraints from above had a significant
decrease on teacher’s self-determination and motivation for work. Examples of such
constraints from above included teacher performance standards, evaluations and its
connection with student performance, conformation to colleagues’ teaching practices,
mandated involvement with school-based activities, and limitations on controlling the
scope and sequence of curriculum (p. 193). These results from the field offered further
support to Deci, Spiegel, Ryan, Koestner, and Kauffman’s (1982) experimental study
which found similar results. In Deci et al.’s controlled setting, a school “superior”
pressured (controlled) half of a randomly assigned group of teachers by reminding them
that they had a responsibility to make sure that their students reached the highest
standards possible. The other half of the teachers were not told anything regarding
expectations. The controlled teachers were significantly more controlling of their
“students” in the study, both in language and methods, whereas the other half was not.
Subsequently, the controlled students performed less well on the problem-solving tasks,
both in the teacher’s presence and afterwards in a delayed follow-up trial. Fink,
Boggiano, & Barrett (1990) replicated Deci et al.’s (1982) study with supporting results,
solidifying the understanding that in both field and laboratory settings, teachers who
experience controlling superiors in turn control students, resulting in poorer performance
on problem-solving tasks for an extended time.

Pelletier, Séguin-Lévesque, and Legault’s (2002) study also revealed that
teachers’ perceptions of students’ self-determination towards school had a significantly
positive effect on teacher’s self-determination towards work, thus resulting in more highly motivated behavior and autonomy support. The prevalence of students’ extrinsic motivations for learning also predicted reductions in teacher autonomous motivations, whereas teachers who perceived their students as more intrinsically motivated towards school appeared more intrinsically motivated themselves. These findings reaffirmed previous discoveries in which a teacher’s mere perception of a student’s motivation affected his/her actions (Pelletier & Vallerand, 1989). In this controlled experiment, teachers were told that a randomly assigned group of students were either intrinsically or extrinsically motivated to solve a puzzle. From this one bit of information, teachers behaved in drastically different ways. Teacher-participants of the “extrinsically motivated” students were very controlling as they instructed the students how to solve the puzzle, in turn causing the students to display impoverished forms of autonomous motivation. Conversely, the teacher-participants who were informed that the students were intrinsically motivated treated them with much more autonomy-supportive language and methods, increasing the student’s autonomous motivation towards completing the puzzle. This work shows the degree to which autonomous motivation may be affected by the Pygmalion (or Rosenthal) effect, displaying both predictive factors towards intrinsic motivation as well as its outcomes.

More modern studies on teacher motivation expand our knowledge about the “pressures from above” Pelletier, Séguin-Lévesque, and Legault (2002) described. Taylor (2008) expounded on this research by adding that time constraints on work, the overt need to conform to authoritative demands, and teacher evaluation measures based on student performance all predict a reduction in teacher autonomous motivation as well.
These contextual pressures reach into the pedagogical practices of teachers and how they educate children, with the decrease in autonomous motivations of the teacher influencing a reduction in autonomous motivations to learn on the part of students. As noted above, we can therefore predict a more controlling learning environment for students and possible reductions in performance. Building further, Roth (2014) synthesizes these findings and reiterates that 

…. the more teachers perceive pressure from above (e.g. they have to comply with a curriculum or with performance standards) and pressures from below (i.e., they perceive their students to be non self-determined), the less they are self-determined towards teaching and the less they are autonomy-supportive of students. (Roth, 2014, p. 45)

Roth was acting to refocus discussion on the infringements to teacher autonomous motivation in the modern context of educational demands. These demands now include extensive performance evaluations tied to both teacher observations and student performance on standardized tests, reiterating that since the pressures on teachers have only increased in the last few decades.

Schools that evaluate teachers by student performance on tests tend to develop a performance-goal culture in schools (Ciani, Summers, & Easter, 2008, p. 536), shifting the perceived locus of causality towards more external orientations. The outcome of this on teacher motivation is that “teachers may tend to feel less community, perceive less self-efficacy for using a variety of instructional strategies, and may be more likely to use performance-oriented instructional practices,” all of which is related to “lower reports of motivation” (Ciani et al., 2008, p. 551). Roth (2014) and Pelletier, Séguin-Lévesque, and
Legault (2002) would inform us that this will malign student’s intrinsic motivation as they experience more controlling teachers, and ironically, are likely to display poorer test results, anathema to the intended affect.

The literature provides a nominal amount of research on discrete teacher-level factors that relate to the degrees of autonomous motivation of educators. Cognitive evaluation theory suggests that relevant factors will connect with the human needs that facilitate autonomous motivation, such as a teacher’s training (competence), a teacher’s ability to choose what and how they teach (autonomy), and the relationships one has with colleagues (relatedness). Pre-existing knowledge on teacher-level factors is described below with connections to self-determination and cognitive evaluation theory as appropriate.

The “motivation of teachers in primary and secondary schools changes according to teachers' ages” (Recepoğlu, 2013, p. 107), with two peaks in motivation at the beginning and the end of their careers. The beginners are easy to explain according to Recepoğlu (2013), as the high motivation is an effect of “the enthusiasm of starting a new career in teaching profession,” but that “the more they get older, their motivation decrease” (p. 109). To explain the jump in motivation at the end of the career, Recepoğlu suggests that the older generation is thinking nostalgically as they look back on their career and prepare for retirement. That said, the study does not distinguish between types of motivation, simply individual’s self-perception of how motivated they feel towards different aspects of teaching. It is possible, taking the work of Johnson (1986) into account, that the second bump Recepoğlu identified was a surge of extrinsic motivation whereas the initial captured the more intrinsic motives of pre-service teaching.
A teacher’s level of education (e.g., bachelor’s versus master’s degree) and grade-level taught does not seem to matter for overall motivation. Recepoğlu (2013) reports that “teachers’ level of education attainment does not predict motivation” (p. 108), contradictory to what would be presumed with increases in competence. Broken down into primary and secondary, Recepoğlu (2013) reported that there was no difference between motivation levels of these different grade-level specializations. These results were affirmed by Mertler (2001) using a separate, self-generated survey instrument which found similar results. In other words, level of education and grade-level taught makeup teacher-level factors which are not predicted to relate to degrees of motivation. That said, Fernet, Senecal, Guay, Marsh, and Dowson (2008) make a leap of logic built on SDT that suggests there may be some degree of difference in the autonomous motivations of teachers based on what grade they teach. Their thinking is based on research by Byrne (1996) which found that high school teachers are more likely to suffer from burnout and display less self-efficacy. As autonomy buffers against burnout and is linked with higher perceptions of efficacy, Fernet et al. intuits that high school teachers should report lower autonomous motivations than their peers teaching elementary school.

Finally, gender acts as a teacher-level factor that appears to result in a gap of intrinsic motivation. Women typically display higher levels of autonomous motivation towards their work than men, specifically displaying heightened intrinsic motivation and integrated regulation to their work tasks (Fernet et al., 2008; Vallerand, 1997).

Related literature on non-teachers. The literature discussed above was performed specifically with teachers as participants, yet research on the outcomes of autonomous motivations for non-teachers is in far more abundance. Relevant studies are
briefly described here but there has been no confirmation that they apply to educators and thus must be placed in their respective contexts. Taken as a whole, the mere possibility that the outcomes below could be applied to teachers provides a strong impetus to creating environments that support more autonomous forms of motivation for educators.

Amabile (1985) and Hennesy (1989) experimentally confirmed a connection between an individual’s degree of intrinsic motivation and his/her output of creativity. This relationship was discovered through the manipulation of a participant’s experimental context, given either extrinsic or intrinsic factors to stimulate the writing of a poem. Experts in poetry evaluated the poems based on a creativity index, finding that the poems which arose from an intrinsically-oriented environment were significantly more creative than those in the extrinsic setting. Creativity has immense importance for teachers as it relates to curriculum design, differentiating for all students, assessment creation and more.

Mental states are also positively influenced by autonomous forms of motivation, depicting a wide range of benefits across all ages. Young people who are intrinsically motivated in an academic setting display a heightened concentration of attention (Vallerand, Blais, Briere, & Pelletier, 1989) and enhanced memory in addition to the ability to understand things conceptually (Benware & Deci, 1984; Grolnick & Ryan, 1987; McGraw, 1978). Students also display persistence across challenging academic experiences and are more likely to stay in school as intrinsic motivation increases (Vallerand, Fortier, & Guay, 1997). Adults who display increased autonomous motivation also experience a general increase in positive emotions (Ryan & Connell, 1989), heightened work satisfaction (Deci, Connell, & Ryan, 1989); reductions in anxiety
(Gottfried, 1985; Ryan & Connell, 1989), and persistence in experimental tasks (Deci, 1971; Vallerand & Bissonnette, 1992). In the most general of senses, heightened autonomous motivation is predictive of enhanced psychological functioning and health (Deci & Ryan, 1980; Ryan, Deci & Grolnick, 1995). Specifically, in the elderly, Guay and Vallerand (1995) discovered that as motivation becomes more autonomous, the likelihood of desired behavioral outcomes increases as well, and that the aged who are autonomy-supported and display more intrinsic motivation display significantly more life satisfaction (Vallerand, O'Connor, & Blais, 1989). When considering the success of adult relationships, Blais, Sabourin, Boucher and Vallerand (1990) revealed that couples who display highly autonomous motivations display successful adaptation to difficult situations and find ways of making the relationship work whereas those who did not display such autonomous motivations did not.

If in fact even a small portion of the above could be applied towards educators, the implications would be astounding. Imagine a teaching force that displays some semblance of the above, experiencing heightened mental functioning and capacity, persistence across challenges, increases in positive emotions, gains in work-place satisfaction, reductions in anxiety, and healthier relationships with students and colleagues in which they may adapt to changes in class makeup, school policy, leadership and social reform. These are examples of the need for further research in educator motivation outcomes, especially in the context of an external program.

Summary

The International Baccalaureate Organization’s Middle Years Programme (IBMYP) acts as a philosophy and a framework that schools embrace for myriad reasons.
Its program curriculum model encompasses many of the major aspects of the IBMYP, ranging from the subject areas that are necessary to be taught to the development of holistic attributes in children. The earliest version of the IBMYP was originally conceived by the International Schools Association, a non-IB organization, to prepare students for the IB’s Diploma Programme (IBDP). Through a rocky evolution across limited funding, pilot programs and rogue school associations, the IBMYP became a standalone program that prepares students in general and for the IBDP de facto. Throughout its evolution, the IBMYP leaned on its standards and practices, a set of guidelines and program requirements to ensure consistency between schools as they strive to achieve the International Baccalaureate Organization’s vision and mission for the IBMYP. These standards and practices are implemented by schools over time, beginning with an early analysis of a school’s feasibility in conforming to the standards and practices. Schools then move through several phases of implementation in which different standards and objectives must be met in order to achieve the next phase, beginning with candidacy and ending as a fully authorized IBMYP school. Implementation proves challenging for many schools, particularly for educators trained and experienced in traditional ways of teaching and learning.

As implementation of the program is highly contingent on the actions of educators, understanding teacher’s motivations for the program arises as a necessary goal. Deci and Ryan’s (1985) self-determination theory (SDT) provides a theoretical basis for understanding a range of motivation based on a continuum of autonomy. SDT provides insight into the differences between implementation from compliance and implementation from joy, and all degrees of self-determination between. SDT posits, and
many experimental and field studies support, that behavior which is driven by more self-
determined forms of motivation is accompanied by higher degrees of creativity,
autonomy-support, job and life satisfaction, and overall healthier psychological
functioning. Differences between the degrees of autonomous motivation can be partially
explained through cognitive evaluation theory (CET), suggesting that situational
competence, autonomy and relatedness predict varying levels of self-determined
motivation. Specifically, that when competence, autonomy and relatedness are supported,
individuals are enabled to be more autonomously motivated.

Research on teacher motivation matters. Teachers who are more autonomously
motivated support the autonomy of students (Deci, Vallerand, Pelletier, & Ryan, 1991),
have more motivated students (Atkinson, 2010; Daniels, 2016; Wild, Enzle & Hawkins,
1992), experience reductions in burn-out (Anderson & Iwanicki, 1984; Eyal & Roth,
2010), and may even predict higher achievement levels on student standardized tests
(Hayden, 2011). Pre-service teachers cite largely autonomous motivations for joining the
field, yet many of those studies are not broken down into the SDT continuum making it
difficult to compare across research. What is known, however, is that teachers who are
autonomously motivated have students who are also more autonomously motivated, who
view their educators as creative, and want to continue learning the teachers’ content. It is
also clear that autonomously motivated educators are more resilient to burnout and
experience more creativity with lesson planning and classroom experiences.

A wide range of factors which predict changes to the degrees of motivations in
teachers were explored. These factors included geographic location, positive relationships
with administration, opportunities to advance within the institution, salary, culture, school
community, leaders’ leadership styles, policies and bureaucracy, collaboration, performance standards, evaluations, age, and gender. This portion of the literature review provided insight into possible factors to explore in the data collection procedures.
CHAPTER III

METHODOLOGY

The purpose of this research was to determine the extent to which teacher- and school-level factors could predict the degree of autonomous motivation teachers display towards the standards and practices of the International Baccalaureate’s Middle Years Programme (IBMYP). Autonomous motivation can be related to experiences at both the individual and contextual levels (Vallerand, 1997), suggesting that any serious work towards understanding predictive factors of autonomous motivations must include variables across both realms of influence. In this study these realms were captured through teacher-level variables, such as attendance at IBMYP workshops and perceptions of competence, as well as environmental contexts through school-level variables, such as the number of professional learning days and the year at which the IBMYP terminates. These factors were related to participants’ overall autonomous motivation towards the IBMYP in addition to five constructs of the program’s standards and practices.

Examining the relationships between the factors and these distinct constructs allowed for a more nuanced understanding of how the variables related to individual facets of the program in addition to an overall amalgamation of the program in its entirety. The five facets (i.e., constructs) of the IBMYP that were studied included program philosophy,
collaborative planning, the written curriculum, teaching and learning, and assessment, each aspect which has direct relevance to the work of program educators. The relationships between the multi-level factors and participants’ overall degree of autonomous motivation and each construct were determined using hierarchical linear modeling (HLM).

**Data Collection Procedures**

**Data sources.** Eight authorized IBMYP schools and six IBMYP candidate schools in a single state in the United States Midwest were utilized for this study. Three authorized IBMYP schools in the same state were utilized for a pilot study to develop the two instruments used in the study (Appendix C and Appendix D) and to test reliability and validity. A single state was chosen to control for state-based policy influences on the study.

The list of IBMYP schools and their coordinator’s contact information was retrieved from the International Baccalaureate Organization’s online, public database (IBO, 2016b). Each school’s superintendent or president was contacted via email to invite them to participate in the study. Each school leader (or their designee) provided permission to administer the questionnaire to his/her school in writing. After permission was granted the IBMYP coordinator from each school was contacted via email with a letter of introduction to the study and a link to the appropriate questionnaire. The IBMYP coordinator at each school was asked to forward a second email (Appendix B) with the teacher questionnaire to their entire IBMYP teaching faculty.

Due to the hierarchical nature of the study, a school could only participate in the study if the coordinator provided school-level data through the *IBMYP Coordinator*
Questionnaire. Fourteen out of fourteen coordinators completed the survey. This allowed for the collection of teacher-level data in every IBMYP school in the state. Additional school-level factors were gathered from the National Center for Education Statistics’ Common Core of Data (CCD) database (National Center for Education Statistics, 2016). This public database was used to determine the number of teachers in the IBMYP, the racial makeup of students in the IBMYP, and the percentage of students on free or reduced lunch in the IBMYP. Unlike the International Baccalaureate’s Diploma Programme, in which students self-select participation, schools implementing the Middle Years Programme must make all attempts to engage all students in the grades in which the program is being implemented (IBO, 2014d).

Participants. Permission to collect data was granted from the Cleveland State University Human Subjects Institutional Review Board. Permission to administer the IBMYP Teacher Motivation and the IBMYP Coordinator questionnaires to IBMYP teachers and coordinators respectively was granted, in writing, by each participating schools’ superintendent, president or designee. Level-1 data consisted of teachers who responded to the questionnaire. All participating teachers were educators in IBMYP schools, therefore were considered to be IBMYP teachers.

IBMYP coordinators were the point of contact for each school. Coordinators were sent an individualized initial email (Appendix B) describing the study, confirmation that their superintendent, president, or designee approved the study, and a link to the IBMYP Coordinator Questionnaire (Appendix C) to collect level-2 data. Level-2 data provided school-level data including the IBMYP coordinator’s years of experience, the number of professional days focused on IBMYP, the existence of other IB programs within the
district or school, the number of years since the school initiated IBMYP implementation, the type of public or private school, whether or not teachers can choose to be IBMYP teachers (i.e., teachers may transfer to a building without an IBMYP), the geographic location of a school, the grade level in which the IBMYP terminates, if the school’s IBMYP is in partnership with another school or not, the number of teachers in the IBMYP at the school, the percentage of time a coordinator has dedicated to the IBMYP, the percentage of students qualifying for free or reduced lunch, and the percentage of minority students enrolled in the IBMYP. Once IBMYP coordinators completed the *IBMYP Coordinator Questionnaire*, a follow-up email (Appendix B) was sent to the coordinators with the request to send it to their teachers for completion of the *IBMYP Teacher Motivation Questionnaire*.

The second email included a request of the coordinator to forward the body of the email to his/her faculty. The body of the email was addressed to each school’s IBMYP educators and described the study, confirmed that the district’s superintendent, president, or designee approved the study, and included a link to the *IBMYP Teacher Motivation Questionnaire* (Appendix D). An initial close date for the questionnaire was set for two weeks after the second email was sent to each IBMYP coordinator.

**Instrumentation.** The *IBMYP Coordinator Questionnaire* (Appendix C) was designed to collect relevant level-2 (school-level) variables for the study. The relevance of the factors was based on cognitive evaluation theory (CET) with each having connections to one of the three psychological needs for self-determination (i.e., autonomy, competence, and relatedness). The first version of the questionnaire received feedback from a focus group of IBMYP teachers and coordinators in June 2015. The
focus group formed consensus as to the clarity of the questionnaire (face validity) and the appropriateness of the questions (content validity) for collecting useful information about an IBMYP. The focus group did not feel that any questions provided a risk beyond those of everyday life.

The IBMYP Teacher Motivation Questionnaire (Appendix D), was designed for the purposes of this research. The questionnaire was based on IBMYP standards and practices and heavily influenced by the Academic Motivation Scale (Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres, 1992) and the Work Tasks Motivation Scale for Teachers (Fernet, Senecal, Guay, Marsh, & Dowson, 2008). Both of these questionnaires were grounded in self-determination theory, providing examples of how to quantify information about participants’ degree of autonomous motivation. In both the Academic Motivation Scale and the Work Tasks Motivation Scale for Teachers, statements were constructed that related to each degree of autonomous motivation in the self-determination theory continuum (e.g., integrated, introjected, etc.) (Vallerand et al., 1992; Fernet et al., 2008). When a teacher chooses which statement best describes their sentiment towards each aspect of the IBMYP standards and practices, they are reflecting the extent to which their motivation is self-determined (i.e., autonomous). The six statements and their respective forms of motivation are listed in order from least self-determined to most self-determined below:

- “I do not see its purpose or relevance” (amotivation),
- “It is a requirement of being an IBMYP teacher” (external),
- “I would be letting others down or feel guilty if I did not do this” (introjected),
- “It is an important part of being an IBMYP teacher” (identified),
• “It fits with my view of being a good teacher” (integrated), and
• “I enjoy it and find it interesting or engaging” (intrinsic).

These statements were tailored versions of the statements in the *Academic Motivation Scale* and the *Work Tasks Motivation Scale for Teachers*. Each statement was weighted in association with its degree of autonomy within the self-determination continuum as performed in Fortier, Vallerand, and Guay (1995), Grolnick and Ryan (1987), and Vallerand and Bissonnette (1992). This weighting allows for the calculation of a single score, the self-determination index, which can then be used in other analyses such as hierarchical linear modeling. This self-determination index provided an overall estimation of the degree of autonomous motivation because the lower forms of autonomous motivation are associated with negative numbers and the higher forms of autonomous motivation with positive numbers in a sequential fashion. Each regulatory style and their associated weight of autonomous motivation are listed herein: amotivation (-3), external (-2), introjected (-1), identified (+1), integrated (+2), and intrinsic (+3). Creating such an index has historically provided high levels of reliability and validity (Vallerand, 1997).

The same focus group of IBMYP practitioners that provided feedback on the *IBMYP Coordinator Questionnaire* provided feedback on the *IBMYP Teacher Motivation Questionnaire*. While little revision was suggested to the *IBMYP Coordinator Questionnaire*, presumably because of its simple collection of school-based information, the focus group provided more concrete feedback on the *IBMYP Teacher Motivation Questionnaire* to enhance content validity. Revisions were made to ensure that participants readily understood the format and content of the questionnaire and that it
contained only teacher-relevant aspects of the IBMYP standards and practices. Specific edits included breaking up three of the standards and practices into requisite parts to prevent assumptions and enhance precision of the question (e.g., “writing inquiry questions” became “writing factual inquiry questions,” “writing conceptual inquiry questions,” and “writing debatable inquiry questions”). Another revision included breaking the question stems (based on the standards and practices) into groups of five so that the questionnaire column headers are always in view while participants plotted their choices on the response matrix. Each time a participant completed five of the question stems, they moved on to another page with five more until completing that portion of the questionnaire. This ensures that the column headers (and their associated connection with the degrees of autonomous motivation) are always in sight as participants responded to each standard and practice (row headers).

After these recommended edits were made the focus group was given the opportunity to provide additional feedback electronically but had no further suggestions. The focus group formed consensus around the questionnaire’s clarity (face validity) and appropriateness of the content as experienced practitioners of the IBMYP (content validity). They were clear that if a standard and practice did not directly influence a teacher or was not within their control it should not serve as a question stem in the questionnaire. One example of an IBMYP practice that was not included in the questionnaire clarifies their meaning: “The governing body allocates funding for the implementation and ongoing development of the programme(s)” (IBO, 2016a, p. 4). Teachers have no control over the governing body or their school’s allocation of funds,
thus the focus group suggested that this would not be a useful question stem and so was removed.

Both questionnaires were piloted in September 2016 to three IBMYP schools. The pilot provided information about the reliability of the questionnaires and reliability of the self-determination index and five constructs as is described under “outcome variables” below.

**Variables and Measures**

This study compared multiple aspects of both outcome variables and predictor variables in order to have a refined analysis of which factors may influence autonomous motivation in the IBMYP. Outcome variables included both an overview of responses to gauge an overall degree of autonomous motivation towards the IBMYP in addition to breaking down the standards and practices into five constructs. Chunking the standards and practices into the five constructs allowed for a determination of which factors predicted differences in overall autonomous motivation as well as factors which may be related only to a single aspect of the program. Predictor variables included factors at the teacher level, such as their IBMYP workshop training, in addition to school-based factors, such as a school’s number of professional learning days committed to the IBMYP.

**Outcome variables.** This study utilized multiple outcome variables to compare an overall estimation of autonomous motivation towards the IBMYP with five individual constructs within the program. The self-determination index (SD-Index) was created by taking the mean of an individual’s response to each query on the standards and practices. The value of the SD-Index represented the overall motivation towards the IBMYP as
codified in the standards and practices and can be likened to its use in capturing overall motivation towards work-tasks described by Vallerand (1997). The Cronbach’s alpha internal reliability for the IBMYP Teacher Motivation Questionnaire as a whole was 0.981 and included all standards and practices on the questionnaire, much higher than the commonly accepted Cronbach’s alpha reliability value of 0.7 (Litwin, 1996).

To allow for a more nuanced assessment of the relationship between predictor variables and different aspects of the IBMYP, clusters (i.e., dimensions or constructs) of the standards and practices were analyzed in the hierarchical linear model as well. Initially, an exploratory factor analysis was performed on pilot data to determine if meaningful constructs could be found based on how the pilot participants responded. This resulted in nineteen dimensions with low reliability and no determinable patterns of questions within the dimensions. Instead, the existing groupings of the standards and practices provided by the IBO (IBO, 2016a) were used and reliability assessed. This resulted in five constructs each with high Cronbach’s alpha reliability (α ≥ 0.7).

These constructs were tested for internal consistency twice in this study, first during the pilot of the questionnaires and then again during the actual research. The Cronbach’s alpha for both tests of reliability, including the difference in Cronbach’s alpha and the number of items within the construct (N), are displayed in Table 1. Each construct resulted in a Cronbach’s alpha of greater than 0.7, indicating that the questionnaire remained internally consistent. These constructs are described below and were used as outcome variables in addition to the SD-Index for HLM analysis. Utilizing these constructs allowed for an analysis that showed factors which significantly predicted differences in one construct yet not within the overall SD-Index or other constructs.
Table 1. Comparison of Pilot and Study Internal Consistencies (Cronbach’s Alpha) of the IBMYP Teacher Motivation Questionnaire

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>N of items</th>
<th>Pilot (N=79)</th>
<th>Study (N=227)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-determination index</td>
<td>85</td>
<td>.975</td>
<td>.981</td>
<td>+.006</td>
</tr>
<tr>
<td>A1: Philosophy</td>
<td>5</td>
<td>.7</td>
<td>.836</td>
<td>+.136</td>
</tr>
<tr>
<td>C1: Collaborative Planning</td>
<td>17</td>
<td>.904</td>
<td>.935</td>
<td>+.031</td>
</tr>
<tr>
<td>C2: Written Curriculum</td>
<td>22</td>
<td>.938</td>
<td>.949</td>
<td>+.011</td>
</tr>
<tr>
<td>C3: Teaching and Learning</td>
<td>22</td>
<td>.867</td>
<td>.913</td>
<td>+.046</td>
</tr>
<tr>
<td>C4: Assessment</td>
<td>19</td>
<td>.938</td>
<td>.945</td>
<td>+.007</td>
</tr>
</tbody>
</table>

All internal reliabilities were measured using Cronbach’s alpha (α). All internal reliabilities, including both the pilot and the study, displayed Cronbach’s alpha higher than 0.7, the commonly accepted threshold for reliability (Litwin, 1996). The self-determination index included 85 items and increased in internal reliability by 0.006 from the pilot (α = 0.975) to the actual study (α = 0.981). A: Philosophy consisted of five items and increased in reliability from 0.700 to 0.836, gaining 0.136 Cronbach’s alpha. C1: Collaborative Planning included 17 items and increased from 0.904 to 0.935 for an improvement of 0.031. C2: Written Curriculum consisted of 22 items and grew by 0.011, increasing from 0.938 to 0.949. C3: Teaching learning was made up of 22 items as well and increased from 0.867 to 0.913 representing 0.046 growth. Finally, C4: Assessment included 19 items and increased by 0.007, from 0.938 to 0.945.

Construct A: Philosophy contained questions that focused on the school’s belief and values about education (IBO, 2016a) and encapsulate more intangible aspects of the
program, ranging from support of international-mindedness to the promotion of open communication. This construct represented a teacher’s mindset more than his/her action, making it unique among the constructs. The Cronbach’s alpha reliability for A: Philosophy was 0.836. The complete list of questions within each construct is listed in Appendix E.

The next construct was C1: Collaborative Planning. This construct included all questions related towards how teachers work together to plan for and reflect on the ongoing implementation of the program. Much of the IBMYP is predicated on dedicated time and attention towards working collaboratively on a range of goals, including the written, taught, and assessed curriculum. While there is not a prescriptive measure of collaborative planning, the IBO does provide the qualitative mandate that collaboration occurs “regularly and systematically” (IBO, 2016a, p. 4). In addition to the mandate of collaboration, C1: Collaborative Planning also includes topics for what teachers are to collaborate on, including expectations for students both vertically (across the grade levels) and horizontally (within a grade level). This single practice illustrates how C1 captures aspects of the program that one cannot complete on one’s own, necessitating collaboration between teachers across grade levels and subject areas. The Cronbach’s alpha reliability for C1: Collaborative Planning was 0.935.

The third construct was C2: Written Curriculum. This cluster included all aspects of how teachers write units of learning that are aligned with the IBMYP. While C1 makes clear that teachers write curriculum collaboratively, C2 specifies what that written curriculum must include. As described in the literature review, the IBO does not prescribe the academic content to be taught, rather articulates in C2 the way teachers are
to plan for how the content is to be taught. C2 focuses on what happens before a teacher engages in a unit of study with students and includes practices that ensure learning is planned according to the guidelines provided by the IBO. Following their recommendations for curriculum writing encourages the successful implementation of the practices within C2, including experiences that build on students’ previous learning, the promotion of meaningful student action, the provision of reflection opportunities, and more. The alpha reliability of C2: Written Curriculum was 0.949.

C3: Teaching and Learning was the fourth construct and consisted of all questions pertaining to the practices which happen in the classroom as endorsed by the IBMYP. Similarly to how the academic content is not prescribed in C2: Written Curriculum, the IBO does not stipulate how teachers teach, rather that they use “a range and variety of strategies” (IBO, 2016a, p. 5). This lack of prescribed methodology does not mean that teachers have free reign, however, as C3 includes many practices that influence how a teacher teaches. Some things that teachers must account for include engaging students as inquirers and thinkers, promoting the understanding and practice of academic honesty, addressing human commonality, diversity and multiple perspectives, and many more. In this way, C3 provides a list of practices which teachers are expected to meet without limiting how this may be possible. The alpha reliability for C3: Teaching and Learning was 0.913.

The final construct was C4: Assessment. This construct addressed all practices related to the IBO’s expectation for a teacher’s assessment of students, including how assessments are formatted to align to the IBMYP’s assessment criteria (as described in the literature review), the range of strategies used to assess students, the way that
assessments are evaluated, the requirement that feedback is given to enhance student learning, and more. Here again the IBO does not provide specific examples or requirements of how this is to be achieved, just that teachers make it so. A final example of the openness of the construct can be found in the practice concerning data; the IBO states that the teacher “analyses assessment data to inform teaching and learning” (IBO, 2016a, p. 6), yet the interpretation of what constitutes data, the way it is used, and how it influences teaching and learning is at the discretion of the school and/or teacher. All questions related to assessment are clustered within the C4: Assessment construct and can be viewed in its entirety in Appendix E. The alpha reliability for C4: Assessment was 0.945.

**Teacher-level variables (level-1):** Data on the following teacher-level variables were collected for this study.

- **TCORDCOMP:** Teacher’s perceived competence of the school’s MYP coordinator on a Likert scale of 1 (low) to 5 (high),
- **TTRAINING:** The number of official MYP trainings the teacher has experienced,
- **TCOLLABTIME:** The average number of minutes a week spent working collaboratively with colleagues,
- **TGENDER:** The teacher’s gender (coded as: 0=female, 1=male), and
- **TRACE:** The teacher’s race (coded as: 0=Minority, 1=Majority).

**School-level variables (level-2):** Data on the following school-level variables were collected for this study.

- **TPROF DAYS:** The annual number of professional learning days in total,
• **MYPROFDAYS:** The annual number of professional learning days focused on the IBMYP,
• **CTIME:** The percentage of time the IBMYP coordinator has dedicated to coordinating, and
• **STEM:** The grade at which the IBMYP terminates in the district (Coded as: 0=8th, 1=10th).

**Data Analysis and Rationale for Using Hierarchical Linear Modeling**

A two-level hierarchical linear model (HLM) was used to test the relationship between the overall self-determination index and both teacher-level and school-level variables. Five additional HLM were performed to relate each of the five constructs with the same teacher-level and school-level variables as were included in the self-determination index model. In total, the six HLM provided insight into which predictor variables were significant for overall autonomous motivation towards the IBMYP as well as each of its teacher-related parts.

These models used teacher-level factors which were hypothesized to predict changes in autonomous motivation “nested” within school-level factors which were also hypothesized to predict changes to autonomous motivation. This design complicated analysis and made statistical methods which conflate the levels, such as multiple linear regression, likely to be inaccurate. An example of the complexity of a nested design includes the number of trainings that a teacher has attended (teacher-level) being “nested” within the number of professional days their school has (school-level). In this example, the number of trainings has its own teacher-level predictive value that is unique to the individual, yet the training’s influence on the individual is situated within a school. The
school has a certain number of professional learning days which displays its own predictive value, but that value is shared amongst all of the teachers within that organization. This means that the individual predictive power of training experiences must be placed in context, or nested, within the shared predictive power of a school’s professional learning days. Performing a series of single-level analyses ignores the potential of the school-level factor to influence teacher-level factors, particularly in light of teacher-level factors being nested within school-level factors. Considering the hierarchical (i.e., leveled) nature of these variables, hierarchical linear modeling (HLM) provided a solution to understanding the influence of a factor at one level while accounting for the variability in another. Essentially,

Hierarchical Linear Modeling (HLM) is a complex form of ordinary least squares (OLS) regression that is used to analyze variance in the outcome variables when the predictor variables are at varying hierarchical levels; for example, students in a classroom share variance according to their common teacher and common classroom. (Woltman, Feldstain, MacKay, & Rocchi, 2012, p. 52)

This summation clearly supports Raudenbush and Byrk’s (2002) watershed development of HLM as a method to allow researchers to “readily propose hypotheses about relations occurring at each level and across levels and also assess the amount of variation at each level” (Raudenbush & Burke, 2002, p. 5). Including both teacher and school-level variables in this research requires a nuanced analysis such as provided by HLM and neglected by multiple linear regression.

A level-2 hierarchical linear model was required to account for teacher characteristics (level 1) and school characteristics (level 2) for each outcome variable.
This series of level-2 models consisted of single tests which provided information about within-group and between-group variation based on linearity and normality. This was done by utilizing sub-models at each level of the analysis to determine how the variables at one level related to one another in addition to how variables at other levels influenced the relationships within a level (Raudenbush & Byrk, 2002, p. 7). In doing so, HLM accounted for the possible interdependence of the teacher-level and school-level variables in this study. As “HLM simultaneously investigates relationships within and between hierarchical levels of grouped data… [it is] more efficient at accounting for variance among variables at different levels than other existing analyses” (Woltman, Feldstain, MacKay, & Rocchi, 2012, p. 53).

The model provided an understanding of the variation in autonomous motivation considering the teacher-level factors, such as number of trainings, while also accounting for school-level variation, such as number of professional days. The role of school-level factors on teacher classroom practices cannot be ignored (Maehr, 1991), thus approaching this work in a 2-level nested design is necessary. To that end, HLM estimated the regression within each teacher’s degree of autonomous motivation and how it related to teacher-level factors to explain variance in consideration of the school-level factors. In doing so, factors at each level, as well as the way in which they influenced one another, provided insight into how these factors may be manipulated in order to predict greater degrees of autonomous motivation towards the IBMYP and/or its teacher-related constructs.

Additionally, multiple linear regression models were used to provide a second series of supplemental tests to build confidence in the accuracy of the HLMs. These
analyses were not intended to supplant the results of the HLMs, rather support conclusions drawn from the HLM. HLM provides a more conservative interpretation of results due to its accounting of shared variance across the levels, therefore any significant predictors in a hierarchical linear model should also be significant in a multiple linear regression. This concept was applied during data analysis to verify the HLM results.

**Model Specifications**

Both research questions were addressed using 2-level hierarchical linear modeling (HLM) and six output variables (the SD-Index and its five constructs). The first research question focused on the extent to which teacher-level factors predicted differences in the degree of self-determination in relation to the IBMYP standards and practices. The second research question focused on the extent to which school-level factors predicted differences in the degree of self-determination in relation to the IBMYP standards and practices. Each output variable was addressed through a single use of HLM, taking into account variables at both levels.

The 2-level HLM utilized the teacher-level and school-level factors obtained from the *IBMYP Teacher Motivation Questionnaire* and the *IBMYP Coordinator Questionnaire* respectively. These factors acted as independent variables to predict the self-determination index and the five constructs of the IBMYP standards and practices. HLM allowed for the determination of the magnitude and direction of the relationship between each independent variable in light of all the other independent variables at both levels and the six outcome variables.

**Teacher-level model (level-1):** The teacher-level model (level-1) was expressed as:
\[ Y_{ij} = \beta_{0j} + \beta_{1j}(TCOORDCOMP) + \beta_{2j}(TTRAINING) + \beta_{3j}(TCOLLABTIME) + \beta_{4j}(TGENDER) + \beta_{5j}(TRACE) + R_{ij} \]

where

- \( Y_{ij} \) = the degree of autonomous motivation for the SD-index and the five constructs of the IBMYP standards and practices for teacher \( i \) in school \( j \),
- \( \beta_{0j} \) = the adjusted mean for the self-determination index or construct value for teacher \( i \) in school \( j \),
- \( \beta_{1j} \) = the effect of teacher’s perceived competence of the IBMYP coordinator on autonomous motivation towards the IBMYP for teacher \( i \) in school \( j \),
- \( \beta_{2j} \) = the effect of the number of official IBMYP trainings experienced on autonomous motivation towards the IBMYP for teacher \( i \) in school \( j \),
- \( \beta_{3j} \) = the effect of the amount of weekly collaborative time the teacher engages in on the autonomous motivation towards the IBMYP for teacher \( i \) in school \( j \),
- \( \beta_{4j} \) = the effect of a teacher’s gender on the autonomous motivation towards the IBMYP for teacher \( i \) in school \( j \),
- \( \beta_{5j} \) = the effect of a teacher’s race on the autonomous motivation towards the IBMYP for teacher \( i \) in school \( j \), and
- \( R_{ij} \) = residual error for teacher \( i \) in school \( j \).

It is assumed that \( R_{ij} \) is distributed normally with a mean of zero and some variance which is the same across schools. This model is specified for each the overall self-determination index as well as the five constructs of the IBMYP standards and practices.

Teachers’ perception of their coordinator’s competence, the number of official IBMYP workshops they’ve attended, and the amount of collaborative time (in minutes) they participate in weekly were entered into the model based upon their practicality and
direct connection with the needs in cognitive evaluation theory (CET) (Deci, 1972; Ryan, 1995). CET posits that supporting the needs of autonomy, competence, and relatedness enhances opportunities for autonomous motivation. Each of these CET-related, teacher-level variables are controllable, meaning that a school can manipulate the factors based on the outcomes of this research. Coordinators can be trained to become more competent or on cognitive coaching to more effectively work with educators and build relatedness. The number of IBMYP workshops a teacher attends can be increased or decreased, linking with competence needs as eschewed in CET. The amount of collaborative time can be increased or decreased, influencing relatedness, and possibly competence if this is a forum for professional learning.

CET as a theoretical framework suggests that increases in a teacher’s perception of their coordinator’s competence would facilitate an increase in autonomous motivation. CET would also suggest that more training and workshops would increase self-competence, in turn empowering educators to be more autonomously motivated. Finally, the amount of collaborative time brings forth opportunities of relatedness with peers as well as increases in competence about the program. If collaborative time does allow for increases in relatedness and competence, it too may facilitate increases in autonomous motivation.

Teacher gender and race were also included in the level-1 models. Gender has been shown to display some predictive power towards autonomous motivation, as female educators are predicted to report higher frequencies of intrinsic motivation (Fernet, Senecal, Guay, Marsh, & Dowson, 2008; Vallerand, 1997). Race was included as an additional control variable. While these factors represent uncontrollable factors, their
influence on the other variables and the outcome variables were accounted for in the study.

**School-level model (level-2):** The school-level model (level-2) was expressed as:

$$
\beta_{0j} = \gamma_{01}(\text{TPROFDAYS}) + \gamma_{02}(\text{MYPPROFDAYS}) + \gamma_{03}(\text{CTIME}) + \gamma_{04}(\text{STERM}) + \mu_{0j}
$$

where,

- $\beta_{0j}$ = predicted mean of autonomous motivation for the self-determination index and each construct of the standards and practices of teachers in school $j$,
- $\gamma_{0n} = (\gamma_{01}, \gamma_{02}, \gamma_{03}, \gamma_{04})$ are the regression coefficients associated with the school-level (level-2) predictors (TPROFDAYS, MYPPROFDAYS, CTIME, and STERM) respectively, and
- $\mu_{0j}$ = unique random effects associated with school $j$.

This model is specified and repeated for the overall self-determination index as well as the five constructs of the IBMYP standards and practices. The factors included in the model were chosen due to the practical ability to readily and easily manipulate them as well as their strong connection to cognitive evaluation theory. The number of professional learning days, including those focused on the IBMYP, are intended to increase teacher competence, thus predicted to heighten opportunities for autonomous motivation. The amount of time a coordinator has to focus on the IBMYP is also controllable. If a coordinator’s time to work with IBMYP educators’ increases, it may be presumed that the coordinator has more opportunity to collaborate and connect with educators (increasing relatedness) as well as work to build more IBMYP competence in educators (a major role of the coordinator). This factor would therefore be predicted to facilitate increases in autonomous motivation. Finally, the year at which an IBMYP
terminates is chosen by the school, thus controllable. Ending the program in grade 10 necessarily involves more educators and requires vertical articulation across several grade levels. These two added influences of terminating in grade 10 may very well increase relatedness (as more teachers are required to work together), thus facilitating increases in autonomous motivation. Furthermore, terminating in grade 8 means that some teachers (grades 9 and 10) are not teaching in the IBMYP, generating possible tension and scissions between earlier grades who are engaged in the program and upper grades who are not. This may reduce relatedness and thus depress opportunities for autonomous motivation.

Previous research suggests that, in addition to the nine factors in these models, positive relationships with administration, opportunities to advance within the institution, salary, culture, school community, administrator’s leadership styles, policies and bureaucracy may also be relevant to the degree of autonomous motivation in educators. The nine factors were prioritized in this study due to several lines of reasoning, including: 1) their relevance to the IBMYP, 2) their connectedness with the cognitive evaluation theory framework, 3) their ability to be practically controlled by schools, and 4) their availability as quantifiable data to serve in the HLMs. Prioritization was necessary to build robust yet simpler models that were resistant to type I error and statistical bias despite just fourteen schools at level-two (Bell, Morgan, Schoeneberger, Loudermilk, Kromrey, & Ferron, 2010). As Bell et al. (2010) suggest, adding more factors increases the complexity of the model and is likely to result in a decrease in statistical power, making it more difficult to determine significant relationships between the predictors and
the outcome variables. This issue could be rectified in future studies with a larger sample size.

Additionally, the nine variables included in the models consisted of available, quantifiable data. Additional instruments would have been necessary to collect data on some of the qualitative variables mentioned in the literature review, such as relationships with administration, school culture and community, and leadership styles. Developing these new instruments was beyond the scope of this study. As these more qualitative factors were not included in the HLM, their relationship, if any, would reside in the residual error of the models and act as unexplained variance in outcomes.

**Summary**

This chapter outlined how the study was conducted. A detailed explanation was provided of the study participants, how the IBMYP Teacher Questionnaire and the IBMYP Coordinator Questionnaire were created, piloted and revised, what data was collected through the IBMYP Teacher Questionnaire and the IBMYP Coordinator Questionnaire, how HLM was used for data analysis, a rationale for the use of HLM and the supplementary tests of multiple linear regression, and a description and rationale of the teacher-level and school-level variables considered for analysis in the model specification.
CHAPTER IV

RESULTS

This research explored the relationship between teacher-level and school-level factors and the degree of autonomous motivation educators exhibited towards the International Baccalaureate Middle Years Programme as a whole and across five of its dimensions. This chapter provides descriptive statistics of the teacher-level and school-level factors of the participants in addition to the findings as aligned to the two research questions: 1) To what extent do teacher-based variables predict teachers’ degree of autonomous motivation towards each dimension of the IBMYP standards and practices? and 2) To what extent do school-based variables predict teachers’ degree of autonomous motivation towards each dimension of the IBMYP standards and practices?

Descriptive Information

Teacher demographics. Table 2 and Table 3 display the demographic information for the teacher (level-1) participants in this study. Table 2 displays the frequency and percentage of discrete factors whereas Table 3 displays the central tendency of continuous factors.
Table 2. Frequency and Percentages of Discrete Demographic Data of Teacher Participants (level-1) (N=227)

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Descriptor</th>
<th>Frequency (f)</th>
<th>Percentage (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>58</td>
<td>25.6</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>169</td>
<td>74.4</td>
</tr>
<tr>
<td>Race</td>
<td>Majority (Caucasian)</td>
<td>201</td>
<td>88.5</td>
</tr>
<tr>
<td></td>
<td>Minority (non-Caucasian)</td>
<td>26</td>
<td>11.5</td>
</tr>
<tr>
<td>Grade-level taught</td>
<td>5</td>
<td>7</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>50</td>
<td>22.0</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>39</td>
<td>17.2</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>49</td>
<td>21.6</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>39</td>
<td>17.2</td>
</tr>
<tr>
<td>Subject-area taught</td>
<td>Sciences</td>
<td>27</td>
<td>11.9</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
<td>34</td>
<td>15.0</td>
</tr>
<tr>
<td></td>
<td>Language &amp; Literature</td>
<td>55</td>
<td>24.2</td>
</tr>
<tr>
<td></td>
<td>Individuals &amp; Societies</td>
<td>24</td>
<td>10.6</td>
</tr>
<tr>
<td></td>
<td>Physical and Health</td>
<td>9</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>Design</td>
<td>5</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>Arts</td>
<td>23</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Language Acquisition</td>
<td>23</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Intervention Specialist</td>
<td>13</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>Multiple subjects</td>
<td>14</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Two hundred twenty-seven teachers participated in the study. The majority of participants were female (74.4%) and Caucasian (88.5%), reflective of the teaching force in the United States. Participants represented all possible grade levels in the IBMYP, including fifth grade (3.1%), sixth grade (22%), seventh grade (17.2%), eighth grade (21.6%), ninth grade (17.2%) and tenth grade (18.9%). The representation from fifth
grade is noticeably smaller due to the rarity of including fifth in the IBMYP (i.e., most IBMYP begin in sixth grade). Each subject area in the program was represented as well, including science (11.9%), mathematics (15%), language and literature (24.2%), individuals and societies (10.6%), physical and health education (4.0%), design (2.2%), the arts (10.1%), language acquisition (5.7%), and multiple subject areas (6.2%). Physical and health education, design, and language acquisition had understandably less participation than the “core” subject areas as these are specialized courses with fewer teachers.

Table 3. Central Tendency of the Continuous Variables of Teacher Participant

Demographic Data (level-1) (N=227)

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience</td>
<td>1</td>
<td>40</td>
<td>14.11</td>
<td>14.00</td>
<td>8.044</td>
</tr>
<tr>
<td>Years of IBMYP Experience</td>
<td>1</td>
<td>14</td>
<td>3.18</td>
<td>3.00</td>
<td>2.438</td>
</tr>
<tr>
<td>Amount of collaboration (mins/week)</td>
<td>0</td>
<td>90</td>
<td>33.18</td>
<td>30.00</td>
<td>20.847</td>
</tr>
<tr>
<td>Total number of workshops attended</td>
<td>0</td>
<td>8</td>
<td>1.84</td>
<td>1.00</td>
<td>1.578</td>
</tr>
<tr>
<td>Coordinator’s competence rating</td>
<td>1</td>
<td>5</td>
<td>4.33</td>
<td>5.00</td>
<td>0.879</td>
</tr>
</tbody>
</table>

Participants ranged in total teaching experience from 1 to 40 years with a mean of 14.11 years, a median of 14.00 years, and a standard deviation of 8.044 years. More specifically, teachers’ range of IBMYP experience spanned from 1 to 14 years with a mean of 3.18 years, a median of 3.00 years, and a standard deviation of 2.438 years, the mean and median reflecting the novelty of the program for the majority of schools in this sample. Participants’ time spent during collaborative meetings ranged from 0 to 90 minutes, averaging 33.18 minutes a week with a median of 30.00 minutes a week and a
standard deviation of 20.847 minutes. The total number of official IBMYP workshops the participants attended ranged from 0 to 8 with an average of 1.84, a median of 1.00 and a standard deviation of 1.578 workshops. Participants reflected the complete range of the self-competence Likert scale, from 1 to 5, with an average rating of 2.99, a median score of 3.00, and a standard deviation of 1.030. While participants’ rating of their coordinator’s competence also reflected the entirety of the scale from 1 to 5, the average rating was 4.33, a median of 5.00, and a standard deviation of 0.879, representing higher ratings than that of self-competence.

**School demographics.** Table 4 and Table 5 display the demographic information for the school (level-2) participants in this study. All fourteen IBMYP schools in a single Midwestern state participated. The average response rate of teachers from the schools was 38.40%, ranging from 22.08% to 75.68%, with a median of 37.55% and a standard deviation of 15.44%. Table 4 displays the frequency and percentage of discrete school factors whereas Table 5 displays the central tendency of continuous factors.

**Table 4. Frequency and Percentage of Data of School Participants (level-2) (N=14)**

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Descriptor</th>
<th>Frequency (f)</th>
<th>Percentage (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of other IBO programmes</td>
<td>PYP</td>
<td>5</td>
<td>35.7</td>
</tr>
<tr>
<td></td>
<td>DP</td>
<td>2</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>PYP &amp; DP</td>
<td>6</td>
<td>42.9</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>School type</td>
<td>Public</td>
<td>11</td>
<td>78.6</td>
</tr>
<tr>
<td></td>
<td>Private (day)</td>
<td>3</td>
<td>21.4</td>
</tr>
<tr>
<td>Teacher choice to transfer</td>
<td>Cannot transfer</td>
<td>13</td>
<td>92.9</td>
</tr>
<tr>
<td></td>
<td>Can transfer</td>
<td>1</td>
<td>7.1</td>
</tr>
<tr>
<td>Geographic context</td>
<td>Urban</td>
<td>7</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Suburban</td>
<td>7</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Demographic Information | Descriptor | Frequency (f) | Percentage (P)
--- | --- | --- | ---
IBMYP termination grade | Year 3 (grade 8) | 6 | 42.9
| Year 5 (grade 10) | 8 | 57.1
IBMYP partnership status | Yes | 7 | 50
| No | 7 | 50
Coordinator’s gender | Male | 5 | 35.7
| Female | 9 | 64.3
Coordinator’s race | Majority (Caucasian) | 14 | 100
| Minority (non-Caucasian) | 0 | 0.0

Of the participating schools, one offers the IBMYP alone (7.1%), two offer the Diploma Programme in addition to the IBMYP (14.3%), five offer the Primary Years Programme in addition to the IBMYP (35.7%), and six offer three of the International Baccalaureate programmes, including the Primary Years Programme, the Diploma Programme, and the IBMYP (42.9%). Eleven of the schools were public (78.6%) and three private (21.4%). Just one school allows for teachers to transfer in or out of the IBMYP setting (7.1%), while the other thirteen provide no option for teachers to disengage with the IBMYP (92.9%). Transfer options arise when one or a few schools within a larger district offer the IBMYP and others do not. In such cases, teachers may have the option to transfer into or out of IBMYP schools while retaining employment by the same school district. Seven urban schools (50.0%) and seven suburban schools (50.0%) participated, and there were no rural IBMYP schools in the Midwestern state to sample (0.0%). Eight of the programs terminate in the 10th grade (57.1%) while six end the program in the 8th grade (42.9%). Schools choose when to terminate their IBMYP for various reasons, yet it generally relates to how the school district breaks up its grades into
buildings. Schools oftentimes end “middle school” in eighth grade and transition students into a different “high school” starting in ninth. This may produce a “break” in the IBMYP where the program must “jump” buildings while maintaining the IBMYP structure in a similar fashion across the schools. Districts can choose to end the IBMYP at that break (8th grade), or offer the program “in partnership” with a high school so that students continue in this way of learning through the 10th grade. Half of the schools participate in such a partnership with other buildings in their district (50.0%), while the remainders implement the program within their building only (50.0%). Nine of the program coordinators are female (64.3%), five are male (35.7%), and all of the coordinators self-identified as Caucasian (100%).

Table 5. Measure of Central Tendency of School Participant Data (level-2) (N=14)

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Time (%)</td>
<td>25</td>
<td>100</td>
<td>52.50</td>
<td>50.0</td>
<td>22.43</td>
</tr>
<tr>
<td>Coordinator Exp. (Years)</td>
<td>1</td>
<td>7</td>
<td>3.93</td>
<td>4.00</td>
<td>2.43</td>
</tr>
<tr>
<td>Years of MYP</td>
<td>1</td>
<td>12</td>
<td>5.57</td>
<td>4.00</td>
<td>3.90</td>
</tr>
<tr>
<td>Total PL Days</td>
<td>3</td>
<td>15</td>
<td>6.29</td>
<td>5.50</td>
<td>3.67</td>
</tr>
<tr>
<td>MYP PL Days</td>
<td>1</td>
<td>12</td>
<td>3.00</td>
<td>2.00</td>
<td>3.01</td>
</tr>
<tr>
<td>MYP Students</td>
<td>90</td>
<td>952</td>
<td>515.29</td>
<td>527.50</td>
<td>262.05</td>
</tr>
<tr>
<td>FRL Status (%)</td>
<td>0</td>
<td>77.1</td>
<td>44.20</td>
<td>47.42</td>
<td>27.37</td>
</tr>
<tr>
<td>Minority Population (%)</td>
<td>12.45</td>
<td>93.09</td>
<td>50.09</td>
<td>57.35</td>
<td>26.14</td>
</tr>
</tbody>
</table>

The percentage of work time a single individual had to coordinate the IBMYP in the participating schools ranged from 25% to 100% of their employment, with a mean of 52.50%, a median of 50.0%, and a standard deviation of 22.43%. The coordinator’s
experience coordinating the IBMYP ranged from 1 to 7 years, with a mean of 3.93 years, a median of 4.00 years, and a standard deviation of 2.43 years. The range of school’s experience with the IBMYP spanned 1 to 12 years, with a mean of 5.57 years and a median of 4.00 years. The range of days that schools use for “professional learning” (i.e., in-service work days without students) spanned from 3 to 15, averaging 6.29 days, a median of 5.50 days, and a standard deviation of 3.67 days. Of the school’s professional learning days, the number of days spent on IBMYP-focused learning ranged from 1 to 12, with a mean of 3.00 days, a median of 2.00, and a standard deviation of 3.01 days. The number of students in the school’s IBMYP ranged from 90 to 952, with a mean of 515.29 students, a median of 527.50, and a standard deviation of 262.05 students. The free-and-reduced lunch factor, which reflects the number of low-income youth, ranged from 0% to 77.1% of the IBMYP students, with an average of 44.20%, a median of 47.42%, and a standard deviation of 27.37%. Finally, the minority population in each IBMYP ranged from 12.45% to 93.09%, with a mean of 50.09%, a median of 57.35%, and a standard deviation of 26.14%.

**Outcome variables.** Table 6 provides the range, mean, median, and standard deviation of the six outcome variables, including the self-determination index and each of its five constructs. The measure of these outcomes was derived from the weighting system detailed in Chapter III. Responses were weighted upon their degree of autonomous motivation, ranging from negative three (i.e., amotivated) to positive three (i.e., intrinsically motivated).
Table 6. Measure of Range and Central Tendency of Participants’ Ratings of the
Self-Determination Index and Each Motivational Construct (N=227)

<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-determination index</td>
<td>-3.00</td>
<td>3.00</td>
<td>1.01</td>
<td>1.21</td>
<td>1.04</td>
</tr>
<tr>
<td>A: Philosophy</td>
<td>-3.00</td>
<td>3.00</td>
<td>1.63</td>
<td>1.80</td>
<td>1.13</td>
</tr>
<tr>
<td>C1: Collaborative Planning</td>
<td>-3.00</td>
<td>3.00</td>
<td>1.00</td>
<td>1.35</td>
<td>1.22</td>
</tr>
<tr>
<td>C2: Written Curriculum</td>
<td>-3.00</td>
<td>3.00</td>
<td>0.92</td>
<td>1.23</td>
<td>1.21</td>
</tr>
<tr>
<td>C3: Teaching and Learning</td>
<td>-3.00</td>
<td>3.00</td>
<td>1.25</td>
<td>1.41</td>
<td>0.91</td>
</tr>
<tr>
<td>C4: Assessment</td>
<td>-3.00</td>
<td>3.00</td>
<td>0.70</td>
<td>1.00</td>
<td>1.22</td>
</tr>
</tbody>
</table>

Responses ranged from -3.00 to 3.00 for the self-determination index and each of the constructs, representing the entire range of possible responses on the instrument. The overall measure, the self-determination index, had a mean of 1.01, suggesting that the average IBMYP educator in the sample displayed an “identified” regulatory style of motivation, reflective of a somewhat internally perceived locus of causality, the self-endorsement of IBMYP goals, and a conscious valuing of the program. Construct A: Philosophy displayed a mean of 1.63, approaching “integrated regulation” (2.0), and predictive of an internally perceived locus of causality as well as congruence between the goals of the IBMYP and the teachers’ own goals. C1: Collaborative Planning resulted in a mean of 1.00, displaying a solidly identified regulatory style. C2: Written Curriculum had a mean of 0.92, somewhat lower than previous constructs, yet still closest to identified regulation. C3: Teaching and Learning displayed a mean of 1.25, rounding to identified regulation, but still more autonomous than the self-determination index or C2: Written Curriculum. Finally, C4: Assessment showed a mean of 0.70, the lowest of the
constructs. While C4 leaned towards “introjected regulation,” it still rounds to identified and joins the self-determination index, C1, and C2 in the realm of a somewhat internally perceived locus of causality.

**Research Findings**

A single HLM was performed for the overall estimation of a teacher’s motivation towards the IBMYP standards and practices (i.e., the self-determination index) and each of its five constructs. This resulted in six HLM with different outcome variables (i.e., the constructs) and the same nine predictors in each model. Five teacher-level factors were nested in four school-level factors in each model. While the six HLM included both teacher-level and school-level factors, the results of each HLM were differentiated and reported in two sections to match the two research questions: 1) teacher-based predictors, and 2) school-based predictors. The relationship between teacher-level factors and teachers’ autonomous motivations are first reported, followed by the relationships between school-level factors and teachers’ autonomous motivations.

**Research question 1:** To what extent do teacher-based variables predict teachers’ degree of autonomous motivation towards each dimension of the IBMYP standards and practices?

This question was investigated using a series of level-2 HLM that included both teacher and school-level factors. Results pertaining to teacher-level factors have been isolated and reported in Tables 7 to 12. The five teacher-level predictors included in each model were the teacher’s perception of his/her coordinator’s competence, the number of IBMYP workshops the teacher has attended, the amount of collaborative time in minutes
the teacher participates in each week, teacher gender, and teacher race. These five teacher-level predictors were used in each HLM.

Table 7 depicts the results of the first overarching HLM with the self-determination index as its outcome variable. The self-determination index serves as an overall representation of autonomous motivation towards the IBMYP and was calculated by determining the mean of all 85 questions in the questionnaire.

Table 7. HLM Results for the Relationship between Teacher-level Variables and Teacher Motivation towards the Self-Determination Index.

<table>
<thead>
<tr>
<th>Teacher-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.417</td>
<td>0.084</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.088</td>
<td>0.042</td>
<td>0.038*</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.003</td>
<td>0.003</td>
<td>0.303</td>
</tr>
<tr>
<td>Gender</td>
<td>0.127</td>
<td>0.151</td>
<td>0.399</td>
</tr>
<tr>
<td>Race</td>
<td>-0.052</td>
<td>0.082</td>
<td>0.524</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

The results in Table 7 indicate that a teacher’s perceptions of their coordinator’s competence ($\gamma = 0.4417, p < 0.001$) was a significant predictor of their overall motivation towards the IBMYP as measured by the self-determination index ($\beta_0$). This suggests that for every increase in the participant’s rating of their coordinator’s competence, their corresponding autonomous motivation for the program is predicted to increase by nearly half of a regulatory style (e.g., identified towards integrated) as measured by the questionnaire’s scale. The number of official IBMYP workshops a teacher has attended ($\gamma = 0.088, p < 0.05$) was also found to significantly predict increases in the self-
determination index. These findings indicate that for every additional workshop a teacher attends their autonomous motivation is predicted to increase by 0.088 as measured by the *IBMYP Teacher Motivation Questionnaire*. This suggests that ten workshops would predict an increase in nearly one regulatory style (e.g., integrated to intrinsic). The amount of collaboration time per week, in minutes, ($\gamma = 0.003, p = .303$) was not found to significantly predict changes in autonomous motivation towards the program. Gender ($\gamma = 0.127, p = .399$) and race ($\gamma = -0.052, p = .524$) were not significant predictors of the outcome.

Figure 4 illustrates how the self-determination index is predicted to increase as the number of IBMYP workshops increases. The Figure also shows how a teacher’s perceptions of their coordinator’s competence influences the self-determination index, with the 75th percentile predicting higher degrees of self-determination across the range of IBMYP workshops a teacher has attended.

![Figure 4. HLM Results for the Self-Determination Index as it Relates to the Number of IBMYP Workshops and Coordinator’s Competence.](image-url)
Results from the second HLM are presented in Table 8. The second HLM utilized A1: Philosophy ($\beta_0$) as the outcome variable with the same predictors as the first HLM.

Table 8. HLM Results for the Relationship between Teacher-level Variables and Teacher Motivation towards the IBMYP A1: Philosophy Construct.

<table>
<thead>
<tr>
<th>Teacher-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.428</td>
<td>0.091</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.079</td>
<td>0.046</td>
<td>0.087</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.002</td>
<td>0.004</td>
<td>0.643</td>
</tr>
<tr>
<td>Gender</td>
<td>0.034</td>
<td>0.166</td>
<td>0.836</td>
</tr>
<tr>
<td>Race</td>
<td>-0.143</td>
<td>0.091</td>
<td>0.116</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Results in Table 8 indicate that a teacher’s perceptions of their coordinator’s competence ($\gamma = 0.428$, $p < 0.001$) alone was a significant predictor of their motivation towards the philosophy of the program. This suggests that for every increase in the participant’s rating of their coordinator’s competence their corresponding autonomous motivation for A1: Philosophy is predicted to increase by 0.444, nearly half a regulatory style. The number of official IBMYP workshops a teacher has attended ($\gamma = 0.079$, $p = 0.087$), a teacher’s weekly collaborative time ($\gamma = 0.002$, $p = 0.643$), gender ($\gamma = 0.034$, $p = .836$), and race ($\gamma = -0.143$, $p = .116$) were not found to significantly predict a teacher’s autonomous motivation towards A1: Philosophy.

The third HLM utilized C1: Collaboration ($\beta_0$) as its outcome variable. Results from this HLM are presented in Table 9.
Table 9. HLM Results for the Relationship between Teacher-level Variables and Teacher Motivation towards the IBMYP C1: Collaborative Planning Construct

<table>
<thead>
<tr>
<th>Teacher-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.453</td>
<td>0.100</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.096</td>
<td>0.050</td>
<td>0.056</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.006</td>
<td>0.004</td>
<td>0.112</td>
</tr>
<tr>
<td>Gender</td>
<td>0.119</td>
<td>0.178</td>
<td>0.506</td>
</tr>
<tr>
<td>Race</td>
<td>-0.017</td>
<td>0.097</td>
<td>0.862</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Table 9 shows that a teacher’s perceptions of their coordinator’s competence (γ = 0.453, p < 0.001) was a significant predictor of their motivation towards collaborative planning aspects of the IBMYP. This suggests that for every increase in the participant’s rating of their coordinator’s competence, their autonomous motivation for C1: Collaborative Planning is predicted to increase by nearly half a regulatory style. The number of workshops a teacher has attended (γ = 0.096, p = 0.056) approached significance and displayed a positive relationship with teacher’s motivation towards collaborative planning. The amount of weekly collaborative time (γ = 0.006, p = 0.112), gender (γ = 0.119, p = .506), and race (γ = -0.017, p = .862) were not significant predictors of C1.

HLM four focused on construct C2: Written Curriculum (β₀) for its outcome variable. Results from this HLM are presented in Table 10.
Table 10. HLM Results for the Relationship between Teacher-level Variables and Teacher Motivation towards the IBMYP C2: Written Curriculum Construct.

<table>
<thead>
<tr>
<th>Teacher-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.431</td>
<td>0.101</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.098</td>
<td>0.051</td>
<td>0.056</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.003</td>
<td>0.004</td>
<td>0.462</td>
</tr>
<tr>
<td>Gender</td>
<td>0.079</td>
<td>0.180</td>
<td>0.661</td>
</tr>
<tr>
<td>Race</td>
<td>-0.076</td>
<td>0.098</td>
<td>0.438</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Table 10 displays that, similarly to C1: Collaborative Planning, only a teacher’s perceptions of their coordinator’s competence ($\gamma = 0.442, p < 0.001$) significantly predicted motivation towards C2: Written Curriculum. This indicates that for every increase in the participant’s rating of their coordinator’s competence, their autonomous motivation for the written curriculum was predicted to increase by 0.431 of a regulatory style. Yet again, the number of workshops a teacher has attended ($\gamma = 0.098, p = 0.56$) approached significance. A teacher’s weekly collaborative time ($\gamma = 0.003, p = 0.462$), gender ($\gamma = 0.079, p = .661$), and race ($\gamma = -0.076, p = .438$) were not found to significantly predict a teacher’s autonomous motivation towards this construct.

The next HLM was focused on the relationship between teacher-level factors and C3: Teaching and Learning ($\beta_0$). Table 11 displays the results from this HLM.
Table 11. HLM Results for the Relationship between Teacher-level Variables and Teacher Motivation towards the IBMYP C3: Teaching and Learning Construct.

<table>
<thead>
<tr>
<th>Teacher-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.378</td>
<td>0.071</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.094</td>
<td>0.036</td>
<td>0.010*</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.001</td>
<td>0.003</td>
<td>0.591</td>
</tr>
<tr>
<td>Gender</td>
<td>0.175</td>
<td>0.130</td>
<td>0.178</td>
</tr>
<tr>
<td>Race</td>
<td>-0.074</td>
<td>0.071</td>
<td>0.301</td>
</tr>
</tbody>
</table>

*Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Table 11 indicates that a teacher’s perceptions of their coordinator’s competence ($\gamma = 0.378$, $p < 0.001$) and the number of workshops they’ve attended ($\gamma = 0.094$, $p < 0.05$) were significant predictors of their motivation towards IBMYP teaching and learning. This suggests that for every increase in the participant’s rating of their coordinator’s competence their autonomous motivation for C3: Teaching and Learning is predicted to increase by 0.378 of a regulatory style. Each workshop predicted a 0.094 increase towards teaching and learning, suggesting ten workshops could increase autonomous motivations by nearly a regulatory style. A teacher’s weekly collaborative time ($\gamma = 0.001$, $p = 0.591$), gender ($\gamma = 0.175$, $p = 0.178$), and race ($\gamma = -0.074$, $p = 0.301$) were not found to significantly predict their autonomous motivation towards C3: Teaching and Learning.

The final HLM utilized C4: Assessment ($\beta_0$) as its outcome variable. These results are listed in Table 12.
Table 12. HLM Results for the Relationship between Teacher-level Variables and Teacher Motivation towards the IBMYP C4: Assessment Construct.

<table>
<thead>
<tr>
<th>Teacher-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.423</td>
<td>0.102</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.064</td>
<td>0.051</td>
<td>0.212</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.004</td>
<td>0.004</td>
<td>0.353</td>
</tr>
<tr>
<td>Gender</td>
<td>0.162</td>
<td>0.182</td>
<td>0.374</td>
</tr>
<tr>
<td>Race</td>
<td>-0.007</td>
<td>0.099</td>
<td>0.947</td>
</tr>
</tbody>
</table>

*Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Results from the last HLM suggested that only the rating of coordinator’s competence ($\gamma = 0.423$, $p < 0.001$) could significantly predict increases of autonomous motivation towards IBMYP assessment, and that for each increase in rating, autonomous motivation would increase by 0.423 based on the regulatory style measurement. Neither the number of workshops the teacher attended ($\gamma = 0.064$, $p = .212$) nor their weekly collaborative time ($\gamma = 0.004$, $p = .290$) were significant predictors. The demographic variables of gender ($\gamma = 0.162$, $p = .374$) and race ($\gamma = -0.007$, $p = .947$) also lacked predictive power towards C4: Assessment.

Results focused on research question one indicated the extent to which perceptions of a coordinator’s competence, workshop attendance, participation in collaborative time, gender, and race predicted autonomous motivation towards the program as a whole and each of its five constructs. A teacher’s rating of their coordinator’s competence significantly predicted all outcome variables, spanning the self-determination index and each of its parts. The number of IBMYP workshops attended
also significantly predicted the self-determination index and C3: Teaching and learning. Finally, the number of minutes spent during weekly collaboration, gender, and, race did not significantly predict any of the outcome variables.

**Research question 2**: *To what extent do school-based variables predict teachers’ degree of autonomous motivation towards each dimension of the IBMYP standards and practices?*

The next suite of results is focused on research question two and utilized school-based variables as the predictors in each HLM. Tables 13 through 18 communicate the results first for the overall self-determination index and then each of the constructs in the same order as research question one. As previously noted, the following results were determined within the same tests as those reported above yet separated to highlight the “school-level variables” aligned with the second research question. As an example, the results in Table 13 were derived from the same HLM as that of Table 7 yet reported independently to match the research questions. Four school-level variables were utilized in each HLM, including the percentage of employment a coordinator spends coordinating the IBMYP, the number of IBMYP professional learning days the school has each year, at which grade level the IBMYP terminates, and the total number of professional learning days the school has each year.

Table 13 depicts the results of the first HLM with a focus on school-level variables. The outcome variable, “self-determination index,” ($\beta_0$) is the mean of all responses to the 85 questions about the IBMYP.
Table 13. HLM Results for the Relationship between School-level Variables and Teacher Motivation towards the IBMYP Self-Determination Index.

<table>
<thead>
<tr>
<th>School-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Percentage</td>
<td>0.022</td>
<td>0.007</td>
<td>0.009**</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.190</td>
<td>0.077</td>
<td>0.037*</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.584</td>
<td>0.274</td>
<td>0.062</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.127</td>
<td>0.071</td>
<td>0.105</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Table 13 indicates that a coordinator’s percentage of time coordinating the IBMYP ($\gamma = 0.022$, $p < 0.01$) significantly predicted the self-determination index. For each percentage point of time assigned to coordinating the program, a teacher’s autonomous motivation is predicted to increase 0.022 on the IBMYP Teacher Motivation Questionnaire scale. As an example, increasing a coordinator’s focus towards the IBMYP by 20% would predict nearly half a regulatory style increase in teacher’s autonomous motivation towards the IBMYP (0.44). The number of IBMYP professional learning days also significantly predicted increases in the self-determination index ($\gamma = 0.190$, $p < 0.05$). Each additional IBMYP professional learning day would predict a 0.190 scalar increase in the self-determination index, meaning five would be related to nearly a whole increase in regulatory style. The grade at which the IBMYP terminates approached significance ($\gamma = 0.584$, $p = .062$), suggesting that terminating the program at grade ten (as opposed to grade eight) may be related to increases in the self-determination index but cannot be further commented on at this time. Finally, the total number of professional learning days
learning days ($\gamma = -0.127, p = .105$) was not found to significantly predict the self-determination index.

Table 14 reports the results from the second HLM for the outcome variable of A1: Philosophy ($\beta_0$).

**Table 14. HLM Results for the Relationship between School-level Variables and Teacher Motivation towards the IBMYP A1: Philosophy Construct.**

<table>
<thead>
<tr>
<th>School-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Percentage</td>
<td>0.015</td>
<td>0.006</td>
<td>0.042*</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.128</td>
<td>0.069</td>
<td>0.097</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.562</td>
<td>0.260</td>
<td>0.059</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.033</td>
<td>0.062</td>
<td>0.614</td>
</tr>
</tbody>
</table>

*Notes.* *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$

Only the coordinator’s percentage ($\gamma = 0.015, p < 0.05$) was found to significantly predict changes in A1: Philosophy. For each percentage increase the coordinator is assigned to the program, autonomous motivation towards the philosophy of the IBMYP is predicted to increase by 0.015 on the autonomous motivation scale. Here, increasing the coordinator’s percentage by 20% would predict an increase in motivation towards A1: Philosophy by just below one-third of a regulatory style (0.3). Neither the number of IBMYP professional learning days ($\gamma = 0.128, p = 0.097$) nor the total number of professional learning days ($\gamma = -0.033, p = 0.614$) were found to significantly predict autonomous motivation towards the program philosophy. As in the first HLM, the year of IBMYP termination ($\gamma = 0.562, p = 0.059$) approached significance but was not so.
School-level factors in the third HLM are presented in Table 15. This HLM used C1: Collaboration ($\beta_0$) as the outcome variable.

### Table 15. HLM Results for the Relationship between School-level Variables and Teacher Motivation towards the IBMYP C1: Collaborative Planning Construct.

<table>
<thead>
<tr>
<th>School-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Percentage</td>
<td>0.023</td>
<td>0.008</td>
<td>0.021*</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.173</td>
<td>0.094</td>
<td>0.100</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.590</td>
<td>0.332</td>
<td>0.109</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.107</td>
<td>0.086</td>
<td>0.247</td>
</tr>
</tbody>
</table>

*Notes: *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$*

Akin to the A1: Philosophy HLM, only the coordinator’s percentage ($\gamma = 0.023$, $p < 0.05$) was found to significantly predict changes in C1: Collaborative Planning. The coordinator’s percentage coefficient is similar to those depicted in the self-determination HLM and much higher than the A1: Philosophy, with an increase of the coordinator’s percentage by 20% predicting an increase in motivation towards C1: Collaboration by almost half a regulatory style scale (0.46). The number of IBMYP professional learning days ($\gamma = 0.173$, $p = 0.100$), IBMYP termination ($\gamma = 0.590$, $p = 0.109$), and the total number of professional learning days ($\gamma = -0.107$, $p = 0.247$) were not found to significantly predict autonomous motivation towards C1: Collaborative Planning.

Table 16 reports results from the fourth HLM, using C2: Written Curriculum ($\beta_0$) as the outcome variable.
Table 16. HLM Results for the Relationship between School-level Variables and Teacher Motivation towards the IBMYP C2: Written Curriculum Construct.

<table>
<thead>
<tr>
<th>School-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Percentage</td>
<td>0.022</td>
<td>0.009</td>
<td>0.037*</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.172</td>
<td>0.102</td>
<td>0.126</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.556</td>
<td>0.354</td>
<td>0.150</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.112</td>
<td>0.094</td>
<td>0.263</td>
</tr>
</tbody>
</table>

*Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Like A1: Philosophy and C1: Collaborative Planning, only the coordinator’s percentage (γ = 0.022, p < 0.05) was found to significantly predict changes in motivation towards the IBMYP written curriculum. Using a 20% increase to coordinator’s time as an example again would predict an increase in motivation towards C2: Written Curriculum by 0.44 on the scale. The number of IBMYP professional learning days (γ = 0.172, p = 0.126), IBMYP termination (γ = 0.556, p = 0.150), and the total number of professional learning days (γ = -0.112, p = 0.263) were not found to significantly predict autonomous motivation towards the written curriculum.

The fifth HLM utilized C3: Teaching and Learning (β₀) as the outcome variable and is reported in Table 17.
Table 17. HLM Results for the Relationship between School-level Variables and Teacher Motivation towards the IBMYP C3: Teaching and Learning Construct.

<table>
<thead>
<tr>
<th>School-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Percentage</td>
<td>0.018</td>
<td>0.005</td>
<td>0.006**</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.157</td>
<td>0.056</td>
<td>0.021*</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.430</td>
<td>0.209</td>
<td>0.069</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.099</td>
<td>0.051</td>
<td>0.083</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Like the self-determination index HLM, the coordinator’s percentage (γ = 0.018, p < 0.01) and the number of IBMYP professional learning days (γ = 0.157, p < 0.05) were found to significantly predict C3: Teaching and Learning. Continuing with the 20% increase to coordinator’s time example, motivation towards the IBMYP teaching and learning standards would be predicted to increase by 0.36 of a regulatory style. Each additional IBMYP professional learning day was associated with a 0.157 scalar increase in motivation. IBMYP termination (γ = 0.430, p = 0.069) again approached significance but did not reach the p < 0.05 threshold. The total number of professional learning days did not significantly predict changes to the construct (γ = -0.099, p = 0.083).

The sixth and final HLM used C4: Assessment (β₀) as the outcome variable. Results from the HLM are reported in Table 18.
Table 18. HLM Results for the Relationship between School-level Variables and Teacher Motivation towards the IBMYP C4: Assessment Construct.

<table>
<thead>
<tr>
<th>School-level variable</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Percentage</td>
<td>0.029</td>
<td>0.009</td>
<td>0.008**</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.270</td>
<td>0.099</td>
<td>0.023*</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.804</td>
<td>0.345</td>
<td>0.045*</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.215</td>
<td>0.090</td>
<td>0.041*</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

All four school-level factors significantly predicted changes in the C4: Assessment construct. Increasing the coordinator’s percentage ($\gamma = 0.029$, $p < 0.01$) by 20% was associated with an increase in motivation towards IBMYP assessment standards and practices by more than half of a regulatory style (0.58), the largest increase displayed in any of the constructs. Terminating the IBMYP ($\gamma = 0.804$, $p < 0.05$) in tenth grade predicted an increase in autonomous motivation by 0.804, nearly an entire regulatory style over that of terminating in eighth. The number of IBMYP professional learning days ($\gamma = 0.270$, $p < 0.05$) and the total number of professional learning days ($\gamma = -0.215$, $p < 0.05$) were both found to significantly predict changes in autonomous motivation. While each increase of an IBMYP professional day predicted an increase of 0.270 towards C4: Assessment, the total number of professional learning days decreased motivation by 0.215 on the regulatory style scale. Figure 5 illustrates the relationship between the total number of professional learning days, the year of IBMYP termination, and C4: Assessment. This graphic is intended to clearly indicate the uniquely negative relationship between the total professional learning days and C4: Assessment, as well as
how the year of IBMYP termination remains significantly different across the total range of professional learning days.

Figure 5. HLM Results for C4: Assessment as it Relates to the Total Number of Professional Learning Days and the Year of IBMYP Termination

Figure 5 shows the decrease in autonomous motivation for C4: Assessment as the total number of professional learning days increase. For the complete range of total professional learning days included in the study (3-12), IBMYP schools which terminate at grade 10 are predicted to display higher degrees of autonomous motivation towards C4: Assessment.

Results focused on research question two indicated the extent to which a program coordinator’s percentage of employment, a school’s number of IBMYP professional learning days, the year at which the program terminates, and the total number of a school’s professional learning days significantly predicted autonomous motivation towards the program as a whole and each of its five constructs. A coordinator’s
percentage of time performing the role significantly predicted each outcome variable, spanning the self-determination index and each of its parts. The number of IBMYP professional learning days also significantly predicted the self-determination index, C3: Teaching and learning, and C4: Assessment. The year of program termination significantly predicted differences in C4: Assessment, indicating that ending in grade 10 predicts higher autonomous motivation than doing so in grade 8. Finally, a school’s total days of professional learning was only significant towards C4: Assessment, indicative of an inverse relationship where each additional day predicts a decrease in autonomous motivation towards program assessment.

Summary

Examining both teacher and school-level factors at once, perceptions of a coordinator’s competence, the total number of IBMYP workshops a teacher has attended, the coordinator’s percentage of time to work on the program, and the number of IBMYP professional learning days a school has significantly predicted increases in autonomous motivation towards the program as measured by the regulatory style scale resulting from the IBMYP Teacher Motivation Questionnaire. Considering both A1: Philosophy, C1: Collaborative Planning, and C2: Written curriculum constructs, only perceptions of coordinator’s competence and the coordinator’s percentage of time significantly predicted increases in autonomous motivation. Testing the C3: Teaching and Learning construct indicted that perceptions of coordinator’s competence, the number of IBMYP workshops a teacher has attended, the coordinator’s percentage, and the number of IBMYP professional learning days significantly predicted increases in autonomous motivation towards IBMYP teaching and learning. Finally, results from C4: Assessment
suggested that increases to perceptions of coordinator’s competence, the coordinator’s percentage, when the IBMYP terminates, and the number of IBMYP professional learning days predicted increases in autonomous motivation towards IBMYP assessment, whereas increases in the total number of professional learning days significantly predicted a decrease in autonomous motivation towards assessment. The full series of HLM results with teacher and school level factors combined may be reviewed in appendix H.

Table 19 summarizes the significant predictors of each construct regarding both teacher and school-level factors. The columns display each of the predictor variables grouped by level. The rows show the six outcome variables. An ‘X’ indicates that the factor was a significant predictor ($p < 0.05$) of the associated outcome variable.
Table 19. Summary of Results Depicting Significant Predictors for Each Outcome Variable.

<table>
<thead>
<tr>
<th></th>
<th>Teacher-level factors</th>
<th>School-level factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coord. Comp. IBMYP Workshops Collab. time Gender Race</td>
<td>Coord.'s Percentage IBMYP Term. IBMYP Days Total PL Days</td>
</tr>
<tr>
<td>SDIndex</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A1: Philosophy</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C1: Collab. Planning</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C2: Written Curriculum</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C3: Teaching &amp; Learning</td>
<td>X X</td>
<td>X X X</td>
</tr>
<tr>
<td>C4: Assessment</td>
<td>X</td>
<td>X X X X X</td>
</tr>
</tbody>
</table>

Notes: ‘X’ indicates that the independent factor was found to significantly predict \( p < 0.05 \) changes in the associated outcome variable displayed in the leftmost column.
To increase confidence in the accuracy of the results of the hierarchical linear model (HLM), matching multiple linear regressions were performed using each of the outcome variables and the predictors and reported in appendix I. Due to the way in which some of the variation in the level-1 factors is attributed to the variation in level-2, HLM is likely to provide a more conservative interpretation of significance than a traditional ordinary least squares (OLS) model when predictors are related in a hierarchical fashion. This concept was affirmed by the results of this study in which each significant predictor in the HLMs was also significant in the multiple regression models, yet the latter indicated additional significant predictors. For example, multiple instances of the HLM indicated that the year of IBMYP termination approached significance but was not so; a standard OLS model did not account for the nested design and so reported the IBMYP termination as a significant level-2 factor. Within the context of this study, this result is likely a false positive (type I error) that the HLM exposed.
CHAPTER V

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

This chapter first summarizes the findings related to each research question. Next, the relationship between the predictive factors and teachers’ motivation towards the International Baccalaureate Middle Years Programme (IBMYP) are discussed. These relationships are then extended into recommendations and implications for practitioners. The outcomes of the study are further put into context by outlining limitations to the study and through recommendations for further research. Finally, a brief conclusion provides closure to this investigation.

Summary of the Findings

This research was designed to explore the predictive nature of both school- and teacher-level factors as they relate to teachers’ motivation towards the IBMYP. This was done through 2-level hierarchical linear modeling (HLM) that accounted for the nested effects of school-level factors on teacher-level factors. Six HLM were performed to account for the overall motivation towards the IBMYP as well as each of its five constructs. School-level data was collected from fourteen IBMYP schools in a Midwestern state in the United States of America and the National Center for Education Statistics’ Common Core of Data (CCD) database (National Center for Education
Statistics, 2016). The teacher-level data was collected via a questionnaire from IBMYP educators in each of the fourteen schools.

Teacher-level factors included the number of IBMYP trainings the participant has attended, the perceived competence of their IBMYP coordinator, the average amount of collaborative planning time they engaged each week at the time of the questionnaire, gender, and race.

School-level data included the building’s annual number of professional learning days, the annual number of professional learning days focused on IBMYP implementation, the year at which the IBMYP terminates, and the amount of dedicated time for IBMYP coordinating by the IBMYP coordinator.

All outcome variables were measured by the weighted scale constructed in the *IBMYP Teacher Motivation Questionnaire* and based upon the motivational regulatory styles in self-determination theory. This design allowed for outcome scores to reflect teacher’s degree of motivation along the self-determination continuum and link to the distinguishable regulatory styles of intrinsic, integrated, identified, etc.

Results from the first HLM indicated that the perceptions of a coordinator’s competence and the total number of IBMYP workshops a teacher has attended significantly predicted increases in overall autonomous motivation towards the IBMYP. These teacher-level factors were nested within the school-level factors of a coordinator’s percentage of time dedicated to the program and a school’s number of IBMYP professional learning days, two additional predictors that significantly predicted increases in overall autonomous motivation towards the program as well.
The next three HLM focused on the philosophy, collaboration, and written curriculum of the program. In all cases, only perceptions of a coordinator’s competence and the coordinator’s percentage of time spent coordinating the IBMYP significantly predicted autonomous motivations in these constructs. This strongly suggests that the coordinator plays a significant role in motivation at both the teacher and school-level.

C3: Teaching and Learning was the outcome variable of the fifth HLM. Two teacher-level factors and two school-level factors were determined to significantly predict increases in autonomous motivation towards program teaching and learning. Of the teacher-level factors, perceptions of coordinator’s competence and the number of IBMYP workshops attended both significantly predicted increases. Of school-level factors, both the coordinator’s percentage of time to coordinate and the number of IBMYP-focused professional learning days the school has a year significantly predicted increases in autonomous motivation.

The sixth and final HLM indicated that the only teacher-level factor which significantly predicted changes in C4: Assessment was perceptions of a coordinator’s competence. Conversely, all school-level factors were found to significantly predict changes in autonomous motivation towards C4: Assessment. A coordinator’s percentage of time coordinating the program, when the school terminates the IBMYP, and the number of professional days focused on implementing the IBMYP were each associated with increases in autonomous motivation towards programmatic assessment. Unique to all predictors and models, increases to the total number of professional learning days a school has predicted decreases in autonomous motivation towards IBMYP assessment.
This suggests that the more professional learning days a school engages in the less autonomously motivated teachers may be towards C4: Assessment.

Increases to the perceptions of coordinator’s competence and the coordinator’s percentage of time focused on the program were found to significantly predict increases to autonomous motivation in each outcome variable. The amount of time a teacher spends collaboratively planning with colleagues was not significant in any of the analyses, including C1: Collaborative Planning. The demographic controls of gender and race were not significant predictors of any outcome variables.

Discussion

The importance of autonomous motivation for educators is clearly evident across classrooms and the literature. Motivation may be of particular import for IBMYP educators as they strive to meet increased demands of teaching (Field, 2011), use more student-centered approaches to teaching and learning (Hutching, 2007), and exhibit self-starter behavior as they go beyond the call of traditional teaching (Walters, 2007). As increases in autonomous motivation breed teacher creativity (Amabile, 1985; Hennesy, 1989; Deci, Vallerand, Pelletier, & Ryan, 1991), resilience (Eyal & Roth, 2011; Fernet, Guay, Senécal & Austin, 2012), and the inspiration of lifelong learning in students (Deci, Schwartz, Sheinman, & Ryan, 1981), better understanding how to construct school environments that support such increases is of utmost importance. Historically, schools wrestled with integrating the IBMYP into the school climate and culture, risking reductions in autonomous motivation as the program’s external regulations and requirements impose upon teacher’s autonomy and internal locus of causality. In light of this research, the tension between the internally-generated needs of educators and the
externally-driven demands of the program can be appeased to a certain extent, providing identifiable, controllable, practical factors that are predictive of increases in autonomous motivation towards the IBMYP. As motivation becomes more identified, integrated, and ultimately intrinsic, the benefits of an internally-driven teaching force can be reaped, contributing to the aspirations and intent of the International Baccalaureate Organization.

Each significant predictor and its relationship with the outcome variables is explored within the theoretical framework of self-determination theory (Deci, 1975; Deci & Ryan, 1985; Deci & Ryan, 2000) and its sub-theory, cognitive evaluation theory (Deci, 1975). In review, self-determination theory posits that there is a range of motivation based on the regulatory style in which the individual engages, from a complete lack of motivation (i.e., amotivation) to that which is purely autonomous (i.e., intrinsic). These steps match the degree with which an individual’s locus of causality (deCharms, 1968) is externalized or internalized, with more internal perceptions associated with higher degrees of autonomous motivation. Cognitive evaluation theory explains that supporting the three psychological “needs” of competence, relatedness, and autonomy allows individuals to become more autonomously motivated; it is through this postulate that the results of this research are discussed. Each predictive factor is aligned with these tenets of self-determination theory and cognitive evaluation theory to understand how it may relate to internalizing the locus of causality and the degree of autonomous motivation. Figure 3 in Chapter II provides a visual review of these theories and their relationships.

Results from this study provide insight into ways that schools can promote environments of autonomous motivation in the IBMYP. Considering the program as a whole through the self-determination index, a coordinator’s competence (or at least the
perception of a coordinator’s competence), the number of IBMYP workshops a teacher has engaged in, the amount of time a coordinator has dedicated to the program, and the number of professional learning days focused on implementing the program each predict increases in autonomous motivation towards the IBMYP.

The role of the coordinator clearly emerges as an important factor in facilitating increases in autonomous motivation towards the program. These results advise that coordinators’ competence and the extent of time to which they have to apply it matters greatly to how autonomously motivated teachers feel towards the IBMYP. Having faith in one’s coordinator lends aid somehow to increasing autonomous motivation, likely through self-competence and/or relatedness (two of the psychological needs of autonomous motivation). This aligns with literature that has consistently linked intrinsic motivation with competence (Vallerand & Reid, 1984) and relatedness (Connell & Wellborn, 1990). Interestingly, cognitive evaluation theory does not explicitly explain the influence of others’ competence on autonomous motivation, as shown here between coordinator and participant. In most cases, however, educators’ competence of the IBMYP is built upon the knowledge base of the school coordinator, the main provider of knowledge and understanding about the program (Robertson, 2011).

If a coordinator is perceived to be highly competent an educator may be confident in their own competence, a feeling conducive to autonomous motivation. Recent research on teacher confidence and competence suggests that these can be collaborative processes, enhanced through mentoring (Nolan & Molla, 2017) and peer dialogue (Eather, Riley, Miller, & Jones, 2017). As IBMYP coordinators are de facto mentors of the IBMYP and oftentimes take responsibility for collaborative planning time with extensive peer
dialogue, perhaps this form of “shared” confidence and competence building may explain why increases in teacher’ perception of their coordinator’s competence is associated with increases in their autonomous motivation towards the program. A counterfactual clarifies the reasoning: without a high perception of the IBMYP leader and program authority’s competence, one’s own competence is called into question, assailing the likelihood of autonomous motivation and hindering one’s own ability to invest in what is perceived to be an ill-informed implementation of the program.

The contribution of a coordinator’s time spent on the program complements the above hypothesis. Autonomous motivation towards the program as a whole is predicted to increase as a coordinator’s time spent on the program increases. The more time a coordinator has dedicated towards the program may positively influence educators through both competence and relatedness needs. A large portion of a coordinator’s time is spent understanding the expansive program and mentoring colleagues through its challenging implementation (Robertson, 2011). The more time spent on this coaching may be related to increases in feelings of teacher competence, growing a shared mastery and further contributing towards autonomous motivation. Conversely, a coordinator who spends less time on the program, the lowest of which was 25% in this study, may have little time to perform the dual role of learning the program and then building competence in others.

Taking this same concept further, a coordinator’s time may also intersect with the cognitive evaluation theory’s concept of relatedness. A coordinator with more time focused on the program can go beyond the more managerial yet mandatory aspects of the role, such as vertical articulation of concepts and the collection of assessment samples. In
addition to these more individualistic, mundane aspects of the job, coordinators with more time can facilitate collaborative planning, mentor more teachers one-on-one, lead professional learning, build relationships, and other valuable (but not explicitly required) aspects of the role (Robertson, 2011), each of which may contribute to a sense of relatedness with educators. If so, more time may contribute to more autonomous motivation by way of building strong relatedness between coordinators and educators. At just 25% of a coordinator’s time dedicated to the program it is hard to imagine developing a strong sense of relatedness, let alone complete the most basic functions of the post.

The number of IBMYP workshops a participant attended also significantly predicted their degree of autonomous motivation, with more workshops related to more internalized locus of causality. This may be attributed to the fact that IBMYP workshops are explicitly designed to increase competence about the program, making further connections with cognitive evaluation theory (CET). It may be surmised that a school’s professional learning about the IBMYP is also designed for the purpose of increasing competence, making the role of these two statistically significant factors as positive contributors to autonomous motivation understandably clear. CET posits that increases in competence facilitate the generation of autonomous motivation; by training IBMYP educators through official workshops as well as school in-service days, opportunities for going beyond external regulation to more internal forms may be provided. With low competence, educators may be “stuck” at lower forms of autonomous motivation (i.e., amotivation, external, and introjection) without the competence to know why or how to internalize the program (Vallerand & Reid, 1984). The ability to compare one’s own
values and goals with those of the program are significantly hindered without a clear understanding of the IBMYP, potentially preventing higher degrees of autonomous motivation. As workshops and professional learning days clarify the program, educators may be empowered to see how it resonates with their own values, facilitating identified, integrated, and intrinsic forms of motivation (deCharms, 1968). The fact that both factors are significant predictors of autonomous motivation indicates that they may be considered complementary factors that each serve a purpose in the autonomous motivation of IBMYP educators.

Workshops are a teacher-level factor in which individuals attend a formal two to three-day training led by IBMYP-trained personnel who contribute to the quality assurance framework of the program (IBO, 2017). IBMYP regulations require that only a single educator per subject area per school building must attend such a workshop (IBO, 2013a). This means that it is possible for relatively few educators in a school to have attended official training, despite its positive relationship with competence building and autonomous motivation. Conversely, the school-level factor of IBMYP professional learning days impact a school’s IBMYP educators as a whole, extending what has been learned by a small subset of staff at IBMYP workshops to a much larger constituency. It is important to note that both forms of competency-building significantly predict increases in autonomous motivation, yet the varying weight of their impact must be reflected upon.

Each IBMYP workshop a teacher attends predicted a 0.088 increase in their individual report of autonomous motivation. Each day a school spends on IBMYP learning predicted a 0.190 increase in a collective report of autonomous motivation en
masse because it is a school-level predictor. This suggests that IBMYP professional learning days have not only a larger corollary with autonomous motivation but an efficiency and economical advantage due to their scope and scale as well. While a single teacher may travel and attend a multi-day IBMYP workshop as a representative from their school, a school’s professional learning day generally engages with a large portion of the staff simultaneously, potentially building the need of relatedness in addition to competence. As such, a single IBMYP professional learning day predicted a stronger relationship with autonomous motivation for a larger group of people than multi-day IBMYP workshops did for a single individual, possibly due to its relatedness-enhancing benefits. That said, for schools to perform IBMYP professional learning days that are based upon actual IBMYP requirements and increase competence about the program, individuals must attend official IBMYP workshops to have the knowledge and skills to provide these highly impactful IBMYP in-service days. This intersection suggests that the two factors together can synergize to facilitate increases in autonomous motivation, but that IBMYP professional learning days have a larger, broader influence due to its connections with both competence and relatedness.

In summary, the self-determination index of teachers who have competent coordinators with sufficient time to perform their role predicted higher forms of autonomous motivation. Additionally, those who themselves may have felt more competent, due to IBMYP workshops and in-school professional learning about the IBMYP, were also predicted to exhibit higher autonomous motivation. Each of the predictors is likely to increase teachers’ competence, in turn facilitating enhances in autonomous motivation. These factors may not be limited to increases in competence,
however, as they may also have positive influences on feelings of relatedness, another psychological “need” enabling more internal forms of motivation. These four factors together represent both teacher-level and school-level features that may be adjusted in relationship to enhancing autonomous motivation towards the IBMYP in its entirety.

When focusing upon the philosophical aspects of the program only, factors related to the coordinator alone emerged as significant predictors of educators’ autonomous motivation. This reiterates the value coordinators have in the program as the envoys of the International Baccalaureate Organization and pedagogical leaders in schools. In their leadership role, coordinators assist educators in aligning their philosophical beliefs about education with those of the program. It appears that a highly competent coordinator, as perceived by their teaching staff, can assist educators in attuning their value systems, allowing faculty to regulate the philosophical aspects of the program through identification and integration. These results also suggest that coordinators who have more time for such negotiations are better able to serve competence and relatedness development in the philosophical beliefs and values of the program. As uncovered in the overall self-determination index, the results for A1: Philosophy suggest that the IBMYP coordinator is very important for building autonomously motivated teaching staff. A teacher’s autonomous motivation towards program philosophy was predicted to rise by nearly a half a regulatory style for every increase in the rating of their coordinator’s competence. This relationship clearly shows the value a coordinator’s competence has on the depth to which educators internalize program philosophy. These results also indicated that coordinators need time to serve this function, and that full-time coordinators that have 100% of their employment focused on
the IBMYP would be predicted to maximize philosophical harmony between teachers and the program all else equal. This harmony represents educators’ ability to bring the external philosophy within the self, increasing the likelihood of an internally perceived locus of causality and higher forms of autonomous motivation such as identification, integration, and intrinsic regulation (Deci & Vansteenkiste, 2004).

It is not surprising that the number of IBMYP workshops and IBMYP professional learning days were not significant predictors of educators’ motivation towards program philosophy. Examining the workshop guidebook suggests that philosophical discussions and exploration are oftentimes relegated to very early trainings (IBO, 2017). More likely, IBMYP workshops and professional learning days are focused on specific instances of program implementation rather than its overarching philosophy. This lack of significance may also suggest that the ongoing presence and work of coordinators has a much more meaningful relationship with teachers’ motivation towards program philosophy than the isolated instances of workshops or professional learning days. The value of having a consistent, job-embedded coordinator working towards IBMYP philosophy implementation daily versus that of infrequent, potentially disjointed training is made clear in this research. This difference in consistency may contribute to the explanation that the coordinator’s competence and time predicted philosophical motivation whereas short bursts of learning did not; A1: Philosophy represents a mindset and way of thinking much more than a discrete set of things to know, explaining in part why the coordinator alone is key for this construct.

Changes in the C1: Collaborative Planning construct were solely predicted by changes in coordinator factors as well. One expectation of IBMYP coordinators is that
they are facilitating collaborative planning with teams of teachers (IBO, 2013a; Robertson, 2011). The ability of the coordinator to guide these meetings may be contingent upon their competence (the first significant predictor), as well as the time allotted (the second significant predictor) for them to do so. Lacking competence or time, it is difficult to imagine a coordinator who could facilitate groups of educators as they work together on program implementation. As the coordinator’s competence increases so does the team’s autonomous motivation towards working together, likely through inroads of relatedness. Coordinators are not likely to play this boon to relatedness without sufficient time to do so, explaining why more time means more autonomous motivation towards C1: Collaborative Planning.

What is not as easily understood is the lack of collaborative time as a significant predictor of motivation towards C1: Collaborative Planning. The amount of time spent with colleagues may be hypothesized to increase senses of relatedness and therefore autonomous motivation, yet this does not appear to be the case in this model. Collaborative planning involves a range of practices, such as reflecting on curriculum in groups to vertical planning learning experiences across grade levels, and is required of all IBMYP educators (IBO, 2014d). It may be surmised that the amount of time holds some relationship with the degree of motivation towards completing these tasks, but there is no evidence for such a relationship in this study. Instead, the results indicated that across the range of collaborative time, from zero to ninety minutes a week, there was no ability to predict changes in autonomous motivation towards collaborative planning based upon the amount of time that a teacher collaborates.
It may be possible that the external oversight and mandatory nature of the meetings is too salient to integrate for some participants, reducing feelings of autonomy and thus autonomous motivation. CET informs that autonomy is a need of developing more internal forms of motivation (Connell & Wellborn, 1990), yet these collaborative meetings generally exist to ensure teachers of similar courses and subject areas are “on the same page” through the generation of a written curriculum (IBO, 2014d). This means that what one does in his/her classroom is influenced by the thinking and doing of others, possibly reducing feelings of autonomy for some educators in the study. The lack of a discernable pattern in the model may be due to how some educators do most of the sharing (imposing their ideas on others without loss of autonomy) and who is doing the receiving (resulting in a loss of autonomy), a difference irrespective of the amount of collaborative time. Furthermore, this study only examined the amount of collaborative time a teacher participates in while not controlling for its quality, and time constraints alone may predict decreases in autonomous motivation (Taylor, 2008). While time may not have been a significant predictor, there may still be an unaccounted-for relationship between aspects of collaborative planning and motivation towards C1: Collaborative planning.

Construct C2: Written Curriculum consists of standards and practices related to creating the units of inquiry to be taught to students, similar to lesson planning on a grander scale. The process is characterized by extensive IBMYP-specific knowledge as described in Chapter II, requiring educators to wrestle with technocratic facets of learning such as key concepts, global contexts, and assessment criteria (IBO, 2014d). Purely an invention of the IBMYP, it is highly unlikely that an educator can achieve any degree of
competence with unit-writing on their own or without the specific guidance of an adept mentor who has been officially trained. This understanding makes clear why a coordinator’s competence and their time dedication is predictive of autonomous motivation towards this highly specialized construct. The ability of the coordinator to explain and teach each part of the unit planner may very well influence one’s own ability to write units, increasing self-competence and therefore autonomous motivation. Being able to sit with and educate teacher teams is certainly important as well, with the coordinator acting as a “coach” while teachers engage in the written curriculum. This might only be possible with a satisfactory amount of time to serve as that resource, explaining why both coordinator competence and time serve as a significant predictor to motivation towards the written curriculum.

Surprisingly, the number of IBMYP workshops failed to significantly predict participants’ degree of autonomous motivation towards the written curriculum. IBMYP workshops come in three categories of experience, from Category 1 (i.e., beginner), to Category 2 (i.e., experienced), and culminating in Category 3 (i.e., special topics) (IBO, 2017). Category 1 workshops introduce the concepts of unit-writing and provide strict guidance as teachers dabble with the craft. This experience is generally extended in Category 2 training where teachers are coached through the completion of their own unit-to-be-taught from start to finish, intended to enhance their understanding of the written curriculum by creating something authentic for their classroom. Creating that unit with a coach is intended to increase competence with unit-writing, feeding into that prerequisite need which should enable autonomous motivation. Many participants in this study attended such workshops, yet this predictor did not quite reach significance ($p = 0.056$). It
is possible that the written curriculum, which consists of a set of lesson planning requirements, represents a reduction in autonomy that buffers any increases to autonomy from competence.

While educators may learn more about unit-writing at a workshop, in the act of doing so they become more restricted in how they plan. The IBMYP provides teachers a framework (IBO, 2014d, p. 52-55) with which they are expected to collaboratively plan units of inquiry. All teachers of a similar grade-level and subject are expected to collaborate and develop a single unit plan that all colleagues will follow (2014d), yet this mandated collaboration may work to reduce autonomy (Ascher, 1991) and therefore autonomous motivation. By imposing these requirements and limiting the freedoms by which educators plan, workshops may very well represent a conflict between the needs development of competence and autonomy. While teachers learn more about how to write unit plans (increasing competence) they simultaneously lose their ability to plan in their own way (decreasing autonomy), challenging the ability to identify a discernable pattern.

Unlike the written curriculum, the standards and practices regarding methods of teaching and learning are open to broad interpretation and encourage a “range and variety of strategies” (IBO, 2016a, p. 19). This may explain why the number of IBMYP workshops positively predicted increases in autonomous motivation towards C3: Teaching and Learning where it did not towards C2: Written curriculum. Workshops may be viewed as open windows into teaching and learning as opposed to closed doors for autonomy in the written curriculum. While learning about the written curriculum may feel restrictive, being encouraged to explore many different teaching and learning
strategies at workshops may boost a sense of competence and autonomy. Recent developments in workshops lend aid in understanding why this could be so.

IBMYP workshops are constructed to model the teaching and learning that fulfills the expectations of teaching and learning in the IBMYP, characterized by student-centered, inquiry-based, constructivist, and participatory approaches to teaching and learning (McDonough & Reed-Parsons, 2016). There is a trend towards making this modeling very explicit and apparent as it is happening in workshops (Halavati, 2016), possibly giving rise to why workshops predicted increases in teacher’s autonomous motivation towards teaching and learning in the IBMYP. While the teacher is learning during the workshop, likely about the written curriculum, the workshop leader is utilizing and pointing out myriad teaching and learning strategies that contribute towards development in C3: Teaching and Learning. Leaders do this by marking down student-centered teaching and learning strategies as they perform them, providing participants with clear experiences of what it is like to be a student in an IBMYP classroom. As teachers engage in a wide array of strategies from a learner’s point of view they are intended to become more competent in how to use them in their classes. If this is true, this learning is likely to increase their ability to be autonomously motivated towards C3: Teaching and Learning. Anecdotally, teachers struggle to “see” the type of teaching the IBMYP expects, but by experiencing it they may have a better grasp of how to enact such strategies on their own. If this concept is extended towards IBMYP professional days, in which coordinators are likely to facilitate teachers’ learning in a similar fashion as IBMYP workshops, it too may contribute towards educators competently “seeing” what teaching looks like in an IBMYP setting. As educators are empowered to competently
and autonomously choose and use a wide variety of teaching and learning strategies, autonomous motivation is predicted to rise.

In addition to IBMYP workshops and IBMYP professional learning days, coordinator’s competence and percentage significantly predicted C3: Teaching and Learning as well. The role of the coordinator’s competence and time likely follows a similar rationale as previously described, namely by increasing teacher competence and relatedness in order to facilitate autonomous motivation.

Finally, changes in C4: Assessment were significantly predicted by coordinator’s competence, time allotted for coordinating, the year of IBMYP termination, the number of IBMYP professional learning days, and the total number of professional learning days. Assessment is even more likely than other aspects of the program to hang on the ability and availability of the coordinator to guide educators towards competence. IBMYP assessment is highly specialized and externally driven, requiring educators to create assessments that are aligned with four different criteria and their associated rubric in each subject area (IBO, 2014d). Teachers do not choose these criteria and may only modify the assigned rubrics slightly, yet they are expected to craft assessments that allow students to achieve the highest marks as laid forth by the IBMYP. C4: Assessment can be restrictive, cumbersome, and oftentimes confusing, requiring a deep level of competence in order to achieve program expectations (Villegas, 2016).

With that in mind it is easy to see why the coordinator’s competence and time play such a vital role in predicting autonomous motivation towards assessment, yet one may wonder why IBMYP workshops did not. Reviewing the descriptive statistics of IBMYP workshop attendance, the mean workshops attended was 1.84 with a median of
1.00. All workshop participants are encouraged to start their training experience at Category 1 or Category 2, meaning that if a participant attended one or two workshops they were likely Category 1 or 2 (IBO, 2017). These categories merely introduce the program and tend to focus on the written curriculum, having relatively little relevance for building strong competence (and therefore autonomous motivation) towards assessment.

Assessment becomes a focus under Category 3 workshops, serving as a “special topic” that more seasoned IBMYP teachers may attend (IBO, 2017). If the average participant has been to just one or two workshops, it is highly unlikely that they’ve participated in a Category 3 or grew in competence towards this construct. This may partially explain why IBMYP workshops, in general, were not a significant predictor of the assessment construct, yet it would be unsurprising if the concerns expressed towards reductions in autonomy described within the discussion of C2: Written curriculum also applied to C4: Assessment. Here again it may be possible that increases in competence are buffered by decreases in autonomy, making conclusions about the role of workshops in autonomous motivation towards assessment difficult.

That said, teachers must grow competent about IBMYP assessment somewhere. This is most likely during time with their IBMYP coordinator and during IBMYP professional days. All IBMYP educators are expected to create, implement, and grade IBMYP assessments as part of program implementation; a school cannot be an authorized IBMYP without doing so (IBO, 2015b). Juxtaposing the fact that a minority of educators have participated in official IBMYP workshops about assessments with the requirement that they must be competent about such assessment suggests that IBMYP professional learning days must be enhancing this knowledge somehow. One may question how and
where else that competence could be established, providing support for the competency-based connection between IBMYP professional learning days and C4: Assessment.

Uniquely, the year at which the IBMYP terminates significantly predicted participants’ degree of autonomous motivation towards C4: Assessment. Results indicated that programs which terminate at grade 10 predict higher motivation towards assessment than those which terminate in grade 8. The requirement to vertically articulate assessments between and amongst all educators in the program may explain this finding. IBMYP assessment criteria are expected to build upon or “scaffold” each other vertically across the grade levels, culminating in rigorous student assessment in 10th grade (IBO, 2014d). 10th grade assessments “matter” for their contribution towards grade-point averages, influence on college and career opportunities, and direct connection with the IB’s Diploma Programme (Hemmens, 2016), giving them higher stakes than those in middle school and prior. Perhaps with this in mind, the IBMYP established the 10th grade assessment expectations and backwards mapped them to 6th, the first official grade-level of the program. With that understanding, as well as the expectation that all teachers in the program collaborate to align expectations, it is possible that programs which end in grade 10 exhibit more relevant and related assessments than those terminating in 8th. For example: a 6th grade teacher may exhibit more autonomous motivation towards assessment knowing that her work is aligned with and contributes to student outcomes in 10th grade, a time in which assessment “matters.” This unifying aspect of the program may enhance a sense of relatedness across the program, enabling autonomous motivation towards assessments. Adding tenth grade also means there are more people “in the same
boat” struggling through this challenging understanding and creation of assessment, contributing to a sense of relatedness and facilitating more internalized regulation.

Finally, the overall total number of a school’s professional learning day significantly predicted the degree of autonomous motivation towards C4: Assessment. As the total number of professional learning days increased the degree of autonomous motivation towards program assessment decreased. This contradiction may be explained by the tension between the time required to prepare students for successful completion of assessments and the time required for professional learning. If each of a teacher’s unit of learning ranges from four to eight weeks in length and culminates in an IBMYP summative assessment (IBO, 2014d), the number of professional learning days may actually serve as a detriment towards preparing students for successfully completing the assessment. In essence, each professional learning day is a day without students or teaching; as professional days increase, time with students decreases, straining the opportunity to prepare students for their culminating IBMYP assessments.

This inverse relationship might also be explained by the challenge of becoming competent in IBMYP assessment for the reasons discussed above. Growing adept at this challenging aspect of the program (Villegas, 2016) seems to require intense work with one’s coordinator, the highest-level training, and ongoing IBMYP-focused professional learning days. Perhaps increasing non-IBMYP professional learning days diffracts attention from this challenging construct, reducing competence and therefore related to decreases in autonomous motivation. Both time constraints and fractured attention could both explain why the number of professional learning days detrimentally relates towards C4: Assessment.
Finally, in contrast to the previous literature (Fernet, Senecal, Guay, Marsh, & Dowson, 2008; Vallerand, 1997), gender was not a significant predictor of autonomous motivation towards the IBMYP. This may be due to the focus of this research specifically on the IBMYP, not teaching in general which was the focus of earlier research. It may be possible that teaching factors outside of the program standards and practices, such as student-interactions, are salient points of difference between male and female teachers. Race, which had not discussed in previous literature, was not found to significantly predict autonomous motivation towards any of the outcomes. These findings together suggest that people of both genders and race categories (majority/minority) experienced the predictor variables in a similar way to the extent of which they relate to autonomous motivation in the program. The effect of workshops on the self-determination index, for example, was not significantly different between genders or race.

**Implications and Recommendations for Practice**

Results from this research may provide practitioners with several avenues to explore as they work to develop autonomously motivated IBMYP environments. This study was cross-sectional in nature, meaning there is no evidence for cause and effect relationships. Caution is advised against schools implementing any of the recommendations described below with the expectation that they will have a direct causational outcome related to increases in autonomous motivation. That said, the results of this study may allow for the reasonable hypothesis that facilitating change in alignment with results may be related to increases in autonomous motivation. For example, increasing the amount of time a coordinator has dedicated towards the program may facilitate their use of more autonomy-supportive language, allow them to develop
their own program competence, develop higher quality professional learning days, and more. It is unlikely that their time itself causes gains in teachers’ autonomous motivation, rather facilitates it, highlighting the need to interpret these results as corollary and not causational. Despite this caution, these recommendations could provide practitioners with ideas that have been shown to reasonably relate to higher autonomous motivation in IBMYP educators and thus may be worth consideration throughout program implementation.

Due to its consistent significance in the program overall as well as each construct, investment into a coordinator’s training and time is likely to facilitate gains in teachers’ autonomous motivation. Schools may be best served by maximizing the competence of its coordinator through extensive IBMYP training and ongoing development opportunities. Outcomes for the self-determination index suggest that teachers’ autonomous motivation is predicted to increase by half a regulatory style for each increase in their perception of their coordinator’s competence (as measured in the IBMYP Teacher Motivation Questionnaire). While there may be an upward limit to competence, coordinators could continually train and refine their understanding of the program. This intense competence-building goes beyond mere program changes or revisions, as educators are predicted to be more autonomously motivated in each construct of the program (teaching and learning, assessment, etc.) when served by coordinators who they perceive to be highly competent. This ongoing coordinator preparation should not be a secret; making known the degree of preparation the coordinator has had is likely to increase their perceived competence in addition to their actual competence, the former of which was the explicit predictor in this study. This coordinator preparation is likely to
diffuse throughout the school in the form of teacher competence, a mediating factor of increasing autonomous forms of motivation.

The other edge of this competency sword is that coordinators who are not perceived to be competent may require additional scrutiny from administration. Coordinator’s perceived competency was significant in the overall program and each construct, suggesting that their incompetence has far-reaching relationships across the board. All coordinators require time and opportunity to grow the specialized skill set and competence about the program, but this research may serve to embolden school administrators to not delay in replacing coordinators who are not displaying the competence needed to coordinate the program. This research suggests that a low-competency coordinator’s colleagues are not likely to be motivated to engage with the program autonomously. This may create a feedback loop, as without an autonomously-motivated staff there is little opportunity for someone to “step up” and fulfill the role of coordinator in his/her metaphorical absence, further turning the wheel of a downward spiral.

With a competent coordinator in place, this research suggests that providing them with the most time possible to coordinate the program predicts the growth of teachers’ autonomous motivation. 100% of time focused on the program may be optimal, yet a coordinator’s time is a finite resource. Each additional percentage is predicted to increase autonomous motivation by just 0.022 of a regulatory style, meaning it would take an additional 45.45% of dedicated coordinating time to predict a whole step towards more autonomous regulation in staff. This increase is very environmentally sensitive with its practicality contingent upon existing time dedication. Regardless, these results suggest
that more time to coordinate the program is related to a more autonomously motivated IBMYP teaching staff, something worth considering.

Schools which send more than one teacher per subject area do so voluntarily, yet this study encourages schools to go beyond the minimum requirement and send more teachers to multiple workshops. Each workshop is associated with higher autonomous motivation for the program as a whole and has particular import towards teaching and learning. Having more educators attend multiple workshops may also allow these same teachers to attend higher category workshops, including those focused on assessment. With so few educators attending Category 3 workshops in this study it is difficult to ascertain whether workshops could be a predictor of autonomous motivation towards that construct.

IBMYP workshop results may also have utility for the International Baccalaureate Organization (IBO) as well. Currently, the IBO only requires one teacher per subject area in a school to become trained with the rationale that such an individual will then coach colleagues to distribute the learning. The IBO may have reason to increase these expectations of training considering their hypothesized relationship with autonomous motivation towards the overall program and the taught curriculum. It is in the best interest of the IBO to set expectations that contribute towards a positive implementation structure and experience, arguably of which autonomous motivation plays a role. The IBO may be undercutting predictors of an autonomously motivated workforce that takes ownership of program implementation by requiring so few teachers to be trained.

IBMYP workshops are costly yet they are shown to relate to higher autonomous motivation. The IBO offers the ability for schools to host their own official, “in-school”
workshops licensed and led by official IBMYP workshop leaders (IBO, 2017, p.2). This reduces the overall cost for the district and allows them to maximize the cost-benefit ratio through a reduced registration cost and no travel or hotel expenses. Schools which hope to capitalize on this research may do well by choosing a workshop that suits a large portion of their staff, inquiring with the International Baccalaureate Organization about how to host it, and reap the benefits therein at a reduced price. This would allow a school to move cohorts of educators through the three categories of workshops in a more efficient way than sending individual teachers out to training across their region. This has the added benefit of engaging a larger group of school staff simultaneously, possible replicating the development of relatedness hypothesized in IBMYP professional learning days in addition to competence building.

IBMYP-focused professional learning days are in some ways an extension of IBMYP workshops. Increases to this factor positively related to higher autonomous motivation towards the program as a whole as well as teaching and learning and assessment. These results suggest that IBMYP coordinators should be empowered to facilitate IBMYP professional learning at every opportunity in order to enhance the environment for educators to develop the creativity and resilience related to autonomous motivation. The importance of focusing on the IBMYP during these days is made clear in light of the negative relationship that overall professional learning days have with program assessment. This suggests that a lack of focus on the IBMYP does not just fail to facilitate autonomous motivation, instead predicting its reduction to some degree. The number of IBMYP days in this study ranged from 0-12, and each additional day was predictive of higher autonomous motivation in staff. Schools may be confident that at
least up to twelve professional learning days focused on the IBMYP may be helpful in facilitating faculty’s internal motivations. Furthermore, IBMYP professional learning days displayed a higher coefficient of autonomous motivation than even IBMYP workshops, suggesting this is a good place for districts to invest professional learning time and money.

An increase in IBMYP professional learning days may initially prove challenging for schools as they reflect upon their competing initiatives, but clever connections may provide an avenue for bridging all professional learning with the IBMYP. The program’s standards and practices are vague, expansive, and inclusive; it should not be difficult to find meaningful connections with virtually anything a school wants to do and the requirements or aspirations of the IBMYP. Schools, under the leadership of the coordinator, may do well to expose and highlight the overlap between initiatives so that all professional learning is “IBMYP focused,” whether it is learning about explicit facets of the program or “other” learning that supports IBMYP implementation. A hypothetical for illustration could be the introduction of a new conflict resolution system in which students are awarded prizes for peer mediation. There is nothing in the IBMYP mandates that suggest such a program is required, yet they do expect that teaching and learning “addresses human commonality, diversity and multiple perspectives” and “allows for meaningful student action in response to students’ own needs and the needs of others” (IBO, 2016a, p. 5). As the school develops and teaches about this new conflict resolution system, it will be valuable to connect it with the above standards and practices and make clear how this new idea exists because of its contributions towards fulfilling IBMYP implementation goals. The school may develop the notion that they are teaching conflict
resolution as a form of meaningful action as it relates to human commonality, diversity and multiple perspectives, well under the umbrella and purview of the IBMYP. This could transform such an initiative from “non-IBMYP professional learning” to “IBMYP-focused” professional learning, predicting increases in autonomous motivation towards the program rather than decreases.

Finally, autonomous motivation towards IBMYP assessment may benefit from terminating the program in the 10\textsuperscript{th} grade. This comes at a cost, however, as increasing the grade levels would arguably require more workshops and likely more coordinator time if the other factors that facilitate autonomous motivation are to be in place. If a school is financially able to sustain sending two more grade-levels worth of educators to workshops and ensure that a coordinator is able to spend time working with the 9\textsuperscript{th} and 10\textsuperscript{th} grade in addition to those prior, terminating the program later would predict higher autonomous motivation towards assessment in an additive manner. If a school is not prepared to send more teachers to workshops or to develop a competent coordinator who is able to consistently work with additional grade levels, concentrating on lower grades may benefit the autonomous motivation of that smaller constituency of educators. Terminating the IBMYP at a later grade haphazardly may be penny-wise and pound-foolish, risking decreases in autonomous motivation towards the program as a whole if the commitment to IBMYP workshops and coordination is not in place.

Each of the above recommendations may be best implemented with the needs of competence, relatedness, and autonomy in mind, three factors which, when supported, are theorized to enhance autonomous motivation. The way in which these recommendations are implemented are likely to have impacts on the extent to which the intervention has
desired results. Decision-making along the lines of these results should be highly sensitive to the foundation of the research, namely self-determination theory and cognitive evaluation theory. Simply put through an example: Mandating more workshops because they predicted higher degrees of autonomous motivation in is likely to defeat the purpose. Instead, offering a variety of workshops that have been well-reasoned and explained, based on teachers’ evident and professed needs, and which are differentiated to allow choice may be more related to the desired outcome of higher autonomous motivation. Furthermore, workshops that utilize autonomy-supportive language, acknowledge the feelings of participants, build and validate competence, and serve to build collegiality and relatedness are more likely to predict higher autonomous motivation than those which are not. This study focused on the number of workshops a participant has engaged in alone, yet it is the qualities above which theory informs us that facilitate more autonomous motivation. It is with that depth of reflection, curation, and implementation that these recommendations are best acted upon.

While cross-sectional, results suggest that there are six factors related to autonomous motivation towards the IBMYP: 1) coordinator’s perceived competence, 2) coordinator’s time to coordinate the program, 3) a teacher’s IBMYP workshop attendance, 4) schools’ number of IBMYP professional learning days, 5) schools’ total number of professional learning days, and 6) the year at which the IBMYP terminates. Together, these represent areas of experimentation and concentration for aiding educators in becoming more autonomously motivated towards the program, if aligned and implemented with the tenets of cognitive evaluation theory.
**Limitations of the Study**

While the participating schools are representative of the IBMYP across an entire state, teacher participation within those schools were voluntary. This resulted in varied participation across schools, ranging from as low as 22.08% to as high as 75.68%, averaging a 38.40% response rate with a median of 37.55% and a standard deviation of 15.44%. This is a result of some smaller schools having more teacher participation than larger schools, and it is possible that those who participated were not reflective of the general population’s degrees of motivation. This could mean that some perspectives were underrepresented and others overrepresented in this research, thus problematizing the ability to generalize these results.

It is possible that other professional learning experiences also influenced participants’ motivation towards the IBMYP. The IBMYP encourages educators to teach through inquiry and concepts, and it is possible that some teachers have participated in non-IBMYP training regarding topics such as these. If so, these unaccounted learning experiences may have influenced the sample’s responses and overall results.

This study explored the degrees of autonomous motivation towards the IBMYP only, not teaching in general. Motivational outcomes must be limited towards the program and not generalized to non-IBMYP contexts. For example, it would be a mistake to conclude that teacher attendance at workshops is related to increases in autonomous motivation, as this study suggested only that teacher attendance at IBMYP workshops is related to increases in autonomous motivation towards the IBMYP.

The relationships between the predictor factors and teachers’ degrees of autonomous motivation were explored in this research, not cause and effect. Caution is
advised against practitioners manipulating factors with an expectation that it will directly result in increases in autonomous motivation. While it is clear some of these factors are related with degrees of autonomous motivation, this study does not suggest a cause-and-effect relationship.

**Recommendations for Further Research**

The questionnaire created in this study could be revised to include a smaller subset of the IBMYP standards and practices in order to reduce the time it takes to complete the questionnaire from 15-25 minutes to 10 or less. Reducing the time it takes to complete the questionnaire may encourage a broader range of completion in a larger sample. This may be done by focusing on just a single construct of the standards and practices, such as isolating the C2: teaching and learning standards. This reduction and refocusing is recommended before replicating the study to ensure a high response and completion rate.

Adding predictors that are in the vein of cognitive autonomy (in addition to competence and relatedness) would provide another avenue to explore how schools may facilitate autonomous motivation along cognitive evaluation theory. Most of the predictor variables in this study were explicitly connected with either competence or relatedness, but developing inquiries regarding autonomy may provide additional insight. One such example might be the extent to which principal’s behavior is autonomy-supportive, explored further below.

The relationship between principals and teachers is an important contributor to teachers’ autonomous motivation, thus including them and associated factors could further refine results. The lack of principals in this study could be remedied by a three-
level hierarchical linear model with principal factors between the schools and teachers.

Principals’ degree of autonomy-support (Thoonen, 2011), vision-building (Eyal & Roth, 2011), and empowering behaviors (Davis & Wilson, 2000) are predicted to increase autonomous motivation and would need to be quantified in order to be utilized in this design.

Adding qualitative interviews and case studies could reveal new contextual and predictive factors related to this research. Qualitative measures may aid in understanding these quantitative results while also introducing new factors to consider in the future. Interviews would allow for understanding the context of the factors as well as additional factors which may contribute to participants’ motivational profile.

The International Baccalaureate Organization has two other programs that this research could be modified to explore quite easily. Minor alterations to the questionnaire would allow for researchers to inquire with educators in the Primary Years Programme and the Diploma Programme, allowing for a cascade of comparison across the programs as well as the significant factors to each. All three programs are based upon the same standards and practices, making the questionnaire relatively universal.

**Conclusion**

This study was designed to investigate the relationship between teacher and school-level factors and teachers’ autonomous motivation towards the International Baccalaureate Middle Years Programme (IBMYP). This relationship was explored through a series of level-2 hierarchical linear models which nested teacher factors within school factors and examined their predictive power towards IBMYP autonomous motivation. The program was considered as a whole in addition to its subsets of
philosophy, collaborative planning, written curriculum, teaching and learning, and assessment. Results from this study indicated that increases to IBMYP coordinator’s competence, dedicated time to coordinating, a teacher’s IBMYP workshop attendance, the year at which the IBMYP terminates in the school, and the number of IBMYP-focused professional learning days predict higher forms of autonomous motivation towards varying aspects of the program. Conversely, as the total number of professional learning days increases, autonomous motivation towards IBMYP assessment decreases.

Autonomous motivation has far-reaching impacts upon teacher attributes that matter, ranging from their creativity to perseverance in the classroom. These factors are of particular import to IBMYP schools where teachers are expected to interpret and implement the IBMYP standards and practices in ways that contribute to students’ lifelong learning and autonomy. This research has provided several factors that schools may adjust in order to enhance the environment for autonomous motivation, aligning their policy and structure with their goals for the program. In this way, educators may very well be encouraged to identify, integrate, and even intrinsically implement the program to create the “better and more peaceful world” the IBMYP envisions.
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APPENDIX A: IBMYP Standards and Practices

(International Baccalaureate Organization, 2016a)

Section A: Philosophy

Standard A
The school’s educational beliefs and values reflect IB philosophy.
1. The school’s published statements of mission and philosophy align with those of the IB.
2. The governing body, administrative and pedagogical leadership and staff demonstrate understanding of IB philosophy.
3. The school community demonstrates an understanding of, and commitment to, the programme(s).

MYP requirement
a. The school ensures that all staff, students and parents understand the central importance of the personal project for students in year 5 of the programme (or community project for programmes that end in MYP year 3 or 4).

4. The school develops and promotes international-mindedness and all attributes of the IB learner profile across the school community.
5. The school promotes responsible action within and beyond the school community.
6. The school promotes open communication based on understanding and respect.
7. The school places importance on language learning, including mother tongue, host country language and other languages.
8. The school participates in the IB world community.
9. The school supports access for students to the IB programme(s) and philosophy.

MYP requirement
a. The school strongly encourages participation for all students.
Section B: Organization

Standard B1: Leadership and structure
The school’s leadership and administrative structures ensure the implementation of the IB programme(s).

1. The school has developed systems to keep the governing body informed about the ongoing implementation and development of the programme(s).

2. The school has developed a governance and leadership structure that supports the implementation of the programme(s).

3. The head of school/school principal and programme coordinator demonstrate pedagogical leadership aligned with the philosophy of the programme(s).

4. The school has appointed a programme coordinator with a job description, release time, support and resources to carry out the responsibilities of the position.

**MYP requirement**
- The MYP coordinator is part of the school pedagogical leadership team.

5. The school develops and implements policies and procedures that support the programme(s).

**MYP requirements**
- The school has developed and implements a language policy that is consistent with IB expectations.
- The school has developed and implements an inclusion/special educational needs policy that is consistent with IB expectations and with the school’s admissions policy.
- The school has developed and implements an assessment policy that is consistent with IB expectations.
- The school has developed and implements an academic honesty policy that is consistent with IB expectations.

6. The school has systems in place for the continuity and ongoing development of the programme(s).

**MYP requirement**
- The school’s organizational structures support the implementation of all subject groups offered by the school, approaches to learning, service and the personal project (or community project for programmes that end in MYP year 3 or 4).

7. The school carries out programme evaluation involving all stakeholders.
Standard B2: Resources and support
The school’s resources and support structures ensure the implementation of the IB programme(s).

1. The governing body allocates funding for the implementation and ongoing development of the programme(s).

2. The school provides qualified staff to implement the programme(s).

3. The school ensures that teachers and administrators receive IB-recognized professional development.

MYP requirement
a. The school complies with the IB professional development requirement for the MYP at authorization and at evaluation.

4. The school provides dedicated time for teachers’ collaborative planning and reflection.

5. The physical and virtual learning environments, facilities, resources and specialized equipment support the implementation of the programme(s).

6. The library/multimedia/resources play a central role in the implementation of the programme(s).

7. The school ensures access to information on global issues and diverse perspectives.

8. The school provides support for its students with learning and/or special educational needs and support for their teachers.

9. The school has systems in place to guide and counsel students through the programme(s).

10. The student schedule or timetable allows for the requirements of the programme(s) to be met.

MYP requirements
a. The schedule or timetable provides a broad and balanced choice of subjects from the required MYP subject groups.

b. The schedule or timetable provides the minimum required teaching hours per year for the required MYP subject groups.

c. The schedule or timetable promotes concurrency of learning.

11. The school utilizes the resources and expertise of the community to enhance learning within the programme(s).

12. The school allocates resources to implement the PYP exhibition, the MYP personal project (or community project for programmes that end in MYP year 3 or 4), the DP extended essay and the CP reflective project for all students, depending on the programme(s) offered.
Section C: Curriculum

Standard C1: Collaborative planning

Collaborative planning and reflection supports the implementation of the IB programme(s).

1. Collaborative planning and reflection addresses the requirements of the programme(s).

<table>
<thead>
<tr>
<th>MYP requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The school has an approach to curriculum planning that involves all MYP teachers.</td>
</tr>
<tr>
<td>b. Collaborative planning and reflection facilitates interdisciplinary learning to strengthen cross-curricular skills and the deepening of disciplinary understanding.</td>
</tr>
</tbody>
</table>

2. Collaborative planning and reflection takes place regularly and systematically.

3. Collaborative planning and reflection addresses vertical and horizontal articulation.

4. Collaborative planning and reflection ensures that all teachers have an overview of students’ learning experiences.

5. Collaborative planning and reflection is based on agreed expectations for student learning.

6. Collaborative planning and reflection incorporates differentiation for students’ learning needs and styles.

7. Collaborative planning and reflection is informed by assessment of student work and learning.

8. Collaborative planning and reflection recognizes that all teachers are responsible for language development of students.

9. Collaborative planning and reflection addresses the IB learner profile attributes.

Note: “Collaborative planning and reflection” is used as a single concept as the two processes are interdependent.
Standard C2: Written curriculum
The school’s written curriculum reflects IB philosophy.

1. The written curriculum is comprehensive and aligns with the requirements of the programme(s).

   **MYP requirements**
   a. The curriculum fulfills the aims and objectives of each subject group offered in each year of the programme and the personal project (or community project for programmes that end in MYP year 3 or 4).
   b. The written curriculum includes an approaches to learning planning chart for all years of the programme.
   c. The written curriculum includes subject group overviews for each subject group offered for each year of the programme.
   d. Unit plans are documented according to the MYP unit planning process.
   e. The curriculum fosters disciplinary and interdisciplinary understanding.
   f. There is a system for the regular review of individual unit plans and of the planning of approaches to learning skills.

2. The written curriculum is available to the school community.

3. The written curriculum builds on students’ previous learning experiences.

4. The written curriculum identifies the knowledge, concepts, skills and attitudes to be developed over time.

   **MYP requirement**
   a. The written curriculum includes the prescribed key concepts and related concepts in each subject group.

5. The written curriculum allows for meaningful student action in response to students’ own needs and the needs of others.

   **MYP requirement**
   a. The curriculum provides sufficient opportunities for students to meet the learning outcomes for service in every year of the programme.

6. The written curriculum incorporates relevant experiences for students.

7. The written curriculum promotes students’ awareness of individual, local, national and world issues.
8. The written curriculum provides opportunities for reflection on human commonality, diversity and multiple perspectives.

9. The written curriculum is informed by current IB publications and is reviewed regularly to incorporate developments in the programme(s).

10. The written curriculum integrates the policies developed by the school to support the programme(s).

11. The written curriculum fosters development of the IB learner profile attributes.

**Standard C3: Teaching and learning**

Teaching and learning reflects IB philosophy.

1. Teaching and learning aligns with the requirements of the programme(s).

<table>
<thead>
<tr>
<th>MYP requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Teaching and learning at the school uses global contexts as contexts for inquiry.</td>
</tr>
<tr>
<td>b. Teaching and learning allows students to meet the MYP objectives in each year of the programme for each subject group studied.</td>
</tr>
</tbody>
</table>

2. Teaching and learning engages students as inquirers and thinkers.

3. Teaching and learning builds on what students know and can do.

4. Teaching and learning promotes the understanding and practice of academic honesty.

5. Teaching and learning supports students to become actively responsible for their own learning.

6. Teaching and learning addresses human commonality, diversity and multiple perspectives.

7. Teaching and learning addresses the diversity of student language needs, including those for students learning in a language(s) other than mother tongue.

8. Teaching and learning demonstrates that all teachers are responsible for language development of students.

9. Teaching and learning uses a range and variety of strategies.

10. Teaching and learning differentiates instruction to meet students’ learning needs and styles.

11. Teaching and learning incorporates a range of resources, including information technologies.

12. Teaching and learning develops student attitudes and skills that allow for meaningful student action in response to students’ own needs and the needs of others.

13. Teaching and learning engages students in reflecting on how, what and why they are learning.

14. Teaching and learning fosters a stimulating learning environment based on understanding and respect.

15. Teaching and learning encourages students to demonstrate their learning in a variety of ways.

16. Teaching and learning develops the IB learner profile attributes.

*Note: “Teaching and learning” is used as a single concept as the two processes are interdependent.*
Standard C4: Assessment

Assessment at the school reflects IB assessment philosophy.

1. Assessment at the school aligns with the requirements of the programme(s).

   MYP requirements
   a. The school uses the prescribed assessment criteria for each subject group in each year of the programme.
   b. Teachers standardize their understanding and application of criteria before deciding on achievement levels.

2. The school communicates its assessment philosophy, policy and procedures to the school community.

3. The school uses a range of strategies and tools to assess student learning.

4. The school provides students with feedback to inform and improve their learning.

5. The school has systems for recording student progress aligned with the assessment philosophy of the programme(s).

   MYP requirement
   a. The school has a system for the qualitative monitoring of student involvement in service according to the school’s learning expectations for service.

6. The school has systems for reporting student progress aligned with the assessment philosophy of the programme(s).

7. The school analyses assessment data to inform teaching and learning.

8. The school provides opportunities for students to participate in, and reflect on, the assessment of their work.

9. The school has systems in place to ensure that all students can demonstrate a consolidation of their learning through the completion of the PYP exhibition, the MYP personal project (or community project for programmes that end in MYP year 3 or 4), the DP extended essay and the CP reflective project, depending on the programme(s) offered.
APPENDIX B: IBMYP Coordinator Correspondence

Email 1:

Dear MYP Coordinator:

Your District has been selected to participate in a pilot study to learn more about the motivations of teachers in the MYP. Your District superintendent has provided permission for your school to participate as has the Cleveland State University Institutional Review Board. Responses are to remain confidential and only reported in aggregate form.

The goal of the study is to determine school-based and teacher-based factors that predict increased levels of intrinsic motivation towards each Standard and Practice of the MYP. Intrinsic motivation relates to teacher creativity, persistence, and autonomy-supportive classroom practices - hallmarks of a successful MYP. This study is in no way related to teacher, school, district, or IB evaluation.

My request for MYP Coordinators is twofold:

1. Complete the questionnaire below to provide school-based information about your MYP. This should take between 5-10 minutes.
2. Forward a teacher questionnaire to all MYP educators in your building and encourage their participation. The questionnaire will be sent to you in a follow-up email.

Please complete the following questionnaire by ______________(dated two weeks from email)

Coordinator Questionnaire: https://www.surveymonkey.com/r/8WHKBFK

I thank you for your help with this important research. The results from this study have the potential to provide MYP coordinators and schools with new decision-making tools to enhance teacher motivation towards the MYP. This makes your input invaluable.

Sincerely,

Mr. John M. Moore
Doctoral Candidate
Department of Curriculum and Foundations,
Cleveland State University
Phone number
Email address
Email 2:

Dear MYP Coordinator:

Please forward this correspondence to all MYP educators in your building. See my previous email, "MYP Doctoral Research," for more information.

-----

Dear MYP Educator:

Your District has been selected to participate in a pilot study to learn more about the motivations of teachers towards the MYP. Your District superintendent has provided permission for your school to participate as has the Cleveland State University Institutional Review Board.

Responses are to remain confidential and only reported in aggregate form.

The goal of the study is to determine school-based and teacher-based factors that predict increased levels of intrinsic motivation towards each Standard and Practice of the MYP. Intrinsic motivation relates to teacher creativity, persistence, and autonomy-supportive classroom practices - hallmarks of a successful MYP. This study is in no way related to teacher, school, district, or IB evaluation.

To that end, please complete the following questionnaire by ____ (dated two weeks after email)

MYP Teacher Questionnaire: https://www.surveymonkey.com/r/MYPTeacher

Your contribution towards furthering the understanding of teacher's perspectives on the MYP is invaluable. With your help, coordinators and the International Baccalaureate community will be better able to create environments to support the motivations of educators in the MYP.

Sincerely,

Mr. John M. Moore
Doctoral Candidate
Department of Curriculum and Foundations,
Cleveland State University
Phone number
Email address
APPENDIX C: MYP Coordinator Informed Consent and Questionnaire

Motivation in the MYP - COORDINATOR QUESTIONNAIRE

Informed Consent Agreement

Informed Consent Agreement Form

Dear Coordinator-Participant:

We are Dr. Marius Boboc and Mr. John Moore from Cleveland State University. We are asking you to participate in a research study. We are trying to find factors that increase teachers’ motivation in the International Baccalaureate Middle Years Programme (IB-MYP). Results will be used to determine which factors predict higher levels of motivation and which don’t.

Participation is completely voluntary and you may withdraw at any time without penalty. There is no reward for participating. There is no consequence for not participating. There are no direct benefits to participants. The questionnaire should take around 5-10 minutes to complete. You are free to skip any items you choose not to respond to.

Risks associated with participation are considered to be minimal. Such risks are largely limited to compromised confidentiality. To minimize such risks we will be password protecting all responses. Responses will not be shared with any other parties. Responses will first be collected through the password-protected questionnaire. Then the responses will be downloaded to a secure hard drive and removed from the SurveyMonkey server. This intends to protect against outside forces accessing the data via a breach of SurveyMonkey’s security. Once downloaded, responses will be saved to a password-protected hard drive on the researcher’s computer. Only summary responses will be published or presented. No personal identifiers will be included in such data.

For more information please contact Dr. Marius Boboc at (216) 687-4581, email: m.boboc@csuohio.edu, or Mr. John Moore at (330) 861-6505, email: j.m.moore37@vikes.csuohio.edu.

If you have any questions about your rights as a research participant you may contact the Cleveland State University Institutional Review Board at (216) 687-3630.

You may print this letter to keep for your records. Please use your web browser’s print function to keep one copy for your records before continuing. Thank you for your cooperation and support. Please indicate your agreement to participate by clicking below.

* 1. "By clicking ‘yes’ I certify that I am 18 years or older and have read and understood this consent form and agree to participate. I understand that if I have any questions about my rights as a research subject I can contact the CSU Institutional Review Board at (216) 687-3630.”

☐ Yes

☐ No
Motivation in the MYP - COORDINATOR QUESTIONNAIRE

2. How many years have you been the IB-MYP Coordinator of your school?

3. On average, how many professional learning days does your school have in general?

4. On average, how many professional learning days are focused on the IB-MYP in your school?

5. Which other IB programmes do you have in the school district? Click all of those that apply.
   - Primary Years Programme (PYP)
   - Diploma Programme (DP)
   - Career-Related Programme (CP)
   - None

6. Which best describes your school?
   - Public
   - Public - charter
   - Public - magnet
   - Private - day school
   - Private - boarding school
* 7. Can teachers choose to work in the same capacity in a non IB-MYP school in your district? In other words, do they have the opportunity to transfer into or out of an MYP teaching position?
   - Yes
   - No

* 8. Which best describes the geographic context of your school?
   - Urban
   - Suburban
   - Rural

9. In which year did your school **begin** to pursue IBMYP implementation?
   [ ]

* 10. At which grade does the IB-MYP terminate in your school district/system/partnership?
   - Year 2 (Grade 7)
   - Year 3 (Grade 8)
   - Year 4 (Grade 9)
   - Year 5 (Grade 10)

* 11. Is your school part of an IB-MYP partnership with one or more other schools in your district?
   - Yes
   - No

* 12. What percentage of your school-based employment is dedicated to your role as IB-MYP coordinator? Please respond with a whole number 0-100. Do not include a percentage (%) symbol.
   [ ]

13. With which gender do you identify?
   - Female
   - Male
   - Other
14. With which ethnicity do you identify?
- African American
- Asian
- Caucasian
- Latino/a
- Pacific Islander
- Other

15. What else may be valuable in understanding the motivation of teachers in the IB-MYP?

16. In which school are you the IBMYP coordinator?

The identities of staff are not revealed in the final report/publication. The research is designed for minimal disruption to the school and its staff. The participation of all staff members is voluntary.
APPENDIX D: MYP Teacher Informed Consent and Questionnaire

Cleveland State University
Department of Curriculum and Foundations
College of Education and Human Services

Motivation in the MYP - TEACHER QUESTIONNAIRE

Informed Consent Agreement

Informed Consent Agreement Form

Dear Teacher-Participant:

We are Dr. Marius Boboc and Mr. John Moore from Cleveland State University. We are asking you to participate in a research study. We are trying to find factors that increase teachers’ motivation in the International Baccalaureate Middle Years Programme (IB-MYP). Results will be used to determine which factors predict higher levels of motivation and which don’t.

Participation is completely voluntary and you may withdraw at any time without penalty. There is no reward for participating. There is no consequence for not participating. There are no direct benefits to participants. The questionnaire should take around 15-25 minutes to complete. You are free to skip any items you choose not to respond to.

Risks associated with participation are considered to be minimal. Such risks are largely limited to compromised confidentiality. To minimize such risks we will be password protecting all responses. Responses will not be shared with any other parties. Responses will first be collected through the password-protected questionnaire. Then the responses will be downloaded to a secure hard drive and removed from the SurveyMonkey server. This intends to protect against outside forces accessing the data via a breach of SurveyMonkey’s security. Once downloaded, responses will be saved to a password-protected hard drive on the researcher’s computer. Only summary responses will be published or presented. No personal identifiers will be included in such data.

For more information please contact Dr. Marius Boboc at (216) 687-4581, email: m.boboc@csuohio.edu, or Mr. John Moore at (330) 861-6508, email: j.m.moore37@vikes.csuohio.edu.

If you have any questions about your rights as a research participant you may contact the Cleveland State University Institutional Review Board at (216) 687-3630.

You may print this letter to keep for your records. Please use your web browser’s print function to keep one copy for your records before continuing. Thank you for your cooperation and support. Please indicate your agreement to participate by clicking below.

* 1. “By clicking ‘yes’ I certify that I am 18 years or older and have read and understood this consent form and agree to participate. I also understand that if I have any questions about my rights as a research subject I can contact the CSU Institutional Review Board at (216) 687-3630.”

  - Yes
  - No

* 2. In which Ohio International Baccalaureate School are you employed?
* 3. How many years of teaching experience do you have?

* 4. How many years of teaching experience do you have *in an IB-MYP school*?

* 5. Which subject area do you teach?

* 6. Which grade level do you primarily teach?

* 7. How many official IB-MYP workshops have you attended? Official IB-MYP workshops are presented by IB-certified workshop leaders.

* 8. On a scale of 1-5, how competent (knowledgeable) about the IB-MYP do you feel?

<table>
<thead>
<tr>
<th>1 - Not competent</th>
<th>2</th>
<th>3 - Somewhat competent</th>
<th>4</th>
<th>5 - Very competent</th>
</tr>
</thead>
</table>

* 9. On a scale of 1-5, how competent (knowledgeable) do you perceive your IB-MYP coordinator to be?

<table>
<thead>
<tr>
<th>1 - Not competent</th>
<th>2</th>
<th>3 - Somewhat competent</th>
<th>4</th>
<th>5 - Very competent</th>
</tr>
</thead>
</table>
* 10. Is your primary residence (i.e., where you live) in the school district in which you teach?
   ○ Yes
   ○ No

* 11. On average, how many minutes do you participate in IB-MYP collaborative time with colleagues each week?

12. With which gender do you identify?
   ○ Female
   ○ Male

13. With which race do you identify?
   ○ African American
   ○ Asian
   ○ Caucasian
   ○ Latino/a
   ○ Pacific Islander
   ○ Other

14. What else may be valuable in understanding the motivation of teachers in the IB-MYP?
15. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Statement</th>
<th>I don't see its purpose or relevance</th>
<th>It's a requirement of being an IB-MYP teacher</th>
<th>I would be letting others down or feel guilty if I didn't do it</th>
<th>It's an important part of being an IB-MYP teacher</th>
<th>It fits with my view of being a good teacher</th>
<th>I enjoy it and find it interesting or engaging</th>
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</thead>
<tbody>
<tr>
<td>Developing international mindedness in students</td>
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<td>Developing the attributes of the IB Learner Profile in students</td>
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<td>Promoting responsible action within and beyond the school community</td>
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<td>Promoting open communication based on understanding and respect</td>
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<tr>
<td>Placing importance on language learning</td>
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</tbody>
</table>

16. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Statement</th>
<th>I don't see its purpose or relevance</th>
<th>It's a requirement of being an IB-MYP teacher</th>
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<th>It's an important part of being an IB-MYP teacher</th>
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<th>I enjoy it and find it interesting or engaging</th>
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<tbody>
<tr>
<td>Utilizing the library as a central role in teaching and learning in the IB-MYP</td>
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<td>Providing student access to global issues and diverse perspectives</td>
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<td>Providing support to students with learning and/or special education needs</td>
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<td>Involving all relevant teachers in curricular planning for a subject area or course</td>
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<td>Facilitating interdisciplinary learning between subject areas</td>
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</tbody>
</table>
17. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Using students’ assessment data to inform curriculum planning and reflection</th>
<th>I don’t see its purpose or relevance.</th>
<th>It’s a requirement of being an IB-MYP teacher.</th>
<th>I would be letting others down or feel guilty if I didn’t do it.</th>
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<th>It fits with my view of being a good teacher.</th>
<th>I enjoy it and find it interesting or engaging.</th>
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<tr>
<td>Providing opportunities for students to participate in, and reflect on, the assessment of their work</td>
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<td>Regularly reflecting on and revising IB-MYP unit plans</td>
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<td>Writing unit-plans that build on students’ previous learning experiences</td>
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<td>Writing unit-plans that allow for meaningful student action in responses to students’ own needs and the needs of others</td>
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18. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Developing the Statement of Inquiry for an IB-MYP unit</th>
<th>I don’t see its purpose or relevance.</th>
<th>It’s a requirement of being an IB-MYP teacher.</th>
<th>I would be letting others down or feel guilty if I didn’t do it.</th>
<th>It’s an important part of being an IB-MYP teacher.</th>
<th>It fits with my view of being a good teacher.</th>
<th>I enjoy it and find it interesting or engaging.</th>
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<tr>
<td>Choosing a key concept for an IB-MYP unit</td>
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<td>Teaching students the meaning of IB-MYP key concepts</td>
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<tr>
<td>Teaching students the meaning of IB-MYP related concepts</td>
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<tr>
<td>Choosing related concepts for an IB-MYP unit</td>
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</table>
19. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Making the IB-MYP rubrics task-specific (clarifying expectations of the rubric)</th>
<th>I don't see its purpose or relevance.</th>
<th>It's a requirement of being an IB-MYP teacher.</th>
<th>I would be letting others down or feel guilty if I didn't do it.</th>
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<tr>
<td>Using the IB-MYP rubrics to assess student work</td>
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<td>Teaching students how to use the IB-MYP rubrics</td>
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<td>Making assessments based on the IB-MYP rubrics</td>
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<td>Matching the IB-MYP rubrics to assessments</td>
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</table>

20. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Providing feedback to students using the IB-MYP rubrics</th>
<th>I don't see its purpose or relevance.</th>
<th>It's a requirement of being an IB-MYP teacher.</th>
<th>I would be letting others down or feel guilty if I didn't do it.</th>
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<tbody>
<tr>
<td>Choosing which Approaches to Learning Skills will be taught in an IB-MYP unit</td>
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<tr>
<td>Teaching the Approaches to Learning Skills</td>
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<td>Aligning the Approaches to Learning skills across grade levels (vertical articulation)</td>
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<tr>
<td>Aligning the Approaches to Learning skills across subject-areas (horizontal articulation)</td>
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</table>
21. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Planning for the differentiation of assessment in an IB-MYP unit</th>
<th>I don’t see its purpose or relevance</th>
<th>It’s a requirement of being an IB-MYP teacher</th>
<th>I would be letting others down or feel guilty if I didn’t do it</th>
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<tbody>
<tr>
<td>Planning the students’ learning experiences in an IB-MYP unit</td>
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<td>Planning the teachers’ teaching strategies in an IB-MYP unit</td>
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<td>Choosing resources for an IB-MYP unit</td>
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<tr>
<td>Creating resources for an IB-MYP unit</td>
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</table>

22. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Reflecting on an IB-MYP unit as it is being taught</th>
<th>I don’t see its purpose or relevance</th>
<th>It’s a requirement of being an IB-MYP teacher</th>
<th>I would be letting others down or feel guilty if I didn’t do it</th>
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<th>I enjoy it and find it interesting or engaging</th>
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<tbody>
<tr>
<td>Reflecting on the IB-MYP unit after it has been taught</td>
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<tr>
<td>Collaborating with colleagues on writing IB-MYP units</td>
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<tr>
<td>Collaborating with colleagues on IB-MYP unit assessments</td>
<td>○</td>
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<tr>
<td>Collaborating with colleagues on choosing IB-MYP unit resources</td>
<td>○</td>
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</table>
23. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Statement</th>
<th>I don't see its purpose or relevance</th>
<th>It's a requirement of being an IB-MYP teacher</th>
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</thead>
<tbody>
<tr>
<td>Implementing the IB-MYP school's Academic Honesty Policy</td>
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<tr>
<td>Implementing the IB-MYP school's Assessment Policy</td>
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<tr>
<td>Participating in dedicated, regular, systematic collaborative planning and reflection time</td>
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<tr>
<td>Planning for the vertical (by grade) and horizontal (by subject area) articulation of knowledge and skills</td>
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<tr>
<td>Having an overview of students' learning experiences across grades and subject areas</td>
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24. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Statement</th>
<th>I don't see its purpose or relevance</th>
<th>It's a requirement of being an IB-MYP teacher</th>
<th>I would be letting others down or feel guilty if I didn't do it</th>
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<tbody>
<tr>
<td>Developing agreed upon expectations for student learning between teachers</td>
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<tr>
<td>Writing factual inquiry questions</td>
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<tr>
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<tr>
<td>Writing debatable inquiry questions</td>
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<tr>
<td>Choosing a global context for an IB-MYP unit</td>
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</table>
25. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

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<th>Task</th>
<th>I don't see its purpose or relevance</th>
<th>It's a requirement of being an IB-MYP teacher</th>
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<tbody>
<tr>
<td>Teaching students the meaning of IB-MYP global contexts</td>
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<tr>
<td>Standardizing the use of the IB-MYP rubrics</td>
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<td>Reflecting on and revising the use of IB-MYP rubrics</td>
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<td>Determining an achievement level (0-8) on students' work</td>
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26. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

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<tr>
<td>Assessing student performance on the Approaches to Learning Skills</td>
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<td>Choosing the academic content standards to be taught in an IB-MYP unit</td>
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<td>Planning for differentiation of the IB-MYP unit</td>
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<td>Analyzing assessment data to inform teaching and learning</td>
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<td>Creating assessments for an IB-MYP unit</td>
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27. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

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<th>Provided opportunities for student service</th>
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<td>Incorporating relevant experiences for students in unit plans</td>
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<tr>
<td>Fostering the development of the IB learner profile attributes through unit planning</td>
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28. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

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<tr>
<td>Supporting students in becoming actively responsible for their own learning</td>
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<td>Addressing the diversity of student language needs, including those for students learning in a language(s) other than mother tongue</td>
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<td>○</td>
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<tr>
<td>Using a range and variety of teaching strategies</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Differentiating instruction to meet students’ learning needs and style</td>
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<tbody>
<tr>
<td>Encouraging students to demonstrate their learning in a variety of ways</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Using the prescribed assessment criteria (A, B, C and D)</td>
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<td>☐</td>
<td>☐</td>
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<tr>
<td>Standardizing the understanding and application of assessment criteria before deciding on student achievement levels</td>
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<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Using a range of strategies and tools to assess student learning</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Providing students with feedback to inform and improve their learning</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
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</table>
30. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Reflection on the IB-MYP unit before it has been taught</th>
<th>It's a requirement of being an IB-MYP teacher</th>
<th>I would be letting others down or feel guilty if I didn't do it</th>
<th>It's an important part of being an IB-MYP teacher</th>
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<tr>
<td>Participating in IB-MYP professional learning developed by personnel of the IB-MYP school</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Participating in IB-MYP professional learning developed by an official IB-certified workshop leader</td>
<td>○</td>
<td>○</td>
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<td>○</td>
</tr>
<tr>
<td>Participating in the IB-MYP &quot;Community Project&quot; (Year 3) or &quot;Personal Project&quot; (Year 5)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using global contexts as contexts for inquiry</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</table>
31. Please mark the statement that best describes your motivation towards the standards and practices of the IB-MYP in each row.

<table>
<thead>
<tr>
<th>Engaging students as inquirers and thinkers</th>
<th>I don't see its purpose or relevance.</th>
<th>It's a requirement of being an IB-MYP teacher.</th>
<th>I would be letting others down or feel guilty if I didn't do it.</th>
<th>It's an important part of being an IB-MYP teacher.</th>
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</thead>
<tbody>
<tr>
<td>Building on what students know and can do</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Incorporating a range of resources into teaching and learning, including information technologies</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Engaging students in reflecting on how, what and why they are learning</td>
<td>○</td>
<td>○</td>
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<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Fostering a stimulating learning environment based on understanding and respect</td>
<td>○</td>
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### APPENDIX E: Constructs and Corresponding Question Stems

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha Reliability</th>
<th>Question Code</th>
<th>Question Stem</th>
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<tbody>
<tr>
<td>A: Philosophy</td>
<td>.836</td>
<td>A.1</td>
<td>Developing international mindedness in students</td>
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<td></td>
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<td>A.2</td>
<td>Developing the attributes of the IB Learner Profile in students</td>
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<td></td>
<td></td>
<td>A.3</td>
<td>Promoting responsible action within and beyond the school community</td>
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<tr>
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<td></td>
<td>A.4</td>
<td>Promoting open communication based on understanding and respect</td>
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<tr>
<td></td>
<td></td>
<td>A.5</td>
<td>Placing importance on language learning</td>
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<tr>
<td>C1: Collaborative Planning</td>
<td>.935</td>
<td>C1.1</td>
<td>Involving all relevant teachers in curricular planning for a subject area or course</td>
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<tr>
<td></td>
<td></td>
<td>C1.2</td>
<td>Facilitating interdisciplinary learning between subject areas</td>
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<tr>
<td></td>
<td></td>
<td>C1.3</td>
<td>Regularly reflecting on and revising IB-MYP unit plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C1.4</td>
<td>Aligning the Approaches to Learning skills across grade levels (vertical articulation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C1.5</td>
<td>Aligning the Approaches to Learning skills across subject-areas (horizontal articulation)</td>
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<tr>
<td></td>
<td></td>
<td>C1.6</td>
<td>Reflecting on an IB-MYP unit as it is being taught</td>
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<td>C1.7</td>
<td>Reflecting on the IB-MYP unit after it has been taught</td>
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<td></td>
<td></td>
<td>C1.8</td>
<td>Collaborating with colleagues on writing IB-MYP units</td>
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<tr>
<td></td>
<td></td>
<td>C1.9</td>
<td>Collaborating with colleagues on IB-MYP unit assessments</td>
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<td>C1.10</td>
<td>Collaborating with colleagues on choosing IB-MYP unit resources</td>
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<tr>
<td></td>
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<td>C1.11</td>
<td>Participating in dedicated, regular, systematic collaborative planning and reflection time</td>
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<td></td>
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<td>C1.12</td>
<td>Planning for the vertical (by grade) and horizontal (by subject area) articulation of knowledge and skills</td>
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<tr>
<td></td>
<td></td>
<td>C1.13</td>
<td>Having an overview of students’ learning experiences across grades and subject areas</td>
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<tr>
<td></td>
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<td>C1.14</td>
<td>Developing agreed upon expectations for student learning between teachers</td>
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<td>C1.15</td>
<td>Reflecting on the IB-MYP unit before it has been taught</td>
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<td>Participating in IB-MYP professional learning developed by personnel of the IB-MYP school</td>
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<td>Construct</td>
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<td>C1.17 Participating in IB-MYP professional learning developed by an official IB-certified workshop leader</td>
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<td>C2.1 Writing unit-plans that build on students’ previous learning experiences</td>
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<td>C2.2 Writing unit-plans that allow for meaningful student action in responses to students’ own needs and the needs of others</td>
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<td>C2.3 Developing the Statement of Inquiry for an IB-MYP unit</td>
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<td>C2.4 Choosing a key concept for an IB-MYP unit</td>
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<td>C2.5 Choosing related concepts for an IB-MYP unit</td>
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<tr>
<td>C2.6 Choosing which Approaches to Learning Skills will be taught in an IB-MYP unit</td>
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<td>C2.7 Planning for the differentiation of assessment in an IB-MYP unit</td>
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<td>C2.8 Planning the students' learning experiences in an IB-MYP unit</td>
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<td>C2.9 Planning the teachers' teaching strategies in an IB-MYP unit</td>
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<td>C2.10 Choosing resources for an IB-MYP unit</td>
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<td>C2.11 Creating resources for an IB-MYP unit</td>
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<td>C2.12 Writing factual inquiry questions</td>
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<td>C2.13 Writing conceptual inquiry questions</td>
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<td>C2.14 Writing debatable inquiry questions</td>
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<td>C2.15 Choosing a global context for an IB-MYP unit</td>
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<td>C2.17 Choosing the academic content standards to be taught in an IB-MYP unit</td>
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<td>C2.19 Incorporating relevant experiences for students in unit plans</td>
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<td>C2.20 Fostering the development of the IB learner profile attributes through unit planning</td>
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<td>C2.21 Addressing the diversity of student language needs, including those for students learning in a language(s) other than mother tongue.</td>
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<td>C2.22 Building on what students know and can do</td>
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<td>C3.2 Providing student access to global issues and diverse perspectives</td>
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<td>Providing support to students with learning and/or special education needs</td>
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<td>C3.5</td>
<td>Teaching students the meaning of IB-MYP related concepts</td>
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<td>C3.6</td>
<td>Teaching the Approaches to Learning Skills</td>
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<td>C3.7</td>
<td>Implementing the IB-MYP school's Academic Honesty Policy</td>
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<td>C3.8</td>
<td>Implementing the IB-MYP school's Assessment Policy</td>
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<td>C3.9</td>
<td>Teaching students the meaning of IB-MYP global contexts</td>
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<td>C3.10</td>
<td>Providing opportunities for student service</td>
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<tr>
<td>C3.22</td>
<td>Fostering a stimulating learning environment based on understanding and respect</td>
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<td>C3.23</td>
<td>Teaching to the IB-MYP aims and objectives for subject groups</td>
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<td>C4.1</td>
<td>Using students’ assessment data to inform curriculum planning and reflection</td>
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<td>C4.2</td>
<td>Making the IB-MYP rubrics task-specific (clarifying expectations of the rubric)</td>
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<td>Using the IB-MYP rubrics to assess student work</td>
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<tr>
<td>C4.4</td>
<td>Teaching students how to use the IB-MYP rubrics</td>
<td></td>
</tr>
<tr>
<td>C4.5</td>
<td>Making assessments based on the IB-MYP rubrics</td>
<td></td>
</tr>
<tr>
<td>C4.6</td>
<td>Matching the IB-MYP rubrics to assessments</td>
<td></td>
</tr>
<tr>
<td>C4.7</td>
<td>Providing feedback to students using the IB-MYP rubrics</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>C4.8</td>
<td>Standardizing the use of the IB-MYP rubrics</td>
<td></td>
</tr>
<tr>
<td>C4.9</td>
<td>Reflecting on and revising the use of IB-MYP rubrics</td>
<td></td>
</tr>
<tr>
<td>C4.10</td>
<td>Determining an achievement level (0-8) on students' work</td>
<td></td>
</tr>
<tr>
<td>C4.11</td>
<td>Assessing student performance on the Approaches to Learning Skills</td>
<td></td>
</tr>
<tr>
<td>C4.12</td>
<td>Creating assessments for an IB-MYP unit</td>
<td></td>
</tr>
<tr>
<td>C4.13</td>
<td>Encouraging students to demonstrate their learning in a variety of ways</td>
<td></td>
</tr>
<tr>
<td>C4.14</td>
<td>Using the prescribed assessment criteria (A, B, C and D)</td>
<td></td>
</tr>
<tr>
<td>C4.15</td>
<td>Standardizing the understanding and application of assessment criteria before deciding on student achievement levels</td>
<td></td>
</tr>
<tr>
<td>C4.16</td>
<td>Using a range of strategies and tools to assess student learning</td>
<td></td>
</tr>
<tr>
<td>C4.17</td>
<td>Providing students with feedback to inform and improve their learning</td>
<td></td>
</tr>
<tr>
<td>C4.18</td>
<td>Analyzing assessment data to inform teaching and learning</td>
<td></td>
</tr>
<tr>
<td>C4.19</td>
<td>Providing opportunities for students to participate in, and reflect on, the assessment of their work</td>
<td></td>
</tr>
</tbody>
</table>
Dear [School leaders’ name],

I am writing to request permission to administer an electronic questionnaire to Middle Years Programme (MYP) staff members in your District as part of a dissertation study associated with the motivations of teachers towards the MYP. Specifically, the questionnaire asks MYP teachers to reflect on motivational descriptors related to the International Baccalaureate Standards & Practices in addition to potentially predictive factors including years of experience, number of trainings and other potentially influential variables on their motivation towards the MYP.

Coordinators will also be asked to complete a questionnaire to provide further information about the school system, such as years since program initiation, staff size, and the annual amount of professional learning time dedicated to the MYP.

Results from the study are intended to indicate which factors may be predictive of increased motivation towards teaching in the MYP. Samples of the questionnaires are available upon request.

The identity of specific teachers, coordinators, school buildings or the system itself will not appear in my dissertation and will not be shared with any other parties. If you are willing to permit your MYP educators to complete the questionnaire, I will work directly with coordinators to distribute the teacher questionnaires through email in February – March, 2017.

If you have questions regarding this research, please contact me at [telephone number] or email (j.m.moore37@vikes.csuohio.edu). You can also contact my advisor, Dr. Marius Boboc, at Cleveland State University (m.boboc@csuohio.edu).

If you will allow me to administer the electronic questionnaires to teachers and coordinators in your school system, please provide a signed letter of permission on District letterhead. I have provided a sample letter of approval on the following page. Thank you in advance for your consideration.

Sincerely yours,
John M. Moore
John M. Moore
Mr. John M. Moore  
Doctoral Candidate, Cleveland State University  
2121 Euclid Ave.  
Cleveland, Ohio  

Dear Mr. Moore,

In accordance with school district policy I am authorizing you to distribute electronic questionnaires to International Baccalaureate Middle Years Programme staff members of this school district for the purpose of conducting educational research. As you have stated in your request, teacher identities and information will not be shared with any other party.

Sincerely,

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Title  
School District/System
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And

John M. Moore

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Signed for and on behalf of the IB

Name: Brian T. Carney
Title: Editorial Assistant
Date: 17 May 2017

Signed for and on behalf of John M. Moore

Name: John M.
Title: IB Coordinator and Doctoral Candidate
Address (If different from above): 588 Palisades Dr. Akron, OH 44308
Date: 5/17/17

Schedule 1 – List of Licensed IB Materials
The IB MYP Curriculum Model, Stages of the IB MYP authorization process and other works cited.
APPENDIX H: Full-table Results of each HLM

Table 20. HLM Results for the Relationship between all variables and the Self-Determination Index.

<table>
<thead>
<tr>
<th>Teacher-level variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.417</td>
<td>0.084</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.088</td>
<td>0.042</td>
<td>0.038*</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.003</td>
<td>0.003</td>
<td>0.303</td>
</tr>
<tr>
<td>Gender</td>
<td>0.127</td>
<td>0.151</td>
<td>0.399</td>
</tr>
<tr>
<td>Race</td>
<td>-0.052</td>
<td>0.082</td>
<td>0.524</td>
</tr>
<tr>
<td>School-level variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>0.022</td>
<td>0.007</td>
<td>0.009**</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.190</td>
<td>0.077</td>
<td>0.037*</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.584</td>
<td>0.274</td>
<td>0.062</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.127</td>
<td>0.071</td>
<td>0.105</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Table 21. HLM Results for the Relationship between all variables and A1: Philosophy.

<table>
<thead>
<tr>
<th>Teacher-level variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.428</td>
<td>0.091</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.079</td>
<td>0.046</td>
<td>0.087</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.002</td>
<td>0.004</td>
<td>0.643</td>
</tr>
<tr>
<td>Gender</td>
<td>0.034</td>
<td>0.166</td>
<td>0.836</td>
</tr>
<tr>
<td>Race</td>
<td>-0.143</td>
<td>0.091</td>
<td>0.116</td>
</tr>
<tr>
<td>School-level variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>0.015</td>
<td>0.006</td>
<td>0.042*</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.128</td>
<td>0.069</td>
<td>0.097</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.562</td>
<td>0.260</td>
<td>0.059</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.033</td>
<td>0.062</td>
<td>0.614</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001
### Table 22. HLM Results for the Relationship between all variables and C1: Collaborative Planning.

<table>
<thead>
<tr>
<th>Teacher-level variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.453</td>
<td>0.100</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.096</td>
<td>0.050</td>
<td>0.056</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.006</td>
<td>0.004</td>
<td>0.112</td>
</tr>
<tr>
<td>Gender</td>
<td>0.119</td>
<td>0.178</td>
<td>0.506</td>
</tr>
<tr>
<td>Race</td>
<td>-0.017</td>
<td>0.097</td>
<td>0.862</td>
</tr>
<tr>
<td>School-level variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>0.023</td>
<td>0.008</td>
<td>0.021*</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.173</td>
<td>0.094</td>
<td>0.100</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.590</td>
<td>0.332</td>
<td>0.109</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.107</td>
<td>0.086</td>
<td>0.247</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

### Table 23. HLM Results for the Relationship between all variables and C2: Written Curriculum.

<table>
<thead>
<tr>
<th>Teacher-level variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.431</td>
<td>0.101</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.098</td>
<td>0.051</td>
<td>0.056</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.003</td>
<td>0.004</td>
<td>0.462</td>
</tr>
<tr>
<td>Gender</td>
<td>0.079</td>
<td>0.180</td>
<td>0.661</td>
</tr>
<tr>
<td>Race</td>
<td>-0.076</td>
<td>0.098</td>
<td>0.438</td>
</tr>
<tr>
<td>School-level variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>0.022</td>
<td>0.009</td>
<td>0.037*</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.172</td>
<td>0.102</td>
<td>0.126</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.556</td>
<td>0.354</td>
<td>0.150</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.112</td>
<td>0.094</td>
<td>0.263</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001
Table 24. HLM Results for the Relationship between all variables and C3: Teaching and Learning.

<table>
<thead>
<tr>
<th>Teacher-level variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.378</td>
<td>0.071</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.094</td>
<td>0.036</td>
<td>0.010***</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.001</td>
<td>0.003</td>
<td>0.591</td>
</tr>
<tr>
<td>Gender</td>
<td>0.175</td>
<td>0.130</td>
<td>0.178</td>
</tr>
<tr>
<td>Race</td>
<td>-0.074</td>
<td>0.071</td>
<td>0.301</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School-level variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Percentage</td>
<td>0.018</td>
<td>0.005</td>
<td>0.006**</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.157</td>
<td>0.056</td>
<td>0.021*</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.430</td>
<td>0.209</td>
<td>0.069</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.099</td>
<td>0.051</td>
<td>0.083</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001

Table 25. HLM Results for the Relationship between all variables and the C4: Assessment.

<table>
<thead>
<tr>
<th>Teacher-level variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>0.423</td>
<td>0.102</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>0.064</td>
<td>0.051</td>
<td>0.212</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>0.004</td>
<td>0.004</td>
<td>0.353</td>
</tr>
<tr>
<td>Gender</td>
<td>0.162</td>
<td>0.182</td>
<td>0.374</td>
</tr>
<tr>
<td>Race</td>
<td>-0.007</td>
<td>0.099</td>
<td>0.947</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School-level variables</th>
<th>Coefficient</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Percentage</td>
<td>0.029</td>
<td>0.009</td>
<td>0.008**</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>0.270</td>
<td>0.099</td>
<td>0.023*</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>0.804</td>
<td>0.345</td>
<td>0.045*</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-0.215</td>
<td>0.090</td>
<td>0.041*</td>
</tr>
</tbody>
</table>

Notes: *p < 0.05. **p < 0.01. ***p < 0.001
APPENDIX I: Multiple Regression Model Results

Table 26. Summary results of the complementary multiple regression models

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>Teacher-level factors</th>
<th>School-level factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coord. Comp.</td>
<td>MYP Workshops</td>
</tr>
<tr>
<td>SDIndex</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A1: Philosophy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C1: Collaborative</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C2: Written Curriculum</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C3: Teaching and Learning</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>C4: Assessment</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Notes. ‘X’ indicates that the independent factor was found to significantly predict \((p < 0.05)\) changes in the associated outcome variable displayed in the leftmost column. ‘X’ indicates that the predictor was significant in the multiple regression but not the hierarchical linear model.

Table 27. Multiple linear regression results for the self-determination index and all predictors.

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>B</th>
<th>S.E.</th>
<th>(p)-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>.410</td>
<td>.082</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>.093</td>
<td>.042</td>
<td>.027*</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>.003</td>
<td>.003</td>
<td>.306</td>
</tr>
<tr>
<td>Teacher Gender</td>
<td>.114</td>
<td>.150</td>
<td>.449</td>
</tr>
<tr>
<td>Teacher Race</td>
<td>-.053</td>
<td>.082</td>
<td>.524</td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>.022</td>
<td>.006</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>.186</td>
<td>.063</td>
<td>.003**</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>.519</td>
<td>.236</td>
<td>.029*</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-.121</td>
<td>.057</td>
<td>.034*</td>
</tr>
</tbody>
</table>

Notes. \(F (9, 226) = 6.472,\) Adjusted \(R^2 = .179,\) \(p < 0.001;\) *\(p < 0.05,\) **\(p < 0.01,\) ***\(p < 0.001\)
Table 28. Multiple linear regression results for A1: Philosophy and all predictors.

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>B</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>.428</td>
<td>.091</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>.079</td>
<td>.046</td>
<td>.087</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>.002</td>
<td>.004</td>
<td>.644</td>
</tr>
<tr>
<td>Teacher Gender</td>
<td>.034</td>
<td>.166</td>
<td>.836</td>
</tr>
<tr>
<td>Teacher Race</td>
<td>-.143</td>
<td>.091</td>
<td>.116</td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>.015</td>
<td>.006</td>
<td>.021*</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>.128</td>
<td>.069</td>
<td>.065</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>.562</td>
<td>.260</td>
<td>.032*</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-.032</td>
<td>.062</td>
<td>.602</td>
</tr>
</tbody>
</table>

Notes. $F(9, 226) = 5.603$, Adjusted $R^2 = .155$, $p < 0.001$; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 29. Multiple linear regression results for C1: Collaborative Planning and all predictors.

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>B</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>.450</td>
<td>.097</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>.104</td>
<td>.050</td>
<td>.037*</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>.006</td>
<td>.004</td>
<td>.101</td>
</tr>
<tr>
<td>Teacher Gender</td>
<td>.096</td>
<td>.178</td>
<td>.591</td>
</tr>
<tr>
<td>Teacher Race</td>
<td>-.019</td>
<td>.097</td>
<td>.848</td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>.023</td>
<td>.007</td>
<td>.001**</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>.171</td>
<td>.074</td>
<td>.023*</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>.531</td>
<td>.279</td>
<td>.059</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-.103</td>
<td>.067</td>
<td>.126</td>
</tr>
</tbody>
</table>

Notes. $F(9, 226) = 5.980$, Adjusted $R^2 = .166$, $p < 0.001$; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 30. Multiple linear regression results for C2: Written Curriculum and all predictors.

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>B</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>.418</td>
<td>.099</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>.105</td>
<td>.050</td>
<td>.038*</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>.003</td>
<td>.004</td>
<td>.436</td>
</tr>
<tr>
<td>Teacher Gender</td>
<td>.060</td>
<td>.180</td>
<td>.740</td>
</tr>
<tr>
<td>Teacher Race</td>
<td>-.075</td>
<td>.099</td>
<td>.451</td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>.021</td>
<td>.007</td>
<td>.003**</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>.170</td>
<td>.075</td>
<td>.025*</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>.441</td>
<td>.283</td>
<td>.121</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-.105</td>
<td>.068</td>
<td>.122</td>
</tr>
</tbody>
</table>

Notes. $F(9, 226) = 4.661$, Adjusted $R^2 = .127$, $p < 0.001$; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$
Table 31. Multiple linear regression results for C3: Teaching and Learning and all predictors.

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>B</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>.379</td>
<td>.071</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>.094</td>
<td>.036</td>
<td>.009**</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>.001</td>
<td>.003</td>
<td>.605</td>
</tr>
<tr>
<td>Teacher Gender</td>
<td>.173</td>
<td>.130</td>
<td>.183</td>
</tr>
<tr>
<td>Teacher Race</td>
<td>-.074</td>
<td>.071</td>
<td>.301</td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>.018</td>
<td>.005</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>.156</td>
<td>.054</td>
<td>.004**</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>.421</td>
<td>.204</td>
<td>.040</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-.097</td>
<td>.049</td>
<td>.048*</td>
</tr>
</tbody>
</table>

Notes. $F(9, 226) = 7.217$, Adjusted $R^2 = .198$, $p < 0.001$; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 32. Multiple linear regression results for C4: Assessment and all predictors.

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>B</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator Competence</td>
<td>.398</td>
<td>.100</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>IBMYP Workshops</td>
<td>.073</td>
<td>.051</td>
<td>.150</td>
</tr>
<tr>
<td>Weekly Collaboration</td>
<td>.004</td>
<td>.004</td>
<td>.359</td>
</tr>
<tr>
<td>Teacher Gender</td>
<td>.145</td>
<td>.182</td>
<td>.427</td>
</tr>
<tr>
<td>Teacher Race</td>
<td>-.009</td>
<td>.100</td>
<td>.926</td>
</tr>
<tr>
<td>Coordinator Percentage</td>
<td>.029</td>
<td>.007</td>
<td>&lt; 0.00***</td>
</tr>
<tr>
<td>MYP Prof. Learning Days</td>
<td>.269</td>
<td>.076</td>
<td>.001**</td>
</tr>
<tr>
<td>MYP Termination</td>
<td>.702</td>
<td>.287</td>
<td>.015*</td>
</tr>
<tr>
<td>Total Prof. Learning Days</td>
<td>-.205</td>
<td>.069</td>
<td>.003**</td>
</tr>
</tbody>
</table>

Notes. $F(9, 226) = 4.704$, Adjusted $R^2 = .129$, $p < 0.001$; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$