UNDERSTANDING THE RELATIONSHIP OF A MULTIPLE INTELLIGENCES FRAMEWORK AND DIFFERENTIATED INSTRUCTION: A QUALITATIVE RESEARCH STUDY OF THE CHAPEL HILL-CHAUNCY HALL SCHOOL FACULTY

Lance Edward Conrad

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Supervisor of Dissertation:

Peter J. Kuriloff, Professor of Education

Dean, Graduate School of Education:

Pamela L. Grossman, Dean and Professor

Dissertation Committee:

Peter J. Kuriloff, Chair, Professor of Education
Frances O. Rust, First Reader, Professor of Education
Timothy M. Johnson, Second Reader, Head of School, Pingree School
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DEDICATION

This is dedicated to the faculty, staff and, most importantly, students of Chapel Hill-Chauncy Hall School.

“We Teach the Way Students Learn.”
ACKNOWLEDGMENTS

I am indebted to the following folks who helped me achieve this milestone…

Peter Kuriloff for providing a careful blend of guidance and inspiration to finish…

PennGSE for creating the Mid-Career Doctoral Program in Educational Leadership and assembling a formidable faculty to guide my doctoral work…

Cohort 11 of the PennGSE Mid-Career Doctoral Program for their support, camaraderie, and compassion…

The faculty and staff at Chapel Hill-Chauncy Hall School for their never-ending inspiration, perspiration, and exhilaration…

The board of trustees at Chapel Hill-Chauncy Hall School for their constant and unwavering support…

Stephanie Daniels for her attention to detail and command of my calendar…

And, most importantly, my patient, entertaining, and loving family.
ABSTRACT

UNDERSTANDING THE RELATIONSHIP OF A MULTIPLE INTELLIGENCES FRAMEWORK AND DIFFERENTIATED INSTRUCTION:

A QUALITATIVE RESEARCH STUDY OF THE CHAPEL HILL-CHAUNCY HALL SCHOOL FACULTY

Lance Edward Conrad
Peter J. Kuriloff

For 30 years educators have examined Howard Gardner’s (1983) theory of multiple intelligences (M.I.) as a viable and effective framework for teaching and learning in a differentiated fashion. Understanding the value of differentiation for today’s learners and learning environs, the unique aptitudes of individual learners warrant consideration in pedagogical design. Leveraging individual student strengths through differentiated instruction suggests a compelling approach to 21st century education.

Very little research, however, has endeavored to explore connections between differentiated instruction and M.I. theory. No one has conducted empirical research on the relationship between differentiated learning in a multiple intelligences framework.

This study with the teaching faculty of an independent, college preparatory school examines teachers’ understanding of Gardner’s theory for informing practices in differentiated instruction. A faculty survey, teacher interviews, classroom visitations and focus groups form the data I explore pertaining to individual teacher’s understanding and
use of M.I. theory, as well as how they believe it can be applied to differentiated instruction. The study was designed to provide the participants with individual and collaborative spaces for inquiry. The triangulation of these methods provides a meta-perspective on how teachers perceive the connections between M.I. theory and differentiated learning. My analysis of varied and voluminous data results in a distinctive picture of how teachers approach differentiated instruction in an M.I.-informed learning environment.

The results of the study provide us with teachers’ understanding of M.I. theory and how the theory can be useful in the context of differentiated teaching and learning. I argue that teachers enhance differentiated teaching and learning when it is grounded in an M.I.-informed and -friendly learning environment. However, teachers must possess solid knowledge and understandings of both M.I. theory and differentiated instruction, respectively, as well as emerging interdependencies, to best apply the combined construct to teaching and learning. Without proper understanding, teachers tend to default to differentiated instruction absent an M.I.-informed stance while questioning the symbiotic relationship of the two constructs. I conclude by reflecting on these results for promoting teachers’ understanding in my school and others embracing M.I. and differentiated instruction.
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CHAPTER 1
INTRODUCTION

This qualitative research study with the teaching faculty of my own school setting examines Howard Gardner’s (1983) theory of multiple intelligences (M.I.) as it informs effective and ineffective practices in differentiated instruction (D.I.). Several distinctive, defining contextual attributes of the study make it a unique proposition. The case study involves 34 of 37 teachers at Chapel Hill-Chauncy Hall School (CH-CH) in Waltham, MA. The faculty, with a wide-range of teaching experience, articulate their own understanding of an M.I.-derived framework for teaching and learning, and how it can best inform improved practices in differentiated instruction, an explicit approach to teaching and learning at the School.

Chapel Hill-Chauncy Hall is an independent, secondary, day/boarding school located in the western suburbs of Boston. It is a small, intimate teaching and learning environment with approximately 175 students in grades 9-12, plus post-graduates, heralding from 13 nations. 45% of the students board on campus. With 25% of the student body enrolling from abroad (31 of 44 international students hail from China), and another 22% domestic students of color (15% Hispanic, 6% African American, and 1% Asian American), it is a truly diverse educational environment compared to independent secondary peer schools in Eastern Massachusetts. Beyond the School’s ethnic diversity, the socio-intellectual and socio-economic diversity is also quite profound. Approximately one-half of the student body possesses mild, diagnosed learning differences; in addition, about one-fifth of the student body is enrolled in our English Language Learners program. The School’s motto, “We teach the way students learn,”
defines the CH-CH student-centered approach to teaching and learning. From this ethos the faculty has developed over the past decade an M.I.-informed stance emanating from Gardner’s theory of multiple intelligences. Embracing and applying M.I.-based differentiated instruction defines the School’s unique approach to teaching and learning, an approach that asks not “How smart are you?” but “How are you smart?” This bedrock query emanates from Gardner himself when he states, “The question is not how smart people are but in what ways people are smart” (Traub, 1998).

The School’s mission and core values, as well as its brand statement, articulate the educational foundation in which CH-CH builds its unique approach to teaching and learning. The mission statement emphasizes the balance achieved in providing college preparatory challenge and support for its diverse student body:

Chapel Hill-Chauncy Hall School is a college preparatory, day and boarding school that embraces differences in learning style and culture in a richly diverse and supportive community. We challenge young men and women to realize their individual potential, experience academic success, and develop moral strength and personal integrity. (Chapel Hill-Chauncy Hall School, 2014b)

The community’s ethnic, cultural and intellectual diversity nurtures an atmosphere of mutual respect for differences, while honoring the core values of education, the individual, the community, communication, and success. Students, faculty and staff come together to create a vibrant community of learners encouraging personal growth and rich and lasting relationships. The CH-CH brand statement, as modified for the school website, presents the School’s value proposition and highlights its unique attributes to prospective students and families:
Chapel Hill-Chauncy Hall is a small, coeducational college preparatory school for students in grades 9-PG that is dedicated to teaching the way students learn. Our faculty, over 70% of whom have advanced degrees, offers instruction tailored to individual learning styles and strengths, empowering our students to achieve their potential. Our multiple intelligences approach to teaching and learning both values and addresses the different ways students learn. Our curriculum challenges and engages students, with support seamlessly integrated into the classes and culture of the School. All our students are accepted into college or university with an emphasis on finding the best fit for their ambitions and interests. Diversity thrives in a social climate of acceptance. A dynamic mix of day and boarding students energizes our campus and creates opportunities for students to engage with each other in the arts, athletics, campus activities and community service. Our alumni/ae describe their experience at CH-CH as truly transformational. Our private, independent school is located ten miles from Boston. (Chapel Hill-Chauncy Hall School, 2014a)

Derived from these statements and emanating from the School’s commitment to applying the theory of multiple intelligences as a framework for human understanding is my vision, as the school head, for the School:

By 2020, Chapel Hill-Chauncy Hall School will experience robust enrollment, improved campus facilities and grounds, renovated classrooms and new learning spaces, and a reputation as the internationally distinguished M.I. institution for teaching and learning. It will present a transformational learning environment where every student can and will experience success partnering with a faculty second to none in the field of differentiated instruction and M.I. understanding. The success of our institutional advancement efforts will aid in forging new partnerships and collaborations that transcend campus life and the CH-CH community. (Chapel Hill-Chauncy Hall School, 2014c)

This 2020 vision statement is fully supported by the School’s Board of Trustees and sits as a foundational element to the School’s current strategic plan.
**Research Questions**

At the heart of research design are the research questions. The questions define the problem or issue to be understood (Anderson, Herr & Nihlen, 2007). In the case of this qualitative research study, I explore the role multiple intelligences theory plays in my faculty’s approach to differentiated instruction. I also gain better comprehension of my colleagues’ understanding so that I can then share this with others.

The primary research questions at the epicenter of my research are framed within the goal of determining whether and how M.I. theory influences and is being used in my School environment: Exploring the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what pedagogical strategies in an independent secondary school college preparatory education are perceived as most effective by the faculty in embracing and leveraging individual student strengths and interests? Specifically, what approaches to differentiated instruction at Chapel Hill-Chauncy Hall School are based upon a multiple intelligences framework and school environment? In particular, what is the perceived relationship between multiple intelligences theory and differentiated instruction in this school setting?

**Background and Context**

An important consideration for better framing this qualitative research study is to be mindful of the color and complexities provided by the various elements contributing to both background and context. This undoubtedly begins with Gardner’s (1983) theory of multiple intelligences at the epicenter of exploration, as well as the role it plays in
teaching and learning at Chapel Hill-Chauncy Hall School. Gardner’s theory (1983, 1993, 1995b, 2006) originally defined seven particular areas of human understanding, or aptitudes, that can be viewed both independently and in concert with one another: verbal/linguistic, mathematical/logical, bodily/kinesthetic, rhythmic/musical, spatial/visual, interpersonal and intrapersonal. Later, Gardner included the naturalist intelligence and, in recent years, has endorsed existential and pedagogical (Battro, 2010) intelligences as possible additions to his M.I. core. Table 1.1 identifies Gardner’s independent types of intelligence, along with descriptors, definitions, and example professions that draw heavily on that particular intelligence, as provided by Gardner (1983, 1993, 2006). The definitions have been adapted from the Birmingham Grid for Learning (Maund, 2014) as well as both Willingham’s (2004) and Smith’s (2008) interpretations within the context of Gardner’s (1983, 1993, 2006) research.

Table 1.1. Gardner’s Multiple Intelligences with Descriptors and Definitions

<table>
<thead>
<tr>
<th>Multiple Intelligences</th>
<th>Descriptors</th>
<th>Definitions</th>
<th>Example Professions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal or Linguistic</td>
<td>Word Smart</td>
<td>Ability to use and learn language effectively, as well as express oneself through written or spoken word. You will enjoy reading, writing and talking about things.</td>
<td>Writer, attorney, speaker, poet</td>
</tr>
<tr>
<td>Mathematical or Logical</td>
<td>Number Smart</td>
<td>Ability to reason logically and investigate issues scientifically. You will be good at math and other number activities; you are also good at solving problems.</td>
<td>Mathematician, scientist</td>
</tr>
<tr>
<td>Bodily or Kinesthetic</td>
<td>Body Smart</td>
<td>Ability to use one’s body skillfully and for solving problems. You will enjoy sports and are good at swimming, athletics, gymnastics and other sports.</td>
<td>Athlete, dancer</td>
</tr>
<tr>
<td>Rhythmic or Musical</td>
<td>Music Smart</td>
<td>Ability to create, comprehend, and appreciate music. You will enjoy music and can recognize sounds, rhythms, pitches, and timbre, or the quality of a tone.</td>
<td>Performer, composer</td>
</tr>
<tr>
<td>Spatial or Visual</td>
<td>Picture Smart</td>
<td>Ability to notice details of what one sees and to imagine visual objects in one’s mind. You will be good at art and other activities where you look at pictures, like map reading.</td>
<td>Sculptor, architect</td>
</tr>
</tbody>
</table>
Table 1.1. Gardner’s Multiple Intelligences with Descriptors and Definitions (continued)

<table>
<thead>
<tr>
<th>Multiple Intelligences</th>
<th>Descriptors</th>
<th>Definitions</th>
<th>Example Professions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal</td>
<td>People Smart</td>
<td>Ability to notice subtle aspects of other people’s behaviors and intentions. You will like to mix with other people, and you will belong to lots of clubs, groups or associations.</td>
<td>Salesperson, politician, educator</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>Myself Smart</td>
<td>Ability to be aware of one’s own feelings, fears, motives and desires. You will know about yourself and your strengths and weaknesses. You may keep a diary.</td>
<td>Novelist, therapist with self-insight</td>
</tr>
<tr>
<td>Naturalistic</td>
<td>Nature Smart</td>
<td>Ability to recognize patterns in nature and differences among various life-forms and natural objects. You will like the world of plants and animals and enjoy learning about them.</td>
<td>Naturalist, cook</td>
</tr>
<tr>
<td>Existential</td>
<td>Inquiry Smart</td>
<td>Ability to pose and ponder ‘big questions’. You will often question the meaning behind things and explore the deeper meanings of life.</td>
<td>Religious leader, philosopher</td>
</tr>
<tr>
<td>Pedagogical or Teaching</td>
<td>Teaching Smart</td>
<td>Ability to teach something to a person who is less knowledgeable and skilled than we are. You will be able to explain things that you know for improved understanding.</td>
<td>Teacher, coach, instructor, director</td>
</tr>
</tbody>
</table>

In terms of how Chapel Hill-Chauncy Hall presents these intelligences to its learning community, every indoor teaching and learning space on campus showcases the poster depicted in Figure 1.1.

**Figure 1.1. Multiple Intelligences at Chapel Hill-Chauncy Hall: How are you smart?**

* Created by Matt Soule, Marketing Manager at Chapel Hill-Chauncy Hall School
At CH-CH, the School and its educators recognize that students have different aptitude strengths and different interests, passions and motivators. Each student’s M.I. profile needs to be understood and leveraged in various teaching and learning environments nurtured around campus throughout the day. These learning environments are realized not only in the School’s academic program, but also its student life, residential life and afternoon co-curricular programs.

As an example, students and advisors begin each academic year by completing M.I. instruments that identify particular intelligence strengths to increase self-awareness and understanding of students’ aptitudes. The Birmingham Grid for Learning (Maund, 2014) is one inventory for multiple intelligences that the School finds particularly useful. From there, individual learning profiles are developed and updated as a means to provide the CH-CH faculty with information to improve differentiated instruction design based on M.I. profiles.

Included as Appendix A is a sample learning profile for a student at CH-CH that was initially crafted by the School’s Director of Skills and Academic Support and, later, amended by one of the Skills and Academic Support teachers working directly with the student. This profile is informed by the student’s admissions file, any neuropsychological test results and reports, parent, student and teacher input, as well as the M.I. inventory.

The pedagogical vehicle for delivering the School’s college prep curriculum is differentiated instruction, also known as differentiated learning (Lawrence-Brown, 2004; Strickland, 2007; Tomlinson, 1999a, 1999b, 2001, 2003). Using M.I. theory as a
framework for better understanding students as thinkers and learners, CH-CH employs differentiated instruction as a means to discover multiple entry points into the curriculum for the various types of learners it serves. Through differentiating content, process, product and learning environment, CH-CH teachers can better discover engagement and relevancy for the students they serve. The School believes wedding the M.I. framework with differentiated instruction offers its students the best possibilities of improved learning outcomes while maintaining its mission to be a college preparatory secondary school.

Chapel Hill-Chauncy Hall is not alone in its philosophy and approach to education, specifically teaching and learning. Around the country and around the world, schools have been adopting M.I. theory for the past 30 years as the basis for their approach to education. Many of these schools also embrace differentiated learning as a means to an ends for the reasons noted above. While differentiated instruction is not the only way to deliver an M.I.-informed curriculum, CH-CH is among a growing group of secondary schools looking to differentiate learning while presenting a college preparatory curriculum for its high school students. The ultimate goal is to best prepare students for the challenges of undergraduate education and 21st century citizenship.

According to the U.S. Department of Education’s National Center for Education Statistics (2012), there are over 30,000 American secondary schools presenting college preparatory curricula. The National Association of Independent Schools (2013) recognizes that approximately 1,700 of these schools are associated independent schools in the unique position of autonomy from nearly all government regulations and oversight. With this flexibility in school design, independent schools like CH-CH benefit from their
unique position and many present college preparatory curricula with alternative frameworks for design, pedagogy and assessment. Balancing academic preparation for college and 21st century living with effective teaching and learning practices through differentiated instruction has been a hallmark of CH-CH education. Specifically, however, coupling differentiated learning within an M.I. framework has been part of the School’s practice for only a handful of years. It is an articulated approach that few other independent, college preparatory secondary schools have embraced and championed.

At CH-CH, there is an understanding that everyone—student, family, and school—needs to be a partner in a student’s success. The partnership begins with intimate classes taught by a highly trained and dedicated faculty, creating an atmosphere where every student is well known. Nearly 60% of the faculty (20 out of 34 in this study) have advanced degrees, while the average number of teaching years at CH-CH is over six years, nearly 13 years overall. In addition, 35% of the School’s faculty and staff live in residence and serve as dormitory parents to the 45% of the student population residing on campus. Through the hiring process, school administrators explore prospective teachers’ understanding and appreciation for both multiple intelligences theory and differentiated instruction. Administrators also go to great lengths to verify that candidates understand the School’s mission, students and approach to teaching and learning. A candidate’s personality and perceived ability to connect to the student body is also held in high regard during the interview process.

To frame the work of both newly hired and veteran faculty members, the School’s curriculum committee crafted and approved an M.I. statement of purpose in the summer of 2013 (Appendix B). This statement guides CH-CH educators who dedicate
themselves to teaching in the many ways children learn while preparing each student for the opportunities and demands of college. In order to accomplish this ambitious goal, teachers are heavily involved in professional development and operate as a community of learners who are always looking for ways to better their practice with students. Most teachers are also involved in the School’s co-curricular and residential life programming, and connecting with students in areas outside of the classroom is an important aspect of their work as educators at the School. Overall, there is a carefully considered balance of challenge and support, and the dedicated faculty allows students to grow from their strengths and reach their potential as students and people, both in and out of the classroom.

To successfully reach these goals, the School’s administration affords significant time and financial investment in professional development initiatives for its teachers. Specifically, CH-CH funds professional development at three tiers. The first tier focus is on academic departmental funding for specific needs in pedagogy and content knowledge. This represents 35-45% of the total professional development budget in any given year and includes local and national conferences (e.g., National Council of Teachers of English; National Council of Teachers of Mathematics; Learning & the Brain; Institute for Learning and Development), short courses to increase content mastery (e.g., Throwing in Clay), and online courses (e.g., Advanced Photoshop; Introduction to British Literature). Second tier funding involves administrative support for faculty enrollment in graduate school, targeted faculty needs, and whole school professional development. This tier also represents 35-45% of the annual professional development budget. Recent examples include supporting a one-day visit from Howard Gardner, a
Cindy Strickland professional development day focusing on differentiated instruction, a collaborative partnership with EdTech Teacher, executive function and learning workshops, the Bread Loaf School of English, the Teachers as Scholars program, Association of Independent Schools of New England workshops, or even attendance at the annual conferences for the National Association of Independent Schools or The Association of Boarding Schools. The final professional development tier provides individual grants of up to $1000 awarded to veteran teachers who have surpassed a minimum number of years of service to the School and desire to engage in relevant travel, individual coursework, or specialized conferences that advance their understanding in topical subjects to their work as members of the faculty. Looking forward, the School’s strategic and tactical plans include a commitment to ongoing professional development in teaching and learning focused on improved understanding of M.I. theory and practices in differentiated instruction (D.I.) through an annual schedule of developmental opportunities for the School’s professional learning community.

The end goal, of course, is for Chapel Hill-Chauncy Hall to assist its faculty in engaging and sharing a wide variety of professional development opportunities that focus on the primary function of the School, teaching and learning. The School’s administration is committed to aiding its faculty in fully understanding Gardner’s theory of multiple intelligences as a framework for human understanding that can be applied to the differentiated learning process.
Rationale for the Study

The general rationale for this study is grounded in both theory and practice. Exploring and understanding how Gardner’s (1983) theory of multiple intelligences can inform and benefit teaching and learning within a college prep high school curriculum at Chapel Hill-Chauncy Hall sits at the core of this study. It is important to note, however, that there still exists considerable discourse concerning the legitimacy of Gardner’s theory of human understanding. As such, the applicability of Gardner’s thirty years of research and writing in this area presents particular research challenges for this study and for schooling in general as educators possess (a) their own opinions about M.I., and (b) questions as to whether or not it can be successfully transferred to an effective teaching-learning paradigm in a college preparatory curriculum. It is my opinion this study is relevant as many independent schools, in particular, seek alternative approaches to teaching and learning that better prepare students for their inescapable future. I believe that teachers need to better understand the aptitudes and interests of individual students and then design pedagogy and assessment that leverages these elements in the learning environs. By maintaining small, intimate classroom settings, teachers are better able to truly know their students and nurture their strengths with the goal of improved student engagement in the learning process.

This study explores the potential benefits, challenges and obstacles of using Gardner’s (1983) model to improve instructional practices toward increased student engagement. This is important to my work as an educational leader in my current independent school setting, which requires me to blend inclusive, instructional, and transformational leadership. It presents a transformational learning environment model
where every student experiences opportunities for success partnering with a faculty
dedicated to differentiated learning and M.I. understanding. More broadly, it should be
important to educators in all settings, public and independent, as they struggle to find
ways to best differentiate instruction and, ultimately, improve teaching and learning
practices.

Conducting the research study within my own teaching and learning environment
presents great opportunities for both internal improvements and external impact. Chapel
Hill-Chauncy Hall appears to be one of the few secondary schools committed to
embracing Gardner’s (1983) theory of multiple intelligences and applying it to various
approaches in teaching and learning. The study not only serves to document (in)effective
practices, apply commendations, and highlight areas in need of improvement for the
School, but it serves as a networking springboard connecting schools, both domestic and
international, that are grounded in M.I. theory and fostering Gardner’s (1983) work into
practice. In order to do this, the study required shining a brighter spotlight on the work at
CH-CH and sharing this both within and outside the School’s learning community. As a
side benefit, CH-CH educators became more active and articulate practitioner researchers
and engaged in higher order professional development through their participation in the
research study.

Teaching and learning experiences at CH-CH over the past ten years have
uncovered that it can be difficult to grasp multiple intelligences theory and implement its
implications effectively. Educators at the school have endeavored to thoughtfully use the
theory to support larger educational goals understanding that school leadership has placed
M.I. theory as the proverbial north star guiding its efforts in teaching and, therefore, learning.
CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

In exploring how Gardner’s (1983) theory of multiple intelligences might be used as a framework for improved teaching and learning practices in independent secondary school classes, it is also necessary to search for approaches to differentiated instruction that might cohabitate an M.I.-informed teaching-learning environment. Researchers have relied extensively yet not exclusively on qualitative analyses over the past 30 years since Dr. Howard Gardner, Harvard University’s John H. and Elisabeth A. Hobbs Professor of Cognition and Education, published his groundbreaking and controversial *Frames of Mind: The Theory of Multiple Intelligences* (1983). This seminal work was written, and indeed intended, for a limited scholarly audience. As Gardner later noted, “I believed that my work would be of interest chiefly to those trained in my discipline, and particularly those who studied intelligence from a Piagetian perspective” (Eberstadt, 1999, p. 7). The professional world was unconvinced, however. As Gardner admitted years later, “a few psychologists like the theory; a somewhat larger number did not like it; most ignored it” (Eberstadt, 1999, p. 7).

As senior director of Harvard Project Zero, Gardner has authored over 26 books translated into 28 languages, as well as several hundred articles. He is best known for his theory of multiple intelligences, a critique of the notion that there exists a single human intelligence that can be adequately assessed by standard psychometric instruments. Rather, Gardner believes there is an alternative, richer way to conceptualize intelligence.
As noted earlier, Gardner (2006) proposes that there are at least eight, and possibly more, unique human intelligences that can be explored as individual intellectual capacities.

A fundamental tenet underlying Gardner’s theory of multiple intelligences is that individuals differ in how they learn. As such, it is necessary to seek each person’s weighted components to human understanding. Although the literature review provides supporting evidence for differences in individual thinking and ways of processing information, no specific empirical studies have reliably tested the viability of using Gardner’s theory of multiple intelligences as a framework for human understanding and learning through differentiated instruction. Many case studies and site-specific examples highlight how M.I.-informed schools think about differentiating student learning, but they do not specifically discuss differentiated instruction as the primary vehicle to promote education in a multiple intelligences framework. As a result, schools like Chapel Hill-Chauncy Hall have been laboratories for differentiated teaching and learning in the context of M.I. theory without the benefit of previously published empirical research and literature presenting best practices in this endeavor. This clear and present absence in the literature has (a) hampered some educational leaders and M.I. practitioners, and (b) justified the need for this research study. For very little research has endeavored to explore connections between differentiated instruction and M.I. theory. No one has presented research on the perceived efficacy of differentiated learning in a multiple intelligences framework.

In reviewing the published research literature about how the theory of multiple intelligences has and can be applied to teaching and learning environments, I will first define a multiple intelligences framework for teaching and learning. Next, I will
highlight existing critiques of M.I. theory and the adaptability of this theory in teaching and learning. Third, I will discuss differentiated instruction as effective pedagogical design. Finally, I will emphasize the lack of research in regard to the specific implementation of differentiated instruction in a multiple intelligences framework. This approach, ending with a summary of findings, will review the research in a manner that ultimately connects the larger, broader theoretical literature to few targeted approaches studied and published concerning specific academic practices and/or disciplines.

A Multiple Intelligences Framework for Teaching and Learning

Howard Gardner’s theory of multiple intelligences is described by one set of educational researchers as “contemporary education’s most popular idea” (Kornhaber, Fierros & Veenema, 2004, p. xiv). M.I. theory has taken hold in schools of various sizes, at all grade levels, across disciplines, and regardless of a school’s public, private, or parochial mission. Despite this traction in practice, M.I. should not simply be accepted as right. Rather, it is proper for educational leaders, practitioners, and researchers alike to study the theory and evaluate the possible applications for M.I. in teaching and learning. The Harvard professor and MacArthur “genius” has put forth a significant theory for human understanding that supports the ideas of learning by doing and that all students can learn. It also calls into question the adequacy of narrow academic standards and high-stakes accountability tests. As Gardner argues, “M.I. theory challenges the viability of standardized, machine-scored, multiple-choice assessments” (Blythe & Gardner, 1990, p. 34). To this challenge, the genesis of M.I. theory, *Frames of Mind* (1983), is well
written, highly organized, and very engaging. In it, M.I. theory is straight-forward and easy to understand, describe and share, an important advantage in a field marked by little centralized authority where educators rely on colleagues for professional recommendations and guidance (Schneider, 2014, p. 34).

Gardner (1993) states,

“It is of the utmost importance that we recognize and nurture all of the varied human intelligences, and all of the combinations of intelligences. We are all so different largely because we all have different combinations of intelligences. If we recognize this, I think we will have at least a better chance of dealing appropriately with the many problems that we face in the world. (p. 12)

In terms of adopting his theory of human understanding to educational paradigms and pedagogical design strategies, Gardner (1993, 1995) did not specifically intend for his M.I. theory to inform teaching and learning. In his own words, “except incidentally, *Frames of Mind* was not a book about education. I was as surprised as anyone by the enormous interest that educators soon displayed toward this work” (Gardner, 1995, p. 16). Continuing, Gardner (1995) states, “At first educators of young children, and educators of special populations (gifted/talented, learning disabled) championed the theory; eventually interest was expressed across the age range (kindergarten through college) and across the disciplinary terrain” (p. 16). To be clear, however, Gardner’s original work was not about instruction. He does not provide guidelines about how his M.I. theory might apply in the classroom and to teaching and learning. He has been curious to find educators, researchers, and policy-makers reading the same words yet arriving at independent, often contradictory conclusions about educational implementation of his theory. Questions arose concerning whether educators should
teach to strengths or weaknesses; whether all eight intelligences should be trained separately or whether one should teach a subject in eight different ways; and whether teachers should create eight separate assessments or abandon testing altogether. Educational practitioners cite M.I. theory as support for all kinds of engaged practices (Gardner, 1995).

Prior to establishing M.I. theory, Gardner studied with Norman Geschwind, considered by some to be the father of modern behavioral neurology. Gardner eventually moved from his original notion that the center of cognition was mathematical-logical thought to a stance that reevaluated the whole notion of intelligence, redefining it as “a psychological potential to process information so as to solve problems or to fashion products that are valued in at least one cultural context” (Gardner, 2004a, p. 3). He based this new definition on neurological (examining which brain regions mediate certain skills), anthropological (viewing how different abilities are developed and valued in different cultures across history), and special populations (observing savants, stroke victims, prodigies, and learning disabled individuals) evidence. From here, Gardner (1983) released his theory of multiple intelligences, specifying eight particular criteria cognitive abilities must meet in order to be considered an “intelligence.” Table 2.1 presents The Gardner Criteria for cognitive abilities (Gardner, 1983; Willingham, 2004).

**Table 2.1. The Gardner Criteria Cognitive Abilities Must Satisfy**

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Reasoning Underlying Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support from psychometric findings</strong></td>
<td>Performance on tasks tapping the same intelligence should be more correlated than performance on tasks tapping different intelligences.</td>
</tr>
<tr>
<td><strong>Support from experimental psychological tasks</strong></td>
<td>It should be easier to carry out two tasks simultaneously if they rely on different intelligences than if they rely on the same one.</td>
</tr>
</tbody>
</table>
Table 2.1. The Gardner Criteria Cognitive Abilities Must Satisfy (continued)

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Reasoning Underlying Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential isolation by brain damage</td>
<td>Intelligences that are separate cognitively are separate in the brain.</td>
</tr>
<tr>
<td>Evolutionary plausibility</td>
<td>Intelligences evolve if they are adaptive.</td>
</tr>
<tr>
<td>A core set of operations</td>
<td>Operations that enable the intelligence should be distinct from operations supporting other intelligences.</td>
</tr>
<tr>
<td>Susceptibility to encoding in a symbol system</td>
<td>Symbol systems exist to code what the mind is most sensitive to—the stuff of intelligences.</td>
</tr>
<tr>
<td>A distinct developmental history</td>
<td>Each intelligence goes through a definable set of stages as it develops toward an end-state of expertise.</td>
</tr>
<tr>
<td>The existence of exceptional individuals (e.g., idiot savants, prodigies)</td>
<td>One intelligence can be exceptionally well developed while others are in the normal or subnormal range.</td>
</tr>
</tbody>
</table>

Using these criteria, Gardner identified seven, then eight (naturalistic), and now perhaps nine (existential) or ten (pedagogical) intelligences as previously highlighted. He readily admits there may be other intelligences and that those already identified possess sub-groupings beneath them (Leeper & Ttoneson, 2008, p. 22).

Gardner continues to praise the efforts of researchers and practitioners on similar journeys of discovery and understanding; he challenges these individuals to continue to seek new dynamic forms of pedagogy and assessment that honor the individual student and his or her asymmetrical strengths (Gardner, 1997). From Short, Kauffman and Kahn (2000) to Levine (2002, 2005), researchers continue to study thinking and learning differences in children. “In our lives outside school, we naturally move continuously between visual image, music, movement, mathematics, drama, and language as ways of thinking about our world” (Short, Kauffman & Kahn, 2000, p. 60). These differences
should be “explored, exploited, and fostered inside schools as well” (Leeper & Tenneson, 2008, p. 21).

Silver, Strong and Perini (1997) rise to Gardner’s challenge. Their pro-M.I. assertions highlight the fact that the theory of multiple intelligences explores how cultures and disciplines shape human potential. They argue that both M.I. and learning style theories (Claxton & Ralston, 1978; Fleming & Mills, 1992; Grasha, 1990; Price, 1983) reject dominant ideologies of intelligence. Whereas learning styles are concerned with unique, individual differences in the learning process, M.I. centers on learning content and products. There is a difference. Silver, Strong and Perini (1997) suggest that combining learning styles and M.I. theories through integrated intelligence menus should decrease each theory’s perceived limitations while enhancing its strengths. Their integrated intelligence menus attempt to map a student’s preferred learning style with the student’s M.I. strengths. This is done in three steps: (1) describing for each of Gardner’s intelligences a set of four learning processes or abilities based on each of four self-defined learning styles (mastery, interpersonal, understanding, and self-expressive); (2) listing samples of vocations that people would likely choose, given particular intelligence and learning-style profiles; and (3) collecting descriptions of products that a person with strengths in each intelligence and style might create. This is analogous to the M.I. approach calling on the need to leverage each individual student’s strengths in the teaching-learning environs. Gardner (2006, 2013), however, has repeatedly distinguished the term intelligence as not being the same as learning style since these are fundamentally different psychological constructs. As Gardner cautions, an identified learning style is the preferred way in which an individual approaches a range of materials. The student’s
intelligence refers to the “computation power,” or *aptitude*, of a particular mental system, such as logical/mathematical or verbal/linguistic.

A growing body of theoretical literature has been emerging over the past 15 years that explores perceptions on the impact that M.I. theory has had and can have on teaching and learning. As one salient example, Silver, Strong and Perini (2000) attempt to guide educators at all grade levels and in all content areas how to execute a holistic learning program integrating both learning styles and multiple intelligences into pedagogy and assessment. While helping educators nurture students into becoming more reflective, self-aware learners, they put forth research-based principles in learning that support various integrated learning approaches and practical strategies. Specifically, classroom activities and organizers designed for self-reflection, reading instruments identifying style and intelligence profiles, and planning templates for designing integrated lessons all constitute their Teaching Strategy Index.

Fogarty (1997) suggests that schools shift their teaching paradigm and alter their learning environments so that students take command of their own education as well as their asymmetrically strong intelligences through authentic learning moments in genuine learning environments. These moments capture knowledge acquisition and understanding that is spurred by student interest in a place and time that is designed to embrace their aptitudes and interests.

Chapman (1993) and Lazear (1991, 2003) provide the rationale and various approaches for translating Gardner’s M.I. theory into concrete and pragmatic classroom practice. They identify specific implementation strategies educators can take to create
their own lessons using the various intelligences. Lazear (2003), in particular, also describes how to use technology to enhance each of the intelligences. Absent empirical research, however, all of these authors suggest that embracing an M.I. framework in teaching and learning is both useful and conceptually effective for student learning because the framework centers on learning content and products vis-à-vis an individual’s unique needs in the learning process. The literature does not provide empirical evidence connecting improved student learning outcomes to teaching and learning approaches that are grounded in, or embrace, multiple intelligences theory.

In summary, Gardner’s theory of multiple intelligences rests on three core claims: (1) psychometricians who devise and interpret tests as a way of probing the nature of intelligence generally, and incorrectly, conceive of intelligence as unitary; (2) there are multiple, independent intelligences; and (3) multiple intelligences theory has applications in education, although it should not be mistaken for a prescription to schooling (Willingham, 2004).

Many possible curricula and methods could be consistent with the theory. The sole general implication he supports is that children’s minds are different, and an education system should take account of those differences, a point developed in diverse ways by his many followers. (Willingham, 2004)

**Critiques in the Adaptability of Multiple Intelligences Theory in Teaching and Learning**

In the literature, critics of multiple intelligences theory as informing better pedagogy have presented dissenting opinions and studies that provide counter-arguments to the efficacy of Gardner’s work and its transferability to improved teaching and
learning. Despite Gardner’s assertions that individuals think differently from one another by using various intelligences, there has been a lack of empirical evidence demonstrating marked differences in student performance as a result of an adaptive approach to teaching and learning within an M.I. framework. Theoretical literature, qualitative analyses, and case studies have constituted the bulk of the literature on the subject. Much of Gardner’s evidence is simply anecdotal. As Waterhouse (2006b) points out, there are no published studies with evidence to support the validity of multiple intelligences. Similarly, White (2006) questions Gardner’s eight criteria for identifying an intelligence claiming that the criteria are not empirically founded. Gardner admits that his judgment is subjective, but that he never claimed his theory as the only description of cognitive capabilities (Smith, 2002). Gardner believes his M.I. theory provides a better way of understanding the wide array of human cognition. Moreover, he also emphasizes that M.I. theory is “repeatedly assessed and reformulated as new empirical findings from a variety of disciplines are analyzed and integrated” (Gardner & Moran, 2006, p. 230). In short, however, critics of M.I. theory believe a review of the literature provides an excellent example of the theory leading the research, rather than the research leading the theory (Peariso, 2008).

In his profoundly influential book, Cultural Literacy, literary scholar and political liberal E. D. Hirsch (1988) surprisingly argues against Gardner claiming that attempting to implement M.I. theory into practice does not encourage educators to teach “core knowledge” but, rather, allows educators to drift from national standards. Hirsch believes applying Gardner’s progressive M.I. theory is impractical for most teaching-learning environments. The New York Times (9/11/99) provided a forum for Hirsch and Gardner to “debate” directly on the state of education and what and how students should
be taught. While Hirsch advocates for the need for greater attention to core cultural knowledge through traditional approaches to teaching and learning, as he promotes through his Core Knowledge Foundation (Eberstadt, 1999, p. 5), Gardner proposes that the K-12 curriculum be organized around the most fundamental questions of existence and human understanding while re-imaging the approach to education through an M.I. understanding (Gardner & Hirsch, 1999).

Beyond Hirsch, many other researchers and scholars do not believe M.I. theory to be the key to educational reform. Eberstadt (1999) highlights four such critics. She notes that psychologist Jerome Bruner praised *Frames of Mind* for its timeliness, but went on to conclude that Gardner’s intelligences were “at best useful fictions.” In *The Bell Curve* (1994), Charles Murray and Richard J. Herrnstein dismissed Gardner’s radical work as “uniquely devoid of psychometric or other quantitative evidence.” And Robert J. Sternberg of Yale pointed out that “there is not even one empirical test of the theory” (Eberstadt, 1999, p. 7).

Another significant challenge comes from Waterhouse (2006b) who reviews evidence supporting M.I. theory, amongst other theories defining human intelligence. She argues that despite the recent popularity, M.I. theory lacks adequate empirical support and should not be the basis for educational practice. Waterhouse compares the theory of multiple intelligences, along with other theories of measurement for human intelligence and understanding, with cognitive psychology and cognitive neuroscience that have longstanding empirical support. It is Waterhouse’s (2006a) belief that M.I. theory has no validating data and argues, “that these theories’ brain system claims were not consistent with relevant cognitive neuroscience findings and concluded that until
these theories have garnered reasonable evidentiary support they should not be applied in education” (p. 247). She notes that while Gardner and Moran (2006) affirm the importance of empirical evidence for M.I. theory through the continuing accumulation of evidence, this claim “conflates theory generation and theory validation” (Waterhouse, 2006a, p. 247) in this particular case.

Predictably, Gardner and Moran (2006) responded to the Waterhouse (2006b) study by disagreeing with several of her interpretations and conclusions. Their criticisms are twofold: first, Waterhouse misunderstands and oversimplifies M.I. theory and, second, her line of argument undermines her claim that M.I. theory is not supported by the literature. In the process, Gardner and Moran reorient and clarify the usefulness and implications of M.I. theory while, at the same time, demonstrating why Waterhouse’s critique is off base. Gardner and Moran explain that Gardner, “combined the empirical findings of hundreds of studies from a variety of disciplines” in forming the theory of multiple intelligences first presented in *Frames of Mind*. While Gardner included psychometric and experimental psychology in his research and M.I. theory, he did not limit his base of support to only these disciplines. “Rather, M.I. theory also encompasses cognitive and developmental psychology, differential psychology, neuroscience, anthropology, and cultural studies” (Gardner & Moran, 2006, p. 227).

Multiple researchers, however, steer away from Gardner’s theory and, instead, advocate for psychometric-based assessments of learning supported by empirical research, including Eysenck (1998), Gottfredson (2003), Klein (1997), Lynn (2006), Murray and Moore (2012), White (2006), and Willingham (2004). Gottfredson (2003), specifically and as an example, states that most mainstream psychologists have concluded
that Charles Spearman’s general intelligence ($g$) indicator does exist and is a valid measure of human understanding. She argues that people do differ in intelligence and this difference can be scrupulously measured. This is antithetical to Gardner’s theory of multiple intelligences. While Gottfredson is satisfied with the general intelligence ($g$) indicator, those in Gardner’s school of thought would argue that psychologists have a responsibility to at least consider other frameworks and measurements of human intelligence in supporting student learning. According to Gardner, “we do not really understand what is measured by ‘g’—it could be anything from sheer intellect to motivation to skill in following instructions to the ability to shift facilely from one kind of problem to another” (Gardner, 2004).

In general, critics of multiple intelligence theory maintain that Gardner's work is not groundbreaking, and that what he calls intelligences are primary abilities that educators and cognitive psychologists have always acknowledged. Moreover, critics wonder if the number of intelligences will continue to increase since Gardner (2006) has added one and contemplated an additional two since his eminent work in 1983. Additionally, some opposing theorists believe that notions such as musical-rhythmic or bodily-kinesthetic ability represent individual aptitude or talent rather than intelligence. Gardner (1983), however, argues that human intelligences should be defined by ability and aptitude, not through a traditionally understood notion of intelligence that he believes is simply too narrow. M.I. is based on the understanding that people learn utilizing different types of intelligences (Griggs et al., 2009). M.I. theorists believe that a broader definition based on abilities and aptitudes more accurately reflects the many ways in which humans think and learn (Gardner & Hatch, 1989; Nikolova & Taneva-Shopova,
2007). Some critics, however, argue that M.I. theory lacks the rigor and precision of a real science until the theory can be supported by a significant body of empirical research and evidence backing Gardner’s claims (Klein, 1998).

Gardner (2010) claims that it would be impossible to guarantee a definitive list of intelligences. In fact, his recent revelation that he is contemplating whether a pedagogical intelligence exists perhaps demonstrates that he has yet to finalize his theory. Considerations of existential and pedagogical intelligences demonstrate that Gardner’s continued research yields to the possibility of future findings and an expansion of his theory. This is worth mentioning because some critics believe this demonstrates that the theory is flawed and still in development since the total number of intelligences is not definitive in Gardner’s recently stated thinking (Eysenck, 1998).

**Differentiated Instruction as Effective Pedagogical Design**

As school leaders embrace M.I. frameworks for human understanding and how best to design their schools’ approaches to teaching and learning, many adopt differentiated instruction in their pedagogical practices. In understanding that students have varying needs, school leaders and educators alike often seek to create genuinely challenging and engaging learning experiences that meet the diverse needs of students through differentiated instruction. Tomlinson and Imbeau (2010) note, “Differentiation can be accurately described as classroom practice with a balanced emphasis on individual students and course content” (p. 13). Balanced emphasis is necessary due to the diversity of experiences students bring to the classroom.
Students differ as learners in terms of background experience, culture, language, gender, interests, readiness to learn, modes of learning, speed of learning, support systems for learning, self-awareness as a learner, confidence as a learner, independence as a learner, and a host of other ways. (p. 13)

In the end, these differences will have a great impact on how students learn and the nature of scaffolding they will require during the learning process.

As a framework for effective teaching, Tomlinson (1999) explains that differentiated instruction is the process of, “ensuring that what a student learns, how he or she learns it, and how the student demonstrates what he or she has learned is a match for that student’s readiness level, interests, and preferred mode of learning” (Ellis, Gable, Greg & Rock, 2008, p. 32). In embracing Tomlinson’s understanding and articulation of differentiation, teachers can differentiate through content, process, product, and learning environment based on the individual learner’s preferences, interests and strengths. As such, educators understand differentiation as an organized, yet flexible framework allowing for the proactive adjustment of pedagogical design. This is grasped in order to accommodate each student’s learning needs and preferences with the goal of achieving each student’s maximum growth as a learner (Tomlinson, 1999b).

Effective differentiation can manifest differently in various environs. This is due to the fact that teachers vary strategies and tools to differentiate instruction. According to Tomlinson (2001), regardless of the specific combination of techniques, effective differentiated learning environments share a few linchpin characteristics. Differentiated instruction is (a) proactive in its planning, (b) more varied in the shape and scope of assignment creation, (c) rooted in assessment to better understand individual learners, (d)
flexible to modify approaches to content, process, and product based on student need and variance—readiness, interest, and learning profile, (e) student-centered and respectful, (f) blending whole-class, group, and individual instruction, and (g) organic, allowing for collaboration between students and teachers. To the extent that teachers can maintain these key characteristics of differentiated instruction often defines effective teaching and learning.

Many practitioners and researchers alike support differentiation as a practical and productive approach to student learning. Differentiation is well supported in the literature, particularly in terms of ongoing and emerging research about the brain. Willis (2007) promotes multiple avenues to learning as his research suggests this leads to multiple branching pathways of information access. When more areas of the brain store data on a subject, interconnections are formed and cross-referencing takes place in response to a single cue. This can often mean the difference between learning and memorizing.

Similarly, Wolfe (2001) argues that information is acquired by the human brain through the five senses. The more senses that are stimulated in data acquisition, the more impact this data will have on the brain. Differentiation often calls upon multiple senses in data acquisition and, as such, can be a more impactful approach to learning.

In Gardner’s (1983) understanding, the various intelligences better define the different kinds of minds, or aptitudes, that humans possess in their inherent nature to learn and understand in different ways. He argues that students are best served by educators who teach in a number of ways, while learning is assessed in a variety of
means. If educators can identify and address learning differences, then optimal learning can occur. Additionally, if students are properly engaged by educators, then they will be able to use their strengths while strengthening their weaknesses (Leeper & Tonneson, 2008, p. 22).

As effective pedagogical design, differentiated instruction requires that teachers administer pre-assessments of their students before planning their lessons (Chapman & King, 2005). By doing so, they can best identify students’ strengths and needs while gaining a better sense of an individual student’s M.I. profile. Once a lesson is underway, it is important for teachers to continuously assess students’ understanding to check the individual’s level of mastery as well as guide ongoing instructional development (Strickland, 2007). Hume (2008) promotes regular student self-assessment as a reflective exercise promoting self-awareness of understanding. Earl (2003) defines this as the process in metacognition whereas students adapt and adopt new levels of understanding through a reflective process.

As Tomlinson (1999b) explains, teachers differentiate content, process, product, and learning environment based on the individual learner’s needs. Anderson (2007) notes that when teachers differentiate content, they manipulate the “what” they want students to learn and/or “how” the students gain access to the knowledge, understanding, and skills. In terms of process, teachers take into consideration “how” a student comes to understand and assimilate facts, concepts, and skills. For product or performance, Anderson stresses the variety of ways in which students may be allowed to demonstrate mastery. Finally, learning environment does not simply mean the physical layout of learning spaces and the manner in which teachers use space, but it also takes into
consideration environmental elements and sensitivities. In particular, students should feel welcomed and safe. The learning environs must project a sense of success, fairness, and potential for growth. As Tomlinson (2003) states, “environment will support or deter the student’s quest for affirmation, contribution, power, purpose, and challenge in the classroom” (p. 37).

While differentiated instruction is a logical and intuitive pedagogical approach to teaching and learning for students of differing readiness levels, interests, and modes of learning within the same classroom, it is also “the process of matching learning targets, tasks, activities, resources, and learning support to individual learners’ needs, styles, and rates of learning” (Stradling & Saunders, 1993, p. 129). Furthermore, a growing emphasis on differentiated instruction has further increased teachers’ tendency to look at learning styles as an instructionally relevant variable when individualizing instruction in increasingly heterogeneous classrooms. While some researchers argue that instruction should indeed be individualized and differentiated, Landrum and McDuffie (2010) conclude that “there is insufficient evidence, however, to support learning styles as an instructionally useful concept when planning and delivering appropriately individualized and differentiated instruction” (p. 6).

Beyond learning styles, an understanding of M.I. can also assist educators in catering to the diversity characterizing individual students. This can lead to a more effective approach addressing the differing needs of classroom learners. As explained by Griggs et al. (2009),

As educators develop and utilize pedagogies that consciously attempt to engage students in a variety of ways, knowing which intelligences
students possess is critical to effective instruction. The benefit of this evaluation is two-fold. If instructors know the strengths of their students, they can better prepare engaging and relevant lessons that correlate with those strengths. Secondly, students, knowing their strengths, can engage various strategies to enhance their learning accordingly. (Griggs et al., 2009, p. 55)

**Challenges for Differentiated Instruction in a Multiple Intelligences Framework**

In terms of the second part of the research question exploring the specific approaches to differentiated instruction that exist within an M.I.-informed teaching-learning environment, very few researchers, practitioners, and writers have employed qualitative studies or analyses over the past three decades to determine which pedagogical approaches have been most effective in fostering learning environments that embrace the multiple intelligences’ framework. Beyond Gardner’s (1983, 1993, 1995) work, there are multiple resources on how M.I. theory has been best applied to teaching and learning, but very few connecting M.I. directly to differentiated instruction. In Gardner’s own words,

M.I. theory is in no way an educational prescription. There is always a gulf between psychological claims about how the mind works and educational practices, and such a gulf is especially apparent in a theory that was developed without specific educational goals in mind. Thus, in educational discussions, I have always taken the position that educators are in the best position to determine the uses to which M.I. theory can and should be put. (Gardner, 1995)

Along with many other school reformers, Gardner believes that schools often err by attempting to cover too much content while sacrificing depth of understanding. He believes that educators and students should focus on key concepts, generative ideas, and
essential questions in a quest to allow students to truly understand these notions and their implications. Once there has been a commitment of time and curricular depth, then it becomes possible to approach those topics or notions in a variety of ways that are pedagogically appropriate for the topic at hand. As such, pluralistic approaches should be encouraged whenever possible (Gardner, 1995).

In addition, Gardner believes that since children think differently, they can also learn differently. He promotes a constructivist classroom where students form new ideas, discovering what works and what does not (Scherer, 1999).

Differentiation, a ‘best practice’ in education and a natural outgrowth of M.I. Theory, provides many opportunities for students to build their knowledge. Does this mean that teachers need to engage all eight intelligences every time they teach? Of course not. M.I. Theory can be put to use in the classroom in a variety of realistic ways such as creating interdisciplinary units, incorporating student projects geared toward an individual’s strengths and interests, creating assessments of types other than standard paper and pencil, and creating apprenticeship opportunities for students. (Campbell, 1997, In Leeper & Tonneson, 2008).

Gardner (1999b) also emphasizes that M.I. provides useful topical entry points, and they “offer the opportunity to draw comparisons or analogies from many different domains and to capture the key ideas of a topic in a number of different symbol systems” (Scherer, 1999, p. 12). Each entry point might tap into a particular intelligence. The entry points are designed to intrigue the student via an intelligence of particular strength. Through multiple representations of a topic using different intelligences, Gardner believes a more thorough understanding is achieved. As such, significant time must be invested in order to present multiple perspectives through various entry points on particular topics worthy of deeper study (Willingham, 2004).
Without a doubt, one of the reasons that M.I. theory has attracted attention in the educational community is because of its ringing endorsement of an ensemble of propositions: we are not all the same; we do not all have the same kinds of minds; education works most effectively for most individuals if these differences in mentation and strengths are taken into account rather than denied or ignored. (Gardner, 1995)

As Gardner has encouraged schools to experiment with M.I., many schools have indeed taken the basic ideas from M.I. theory and, at times, successfully implemented them in a variety of ways. There is no overall organization, however, to guide the implementation of M.I. theory in our schools (Kornhaber, 2004). Teachers continue to pick and choose what seems to work well for them. Willard-Holt and Holt (1997) found that “using M.I. in schools stimulates students’ intelligence by encouraging differentiation of the process of learning using higher order thinking skills as well as differentiating the product by expressing learning in personal ways” (Leeper & Tonneson, 2008, p. 25). While Willard-Holt and Holt connect M.I. theory and D.I., they do not go so far as to promote D.I. as the ideal or even preferred methodology for teaching and learning in an M.I. framework.

While M.I. theory can be implemented in classrooms in myriad ways, Gardner (2004a) suggests it is best used as a tool, rather than as a standalone educational goal.

Since there are so many other variables that come into play within a classroom, it is very difficult to substantiate that schools which use M.I. theory have success because of it; however, anecdotal evidence points to the benefits of its implementation. (Leeper & Tonneson, 2008, p. 25)

Within a decade of its genesis, Gardner and his colleagues at the Harvard Graduate School of Education began exploring the educational implications of the theory. They launched their own pilot and model programs in curriculum, instruction, and
assessment (Gardner, 1993). Blythe and Gardner (1990) highlight the work of the Harvard Project Zero research group as it examines the curriculum content issue through the lens of M.I. theory, emphasizing the importance of leveraging humans’ highly varied capacities. Then, in 1992, Project Zero conducted an initial study of 11 self-defined M.I. schools (Kornhaber & Krechevsky, 1995). Without any formal training or oversight, the educational leaders of these schools described M.I. theory as providing common language for teachers to discuss curriculum and student strengths, as well as it encouraged teachers to design unique learning environments for their diverse student populations. Harvard also sponsored the Schools Using Multiple Intelligences Theory (SUMIT) project which researched 41 schools using M.I. theory for a period of at least three years. Kornhaber was the lead researcher and discovered that 80% of the schools demonstrated an increase in parental involvement, 78% of the schools showed increased standardized test scores, and 81% reported improvements in discipline. In all three measurements, between 63% and 75% of these schools attributed the improvement to M.I. theory and understanding (Gardner, 2004b). Critics of the SUMIT report emphasize that there was never an indication of whether the increase in each school was statistically significant. Nor was there a control group, and thus no basis for comparison with other schools in their districts. Moreover, there is no way of knowing whether the increase in scores was due to embracing M.I. theory or something different, such as the excitement of adopting a new school-wide program, new statewide standards, or some other undetermined factor (Willingham, 2004). In response, Gardner admits that “absent of the kind of controlled studies that are almost impossible to mount outside of medical settings, it is simply not possible to prove that it was M.I. that did the trick” (Gardner, 2004b).
Despite this absence of definitive proof, educators continue to believe in the benefits of embracing M.I. theory. Meanwhile, it should be noted that Harvard Project Zero has yet to specifically endorse D.I. as the methodological approach to delivering M.I.-informed curricula.

Armstrong (2009), Hoerr (2000, 2009), Kunkel (2009) and Rizzo (2009) have all contributed to an anthology entitled *Multiple Intelligences Around the World* describing how they and their schools have generally applied M.I. theory to their specific teaching and learning paradigms; this is done through narrative case studies. Edited by Chen, Moran and Gardner (2009), this relatively recent publication captures the emerging global presence of M.I.-informed teaching and learning from practically every continent on the planet. As Chen states, “the goal of education is not to teach multiple intelligences, but to see them as tools to help achieve educational goals” (McGuire, 2004). He opines that this should be the rule for all teachers. To think about the learner as a unique human being with a natural propensity for learning, albeit in his or her own particular ways, preferences, and aptitudes (Chen, Moran & Gardner, 2009). This means that teaching needs individual approaches, particularly at the beginning of schooling when students form their learning habits. It means that students should be presented various ways to work with text, words, etc. so they can find their own best approaches to learning (Cimermanova). In Gardner’s words, “any concept worth teaching can be approached in at least five different ways that, roughly speaking map onto the multiple intelligences” (Traub, 1998).

Armstrong (1994, 2009), in particular, presents specific and practical adaptations of Gardner’s model for teachers and other educators. Beyond serving as a pragmatic
introduction to the theory of M.I., Armstrong shares tactical resources for educators looking for new ideas to enhance their teaching experience, teachers training in schools of education, and groups of teachers and administrators working in schools that are implementing reforms. He regularly applies Gardner’s theory of M.I. in designing instructional methods, including those connected to secondary curricula, that link to words, numbers, logic, pictures, music, the body, social interaction or personal experience to the various intelligences humans possess. Armstrong does not, however, explicitly connect M.I. theory to differentiated learning as an endorsed methodology.

Further, Hoerr (2009) acknowledges that,

> Multiple intelligences theory was conceived as a way to look at human potential, not as a curriculum or framework for school design. While M.I. resonates with educators who seek new and varied ways for students to learn, there has been no road map for implementing M.I. on a school-wide basis. (p. 304)

Hoerr shares his experiences as the head of New City School in St. Louis and the development of M.I. frames for pedagogy and assessment as early as 1988. “What began as a discussion of the nature of intelligence has resulted in a revised curriculum, varied instructional techniques, alternative assessment, improved professional development for teachers, and new ways to communicate with parents” at New City School (Hoerr, 1994a). Hoerr, like Armstrong, does not extend his application of M.I. theory specifically to differentiated instruction as his school’s “road map” for teaching and learning.

Other practitioners, such as Kunkel (2009) and Rizzo (2009), share similar case studies for two particular self-defined M.I. schools. Kunkel (2009) notes the virtues in
“developing a theme-based and project-focused methodology with a multiple intelligences curriculum” (p. 291) at the Key Learning Community, arguably the first M.I. school in the world, established in Indianapolis in 1987. As Kunkel states, “through project work and authentic assessment, students develop real-world competencies and the leadership capacities needed to succeed in today’s world” (p. 291). Rizzo (2009) presents a more recent iteration of an American M.I. school. The Howard Gardner Multiple Intelligence Charter School, formerly the Howard Gardner School for Discovery (HGSD), adopted M.I. theory as a founding principle in 2005: “M.I.’s impact on how and what we teach is integral to our program” (p. 342), states Rizzo, a practitioner researcher at the Scranton, PA school. Unique to this school, the staff adopted an apprenticeship model to better clarify the theoretical bases of curriculum writing, understand the impact of project-based learning, and develop authentic assessment for the students they serve. According to Pennington (2012), the School’s apprenticeship model is a core philosophical element in their approach to teaching and learning, as well as curriculum design.

Our curriculum is based upon an apprenticeship model in which students learn by working alongside a “master.” Masters may include our exceptional faculty and staff, parent volunteers, and community practitioners and artisans. Dr. Howard Gardner identifies apprenticeships as being a model for schools in the 21st century because of the practical nature of learning beside someone who has working knowledge of a subject, craft, or art. Allowing a master to pass on that knowledge is both a gift and a practical way to scaffold the learning process. (Pennington, 2012)

Drakeford (2010) provides another M.I. school portrait through her research with Erick Johnson, head of school at The Howard Gardner School (HGS) in Alexandria, VA. The small, progressive, independent and alternative school serves bright, creative non-
traditional learners in grades 6-12. She explains that M.I. theory became the framework for Gifted and Talented Education, “in that it broaden the scope of giftedness to be defined in the context of students being identified with nontraditional gifts and talents as well as combinations of giftedness and learning disabilities” (Drakeford, 2010). HGS addresses the various needs of its learners based upon the theory of multiple intelligences, but the School does not apply one particular instructional methodology in its approach.

As practitioners, Armstrong, Hoerr, Kunkel, and Rizzo, as well as head of school Johnson at HGS, all herald M.I. theory as an appropriate and adaptable framework for human understanding that can and should be applied to teaching and learning environs. However, none of these practitioners have directly connected M.I. to differentiated instruction as the primary vehicle driving a school’s curriculum.

Beyond these specific school case studies that highlight various institutional adaptations of Gardner’s M.I. theory as a school-wide framework for teaching and learning, there exists a body of theoretical literature and a small number of related empirical studies that highlight approaches and loose connections to differentiated instruction in an M.I. framework. For example, Moran, Kornhaber and Gardner (2006) explore the concept of profiling students as a solution to how to best implement the theory of M.I. in the classroom:

The greatest potential of a multiple intelligences approach to education grows from the concept of a profile of intelligences. Each learner’s intelligence profile consists of a combination of relative strengths and weaknesses among the different intelligences…most people have jagged profiles; they process some types of information better than other types. (p. 22)
Creating, interpreting and updating an intelligence profile for every student can be a key component to an M.I. school’s practice. Up until the time of this published paper, Gardner had refrained from interjecting any prescribed implementation strategies for infusing his M.I. theory into educational settings. Prior to this recommendation for student intelligence profiling, other researchers contributed to the body of suggestive strategies for specific M.I. theory implementation within teaching-learning environs. Despite assertions that a learner’s intelligence profile should be created and used to improve student learning, Moran, Kornhaber and Gardner (2006) do not specifically connect the design and creation of learning profiles to a teaching and learning strategy such as differentiated learning.

Independent of her other two co-researchers, Kornhaber (2004) previously presented research conducted over a 10-year period focusing on three central questions concerning the widespread adaptation of M.I. theory in the classroom. Her findings determined that (1) educators adopt M.I. due to the belief that students are asymmetrically intelligent and these strengths need to be explored in the classroom; (2) once M.I. is adopted, schools have not necessarily experienced fundamental shifts in institutional practice; and (3) when educators claim M.I. is working, they are identifying independent student-teacher learning victories based on empathy and understanding of the individual student’s needs. Kornhaber’s research did not indicate that schools were adopting D.I., specifically, as the methodological approach in support of an M.I. learning framework. In fact, her research showed that schools were not adopting institution-wide methodological approaches for delivering M.I.-based curricula.
Maker, Nielson and Rogers (1994) offers the notion that M.I. theory provides educators a comprehensive framework for identifying giftedness in diverse student populations. This is achieved through the presentation of a problem-solving matrix for designing assessment procedures and developing curriculum. The matrix is created by combining definitions of problem types with varied intelligences and then recognizing patterns or themes. Again, like Moran, Kornhaber and Gardner (2006), Maker, Nielson and Rogers do not specifically connect how they use M.I. theory through their problem-solving matrices to design an effective differentiated learning model for gifted students. While they appear to embrace differentiated instruction, Maker, Nielson and Rogers do not explicitly employ the methodology promoted by Tomlinson (1999a, 1999b, 2001, 2003) and others.

As another example of applying M.I. theory to a unique student population, Christison (1996) and Haley (2004) have adopted and, to some degree, adapted Gardner’s theory in a quest to reinvent language learning through a vision for expanding intelligent behavior. Christison explains this is achieved by leveraging one’s multiple intelligences’ strengths in problem situations and focusing on the varied approaches to learning nurtured by these recognized intelligences. Despite explanations of multiple approaches to student learning, Christison does not present differentiated instruction as her specific vehicle for learning.

Finally, Dunn, Denig and Lovelace (2001) present the Dunn and Dunn Learning Style Model that identifies individuals’ preferences for specific instructional environments, strategies and resources, as well as the extent to which they affect academic achievement. Individual learning preferences are captured based on each
student’s identified multiple intelligences through inventories and surveys. Similar to Moran, Kornhaber and Gardner’s (2006) learner’s intelligence profile and Maker, Nielson and Rogers’ (1994) problem-solving matrix, the Dunn and Dunn Learning Style Model is grounded in M.I. theory but does not extend so far as to make a concrete connection to differentiated instruction as the vehicle for student learning and the execution of these frameworks.

As a total body of literature there have been very few published studies examining the efficacy of Gardner’s M.I. theory in terms of specific disciplines of study at particular schooling levels; in this case, the teaching and learning in an independent secondary school, college preparatory environment. No literature explores differentiated instruction as a specific methodology for fostering learning through Gardner’s multiple intelligences lens. This is supported by Lloyd and Hallahan (2007) who explicitly state that they are aware of no empirical evidence that M.I. theory carries any instructional relevance for teachers looking to differentiate learning.

Despite the intrigue that Gardner’s theory of multiple intelligences presents for conceptualizing human cognition, the theory has not been empirically substantiated. Yet decades of case study research and anecdotal evidence from M.I.-informed schools demonstrates that where it has been adopted, M.I. theory is perceived by many school leaders and practitioners to be very effective. “A program that shows promise in increasing students’ self-esteem, self-awareness, self-confidence, motivation, engagement, and positive behaviors should be seriously considered for implementation” (Leeper & Tonneson, 2008, p. 25). Moreover, a program that improves teachers’ abilities to understand and identify learning differences, create individualized learning profiles,
and enact strategies to manage different ways of learning can be a positive development for schools. Finally, a methodology favoring breadth over depth, construction over accumulation of knowledge, the pursuit of knowledge for its own sake, an individualized over a uniform education, and student-centered rather than teacher-centered education, supports the “learning by doing” approach promoted by John Dewey a century ago (Eberstadt, 1999, p. 11-12). Combined, these positive outcomes justify cogitation, rather than abrogation, for D.I. within an M.I. framework.

Summary

In this study, my goal is to examine the basic tenets of Gardner’s theory of multiple intelligences and their implications for effective teaching and learning practices in an independent secondary school’s college prep curriculum. In addition, the study prepares to identify particular pedagogical design strategies that embrace and leverage individual student strengths and interests. Pointedly, this literature review has explored very limited and loose approaches to varied differentiated instruction that fosters a teaching-learning environment based on multiple intelligences.

The study, however, does not purport to explore or compare multiple intelligences theory to alternative learning style theories, such as brain-based theories, cognitive approaches to learning, or other specific learning theory models. This study accepts that one’s learning style is an individual’s natural pattern of acquiring and processing information in learning situations. Understanding this, a core concept underlying Gardner’s theory of multiple intelligences is that individuals differ in how they learn and
it is necessary to seek each person’s weighted components to human understanding.

Although there is ample evidence for differences in individual thinking and ways of processing various types of information, no specific empirical studies have reliably explored the viability of using Gardner’s theory of multiple intelligences as a framework for human understanding and learning through differentiated instruction.
CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

In this chapter, I describe the overall research design and methodological approach, including: (1) purpose of the study, (2) conceptual framework, (3) participant selection, (4) methods, (5) data collection, (6) data analysis, and (7) validity and bias.

Purpose of the Study

The methodological approach of this qualitative research design supports the exploration of my conceptual framework (Figure 3.1). This framework captures the containment of differentiated instruction practices at Chapel Hill-Chauncy Hall School that appear to leverage individual student strengths and interests while informed by multiple intelligences theory and understanding. I accomplished this through a qualitative research study with CH-CH faculty members, for it is this collective set of teachers that can best determine if Gardner’s theory of multiple intelligences is a viable and effective framework for teaching and learning in a differentiated fashion.

The qualitative research design allowed me to focus on the tenets of understanding a broader sense of meaning in the data, understanding the context in which the data were acquired, identifying unanticipated phenomena that influenced the data, understanding the process by which events happened, and developing causal explanations for the perceptions themselves (Maxwell, 2013). This qualitative approach allowed the data to be dynamic and organic within the process of inquiry. Teachers’ perceptions of
M.I. theory and differentiated instruction became part of the lexicon layering the inquiry process throughout data collection.

The study is partially informed by symbolic interaction theory (Blumer, 1969; Mead, 1934), a methodological perspective emphasizing the study of human perceptions and meanings as constructed within social settings. This qualitative approach generates rich, voluminous, and authentic data that would not otherwise be discovered through a quantitative or mixed-method study. With the goal of analyzing qualitative perception and understanding data collected from faculty participants, based on the social setting of one particular school, symbolic interaction provides a process of “interpretation of the action” with various interconnected social actors (Aksan, Kisac, Aydin & Demirbuken, 2009).

Rather than constructing realities that are located either within individual consciousness or within sociocultural environments, symbolic interactionism interprets the process of interaction itself. The approach therefore looks to linguistic and cognitive phenomena for information about the covert self whose overt behavior is being observed. (Larsen & Wright, 1986)

The rationale for focusing on qualitative research in this study is to best and properly explore the educator’s perception of the M.I./D.I. relationship as it is understood by the Chapel Hill-Chauncy Hall faculty. As teachers understand Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what is their perception of M.I. theory’s efficacy in teaching and learning? Moreover, as various M.I.-informed pedagogical strategies in D.I. are examined, what are their perceived levels of efficacy in embracing and leveraging individual student
strengths and interests? Finally, what is the perceived understanding of the relationship between M.I. and D.I. in student learning?

The study explored a variety of queries, through multiple instruments. Qualitative inquiry provided a rich means of data collection and analysis as I explored the ways teachers make sense of M.I. and D.I. through their voices, thoughts and perceptions. The study produced complex and vibrant data, such as explanations, examples and testimonials, to address the research questions.

**Conceptual Framework**

The conceptual framework of a research study is based on a system of ideas, assumptions, expectations, beliefs, and theories that support and inform the research and are a key part of the design (Maxwell, 2013, p. 39; Miles & Huberman, 1994; Robson, 2011). Miles and Huberman (1994) define a conceptual framework as a visual or written product that, “explains, either graphically or in narrative form, the main things to be studied—the key factors, concepts, or variables—and the presumed relationships among them” (p. 18). This is, in essence, the “theoretical framework” or “idea context” (Maxwell, 2013, p. 39) for the study.

For this particular research, the conceptual framework is designed around the research questions exploring Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices. Specifically, the conceptual framework provides a container for the pedagogical strategies that are most effective in embracing and leveraging individual student strengths and interests, as well as the
approaches to differentiated instruction based upon a multiple intelligences framework and school environment. The theoretical framework depicted in Figure 3.1 highlights the container for effective pedagogical strategies in teaching and learning at CH-CH.

**Figure 3.1. Theoretical Framework for the Qualitative Research Study**

The input of Gardner’s (2006) theory of multiple intelligences leveraging student strengths and interests, combined with Tomlinson’s (1999) understanding of differentiated instruction, including differentiation through content, process, product and learning environment, provide the rich context for instructional design at Chapel Hill-Chauncy Hall. The study aims to explore differentiated instruction within an M.I. framework as it defines teaching and learning at CH-CH.
Participant Selection

The research study was conducted at my own school site: Chapel Hill-Chauncy Hall School. CH-CH is an independent, suburban, co-educational, day-boarding school with 175 enrolled students and 65 school employees. There are 37 classroom teachers at CH-CH, where I am the head of school. Of this group, all 37 full- and part-time faculty members were invited to participate in this qualitative research study. The study sample consisted of 15 male and 19 female teachers at the outset. These 34 participants represented all eight academic departments, with only three members of the faculty opting not to participate in the study. The distribution of teachers is shown in Table 3.1.

Table 3.1. Research Study Participants based on Academic Department and Gender

<table>
<thead>
<tr>
<th>ACADEMIC DEPARTMENT</th>
<th>MALE</th>
<th>FEMALE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>HISTORY</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>MATH</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>SCIENCE</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>WORLD LANGUAGES</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>ENGLISH LANGUAGE LEARNERS</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>VISUAL AND PERFORMING ARTS</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SKILLS AND ACADEMIC SUPPORT</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>15</td>
<td>19</td>
<td>34</td>
</tr>
</tbody>
</table>

All CH-CH teachers were invited to participate in this study due to the small size of the School and faculty, as well as the fact that the study is focused on examining one
school’s explicit approach to teaching and learning within an M.I. framework. By interviewing 92% of the teachers at the School, comprehensive data were collected representing the faculty’s understanding of the theory of multiple intelligences and its implications for (in)effective teaching and learning practices. The data provides a broad perspective on pedagogical design strategies that are most effective and ineffective in embracing and leveraging individual student strengths and interests. Gaining feedback from 34 teachers provided comprehensive data describing various approaches to differentiated instruction at Chapel Hill-Chauncy Hall School that foster a teaching-learning environment based on a multiple intelligences framework.

**Methods**

My design approach to research questions, instrument construction, data collection and analysis centers on capturing human perceptions and meanings about pedagogical design as constructed within the context of my own school setting. Through the acquisition of solicited personal views (e.g., open-ended questionnaires, semi-structured interviews) in qualitative research focusing on perception and meaning, data were collected from the 34 participant teachers at my independent secondary school. Allport (1942) suggests that an open-ended questionnaire is a useful personal document for qualitative research that focuses on the subjective perceptions of people. It is my belief, however, that a variety of data collection methods provide the most appropriate data in answering my three main research queries.
Data Collection

This qualitative research study necessitated well-reasoned instruments that present queries that map directly to my research questions and are mindfully sequenced. Following my previously established framework, questions, and methods choices, I used four primary instruments: (1) faculty online questionnaire, (2) individual interview protocol, (3) classroom observation protocol, and (4) focus group protocol. Weekly research memos, a research journal, and occasional participant check-ins for understanding supported and enhanced this data collection. Data collection commenced only after a full faculty framing meeting occurred in spring, 2014, in which I outlined the shape and scope of the study, gained signed permissions for participation, and answered questions presented by participants.

Charting my four primary instruments for data collection, along with the sequencing of data collection, I present Table 3.2 to provide a sense of how my instruments were aligned in relation to one another. It also demonstrates how the instruments and particular queries connected to the research questions. With only two core research questions, all four data collection instruments explored both aspects of the research question. However, the exploratory lens in which the research questions were viewed changes during the data collection process, from individual reflection (in writing and conversationally), through classroom observation and practice, to collaborative exchange of opinions in focus groups. This presented a rich qualitative data set for me to analyze.
### Table 3.2. Sequencing of Qualitative Research Study Instruments and Connecting the Qualitative Research Study Instruments to the Research Questions

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Purpose</th>
<th>Duration</th>
<th>Connection to Research Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faculty Online Questionnaire</strong></td>
<td>The open-ended questionnaire will be designed to elicit free expression of personal meanings on the topic at the outset of the school-wide study.</td>
<td>Approximately 20-30 minutes</td>
<td>How do teachers rate their knowledge about, and enthusiasm for, M.I. and D.I.?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Start: May 12, 2014</td>
<td>How do teachers understand the connection between M.I. and D.I.? Examples?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finish: May 26, 2014</td>
<td>What can the School do to support teaching practices?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Does the School live up to its promise to teach the way students learn through M.I.- informed pedagogy?</td>
</tr>
<tr>
<td><strong>Individual Interview Protocol</strong></td>
<td>These are expected to be the most powerful and rich moments of data collection in the research process. Recorded and transcribed teacher interviews will explore perceptions and understandings on the topic (informed by previous questionnaire responses).</td>
<td>30-45 minutes apiece</td>
<td>What self-identified pedagogical design strategies are most (in)effective in embracing and leveraging individual student strengths and interests?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Start: May 13, 2014</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finish: June 18, 2014</td>
<td></td>
</tr>
<tr>
<td><strong>Classroom Observation Protocol</strong></td>
<td>This will give me the opportunity to witness differentiated instruction firsthand, as well as witness moments of M.I. understanding within the teaching-learning environs. My observations will be informed by previous questionnaire and individual interview responses.</td>
<td>30-45 minutes apiece</td>
<td>As observed in practice, are there pedagogical design strategies that are (in)effective in embracing and leveraging individual student strengths and interests? If so, what are they?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Start: Sept. 15, 2014</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finish: Oct. 27, 2014</td>
<td></td>
</tr>
<tr>
<td><strong>Focus Group Protocol</strong></td>
<td>This will be another period of rich data collection, allowing for collective examination of questions posed in my interview protocol. It may also provide important follow-up opportunities. These focus groups will be recorded and transcribed.</td>
<td>30-45 minutes apiece</td>
<td>Are there some academic discipline-based pedagogical design strategies that are effective in embracing and leveraging individual student strengths and interests? Please describe them.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Start: Oct. 1, 2014</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Finish: Dec. 19, 2014</td>
<td></td>
</tr>
</tbody>
</table>

53
The specific primary data collection instruments and protocol can be found as Appendices C-G.

The sequencing of instruments was an important consideration to this study. With the exception of the additional two data sources (weekly research memos and the research journal) which were ongoing vehicles of data collection throughout the research design, the first four methods were presented in sequence. This allowed all participants to first engage in a reflective, individualized mode of data collection via the online questionnaire. After framing the nature of the research questions and study through the act of completing the opening questionnaire, which explains teachers’ self-perception of M.I. and D.I. knowledge and enthusiasm (among other queries), participants were engaged in subsequent individual interviews followed by classroom observations. As the final stage of data collection, academic department-based focus groups were convened to engage in some follow-up group discussions and particular participant check-ins. As Kitzinger (1995) notes, focus groups “explicitly use group interaction as part of the method” (p. 299) to generate and capture more insightful responses by advancing individual perceptions and understandings through group dynamics.

The data gathering for this study was a daily occurrence over approximately one month in the spring and two months in the fall of 2014. After receiving permission from participant members of the CH-CH faculty to conduct this qualitative research, as well as an overview of the purpose and core questions of exploration behind the study, I set out as a practitioner researcher and explored my research questions and collected data through a short series of online questionnaire, individual interview and focus group contexts.
Data Analysis

Analyzing the open-ended questionnaire responses, focus group and individual participant interviews, notes and transcriptions of these interviews, while coding using Dedoose, an encrypted web-based qualitative and mixed-method data analysis tool, I identified emerging themes that deserve recognition through a deductive thematic analysis approach. Dominant themes emerged inductively though the coding process, as well. An initial list of coding themes captured through review of the research can be found as Appendix H. This preliminary list evolved during the coding and data analysis process into my code list seen as Appendix I. Included are identified subordinate themes as they sometimes represented important counterpoints to the more general findings. In addition, inductive codes were included at the end of this code list; these were newly identified during the coding process.

Data analysis commenced as data collection began. As Maxwell (2013) recommends, I began data analysis immediately as the first online questionnaires were submitted and as the first interviews and observations concluded, and I continued to analyze the data throughout the data collection process. Coffey and Atkinson (1996) stress the necessity of simultaneous data analysis while collection is afoot. Specifically, I read and analyzed each individual teacher’s questionnaire responses before I conducted my interview with them. Similarly, I had each individual interview professionally transcribed, reviewed and initially coded before I conducted my classroom observations of one dozen randomly selected teachers. Finally, I reviewed my observation notes and
initial interview transcriptions and coding before conducting the focus group sessions. Throughout the data collection process, I kept notes and memos on what I witnessed or heard in my data collection process. These memos helped guide the data collection, coding, and analysis (Maxwell, 2013). They provided tentative ideas about categories and relationships, as well as how I might create matrices and other helpful displays.

During data analysis, 72 pieces of analyzed media emanating from 34 online faculty survey submissions, 32 individual faculty interview transcriptions, and 6 focus-group transcriptions were analyzed. Informed by 37 deductive and inductive codes, 1676 code applications were applied to 845 excerpts during data analysis. Findings were primarily based on these 845 excerpts captured from the participating members of the CH-CH faculty.

Validity and Bias

I am particularly conscious of the ethical considerations embedded in this research study. Most important is to recognize there may be an ethical issue appearing at any time in the process. As such, it was necessary for me to seek a balance of risks and benefits during the study. Asking a simple question such as, “Who might be harmed or potentially at risk?” was a valid endeavor throughout the study. Harm can be broadly defined and may be physical, psychological, legal, social, or economic (Anderson, Herr & Nihlen, 2007). It was necessary for me to anticipate any harm and work to minimize it throughout the research process. To mitigate the risk, I repeatedly updated my faculty on the goals of the study, my research questions, and their role in providing honest qualitative data to the study.
It is important for me to explicitly state that while drop-in classroom observations and informal feedback are a significant part of my regular instructional leadership as head of school, I do not perform classroom observations as part of the performance review process with my faculty. Department chairs, program directors, the dean of faculty, and the assistant head of school have specific roles and responsibilities in faculty evaluation and assessment of classroom teaching. At CH-CH, the head of school is not involved in the performance review of teacher’s teaching. As such, I do not believe that I compromised the integrity of the data through the data collection process due to my position, nor did this study potentially impact the employment status of any members of the CH-CH faculty. Recognition of this fact was made explicitly clear with the faculty and continued to be emphasized as the study progressed. The chairperson of the CH-CH Board of Trustees also made this explicit in word and writing to the participant teachers. With that said and understood, it should be noted that the validity of my data could very well be unavoidably compromised by my positionality as head of school. I was conscious of the possibilities to which my positionality could create a sense of bias in the design of the study. My position warrants a consideration as to how my own expectations and values influenced the analysis and possible conclusions of the study (Maxwell, 2013). As such, a deductive thematic analysis was pursued in this study to minimize any preconceived expectations I may have possessed from the data.

Continuing, Anderson, Herr and Nihlen (2007) also suggest to researchers that they seek support for ethical practices in their research studies. I kept track of self and the decisions being made while researching, especially when I hit the occasional hurdle. I was transparent with other researchers and parties involved in the study. I established a
small critical friends group with other M.I.-informed educational leaders working at both my own School and outside the CH-CH community. This provided me with the support of an inquiry team so that the research was not conducted in a vacuum without discourse leading to further reflection and analysis. Simply stated, qualitative research is complex. A critical friends group assisted in generating those difficult questions, which allowed me, as the primary researcher, to step back and take a challenge stance from time to time. The challenge stance allowed me to actively explore counterpoints, critiques, and confusions with those critical friends. It also allowed me to be questioned on my understandings and, ultimately, assist in constructing better understandings during my research.

Similarly, my research design required developing communities of inquiry within my School as data gathering and analysis became tools for professional development. As I reached out to critical friends, such as other researchers and educational leaders in the field, who I collaborate with through shared reading, strategies, and thinking concerning my research questions and methodology, there surfaced a significant need to bring the fruits of this collaboration back to CH-CH. Both my research and professional development efforts will benefit from this outreach.
CHAPTER 4

FINDINGS

Introduction

“Keeping it simple: M.I. is a theory for human understanding, and D.I. is our vehicle for delivering that M.I.-informed education” (23). This succinct statement delivered by an English teacher represents the general understanding and interconnectedness of multiple intelligences theory and differentiated instruction by the faculty at Chapel Hill-Chauncy Hall School.

Once again, the primary research questions at the epicenter of the research are framed within the goal of determining whether and how M.I. theory influences, and is being used in, the CH-CH learning environment: Exploring the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what pedagogical strategies in an independent secondary school college preparatory education are perceived as most effective by the faculty in embracing and leveraging individual student strengths and interests? Specifically, what approaches to differentiated instruction at Chapel Hill-Chauncy Hall School are based upon a multiple intelligences framework and school environment? In particular, what is the perceived relationship between multiple intelligences theory and differentiated instruction in this school setting?

After I provide an overview of the range of teaching experience for the CH-CH faculty in the chapter’s first section, chapter 4 continues in its second section with an exploration of how teachers at CH-CH understand M.I. theory and its applicability to
their practice. I do this by (1) exploring teachers’ general knowledge of, and enthusiasm for, M.I. theory; (2) noting practical implications of M.I. theory as identified by CH-CH teachers; (3) highlighting specific examples of M.I. understanding through pedagogy at CH-CH; (4) identifying when M.I. may not be a useful or effective construct; and (5) providing further anecdotal evidence in support of an M.I. framework for teaching and learning at CH-CH.

In the third section of the chapter, I provide findings on how teachers at CH-CH approach differentiated instruction as the “vehicle for delivering that M.I.-informed education” (23). First, general understandings and levels of enthusiasm for differentiated instruction will be presented. Second, practical implications of differentiated instruction in practice will be noted. Third, specific examples of effective D.I. practice at CH-CH will be highlighted. Fourth, examples of when D.I. can be ineffective are provided. Finally, further anecdotal evidence of other pedagogical strategies in support of differentiated learning within a self-proclaimed M.I. school is presented.

After exploring the influence and practice of M.I. theory and D.I., respectively, in the fourth section of this chapter I present findings on how CH-CH teachers perceive connections between M.I. theory and D.I. Beyond those perceived connections, through the findings I will respond to three particular queries: (1) How well can D.I. realize an M.I. framework? (2) How is M.I./D.I. practice living up to the School’s promise? (3) How can the School improve the delivery of D.I. to fulfill its M.I. promise?
The range of teaching experience for the CH-CH faculty

Before exploring general understandings and practical implications as held by the CH-CH faculty, it is important to understand context. Specifically, this first section of the findings chapter presents the range of teaching experience for the CH-CH faculty as determined through the faculty online questionnaire.

When measuring teaching experience in years, both at CH-CH and elsewhere, there is a wide-ranging spectrum. With 220 total years of teaching at CH-CH, the 34 of 37 participating teachers have 6.5 years of teaching experience at CH-CH, on average. As for the total number of years teaching, the participating CH-CH teachers have logged 438 years in the classroom, for an average of 12.9 years of teaching experience per educator. As such, and on average, members of the CH-CH faculty have spent 50% of their teaching career in a CH-CH classroom. For six of these teachers, they have only known teaching in a CH-CH classroom, ranging from 2 first-year teaching fellows, to 2 second-year teachers, 1 fourth-year teacher, and the senior member of the CH-CH faculty who has only taught at one school, CH-CH, for 34 years. Table 4.1 presents a display of teaching experience based on ranges of logged years at CH-CH as well as total years teaching.

Table 4.1. Years of Teaching Experience at CH-CH and in Total Career

<table>
<thead>
<tr>
<th>Range of Teaching Years</th>
<th># of Teachers: Teaching at CH-CH</th>
<th># of Teachers: Teaching in Total Career</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 years</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>4-6 years</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>
Table 4.1. Years of Teaching Experience at CH-CH and in Total Career (continued)

<table>
<thead>
<tr>
<th>Range of Teaching Years</th>
<th># of Teachers: Teaching at CH-CH</th>
<th># of Teachers: Teaching in Total Career</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-10 years</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>11-15 years</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>16-20 years</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>21+ years</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34 teachers</strong></td>
<td><strong>34 teachers</strong></td>
</tr>
<tr>
<td><strong>Total # of Years</strong></td>
<td><strong>220 years</strong></td>
<td><strong>438 years</strong></td>
</tr>
</tbody>
</table>

Table 4.2 presents a slightly different lens to view teaching experience at CH-CH. In this table, the determinant for the four experience ranges is based on the School’s compensation band system that places all members of the teaching faculty in one of four bands based on teaching experience and, at times, their attainment of excellence in teaching. For instance, teachers are initially placed into a compensation band, or range, based on the number of relevant teaching years in the profession. They have the opportunity to advance to the next higher band through an internal review and self-reflection process that takes over one year to complete. During this process, teachers that demonstrate to their supervisors and peers that their teaching is of advanced quality beyond their current band expectations have the ability to earn a one-time compensation bonus as well as advance to the next salary/experience band. Each band has a particular pay scale associated with it in order to demonstrate fair compensation for comparable
work and/or experience. Table 4.2 provides a more in-depth analysis of teachers’ experience through band assignments, weighing in years of teaching experience, achievement of school-defined teaching excellence, and attainment of advanced degrees.

**Table 4.2. Teaching Experience Bands at CH-CH**

<table>
<thead>
<tr>
<th>Teaching Bands</th>
<th>Teaching Band Ranges (total teaching experience)</th>
<th># of Teachers in Band</th>
<th># of Teachers with Advanced Degrees in Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>Band 1</td>
<td>0-5 years</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Band 2</td>
<td>4-10 years</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Band 3</td>
<td>9-16 years</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Band 4</td>
<td>15+ years</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Teaching Fellows*</td>
<td>&lt;1 year</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>No Band Assignment**</td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

| 34 teachers | 34 teachers |

| 220 years of teaching at CH-CH | 59% (20 out of 34) with advanced degrees |

*Teaching Fellows are one-year appointments given to recent college graduates interested in pursuing independent school teaching as a career.

**3 members of the teaching faculty that participated in the research study also assume administrative duties and, as such, are no longer in the band system.

**How teachers understand M.I. theory and its applicability**

“We teach the way students learn” rests at the center of the Chapel Hill-Chauncy Hall School faculty’s understanding of M.I. theory and how it is to be applied in the performance of their work as independent, secondary school educators. CH-CH teachers are asked by the School to assume an M.I.-informed stance emanating from Gardner’s (1983) theory of multiple intelligences in their student-centered approaches to teaching.
and learning. Applying M.I.-based differentiated instruction as the defined methodology frames the School’s unique approach to education, an approach that asks not “How smart are you?” but “How are you smart?”

**Teachers’ general knowledge of, and enthusiasm for, M.I. theory.**

In terms of the depth of M.I. understanding, it cannot be assumed every member of the teaching faculty at CH-CH has a deeper rather than a superficial understanding of M.I. theory and how it should or could inform their practice despite the School’s claims to be an “M.I. school”. There is a great deal of disparity among the 34 participating members of the CH-CH faculty in their knowledge of M.I. theory, how to incorporate their understanding into more effective teaching and learning, as well as their enthusiasm in embracing this constructivist approach to education. For instance, while one teacher states, “what I love about the M.I. part is I think it helps students understand themselves better, and I think that’s really important” (28), another faculty member confesses, “I personally do not like the phrase ‘we teach the way students learn’ because we can only teach the way we, ourselves, understand” (6).

As for teachers’ self-perceptions of their knowledge of multiple intelligences theory, the online faculty survey provides data addressing this query; it can be found in Figure 4.1. With a scale of 1-10, 1 being defined as “novice” and 10 being defined as “expert”, the CH-CH faculty average of 5.9 does not indicate that the teachers perceive themselves to have a very strong degree of knowledge in M.I. theory. With 11 out of 34 teachers (32%) providing a self-assigned score of “5”, this is not a faculty that would
consider itself holistically expert in their knowledge of this particular theory of human understanding.

Figure 4.1. CH-CH faculty self-rating: Knowledge of M.I. theory

![Chart showing self-rating of CH-CH faculty knowledge of M.I. theory.]

<table>
<thead>
<tr>
<th>Score</th>
<th>CH-CH Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.94%</td>
</tr>
<tr>
<td>2</td>
<td>2.94%</td>
</tr>
<tr>
<td>3</td>
<td>5.88%</td>
</tr>
<tr>
<td>4</td>
<td>0.00%</td>
</tr>
<tr>
<td>5</td>
<td>32.35%</td>
</tr>
<tr>
<td>6</td>
<td>17.65%</td>
</tr>
<tr>
<td>7</td>
<td>20.99%</td>
</tr>
<tr>
<td>8</td>
<td>11.76%</td>
</tr>
<tr>
<td>9</td>
<td>2.94%</td>
</tr>
<tr>
<td>10</td>
<td>2.94%</td>
</tr>
</tbody>
</table>

Despite the faculty perception that they are not, generally, experts in their knowledge of M.I. theory, their enthusiasm for M.I. theory is considerably higher, as can be seen in Figure 4.2. With a scale of 1-10, 1 being defined as “very low” and 10 being defined as “very high”, the CH-CH faculty average of 7.4 indicates that the teachers have a higher degree of enthusiasm for, than perceived knowledge of, M.I. theory. With 9 out of 34 teachers (26.5%) providing a self-assigned score of “7” and 8 out of 34 teachers (23.5%) providing a rating of “8”, exactly 50% of the CH-CH faculty rate their enthusiasm for M.I. theory at either a “7” or “8” on the 10-point scale. Another 23.5% of the teachers (8 total) rate their enthusiasm even higher at a “9” or “10”. Moreover, the data also show that not a single teacher rated their own enthusiasm lower than a “5”, or neutral. With 73.5% of the participating faculty rating their enthusiasm at a “7” or
higher, it can be concluded that a strong majority of CH-CH teachers are enthusiastic about, and support, M.I. theory as a basis for human understanding in their applications to teaching and learning.

**Figure 4.2. CH-CH faculty self-rating: Enthusiasm for M.I. theory**

![Bar chart showing self-rating of CH-CH faculty's enthusiasm for M.I. theory.]

<table>
<thead>
<tr>
<th></th>
<th>1 (very low)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 (neutral)</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10 (very high)</th>
<th>Total</th>
<th>Weighted Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH-CH teachers</td>
<td>0.00%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11.76%</td>
<td>14.71%</td>
<td>28.47%</td>
<td>23.53%</td>
<td>14.71%</td>
<td>8.82%</td>
<td>34</td>
<td>7.41</td>
</tr>
</tbody>
</table>

**General understandings and practical implications.**

At the root of the research questions for this study, I explore the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices at CH-CH. When asked about general understandings and practical implications of M.I. theory as a construct for human understanding, CH-CH teachers present a wide-range of beliefs. Some teachers purport that there exists a certain brand of “CH-CH M.I.” Others understand M.I. theory as that which helps teachers and students with metacognition. There is also a range of expression that M.I. is a theory for human understanding, and not a methodology. Finally, there are opinions favoring M.I.
understanding that leads to improved learning for both teachers and students. I will explore all four of these general understandings.

“CH-CH M.I.” One second year teacher with four total years of teaching experience presents this compelling, articulate reflection that is fairly representative of many teachers’ stances:

I think for me it's really a primary foundation, approach, understanding, mindset, whatever you want to call it, that is really pretty necessary for being a successful teacher. If you're embracing multiple intelligences theory, you're recognizing something pretty fundamental about your students. That there are these however many ways for them to have strengths, to have weaknesses, to be smart. Basically anything that has to do with the way that they learn. (33)

Continuing in support of this cornerstone stance, a six-year veteran of the CH-CH faculty presents these reflections:

I think we need to be comfortable, and I think we need to be confident, in the way that we apply MI. I think the idea of our need to kowtow to any fundamentalist, religious application of MI is silly. When I say that, I don't think we do that. I think we need to be comfortable and confident saying, "This is how we use MI for our students because we are ... in this school and we are who are and this is how MI best serves our population." I think we should be comfortable, confident, and happy to talk about MI as something we implement specifically for a population that is like our population because I think we have a very unique group of students at this school. I think if our application veers or moves from any sort of pure application of MI that we would have read in Gardner's books or elsewhere, I think we should be happy with always improving, always working on better ways to apply it, but also embrace what CH-CH MI means. (17)

This opinion, that there is a “CH-CH MI”, is specifically echoed by four other teachers. Additionally, there is a strongly stated belief by another half-dozen faculty members that M.I. is only as useful, relevant, and/or strong as school
leadership and teachers intentionally apply it. To discover and articulate what M.I. means for the School, and for its students, requires purposeful and customized application of the framework to teaching and learning.

**Metacognition.** In regards to practical implications for M.I. theory in the School’s approach to teaching and learning, two veteran faculty members capture another aspect of faculty opinion in these two passages, respectively:

The MI part, what I love about the MI part is I think it helps students understand themselves better and I think that's really important … At this level when they're entering 9th grade or later, depending on when they get here, I think helping them get over the struggles that they've had previously by helping them understand the best way they can learn, helps them seek out those people who can help them learn that way. (28)

If you're dedicated to tapping multiple intelligences, we're talking the whole person, everybody has at least some intelligence in every area, and so if you're going to tap the whole person, that means tapping into the intelligences. I think we're trying very hard to do that. I know we in the science department are, and I can see evidence in other departments. I think we're doing that. I think we're not concerning ourselves with ripping open the skull and pouring in the facts and then closing it back up. We're interested in making good decisions and looking out for your peers and knowing yourself as a learner and being able to ask questions and not being afraid to ask questions. That doesn't come from textbooks. That comes from community interaction and supportive adults and good role-modeling and all the things I think we're trying to do and I think we're doing pretty well. (11)

These veteran teachers point out the usefulness of M.I. theory in metacognition. They recognize that one of the School’s strengths through the M.I. framework is assisting students in learning how to learn and discovering their strengths as learners. This is repeatedly articulated as why M.I. theory is important at CH-CH and how it informs the School’s unique brand of, and approach to, education.
**Human understanding.** Some teachers, but not quite the majority, are able to specifically identify that M.I. is simply a theory for human understanding and not a methodology for teaching and learning. While it is unclear if this understanding is true for more or less of the faculty, the ability to articulate the differentiation of constructs does not appear to be widely held. Here is one example of clear articulation: “First of all, it's not a pedagogy and it's not best practices. It's fundamental understanding, but the work of translating that into successful teaching practices is all on the individual teachers” (33). This passage is also an example of the ownership most teachers feel in embracing M.I. at the School.

**Empowerment.** There is a sense of empowerment that about a half-dozen teachers express in their descriptions of bringing M.I. theory to life in their practice. For example, these two excerpts highlight the sense of empowerment and ownership teachers feel in their classrooms. In both cases, the teachers are identifying how they feel empowered to move from traditional approaches to instruction to other delivery forms based on how they are interpreting student interest in the moment:

I try to figure out what is it they are good at, they can do, they can access, and try to figure out a way to make the material, or the content more accessible for them. I have luxury working with a maximum of four students at a time, and therefore have the room and the space to really dive into that. (19)

I see the a-ha moment with more kids. The more MI I feel I am. Everyone learns in a different way and it works. You have to find a way to hit each kid and this is the way to do it. (4)

Beyond empowering teachers, M.I. theory is understood by more than half of the CH-CH faculty as a means to also empower students to own their own learning. This
experienced English teacher articulates how M.I. can not only frame support but also present personal and shared responsibility to students:

I think that one of the things that we really do well for students is not primarily our MI course and everything, but it's the first effects of how... Lots of resources and making sure no one falls through the cracks, especially when they are getting started. Because I think that before we can really worry about developing MI in a student, we need to make sure that they understand that, one, they are supported here, two, we're going to make sure they get what they need, and, three, they have a responsibility in there as well. Once they start to build on that then we can really dig in to the MI work with them. (29)

A dozen teachers express similar sentiments supporting the need to explicitly frame for our students M.I. theory and its usefulness to them before mobilizing it as an informant for improved teaching and learning at CH-CH.

**Strengths, usefulness, and examples of M.I. at CH-CH.**

Most teachers have little difficulty in sharing powerful examples of how M.I. is a useful construct informing their practice. Examples are plentiful in demonstrating the strengths and usefulness of M.I. at CH-CH. In fact, most teachers feel it easier to provide examples of M.I. in practice than describe M.I. in theory, as highlighted earlier. The following six representative examples from experienced teachers, most of whom also assume academic leadership roles at the School, provide a representative sample of useful M.I. practices at CH-CH, ranging from preparing students for life beyond the classroom, to helping understand students as individual learners, to gaining an appreciation for knowing student personalities and motivations.
First, a veteran teacher and department chair at CH-CH explains how an M.I. approach is not only a sound pedagogical construct but also developmentally helpful to secondary students preparing for life beyond the classroom:

So expose them to some of these things when they're younger because it's helpful. Again, I refer to [that] senior presentation today. He's a better student and a better person because of an MI approach and forced to work with a partner and forced to reflect upon it. It helped him mature and it helped him become a better student. I would never go away entirely from that even for the most driven 12th grader because there are many lessons to be learned in high school. I think it was Mark Twain that said, “Don't let schoolwork interfere with your education.” (11)

From a department chair with a half-dozen years of teaching experience at CH-CH, 16 years overall, we gain a sense of how M.I. theory assists language learning. This applies to not only those students with strong verbal/linguistic intelligence, but also students possessing other aptitudes and strengths.

It lends itself very well to language learning. It provides us with many options to provide input for the students and allow them to provide output for us using the multiple intelligences. We do touch on almost all the intelligences and, obviously, linguistic intelligences has to be one of our focuses, but there are different ways to deliver the information and we do make sure that there’s a variety of ways we present the information so as to reach all of the learners in our classroom. (15)

In Skills and Academic Support, we discover teachers serving as the primary cheerleaders of an M.I.-approach to teaching and learning. This approach, coupled with an understanding of each student’s learning style, provides teachers with the ability to really know their students on an individual basis.

I connect teachings to MI entirely. I think that it’s important for the individual student to learn obviously best and the way that we do that is to figure out their learning style. Figure out how they can access the material. I think it’s important as educators to encourage that at the Ninth
Grade level but throughout as well. I think accessing the material ultimately is the goal. As an educator you want each student to get something out of it, and it’s going to be different for each student. Within SAS, I think I approach it really getting to know the students individually, what kind of makes them tick, and help them take an assignment and break it down to understand it the way that they would best. (10)

One of the four grade-level deans firmly believes that M.I. theory has helped redefine the teacher’s approach to teaching and learning. Viewing the whole class as a room full of individual students with individual needs leads to differentiation.

It’s helped me look at students more individually. I know that sounds strange, but to think in terms of individual needs rather than think how to teach a whole class. Obviously, you still do that, but it's coming up with ways that you can change the message around a bunch of different ways. It's been interesting, too, to see the kids who sometimes respond well ... there's not that pigeon holing, where it's like, "This kid's definitely an auditory learner. This kid's interpersonal, where this kid is more logic, math oriented." (21)

A relatively new department chair and faculty member explains that M.I. empowers him to really get to know his students on a personal basis, allowing him to better understand student personalities and motivations. From there, connections are much easier to bond.

The way I approached it was, number 1, learning as much information about the kids as possible. Getting to know them on a personal basis, what their likes or dislikes are, understand their personality, what motivates them. Because, I think we can acknowledge the fact that there are multiple intelligences, but without understanding or knowing your student population you're never going to be able to connect. (7)

And, finally, from a faculty leader with a decade of CH-CH experience and 21 years in teaching, M.I. is all about teaching to the whole student in a very personalized manner.
To me it's a lot of teaching to the whole person and teaching in a way that ... We say it here, teach the person in front of you and that's part of the joy of it all. (16)

There are also many examples explaining the usefulness of M.I. theory by younger, less experienced faculty members. What follows are seven such examples, representing seven of eight academic disciplines at CH-CH.

A **history teacher** explains his understanding that the humanities often cater to the verbal/linguistic intelligence, and that he has the obligation to introduce non-verbal entry points into the curriculum. For instance, actively supporting visual learners with strong spatial/visual intelligence is a regular happenstance in his classroom.

In terms of what I try to strive to do with that is so reflecting on my lessons but when I'm designing them keeping in mind that history is a heavily written and sort of reading linguistic heavy sort of subject ... I try and bring almost always PowerPoint, using PowerPoint presentations and embedding in those images, cartoons, clips, anything that looks to me like visual learners and provides something to look at for the students. (22)

A **math teacher** believes that students appreciate his occasional departure from mathematical/logical-based pedagogy in the indoor classroom when he takes the class outside to engage in alternative teaching and learning. By doing a “walk around problem” (2), this teacher is able to better connect with learners who have strong bodily/kinesthetic, spatial/visual, and/or naturalistic intelligences.

I think from our student’s perspective, I think it’s something that in the long run, they appreciate. I think they appreciate the fact that we’ll go outside and do a walk around problem, which is a geometry problem that we do that its title is very fitting when we actually go outside and we draw the problem on the pavement, and we literally walk around the problem. (2)
Like many teachers who argue that M.I. is tailor-made for their particular academic discipline, this English teacher notes the many intelligences that he regularly calls upon in delivering his curriculum.

Beginning roads for me with MI is just making sure that I am looking at all the different ways to analyze literature, some are easier than others … Obviously verbal, spatial, and visual are usually strong because it's usually simple to say, "Hey, sketch out this character for me. Find some passages to back-up your sketch." Inter- and intra-personal, sometimes the musical as well. "What is this character's soundtrack?" I haven't gotten as much into things like the naturalist or existential. I think that sometimes especially existential gets a little abstract for 9th graders, but those previously mentioned intelligences are the ones that tend to get visited again with my class. (29)

From a science teacher’s perspective, teachers do not necessarily need to overthink how M.I. can and should inform their pedagogy. This particular teacher found that if she simply focused on interesting, creative lessons, the M.I. components would naturally fall into place for many aptitudes and students.

I think at the beginning I really thought that I had to look at the chart and take the chart and make my lesson plans. But as I got more comfortable just with teaching in general, I realized that I could sit down and think up a lesson like, "What's a great way to approach projectile motion?" And all of a sudden, well I like all these ideas like going outside and watching rockets. At the same time, we come back in and we use technology. We have like a simulation for it as well … All of a sudden I'm thinking I have all these ideas and I can look at those and say, "Great. I've hit on all of these intelligences and we've learned about one subject." And just by thinking of how it's interesting way to approach it fits a lot of categories. (18)

One world languages teacher believes it is important to regularly change the approach to teaching and learning throughout the class period. By doing so, this will naturally present a variety of learning situations that will tap into varying intelligences.
A lot of times I start with the most boring part. The typical reading, vocabulary. Because they just came in, they just moved around outside. Then the minute they got tired, or they started to get distracted, either I would right away use the game pointed at your students, or rotate, have them review the vocabulary. The minute they kind of wear out, watch a little film, not even related to the subject, just more change of scenery and all that, then see the energy level. If it's pretty low still, then some art work, paper, hands-on stuff, and then before the end of class, if they're still there, review the vocabulary a little bit. (30)

Knowing your students through doing your fact-finding homework on them at the beginning of the school year pays great dividends, according to one Skills and Academic Support teacher.

For me the most important part, and the part that is really helpful as an SAS teacher, is to have all that information and to know it about each individual student. It's really made possible by SAS because we have fewer students … Then you can take all of this information that you've gathered and what you've observed over the first month or two and really leverage it in working with that student for the rest of the year … That's true for all of the other skills too. As much as I can I try and bring different things in. Help the student where they're comfortable and then also make them do the things that they're not comfortable with. (33)

Finally, from a visual arts teacher, we learn that a conscious effort is made throughout the course of the school year to introduce a variety of topics that support particular intelligences. While highlighting multiple intelligences with one particular topic or assignment may not be possible, there is an effort to offer a variety of assignments in support of various types of aptitudes.

I think that it's always useful in shaping my thinking about how I'm going to introduce a topic and what intelligences might fit in really easily, and then some that I could look to include to gain a bigger picture lens that … I mean at least for me, a trimester making sure to hopefully provide an outlet for each intelligence at some point, and even though it might not fit into each individual lesson. (9)
In general, while the CH-CH faculty does not consider itself to be an expert group in their knowledge and understanding of M.I. theory, they are a faculty willing to share positive examples of how M.I. is useful to, and a strength of, their practice.

Returning to the research question and the search for effective pedagogical strategies in independent secondary school college preparatory education that are most effective in embracing and leveraging individual strengths and interests, I gained dozens of teacher responses with supporting evidence for each of nine specific intelligences. For each of the nine selections below, representing strategies for each of the nine respective multiple intelligences, I choose passages for M.I. strategies that might not necessarily be in related content areas. For instance, the mathematics teachers are most easily able to present mathematical/logical M.I. strategies, and the English teachers find little difficulty in providing verbal/linguistic strategies. What is very compelling is the ability for CH-CH teachers to describe M.I. strategies that are not necessarily wed well to their specific discipline. In fact, I present this as a source of pride for many teachers that they are able to incorporate various effective M.I.-informed pedagogical strategies they perceive to be more challenging for their particular content areas. Many of the examples here fall into that category. The following are direct responses from CH-CH teachers that demonstrate specific attention to particular intelligences, or aptitudes.

**Verbal/linguistic strategies** are those that use and learn language effectively. They allow for students to express oneself through written or spoken word. Here, a mathematics teacher explains the importance of, and his propensity to, literally defining
in writing the math terms, concepts, and equations they use despite his personal preferences to not learn math in this manner.

I thought about that a lot in terms of how I’ve kind of organized the way that I taught with lecturing. I use a lot of written definitions, which is something that is not really how I would learn personally, but I did a lot of this is the definition, or let’s come up with the definition together. Lots of writing out the words. Maybe even saying, here, how about you guys try to take this a minute or two on your own with a partner, and try to come up with the definition yourself. Maybe even say, here’s the definition from the textbook, how about you try to come up with a definition that you would try to explain to someone who’s really not as strong a student or a child who is not used to these big math words. You’re just trying to explain the broad concept. (2)

**Mathematical/logical strategies** involve reasoning logically and investigating issues scientifically. While these strategies are readily discovered in mathematics and science classrooms, most CH-CH teachers can discover entry points into their curricula through this intelligence. Here, a world languages teacher describes how grammar is very logical and sometimes she needs to breakdown grammar learning into equations.

This is a fill-in-the-blank song by a classical French artist…This is very multiply intelligent. It practices one of the past tenses in French. So when we’re studying grammar actively we use mathematical/logical because grammar is very logical, and I present it often just naturally as an equation. I’m aware that we have a lot of mathematicians in my room, and I do present as an equation. I always have. (15)

**Bodily/kinesthetic strategies** focus on learners who like to use one’s body skillfully and for solving problems. This science teacher explains how she readily embraces teachable moments when she can connect with students who are body smart.

I would say, the unit, the whole unit that is the most MI lesson in my mind is the muscular system because I bring the students into the fitness center. Again, with the use of the iPads to see…we can preload the textbook and have the muscular system notes in front of them and ask. We're learning
about the different muscles. There are kids that can sit there and just look at the charts and look at the pictures. There are kids that can walk over to the weight stack and pick up a weight and see the muscle in action or hop on a machine and see that. I feel that's probably one of the most, I would say both MI and DI. I'm really able to differentiate. They can sit and read or they can get up and use whatever. (4)

**Rhythmic/musical strategies** connect with students who have the ability to create, comprehend, and appreciate music. These students not only enjoy music, but they often have the ability to recognize sounds, rhythms, pitches, timbre, and tone quality. A science teacher explains how she began to appreciate this intelligence after discovering one student, in particular, who helped her understand it as a viable entry point into the curriculum.

Actually, I was really lucky this year. One of my students is a very musical learner. He has been incredible in my class, making me do it because he makes all of these raps and songs to remember my curriculum. It's been really helpful for me because I'll ask him, "How would you learn this?" And he would be like, "Well I have a great song for that already." And he would show it to me and then he'd want to show it to the class and he'd get the whole class to learn it. I think I was really lucky in that sense that I got to experience how someone learns through music because I don't. It's interesting to see that. (18)

**Spatial/visual strategies** tap into students who have the ability to notice details of what one sees and imagine visual objects in their mind. An English teacher describes below how he embraces learning opportunities that support students who are picture smart, realizing that catering to visual learners is yet another way to engage students in his curriculum.

The last example I have of where MI theories help me make a successful lesson is with my…class we have just finished Frankenstein and I've been talking a lot about the genres of the Gothic and Romanticism. We've been talking a little bit about the themes of it and I thought, "Well, let's look at something different." We looked at the collection of paintings of the
Gothic style and Romanticist style and talk about, "What do we see happening in each of these? What are some of the elements?" We point out natural elements and moods and types of people in them. Then we looked at the cover of the book which is a Romanticist painting, it's the wonder or if it's the fog or it's something like that. They just went with it saying, "Oh wow, well, is this Gothic or is it Romantic? Here are the Gothic elements, here are the Romantic elements." If this is Victor on the cover here, what is he looking at? All the themes of light and darkness, and all of Victor's personal drives and everything, building on the painting itself. MI helps me sometimes remember that I have lots of options when it comes to unlocking books for the students. (29)

**Interpersonal strategies** often benefit students that are sometimes described as people smart. These students possess the ability to notice subtle aspects of other people’s behaviors and intentions. They often enjoy being around other students, interacting and collaborating with other learners whenever possible. Here, an English teacher describes the interpersonal nature of learning when you pull several things together at once, in this case through technology integration.

The thing that's great about the technology is the simultaneity. You can teach one concept in multiple ways at once, which because it can be interactive and because you can use audio plus obviously the visual plus the interpersonal, because students can be working with each other even on their iPads, all these things get pulled together, and I think that's really exciting. (21)

**Intrapersonal strategies** help foster learning for those students with the ability to be aware of their own feelings, fears, motives, and desires. These students tend to know themselves well, including their strengths and weaknesses as a learner. An English Language Learner teacher recognizes the importance of providing space for reflection and journal writing in order to better serve these students.

I use that Princeton minute a lot at the end of classes. First of all, I don't like to lecture till the last minute of the day, I think that's kind of counter-productive to the idea of the 75 minute class. The last 10 minutes, or the
last 5 minutes, I'll have them sit down, maybe twice a week, and just write down something, or share it with their neighbor kind of stuff. Those moments, I'm feeling like I'm using everything we know about learning. I'm trying to use that intrapersonal piece. I don't know how other teachers are using that piece, but I think it's very important. Teachers, who have journals, things like that, are using it, that sort of thing. (24)

**Naturalistic strategies** capture those students with stronger abilities to recognize patterns in nature and differences among various life-forms and natural objects. These students often feel a stronger connection to the world of plants and animals and enjoy learning about them. Below, a mathematics teacher provides an example of how categorizing objects in the natural world provides students with an analogy they can hopefully translate into algebraic equations.

For example, when we're doing like terms and we were combining like terms, what we actually did is we took a walk around the campus and I asked each of the kids to choose a thing out in the world to collect. This could be leaves, it could be rocks; and one of the kids picked up trash, and that was really nice for the campus. What we actually said was that each of these things are individual, but we can bring out a common theme which is again what combining a like term is. It is taking things that are similar, although not necessarily exactly the same, and combining them together into different ways to say, "This is everything that's x-squared even though there might be a 2 in the front, or a 3 in the front." It is very similar to what you did when you said, "This is a leaf, but this leaf looks different from this leaf," if we can categorize it that way... (27)

**Existential strategies** focus on providing inquiry smart, or big picture, students with improved connections to the curricula. Students with the ability to pose and ponder ‘big questions’, such as seeking the deeper meaning behind things, often appreciate these philosophical explorations from time to time. Again, a mathematics teacher provides a poignant example of how this is achieved.

I actually generally approach algebra from a very philosophical standpoint which again, if we're going to talk about intelligence, gets into existential
intelligence. What is counting? What is math? What is mathematical thought? What is the idea of infinity? What is zero zero as a number that has a value and also no value at the same time if we're using it as a place holder? The feeling of being able to talk about these things, such as the Fibonacci sequence, is good. (27)

These nine examples from the CH-CH faculty demonstrate specific attention to particular intelligences, or aptitudes. They are representative of the breadth and depth of responses provided by the vast majority of CH-CH teachers. It is clear that across disciplines teachers are engaging in pedagogical design that incorporates strategies that are attuned to all nine of the intelligences as outlined by Gardner. While teachers certainly do not attempt to present nine different strategies during a single class meeting, they readily incorporate various and all strategies into their pedagogy throughout their curricula.

**When M.I. is not useful or effective.**

During the course of the study, about a half-dozen CH-CH teachers identified that M.I. theory may not always be a useful or effective construct to their practice embracing and leveraging individual student strengths and interests. There is as wide of range of explanations for their perceptions as there is in their age, gender, teaching experience (both at CH-CH and in total years), academic discipline, and level and place of higher education. In conducting a comparison of teachers who felt this way and those who did not, no common threads along the aforementioned dimensions were identifiable and differentiated them and, thus, generalizable. Regardless of the reason, however, it is a significant finding that some teachers possess both hesitation and anxiety in applying M.I. theory to their practice on a full-time basis.
Two teachers believe that M.I. theory can be difficult to translate effectively into practice when there is a wide-range of student ability in a heterogeneous class with constraints on learning time. As one of the senior members of the faculty confessed, “I think it's not useful when you have a mixture of kids in a certain class that has so many different ways of learning, and there's no one way to teach them, and you still have to get this information to them in 75 minutes” (28). Without mentioning the pressures of time, one department chair states this sentiment more directly: “[W]e talk about the diversity of our student body and we definitely have diversity when it comes to ability, interests, and also previous knowledge. That makes it harder” (19).

Another veteran member of the faculty, as well as a department chair, notes that there needs to be a certain level of student buy-in: “Many international students who aren't all that familiar with an MI approach aren't all that willing to work an MI approach. They want the best grade possible, and they want to do things that they do well” (11). For students possessing this attitude, there is little desire to experience alternative approaches to learning if they perceive the differentiation to be slowing down the learning process. While this example points out the challenges of a particular segment of the student body, other experienced teachers note that it is the very nature of adolescents to demonstrate flippancy, apathy, and/or lethargy toward schooling: “I think some kids, being, it's sort of the nature of adolescence. It's that they want to push back against it, and it's that, ‘Oh, it's the MI thing, and blah, blah, blah.’”(21). As such, a couple of teachers articulate the potential for this dynamic to manifest itself and, as a result, recognize that they need to prepare for that. “[Y]ou expect an exercise that you’ve designed, crafted and are proud of and then the students don’t buy into it, and what I’ve
learned is you need backup” (15). Flexibility in pedagogy, particularly in preparing alternative ‘Plan B’ approaches to teaching and learning, is a key characteristic toward effective M.I.-informed instruction as identified by teachers at CH-CH.

About half of the teachers note perceived limitations of their subject area(s) vis-à-vis how M.I. can be applied to their discipline. In short, not all teachers believe that there is a proper place for an M.I.-informed stance during particular types of learning lessons in their disciplines. For example, one department chair notes, “I still have a hard time applying it (M.I.) when I apply the ticky-tacky elements of writing” (17). In this particular case, the educator is referencing the necessity of adopting a very traditional approach to teaching the craft of thesis creation. A young world languages teachers presents a similar sentiment not about writing but about reading: “[W]hen it comes to reading, the specific verbal linguistic skills, I don’t really know how to have other intelligences in mind, because that skill itself is verbal, it’s linguistic. That’s what I’ve been kind of struggling with” (20). Finally, a relatively new math teacher demonstrates frustration in explaining, “there are some instances where I just want to throw the whole MI thing out the window and say, ‘We are doing abstract logical thought. There is nothing else to be done because this is the skill we are building’” (27).

In a similar way, a couple of teachers note perceived challenges in taking particular and similar M.I. stances for students in dissimilar grade-levels. What might be effective or useful for one grade-level is not always effective or useful for students of a different grade-level. “It's great for imagination, sudden growth which it works perfectly for literature and especially for the 9th grade. I really want them to understand that there's so many ways they can think about these things” (29). Two teachers acknowledge
that if they do not make appropriate adjustments for different aged learners, they run the risk of compromised effectiveness. This is due to the fact that CH-CH teachers perceive that the School’s older upperclassmen have a much better sense of how they learn and how to proactively advocate for their own learning needs based on both their M.I. profile and learning style. Three teachers explicitly express this belief.

In articulating the ineffectiveness of M.I., four teachers also explain that students’ self-perceptions of their own learning strengths and weaknesses occasionally present roadblocks to diversified, M.I.-informed instruction and learning. One department chair notes, “I think there is some danger in there because I've heard many of our students say, ‘Well I'm just not number smart,’ and they discard this whole intelligence, this section of their intelligence” (19). Another but younger teacher, one from the 9th grade program, adds, “Sometimes students had fallen back on the idea like, ‘I'm having trouble with this because it's not the way I learn,’ when it's a matter of teacher trying to teach a new method” (29). Students will push back saying, “I learn a certain way or I have a certain type of intelligence and anything that's not that well I have a pass for not trying” (29). This sentiment is further supported by a similar-aged teacher of freshmen:

If you've been told…confirmed that this is the way you learn and the reason why you haven't done as well in these sets of things is because of that, it can then lead to a self-fulfilling prophecy that you'll never do well in those sets of things and the only way that a student may succeed is if they're specifically allowed to…act everything in a certain way or express their intelligence…it’s not that MI is not useful in that way, it’s just that it can lead to that and be used as an excuse to not develop different things, and I understand that, but I also think what Gardner is trying to talk about with this is that we're not one thing, we're many different things. We can all be quite capable in all of them and some subjects will lend better to certain types and so it shouldn't be used as an excuse to opt out of something if it doesn't reflect a certain thing. (27)
As one history teacher notes, and as confirmed by about a dozen colleagues, there is also an underlying tension at CH-CH between the proper fulfillment of the School’s college preparatory curriculum and its commitment to maintaining an M.I.-informed approach to teaching and learning. Ten teachers believe that M.I. can be ineffective or not useful when they believe they are interjecting pedagogical approaches for the sake of M.I. and at the sacrifice of content. “I find that it often comes at the sake of content. In order to do things that are outside the traditional means, that are really almost more hands-on activity-based, it sacrifices a lot of time” (6). This is time that this teacher, in particular, would rather direct toward content breadth than content depth. Discovering the proper balance of breadth and depth in pursuit of a college prep curriculum at CH-CH within an M.I. framework is certainly an identified challenge highlighted by many teachers. The same history teacher admits, “the single biggest issue as a school, in terms of embracing MI theory and us as educators, is the fact that we haven't figured out how to make the MI framework truly augment a college prep student experience” (6).

Beyond these considerations, the CH-CH faculty presents a plethora of alternative reasons why M.I. may not always be a useful or effective construct to their practice embracing and leveraging individual student strengths and interests. These explanations include: time constraints in the classroom, teachers’ natural tendencies, technology failures, the presentation of too many or not enough balanced options for students, teachers’ inabilities to shift lessons on the fly if necessary, student resistance to pedagogical change, attempts at incorporating too many intelligences at one time, imposing on students rather than bringing them on board, a lack of energy and enthusiasm in instruction, students taking advantage of the independence presented in
student-centered learning, negative student-teacher relationships, students not being involved in the teaching-learning process, encroachment and challenges of learning differences, misunderstanding M.I. as learning styles, not properly or fully understanding M.I. theory, and when the effectiveness of M.I.-informed instruction is not or cannot be assessed.

In the end, there are many reasons for M.I. theory being identified by four CH-CH teachers as an ineffective construct. However, many of these are episodic and not systemic. Teachers have more difficulty in identifying how and when M.I. is ineffective than effective, more difficulty in identifying useless over useful. As one Skills and Academic Support teacher notes, “I think there's not really a time when it's not useful. Like I said before, I think it's pretty fundamental, pretty foundational to understand this type of thing, how your students learn and what their strengths are” (33).

While there are a variety of preconceived, underlying assumptions about M.I. theory and its applicability to teaching and learning at CH-CH, these anxieties and occasional misunderstandings appear to be constructed on more of a deficit- than strengths-based mindset. Many teachers understand that heterogeneous classrooms, subject-specific curricula, a teacher’s own M.I. preferences, and the School’s college prep mission, as four such examples, may all better support and be rewarded by an M.I.-informed approach to teaching and learning. At CH-CH, there does not exist a predominant pressure to weight breadth over depth when it comes to curricular content. Instead, teachers are encouraged to use M.I. to place learning over coverage whenever possible. With that said, about a half-dozen teachers experience these as in tension but,
again, there are no identifiable common threads amongst these teachers that lead to
generalizable findings.

This final passage from an English teacher paints a magical understanding of this
concept and why, in the end, the effectiveness of M.I. is all about the relationship
between teacher and learner:

The one other concern...I have with MI work is that sometimes if we
really emphasize a lot of MI with the students, we...sometimes risk
broadcasting what I call the Harry Potter mindset, which is the idea that
each kid is a wizard that just needs the right adult to unlock it within them,
and if the kid doesn't succeed it’s because the adult didn't unlock it
properly.

Instead, we really want the kids to understand that you do have
intelligence, but like everything else you need to work on it and you need
to put in that effort. There's no magic...It's not necessarily that you’ll find
that personable head or your magic wand to unlock what you've always
had...You have something, but to make it something...be willing to take
risks that your mentor, your teacher, gives to you as well. (29)

Other interesting findings.

During my exploration of how CH-CH teachers understand M.I. theory and its
applicability to their practice, several unique insights provide further relevancy for M.I.
theory in the context of teaching and learning at CH-CH. Here are four unique lenses
that support of the School’s M.I. framework in practice.

First, there is a stated perception from four teachers that embracing M.I. and
applying the theory to teaching and learning practices is an ethical, student-centered
approach. Adopting “we teach the way students learn” as the School’s tagline is
symbolic of this focus on humane student learning that leverages students strengths and
aptitudes while building self-esteem and self-confidence.
The main thing is I think that it is a humane philosophy. One that encourages people to treat each other humanely, with kindness. We talked about CH-CH and I think this is true about CH-CH. One big thing is that it teaches kindness. I think faculty come in here who haven’t thought much about the role of a teacher as a surrogate parent actually, that MI is a really good framework for encouraging new teachers to fit into a humane and loving approach to students. (12)

Second, there is an understanding that CH-CH teachers must take context into consideration when thinking about the student learning experience. In particular, understanding individualized cultural and background experiences, particularly socio-academic experiences, is part of the fundamental understanding necessary to absorb how students learn.

For me, [M.I. understanding is] not the only thing that I think you need as a fundamental understanding, but it's one of the key parts. Another being culture or background, or what their school experience has been to date, etc. Understanding the way in which a particular student understands the world. It's really pretty critical. (33)

Third, the CH-CH student body is richly diverse by many different measures. Student diversity presents opportunities for student learning and understanding that can be difficult without pluralism. Exposure to divergent opinions and understandings in the context of a teaching-learning environment is important in preparing students for future success.

I think our population represents the diversity of the world we live in. As such, it is important to reach a variety of personal learning strengths in your delivery of information. I think this holds true for life at CH-CH and in any profession one pursues post-secondary and also beyond college. I think what we're doing here sets a foundation for allowing the youth of America to really realize their potential at a young age. And giving them the tools to be successful. (7)
Finally, in terms of those “tools to be successful” (7), eight CH-CH teachers note the need to balance content and skill-building in their curricula. Proper time must be allocated to each endeavor in the School’s college prep environment, and this can often be one of the greatest challenges CH-CH teachers face in their quest to prepare students for higher education and then life beyond. One history teacher not only highlights the tension which can exist in trying to balance content and skill-building, but he goes further to explain that, in his mind, multiple intelligences would be better framed as multiple talents, picking up on some of the scholarly critique of M.I. theory that exists.

I think we need to tease content and skill-building apart a little bit, and we don't often do that. I get it. It's a short school year and you want to teach a skill while teaching content, but I personally think that it's sometimes a problem. What also makes it difficult is I feel like Gardner's language that he uses, from what I've read, he could've called it "the theory of multiple talents," and he didn't do it. (19)

This idea of re-framing Gardner’s theory of multiple intelligences as a theory of multiple talents, or aptitudes, is expressed by a couple of CH-CH teachers who appear fairly well versed in M.I. theory and some of the associated critique of the theory. With that said, about two-thirds of the CH-CH teachers appear to accept M.I. theory at face value and focus on interpreting it vis-à-vis their own teaching practices without providing alternative frameworks for human understanding related to teaching and learning at CH-CH.
**How M.I.-informed teachers approach differentiated instruction**

In this third section of findings, I explore how teachers at CH-CH approach differentiated instruction as the “vehicle for delivering that M.I.-informed education” (23). It is apparent that there are many general understandings of how M.I. theory informs differentiated instruction. These general understandings, as well as practical implications, will be addressed second in this section after I first offer findings revealing teachers’ levels of understanding and enthusiasm. The third section will highlight specific examples of perceived effective D.I. practice at CH-CH. Fourth, examples of when D.I. is perceived to be ineffective will be presented. Finally, further anecdotal evidence in support of differentiated learning at CH-CH is presented.

**Teachers’ general understanding of, and enthusiasm for, differentiated instruction.**

As for teachers’ self-perceptions of their knowledge of differentiated instruction, the online faculty survey provides data concerning this query; they can be found in Figure 4.3. With a scale of 1-10, 1 being defined as “novice” and 10 being defined as “expert”, the CH-CH faculty average of 6.4 does not indicate that the teachers perceive themselves to have a strong degree of knowledge in differentiated instruction. With 11 out of 34 teachers (32%) providing a self-assigned score of “7”, this is not a faculty that would consider itself holistically expert in their knowledge of this particular methodology. On average, they do perceive themselves to have a higher than average understanding of D.I.
Despite the faculty perception that they are not, generally, experts in their knowledge of differentiated instruction, their enthusiasm for D.I. is considerably higher, as can be seen in Figure 4.4. With a scale of 1-10, 1 being defined as “very low” and 10 being defined as “very high”, the CH-CH faculty average of 7.9 indicates that the teachers have a higher degree of enthusiasm for, than perceived knowledge of, differentiated instruction. With 21 out of 34 teachers (62%) providing a self-assigned score of “7”, “8”, or “9”, and 6 out of 34 teachers (18%) providing the highest rating of “10”, 80% of the CH-CH faculty rate their enthusiasm for D.I. at “7” or higher on the 10-point scale. Moreover, the data also show that not a single teacher rated their own enthusiasm lower than a “5”, or neutral. It can be concluded that a strong majority of CH-CH teachers are enthusiastic about, and support, differentiated instruction as a methodology.
Figure 4.4. CH-CH faculty self-rating: Enthusiasm for differentiated instruction

General understandings and practical implications.

CH-CH teachers have an established baseline definition for differentiated instruction that was presented to them in August, 2013, when D.I. workshop facilitator Cindy Strickland facilitated an in-service day for the faculty. In ensuring what a student learns, how he or she learns it, and how the student demonstrates mastery vis-à-vis the student’s readiness level, interests, and preferred mode of learning, teachers can differentiate content, process, product, and learning environment.

Beyond this baseline definition for differentiated instruction at CH-CH, there are a few further fundamental concepts and understandings held by teachers worth noting. For example, “DI is a way to deliver and access all the different intelligences in maybe a more structured way. If I want to access these intelligences, I need to set up different
avenues to get to them…here's an option, here's an option” (18). Continuing, one history teacher explains his understanding of differentiated instruction as a more useful construct than M.I.:

I find DI to be far more useful than the MI framework. I think that it is something that is pretty much at this time, within the education world, universally looked at as a positive thing. I think people still have trouble with what is DI, exactly? Do you have to do this with every assessment versus product, process, content, how to do it, how to implement it, but it is concrete. It is tangible. It is much less theoretical and has, at least I find, clearer applications in the classroom. (6)

More than three-quarters of CH-CH teachers recognize the importance of this methodology in assisting them in their quest to provide students with a personalized and challenging experience. “Without my differentiated instruction, though, I really wouldn't be pushing or supporting my students in reaching their potential. I think differentiated instruction is important to really support, push, and challenge the full array of student's abilities that I have” (1). And by challenging students through differentiated learning, teachers believe they gain the best out of their students. As one Spanish teacher states, “I feel like you can differentiate to get the best out of your students regardless, and I think that…you're differentiating from a position of strength, and it's to strengthen and enhance what you already have and what you're doing” (14). This all seems possible to CH-CH teachers when students are ready and willing to participate in the learning process. “I think when a student has a choice it makes them want to actually participate, as opposed to when you just say you need to do this, you know how teenagers can really be” (10). Choice is a recurrent theme in promoting effective differentiated instruction.
Beyond general understandings of what D.I. is, about half of the teachers explain what D.I. does. As an example, several teachers provide commentary that implies D.I. is important to the School in allowing the brand experience to meet the brand promise. “I think without differentiated instruction at the School, we would just be another smaller high school. I think if we don't differentiate instruction, we're going to lose a lot of the kids that we're saying that we help” (28). A couple of teachers specifically note that at this point in the School’s development, D.I. is very much part of the teaching and learning fabric, the brand experience. As one English teacher reflects,

Here's the thing I think about DI. I think if you woke up tomorrow and decided you wanted to get rid of it, I think you're going to have a hard time doing it. I think it's something we were doing unconsciously before it became a discussion much in the same way that I imagine MI skills and MI pedagogy was something we were doing before we began an MI school. I think with the faculty you have and the way they think, and the way they approach learning, I think differentiated instruction and tailoring instruction to our particular kids and our particular student body is something that's going to happen here regardless of a named ethos. That said, I think the two are married well, MI and DI. Again, I would say if we want to continue being an MI school, then we're going to continue being a DI school. (17)

Differentiated learning is a methodology that also allows CH-CH teachers to possess perceived and real flexibility in their pedagogy. As they design lesson plans and maximize teachable moments, teachers find that differentiation provides a platform for both better learning and better teaching. As one world language teacher, explains:

I feel like you can differentiate to get the best out of your students regardless...Then you're differentiating from a position of strength, and it's to strengthen and enhance what you already have and what you're doing rather than to make up for something that you had to do. (14)

On the corollary, a handful of teachers express that without differentiated
instruction, they do not feel that they are adequately supporting their students’ learning needs and helping them reach their potential. A mathematics teacher explains this stance:

Without my differentiated instruction, though, I really wouldn't be pushing or supporting my students in reaching their potential. I think differentiated instruction is important to really support, push, and challenge the full array of student's abilities that I have in my class. (1)

**Strengths, usefulness and examples of D.I. at CH-CH.**

The vast majority of the CH-CH faculty provides example after example of how differentiated instruction is a useful methodology informing their practice. Widespread everyday use of D.I. in all classrooms is certainly perceived to be a strength of the School’s approach to teaching and learning. In particular, students are able to identify how they differentiate the content, process, product, and learning environment, as well as assessment, in order to create a variety of engaging entry and exit points to their curricula.

Before providing an effective example of each mode of differentiation experienced at CH-CH, I want to share one passage provided by a member of our freshman team. In it, this teacher celebrates the work of a colleague and trumpets the usefulness and strengths of D.I. as this colleague engages in the methodology. The ability for CH-CH teachers to identify and highlight effective D.I. practices among their peers is as prevalent as their ability to recognize effective D.I. coming from themselves.

I would say that some of the best actual differentiated instruction that I have come across and, again, I spend a lot of time on the freshman team so that's where I am, actually comes from [a colleague] and the way that he
gets the kids to conceptualize writing things and moves really easily from a grand concept of this is how you pick out what you're talking about, which he does in poster form and game form and skit form, to how do we take all of those that we discussed and actually start writing them down on a piece of paper, which he has these really nice, visual, graphic aids that he puts together which, for the kids who really struggle with that piece of it, are really invaluable.

For the kids that don't really necessarily struggle with that, it at least helps them with the organization piece of it. He can actually use the same, essentially, piece of paper and the kids will self-differentiate. He will, when he re-sees them, actually know that this kid gave me a pretty good essay in this graphic organizer as it is, whereas this kid actually needs to come in and discuss and do revisions, and the way that he goes through the revision process—peer revision, self-revision, teacher revision—allows the kids to be differentiated as much as they will input the work. I don't know how he does it. He's like a wizard. He gets the kids to do things that just baffle me because they seem to go along with it, allowing each of the kids to essentially produce their best work by using very similar pieces when he differentiates through instruction. (27)

At CH-CH, most teachers understand D.I. as a methodology that aids in creating lessons designed around patterns of student need. Through the use of whole-group, small-group and individual tasks, based on content and student needs, teachers take a student-focused approach to instruction that presents differentiation through various stages of teaching and learning: content, process, product, learning environment and, at times, assessment. I will present positive examples of each mode of differentiated experience at CH-CH.

**Content.** For content, one-quarter of the teachers discuss how they differentiate their curriculum’s content as a means to discover student engagement at the entry point to a unit of study or particular concept. As one history teachers explains, “presenting content in different ways and using prior knowledge activities to build on student's own
experiences and understandings” (22) is paramount to creating student engagement in the
subject. As an example of this, an English teacher notes that,

When I teach my students how to write sonnets, I differentiate their
assignment by focus/interest. Each student has to write a sonnet to
demonstrate their ability to abide by its strict format, but they have options
concerning the content of their poem. Options include writing a love
letter, a break-up letter, or a review of a movie they recently saw. (29)

By providing options, students are presented with a differentiated approach to content
and, thus, can make their learning and understanding more relevant to their own interests
or lives.

There are times when teachers need to help direct students toward resources that
will aid them in uncovering differentiated content. This often falls into the hands of the
Skills and Academic Support teachers that aim to differentiate learning beyond the
classroom experience students gain during their 75-minute core academic classes. SAS
teachers often spend a fair amount of time reframing content while seeking new,
engaging curricular entry points for their students:

I will then give them ideas and tools depending on the area they need most
help in and the nature of their trouble. So, some kids might only need
ideas for new apps and ways of using their devices, while others might
also need a lesson on saliency determination or on ways to format notes.
(32)

Exploring content through differentiation is an important aspect of the effective learning
relationship between teachers and students at CH-CH.
**Process.** Differentiating process is by far the most common form of differentiation engaged in by the CH-CH faculty. Nearly every teacher can provide examples of how they differentiate the learning process with lessons designed around patterns of student need. While it can be as simple as, “allowing students to choose various mediums for a project” (17), to “provide students (with the) ability to work independently, in groups, or listen to instruction to solve a group of problems” (7), or to “incorporate various reading levels to fit individual students, I use small group sections or the students can work alone, and I use both visual and audio presentations” (13), we witness CH-CH teachers accessing various group dynamics to address student needs. As a specific example, one science teacher explains how she differentiates the learning process for the human respiratory system:

I was teaching the respiratory system, and in addition to providing students with notes about respiration, the students watched a video, wrote observations about their own respiration, listened to each other’s respiration with stethoscopes, and used soda bottle and balloon models to demonstrate volume and pressure changes within the lungs. (4)

The multiple ways in which content is delivered and processed by students is something that CH-CH teachers perceive to be a fundamental tenet of differentiated learning. Some teachers even acknowledge that taking the necessary time to repeat the process of presenting material in a variety of ways, over several days, is a valuable approach to introducing new concepts.

New concepts are introduced over several days in several different ways. Generally I will give new information once in lecture format, once in a highly visual/kinesthetic format (colors, manipulatives, body movement), and once in a self-/group-paced format (students work in groups or individually to promote peer collaboration and understanding). (27)
Nearly all teachers note the importance of teaching a concept in multiple ways for all students to experience as part of the differentiated learning process. “I try to present the material in several different ways, four or five different ways, but then everybody gets a piece of that, so I am, I guess, in that sense differentiating” (15).

And, as one math teacher explains, connecting multiple approaches to process with M.I. can be a practical enterprise, as well:

I try to teach every topic in at least three ways. If I am giving a definition of a circle I will give students an opportunity to try to come up with their own definition for students who are strong existential or interpersonal learners. I will then write out the formal definition of a circle: "a set of points equidistant from a given point" for people that are linguistic learners. The class will then do a circle drawing competition, where the students will hopefully see that the most perfect circle is one where all the points along the circumference are the same distance from the center. This game helps students who are visual spatial learners and students who are kinesthetic. (2)

As a final example of differentiating process, a handful of teachers note the strengths inherent to a rotating station or “bus stop” exercise as a means to learn or review material. One SAS teacher conceptually describes this as a material review process witnessed in world languages classrooms:

Another one a lot of the teachers use, when they're reviewing things, they use multiple methods of review. One that I particularly like is the stations idea, that I think the language teachers use pretty frequently. You are physically moving around the room and doing different review things at different points. Maybe at station A you answer some basic multiple choice or fill-in-the-blank questions about the topic. Station B you have to draw a representation of the topic. Station C you have to put on a skit or come up with a skit. You have these multiple ways of reviewing a concept, as well as you start out with introducing the concept in multiple ways, and then at the end you, for an assessment or something, you can review it in multiple ways. (33)
Moving from a conceptual description to a practical example of this station technique, a relatively new history teacher presents his modified “bus stop” activity:

Probably the best example that I have is one, which is like a modification of a bus stop activity. I don't know if that's what you guys call it here but where you have different stations and the students move around and it's timed to keep the kids moving really. At each station, the traditional bus stop activity, at each station there's different parts of something and as they work their way through their piecing together whatever it is. If it's a person or an historical event or a series of historical events, or if it's different countries involved in World War I at each station, there'll be different things about it.

I modify that to have different stations reflect the different intelligences, at least as best that I can understand them, so I don't know if this is a common thing that you see but this is one way that I have found useful to get multiple intelligences within one lesson is to have a bus stop activity and then I change it, either the students can go to the corner or go to the one that they want to do the most or I create groups which I know they're purposefully divided up amongst usually it's different personalities but sometimes it's different intelligences and then purposefully rotate around so they try different things. (22)

**Product.** Allowing student choice in determining the product of their learning is another important component to differentiated learning. Providing various deliverables in which students may pursue allows for personal investment and improved engagement in the learning process. Teachers at CH-CH find it more difficult to differentiate product than process or content, however. Few teachers, in fact, are able to speak as quickly about classroom examples highlighting effective differentiation of product. There are, however, a small handful of teachers readily presenting practices perceived to be effective. For instance, a world languages teacher trumpets the effectiveness of project-
based learning pursuits that allow for individual student choice in demonstrating mastery of the material:

[F]or projects, such as our fashion show project, I allow students to demonstrate mastery in various ways. They can create a poster and present it to the class. Working individually or in groups is acceptable. I encourage skits and presentations. For example, learning clothing, some kids will dress up and present a fashion show, narrating their outfits. Others will do a PowerPoint. One small group is creating a poster they will show the class. (15)

Connecting projects to particular student interests is also a formidable way in which differentiating product can be an effective learning engagement. Here, a visual arts teacher provides an opinion on why differentiated project-based learning can be an effective approach for students at CH-CH:

Since we are familiar with our students’ learning profiles, abilities, and we are generally informed (in many ways) about what is happening in their lives, I am able to create appropriate and also challenging projects that allow for choice and growth while at the same time meeting various goals and outcomes. I have found that some students need more time and some less to complete work and some need multiple attempts to understand key concepts or integrate skills. They learn and integrate in their own time. I need to make sure that I am not losing anybody and challenging students who need it. Recently, students worked on a project called, "My Perspective", where they were asked to draw a building or multiple buildings/structures in perspective and they were asked to add architectural elements to that building that reflect their personality. In addition, I asked them to add a significant event (personal, social, political, etc.) to the structure for every year of their life. All students were working on a perspective project and they were given the choice of rendering the building in 1, 2 or 3 point perspective. I had all of them drawing and learning perspective 101, but some were using the computer to manipulate objects, as well, and some created more complex structures. (16)
Finally, only two teachers present rich descriptions of how colleagues effectively differentiate product in their teaching-learning environs, at least as they understand it.

For one of these, an SAS teacher describes the work of one colleague, an English teacher, at the School:

He most recently allowed his students to choose to make a song. It was about (a book), to make a song, to make a poster or to finish or add to the (book) and so those were options. One hit on the creative writing piece, one hit on the musical, one hit on the visual/spatial type of thing, and the projects of the students that came out were amazing.

I think that allowing students those three options, they really were able to own it, find their strength and show (the teacher) that they were really capable of understanding this material. They got the theme, the point of the (book). We had one student, in particular, that mixed a visual and a musical component, and it came out fantastic. I think that would be my favorite example. (10)

**Learning environment.** Differentiating the learning environment for students is another component to differentiated instruction. Only five out of 34 teachers, however, readily present differentiated learning environment examples when describing D.I. at CH-CH. While there is some mention of how classrooms can be presented in alternative forms to differentiate the environment, such as the aforementioned stations or “bus stop” model, a few more teachers are able to describe instances when they have literally moved their classes outdoors to take advantage of the natural learning environments and outdoor classrooms that exist on campus. Examples of this come from nearly every academic department. The visual arts department sends out the Advanced 2D/3D Design class to engage in campus art, known as Campus as Canvas, while the Photography classes regularly engage the 40-acre campus as their outdoor studio. The mathematics and world languages classes often take students outside to use sidewalk chalk as a different medium
for instruction and student engagement. Science students capture the value of the unique campus hydrology system for hands-on experimentation. And, finally, the history and English departments occasionally engage in transcendentalist learning pursuits, as one unit example, among the outdoor natural surroundings. The School refers to these pursuits as Campus as Classroom.

As for a specific example, one mathematics teacher describes a lesson in which differentiating the learning environment allows for students to gain a completely different perspective on combining like terms.

One of more successful lessons was with this combining like terms lesson, which we actually approached in two different ways. One was go outside and find things that are similar and then we can categorize them into like terms. Leaves can be combined with leaves, but leaves cannot be combined with rocks. Why can't leaves be combined with rocks? Well, because they don't have the similar things in common. If we're going to break it down even further, we could combine … this was in the fall, so all of the red leaves would go together and all the green leaves would go together. Talking about translating that to maybe one … we could think of red leaves as x-squared and green leaves as x. If we're really paying attention to categories that we're making, you can't actually combine those together. (27)

Assessment. While not necessarily defined as one of the four core components or variables of D.I., assessment is a mode of differentiation that just over half of the CH-CH teachers describe when referring to D.I. practices. At a conceptual level, teachers explain that providing choice through assessment is an effective practice. “The majority of my assignments and assessments, students are given choice that allows them to work within a preferred intelligence while simultaneously developing their linguistic skills” (23). Including optional challenge or bonus questions for students to engage in is another form of differentiated assessment embraced by CH-CH teachers. “Challenge questions above
and beyond the regular assignment” (11) provide students with the option of further engagement in learning if they so choose that route.

Six CH-CH teachers specifically speak to alternative avenues for student assessment. A couple, in fact, are beginning to adopt different approaches to grading student deliverables.

I’m also open to different ways of grading. I think there are kinder ways of grading them we are doing now and maybe portfolio is a part of that. This part of leadership and student empowerment. One piece has to be the power of the student to self-assess and have that, have weight and value within the total assessment.

In fact, it might have more value than what we assess their learning as. It is, after all, their learning. I think teachers tend to overplay their ability to judge another person’s learning. I’ve always shifted against that notion and would love to see a model that is kinder and I think takes into consideration a student’s experience more. (5)

For the most part, however, CH-CH teachers tend to provide multiple avenues of assessment within one evaluative tool. For instance, creating an assessment that has various disparate parts tends to be a common practice shared by many teachers. One mathematics teacher describes how this looks:

I would actually say the biggest way that this informs me is in assessment. As a math teacher and to have these checkpoints, the way the kids learn. At the end of every unit, I give some sort of assessment, some sort of exam, quiz, test, whatever the kids want to call it. What I actually started doing was breaking those tests down into different mentalities so that every test that I give actually has two or three sections.

One of the sections tends to be very formal. Here is a piece of paper. Here's a quiz. Answer the questions. We'll all be quiet. We'll all take out our calculators, or not, depending on the quiz.

One of the sections tends to be very introspective. Tell me how you think you're doing, and a lot can be informed with the kids considering if they tell the truth, which they don't always tell the truth, but if they tell the
truth, a lot can be informed on how they think they're doing, what they found was difficult, what they found was easy, and actually using that as a touchstone for their own perceptions.

The third that I started doing was some sort of interactive alternate form of assessment. This has been anything from we're going to play a game as part of the quiz in which...you must answer four questions or you can answer as many as you want, or a team activity. Again, if we're going to use this as a touchstone, this extra, this interpersonal sort of intelligence, we have physical activities that integrate into the math world. We have artistic activities. I do that a lot in geometry, which lends itself very well to these visual kinds of assessments. I actually found that by actually breaking up the assessment itself, I can actually use the very traditional, 'can you' question: "Can you answer it back?" To be able to access this other person, kids can actually tell me that it's not just, "can you look at a piece of paper" and answer those questions. (27)

A science teacher describes a similar approach to differentiating assessment. This example, however, demonstrates a reactive creativity towards differentiation in which the instructor pulls together modes of assessment as needs arise. It is more of a “wait and see” approach that gets dictated by the students going through the evaluative process.

The simplest one is just choice within an assessment, the (student needs to) answer nine of the following 15 questions. Sometimes the choice is when they're designing their experiment. The choice is when they're doing their science fair work. They're picking the topics. Sometimes the choice is that the kid just didn’t do really well on the more traditional test. Finding an alternative assessment instead of just having them do corrections on things that are already frustrating to them, maybe an alternative to assessment. We studied Newton's Laws. Give me a little scientific historical background on Newton. Write me a paper about Newton that brings some of the science into it.

For some kids maybe the lab work counts more than for other kids; or maybe they do, instead of the traditional test, maybe they’ll design another experiment and doing a little extra lab work. I know some teachers do what they call replacement assignments and sometimes those replacement assignments are very similar to the original assignment, but for me sometimes I'd like those replacement assignments to be something different. Instead of answering those questions from the book, why don't you design another experiment? Maybe you don't even carry it out, but how would you do it? What would you do? What are the variables?
Teachers generally agree that differentiating assessment joins content, process, product, and learning environment as viable approaches to D.I. at CH-CH. All value and plan for diversity in heterogeneous settings where teachers are asked to nurture success with standards for a broad range of learners. Nearly all CH-CH teachers tend to agree that D.I. is an effective methodology at the core of quality teaching. However, with that said, some teachers do recognize that D.I. can, at times, be ineffective as a methodology.

When D.I. is ineffective.

Admittedly, a small number (5) of CH-CH teachers acknowledge that D.I. is not always an effective construct for the School. There are a few different situations, fairly unrelated, in which the faculty does not provide a favorable review of this methodology. First, some educators are simply not wired with the creative abilities to differentiate instruction in multiple ways. At CH-CH, it is not universally accepted that all teachers believe in differentiated instruction nor practice it. As a visual arts teacher explains,

Every year I feel this, I think there are some teachers just embedded in not understanding how to differentiate their own teaching. No matter how much you tell them and how many workshops we do, they're still going to lecture and I hear it from kids all the time which is very ... frustrating to hear. I think differentiated instruction is a necessity. I think it's why we have the niche that we have. (28)

To this point, one history teacher admits, “My first reaction is that I have levels of guilt when I lecture in class” (24). Another history teacher explains that there is one piece of the required curriculum that never sits well in terms of D.I., the Winter Trimester history
research paper that all history students are required to complete each year. As an SAS teacher describes it,

I think the hardest part or the hardest assignment, or the thing that we do as a community within each grade level, that History research paper, I find it incredibly difficult and I think others…would agree to differentiate that, to kind of make that MI appropriate, is difficult. (10)

This same teacher also explains that D.I. can be ineffective when original assignments are presented without any options to start. Sometimes students and support teachers or advisors feel inflexibility in assignments, and this can lead to ineffective learning environments. By knowing that teachers are open to alternative approaches in process or product, for example, students are much more engaged in the collaborative nature inherent in D.I. If teachers can spell these out from the start, it decreases the chances that students will disengage in the learning process.

I do find myself in situations where the assignment doesn’t seem differentiated, and I’m often asking for support from (teachers) to say how can we get this student to feel successful because ultimately that’s what we need to do. They’re here to learn and if they struggle answering these questions from a physics textbook, how are we going to get them to feel successful drawing a picture or something? (10)

When D.I. does not engage students and provide them with growing self-confidence and increased self-esteem through differentiated learning, then the methodology does not prove to be as useful. Choice provides valid and relevant entry points for students in their learning, and this is the basic tenet of differentiated instruction.
Further anecdotal evidence supporting D.I.

Moving beyond teachers’ thoughts on when D.I. is ineffective, there are specific pedagogical approaches to D.I. that provide anecdotal evidence in support of the methodology. As one mathematics teacher puts it, “I think, for the most part, having the kind of space and the freedom to experiment is by far my favorite part about working here” (2). Teachers at CH-CH believe that the School is a learning organization dedicated to learning and advancing its practice whenever possible. Professional development is very much part of the conversation and engagement as the School continues to adopt and adapt to new practices that advance differentiated instruction in a multiple intelligences framework. Many of these practices are shared from within the faculty and provide useful strategies for executing D.I. at CH-CH. Some of the specific strategies that teachers highlight include project-based learning (PBL); total physical response storytelling (TPRS); role, audience, format, topic (RAFT) writing strategies; visual, audio, read/write, kinesthetic (VARK) approaches; technology integration; and a nod to Bloom’s Taxonomy.

**PBL.** Rooted in John Dewey’s idea of “learning by doing” (Dewey, 1938), project-based learning is recognized as providing a greater depth of understanding of concepts, improved communication and writing skills, enhanced leadership skills, and increased creativity. Perhaps the most noted example of effective, wide-spread project-based learning at CH-CH is the annual spring Science Fair. It is sometimes placed on a pedestal for what other PBL opportunities, such as the history research paper, should aspire to become.
I think Science Fair is great, and I think taking some of what the Science Fair does is awesome. The poster, for instance; that’s a huge art aspect of things that I feel a lot of our students are successful at creating. I think we should open up the history research paper to allow a creative piece to it. A student wants to draw a picture, a student wants to create a poster, a presentation, a video, those kinds of things would be great additions to really engage students in that assignment. (10)

The science teachers themselves understand the value that this PBL opportunity brings to the community and, specifically, some of the School’s science students that might have difficulty in engagement. Here, a member of the science department faculty explains how this strategy is able to engage science students who do not necessarily perceive themselves to be very interested in science:

One of my colleagues gave the example of a student who really was not looking forward to the Science Fair at all until they somehow were piqued with the idea of looking at the fictional science that exists in the Harry Potter books, which this one student was really into. Suddenly it came to life with this student, and she really got into it because she was into the literature and she was connecting this fictional literature with conceptual science. (11)

By allowing students to choose their own topic, choose whether they would like to work with or without a partner, and choose the type of display and presentation to execute, among other things, this PBL opportunity provides a valued approach to differentiated instruction at CH-CH.

**TPRS.** Total physical response storytelling, sometimes defined as teaching proficiency through reading and storytelling, is a method of teaching world languages that is embraced at CH-CH. TPRS lessons combine reading and storytelling to assist students in (1) learning new thematic vocabulary, (2) presenting a spoken class story, and (3) applying the same vocabulary structures in a class reading.
At CH-CH, TPRS allows for world languages teachers to “give a command or a sentence, and then have students respond physically to it” (15). And while TPRS works well as an alternative pedagogy within the D.I. methodology, “I would be missing out on several of the multiple intelligences, music for one, existential, interpersonal” (15) if only TPRS was presented and a more holistic approach to D.I. was not embraced. As another colleague in the world languages department notes, however, TPRS is very effective as one component to world languages pedagogy at CH-CH.

Total Physical Response Storytelling. It was very interactive. It’s all in (the foreign language) but she kind of uses a lot of body language and asks the students to kind of do the motions as they hear the new vocab and things like that. That kind of interactive kind of immersion type lessons I feel like it’s working really well in a language classroom. (20)

RAFT. The RAFT writing technique provides an easy, meaningful way to incorporate writing into content-area instruction. The strategy integrates reading and writing in a non-traditional way by asking that students take what they have read and create a new product that illustrates their depth of understanding. The format is flexible and offers limitless opportunities for creativity for teachers and students alike. The acronym comes from the four core components: (1) role of writer, (2) audience, (3) format, and (4) topic plus strong verb. The technique is embraced by members of the School’s English department, specifically, and engages students to consider all four components for every writing. As an example of how the RAFT method is woven into the fabric of the School’s D.I. approach, one English teacher explains,

When I teach my students how to write sonnets, I differentiate their assignment by focus/interest. Each student has to write a sonnet to demonstrate their ability to abide by its strict format, but they have options
concerning the content of their poem. Options include writing a love letter, a break-up letter, or a review of a movie they recently saw. This assignment was partially inspired by the RAFT method. (29)

**VARK.** One way in which a CH-CH teacher assesses learning styles that inform her D.I. is through understanding individual student categorizations defined by Neil Fleming’s VARK model (Hawk & Shah, 2007). VARK helps teachers define various student learning styles: visual, auditory, reading/writing, and kinesthetic/tactile. This information is provided through scales and can better inform teachers in lesson planning and pedagogy. As this mathematics teacher explains, “it was called VARK…and generally what I do when I’m designing lesson plans, I look at the scale” (27).

**Technology Integration.** With the simultaneous introduction of a 1:1 iPad program during the same time period as this study, several teachers note the potential power of this teaching and learning tool to offer a far wider variety of choices for student learning. The potential exists because not all teachers possess the knowledge to leverage the power of the tool without further professional development and training. Tablet technology allows teachers to differentiate content, process, product, and learning environment for their students. One English teacher drives home this fact,

This is the thing with the technology of the iPad, is we're going to have a bunch of really cool apps, but you have to teach them to your students. Those are also universal, so if they learn Evernote in one class, they can use it in all the classes. Then it's a small investment up front that I think pays big dividends down the road. (21)

**Bloom’s Taxonomy.** The final specific strategy in regards to implementing D.I. involves CH-CH teachers attempting to apply Bloom’s taxonomy (Bloom et al., 1956;
Anderson, Krathwohl & Bloom, 2001) to their practice. A means of distinguishing the fundamental questions within the education system, Bloom’s taxonomy refers to a classification of learning objectives into three domains: cognitive, affective, and psychomotor. A goal of the taxonomy is to motivate teachers to focus on all three domains at the same time, beginning with prerequisite knowledge and skills at lower levels and growing these to higher order thinking through building blocks, so to speak.

At CH-CH, one history teacher explains how differentiated instruction through an M.I. framework allows educators to work through the stages of Bloom’s taxonomy:

> Everything is kind of connected, but how you get to Bloom's taxonomy is through the MI stuff. They can't get it just top down, just me telling them…That would not work. That would be a top down approach. That would be very deductive kind reasoning…These are coming from them. (24)

In this veteran teacher’s mind, D.I. is a sound methodology to follow in making progress through Bloom’s taxonomy and achieving sound learning objectives for CH-CH students.

*How teachers perceive connections between M.I. theory and D.I.*

In this section, I present findings on how CH-CH teachers perceive connections between multiple intelligences theory and differentiated instruction. Beyond those perceived connections, the findings will respond to three particular queries: (1) How well can D.I. realize an M.I. framework? (2) How is M.I./D.I. practice living up to the School’s promise? (3) How can the School improve the delivery of D.I. to fulfill its M.I. promise? These avenues of inquiry speak directly to the final part of the research
question: what is the perceived relationship between multiple intelligences theory and differentiated instruction in this school setting?

**Perceived connections.**

About half of the CH-CH teachers generally understand the perceived connection between M.I. theory and D.I. as described by the theoretical framework presented in chapter 3. While M.I. theory provides a school-wide framework for how our faculty conceptualizes human understanding, particularly the asymmetrical strengths and aptitudes of CH-CH students, differentiated instruction is the articulated and applied methodology to teaching and learning that allows teachers to operate within and through M.I. In short, D.I. is the understood vehicle for delivering an M.I.-informed curriculum at CH-CH.

With that said, not all teachers possess the same level of knowledge, understanding, and/or enthusiasm for M.I. and D.I. Similarly, faculty members carry a range of understanding in terms of their perceived connections between the two. While many feel the relationship is symbiotic, nearly half of the CH-CH teachers have a more difficult time directly connecting the two constructs.

As an example of one teacher seemingly possessing a very clear understanding of the interconnectedness of M.I. and D.I., this veteran member of the faculty articulates the value of D.I. as it relates to, and connects to, M.I.:

We’ve recently been talking about DI. I think they're a really good match. Again, I don't know if we need a road map for DI, but multiple and differentiated, they're not two sides of the same coin. They might be on the same side of the coin. Differentiated means you're going to do something different and how is it different? It probably works toward a
different intelligence, and so differentiated just means finding that intelligence that suits you better. Certainly we want to be careful not to, pigeon hole is not the right word, but Johnny can't just write papers all the time. Johnny has to solve some math problems. Johnny has to do some lab work. It just can't be writing papers. He's got to work with his hands. He's got to interact with his classmates. He's got to work in groups. He can't just absorb information and write papers and just focus on one intelligence at the expense of completely ignoring the others because everybody is going to need a little bit of everything before they're through, and so I think we do them a disservice if we just let them continue in one format or one intelligence or one method. (11)

At the other end of the spectrum for understanding the perceived connections between M.I. and D.I., a couple of teachers, including this nine-year veteran, have a difficult time understanding the interdependencies that may exist between the two constructs:

I don't think of MI and differentiated instruction really. I don't think of them being interdependent, or codependent, of each other. I think I could do differentiated instruction without MI, and I can do MI without differentiated instruction. (1)

There is also a third opinion expressed by a handful of teachers concerning the perceived connections between M.I. and D.I. One mathematics teacher explains,

I think the difference in instruction is really, really, really important. I'm not sure sometimes that using differentiated instruction as a platform to get to a multiple intelligence approach always works. I'm not sure that aiming toward multiple intelligences informs direct instruction in a way that it's necessarily helpful. I think they can work together very well, and there have been instances where...we're doing mathematical/logical, we're doing visual, we're doing kinesthetic, which means that when I ask you to show me what you have learned, when I ask you to show which way that you're smart, we have a variety already to choose from. I'm not sure that one depends on the other. I think that they can synergize well, but I'm not sure that they necessitate each other. (27)
This opinion expresses the possibilities that one construct can inform the other, but that they do not necessarily need to. They can work both independently and interdependently for teachers depending on the learning situation and needs at hand.

Another perception of the connection is provided by a relatively new science teacher. She expresses the opinion that whether you call it differentiated instruction or not, the reality is that differentiation is the only viable approach to M.I. teaching and, therefore, they are inherently connected. She states,

I think maybe if we didn't call it DI this is still how teachers would approach it, having all these different options for students and having a backup plan for students who aren't engaged for one concept or another. I think thinking about multiple intelligences in a way that you're setting up different plans for different kids is an important part of being able to access MI teaching. So I think the two do come pretty close together. Or at least in my mind, that's how I think about it. (18)

As a final angle on the perceived M.I./D.I. connection, another young science teacher explains that differentiated instruction is a methodology that, to her, lends itself to teaching and learning at CH-CH better than the M.I. framework. Anchoring her understanding in the motto of the School, she believes that the focus of her instruction needs to be on differentiation, no matter how idealistic it sometimes seems.

I'm not the most informed about what else is out there yet. I think that the DI is really good. Our school motto is, "We teach the way students learn." I feel DI almost lends itself to that better than the MI does, right? How can we present information or allow students to present information back in a way such that it's a good fit for them? I find that being able to work with the students individually really lets me tease out how to present the information to them best or how they'll learn it best. Rather than saying, "Oh, you're good at a particular intelligence, why don't you show me that," I feel being able to understand how to present it differently to each student is necessary, and sometimes that's a little idealistic. That is really what helps me teach the way they learn. (31)
There is clearly a wide range of opinions held by members of the CH-CH faculty concerning the shape and strength of perceived connections between multiple intelligences theory and differentiated instruction. There is no true common understanding of how the two constructs co-exist and are interconnected in the teaching-learning environs at CH-CH.

**Ability for D.I. to realize an M.I. framework.**

In evaluating the ability for differentiated instruction to effectively realize an M.I. framework in teaching and learning, the CH-CH faculty again possesses a very split opinion. While there are a great number of teachers who believe the two constructs are wedded well together, there is a vocal minority who do not believe that D.I. effectively fulfills M.I.-informed instruction at CH-CH in the manner the School promises.

In the camp of M.I./D.I. proponents, teachers lend statements of support such as, “I think the two are married well, MI and DI…if we want to continue being an MI school, then we're going to continue being a DI school’” (17), and, “I don't see really any way around it. That marriage needs to be there in order for us to truly be offering an MI-friendly curriculum” (23). And, finally, “I think they’re connected. I think differentiated learning is a good way to deliver at least classroom learning or teaching in an MI way” (12).

Many of the CH-CH teachers who believe D.I. has the ability to realize an M.I. framework express a common primary reason for this belief: D.I. allows for metacognition to take place. Differentiation allows for learners to learn how to learn. It
maintains a student-centered focus that helps teachers and students alike gain a foundational understanding of how each student learns. As expressed by a younger world languages teacher,

I feel like differentiated instruction is one of the major ways to kind of realize multiple intelligences theory in the classroom, because again I feel like multiple intelligences is all about how the learner learns so that the student-centered focus and knowing the students and how each of them learns and kind of differentiating how you deliver the instructions that work fine. (20)

Similarly, a Skills and Academic Support teacher discusses the importance of gaining a “foundational understanding” of her students:

It's wrapped up again in what we talked about in the beginning, that sort of foundational understanding of your students. Having that fundamental understanding of your students is what makes for good teaching. MI is that understanding, and then you have to leverage that understanding using differentiated instruction. (33)

With an understanding of each student’s M.I. profile, teachers can then focus on leveraging strengths through the use of differentiated instruction. For those teachers who understand, appreciate, and can facilitate this tenet, they tend to hold the belief that D.I. can realize an M.I. framework. This is captured in this passage offered by a veteran department chair:

I think DI and MI can play very well together. In both instances, we’re focusing on the individual and the individual’s needs and meeting them. We can use multiple intelligences theory to provide input and to request output from the students, and vary the way you both present and have them present and represent what they know to you. I think if you know the individuals in your classroom, each individual, which is pretty easy to do here, and provide them with a variety of choice in the way the material is presented, they can present it to you and the way they can show their
understanding, then it works very well together. I think this marriage is meant to last. (15)

One-half dozen teachers, however, specifically express the opinion that CH-CH is still evolving and gaining a better ability to execute D.I. within an effective M.I. framework. It is a work in progress for the School. They see both improvements in the past couple of years as well as subtle attitude adjustments amongst the teaching faculty as more professional development and focus has targeted D.I., in particular.

One of the class deans explains the evolutionary nature of the School’s progress, as well as challenges it faces, towards the successful implementation of D.I. across the M.I. landscape:

In terms of our school I think that we’re doing a wonderful job of trying to get to our students and really trying to give our students what they need in order to be successful. I think a lot of different places right now we’re transitioning into finding what is our fit, what is our mold, how do we do it, and I think once we have a very clear understanding of the college prep tying into the DI and MI approach. I think once we clarify that it’s very transparent I think we’re going to be smooth sailing. I think we’ll be really successful. I think we attract teachers that are open and willing and honest and really they have kind of the students’ perspective … perspective of the students’ success right in front of their minds. (10)

The challenges identified include discovering and fulfilling brand, as well as maintaining college prep expectations and preparations in the face of the M.I./D.I. framework. Beyond that, a couple of teachers identify the challenge of slowly improving the overall faculty attitude and outlook on differentiation in an M.I. school. In order for the School to realize its claim to be an M.I. school, it must foster a faculty committed to this
M.I./D.I. approach to learning. As stated by one member of the visual and performing arts department,

I think that in terms of a quality for us as teachers, in having this DI/MI marriage happen, I think the teachers need to be open to the idea. So sort of not being skeptical or saying there's not enough time. I think that ... I mean I don't have it, the sense of the school sometimes because I do my own thing, but I try to ... I don't know if I'm doing the best job all the time, but just to have that on the back burner and just being open that that's where I see things going, I think. It's just about being positive and having that bigger goal. I'm not sure, I don't have the sense of the whole school sometimes, but I think, in terms of the teachers that should be here and what they should be doing, they need to have an open perspective on the whole thing, and that's the key to making it happen. (8)

As a final positive perspective on the ability for D.I. to realize an M.I. framework at CH-CH, one senior member of the teaching faculty explains that while the two constructs indeed work well together, it is necessary to understand that they are not the only constructs to be considered and/or incorporated into the learning environs. There are other elements besides differentiated instruction that play into the School’s multiple intelligences framework.

I think that MI is a theory, it is a tool, but like I said at the beginning, it's teaching to the whole student, so that guide post is important, I think. DI is another tool; differentiating instruction is another tool. I think they work well together. I think there are many other things to incorporate, as well, that we do. (16)

While there are those teachers who clearly believe D.I. can be an appropriate methodology to support an M.I. school, there are other teachers, the vocal minority, who maintain very strong opinions as to why D.I. cannot fulfill the School’s M.I. brand. There are four teachers, in particular, who are outspoken in their feelings.
First, one history teacher regularly expresses his belief that the School’s learning focal point and brand emphasis should be on differentiated instruction, not the multiple intelligences. In fact, it is his opinion that M.I. is best understood as a supporting component to D.I., which it is. However, he does not support the notion that the brand emphasis for teaching and learning at CH-CH should be grounded in M.I. theory. Rather, it is his opinion that the School’s primary focus and emphasis should be on D.I. since it is a concrete methodology that teachers can readily apply. As he states below, “the relationship between them is muddled at best” (6).

To me, MI is most useful as a component of differentiated instruction. I think—I would love to see us put the emphasis on differentiated instruction—and within that, we have this cool tool kit of "hey, there's this theory of MI that we embrace as something that can be very useful and as another way to help understand our students." The emphasis on MI, right now, I see it as MI is our primary emphasis. Then we have college prep somewhere below that and differentiated instruction is also below MI, but where does it fall? How does it relate to college prep? How does it actually relate to MI? The relationships between them is muddled at best. I think that if we were to put our emphasis in terms of our teaching philosophy into differentiated instruction, we would be far better off in actually serving our students' needs and being able to prepare them for college. Because I think that MI as a theory is great. I think the application of MI is problematic. (6)

Two other teachers believe that the ability for D.I. to successfully realize an M.I. framework is compromised by the fact that they are two very different constructs that should remain relatively independent from one another. In simple terms, one (D.I.) should not be leading to the other (M.I.). As stated by a mathematics teacher, “I actually think about them almost completely separate from one another. I don't know whether it's so much that their marriage won't last, but their marriage is completely irrelevant” (27). Continuing this line of thinking, a languages teacher explains that the two constructs
should not be placed together in examining whether a supportive and causal relationship exists because it is a both a moot exploration and an unrealistic expectation for faculty achievement.

I guess I think that they are pretty different birds. I think we need to be sensitive to how much we’re asking teachers to keep in mind when they’re trying to do their work. I would be more in favor not throwing out MI because I think it’s a very valid theory. Doing work at workshops on the theory, giving examples to colleagues of application, but really simplifying our approach to learning so that people can understand it clearly and have a good chance of applying it well. I think for lumping the two in the same pot, it becomes pretty hard to keep both in mind when you’re juggling everything else. (5)

The final perspective on why D.I. does not have the ability to realize an M.I. framework comes from a mathematics teacher who simply does not believe that one is informed by the other. “I think that in my experience, differentiated instruction is not really married to my multiple intelligences goals in a lesson plan.” (1) When asked why they are not connected, he states, “I do differentiated instruction independent of any multiple intelligence theory” (1). In a follow-up query, he explains that he bifurcates the two constructs since he does not believe he has a firm understanding of M.I. theory as he does for differentiated instruction. While this opinion may be held by several members of the CH-CH faculty, this teacher was the only one to succinctly state the purposeful disconnection between the two in his daily planning and pedagogy.

Living up to the school’s promise.

The second of three queries in this section of findings explores if and how teachers’ M.I./D.I. practice is living up to the School’s promise. Through the online faculty questionnaire, CH-CH teachers were asked for their perceptions of whether the
School lives up to its promise to “teach the way students learn” through M.I.-informed pedagogy. Further, through individual interview transcripts, teachers provide their opinions as to how their practice informs their perceptions to this question’s answer.

In taking a look at the results from the online questionnaire, 15 out of 34 teachers (44.1%) provide responses in the affirmative, supporting the perception that the School does live up to its M.I./D.I. promise. Only 14.7% of the teachers believe the opposite to be true; this minority does not perceive the School to be fulfilling its promise. Finally, 41.2% of the teaching faculty state that they “don’t know” whether CH-CH is living up to its promise to “teach the way students learn” through M.I.-informed pedagogy. There is significant ambiguity concerning the School’s ability to match brand promise with brand experience in the minds of many teachers. Figure 4.5 displays the data from the online questionnaire in regards to this query.

Figure 4.5. CH-CH Faculty Assessment: Does the School live up to its promise to teach the way students learn through M.I.-informed pedagogy?
Supporting the position that the School does live up to its promise, there are several pointed comments provided by the CH-CH faculty. A science teacher states, “For the most part, I believe teachers accommodate demonstration of MI from our students and work to teach students how to use their many intelligences” (31). From a couple of new teachers to the School, “CH-CH definitely strives to teach the way students learn. I haven't been teaching here long enough, but from what I've observed, more experienced teachers use creative ways and target students of different intelligences” (20), and “I am still learning the ins and outs of the system, but from what I have experienced this year I believe we do live up to the promise and we are certainly supported in our attempts to teach in MI/DI practices” (13). One manner in which this is done: “The school hires smart and able teachers. This will always be at the center of good MI instruction, as much of MI is instinctual for a good teacher” (17). This last point is important. Several teachers comment that the School’s ability to fulfill this promise can only go so far as the quality of instruction, and the quality of instruction is defined by the School’s ability to hire and develop qualified, dynamic M.I.-informed educators.

For many of the 14 teachers responding in the “don’t know” category for this question within the online questionnaire, there are expressions of progress being made. More than half of these 14 teachers note that the School is moving toward fulfillment of the promise. For instance, a world languages teacher states, “To the best of its ability. It is a work in progress, but progress IS being made” (15). And from a visual arts teacher, “I think that the School is on its way. I am always impressed with the School’s willingness to take risks and make mistakes to see what works in reaching its goals” (8). Finally, an English teacher reflects,
I see our MI practice as continuously developing and evolving, but as we've talked about at length, this is a theory that is continuously evolving, and at CH-CH, we are at the forefront of this practice. We need to continue and share best practices with one another that encourage new and veteran teachers alike to share and continuously grow and evolve in their MI practice. (23)

The position that the School is making progress toward this promised goal, but that there is still much to be done, is common among the teaching faculty. As simply stated by one of the science teachers, “I think we do teach with this theory in mind; however, there are ways that it could be better and more effective” (34).

41.2% (14 of 34) of the teachers, however, tend to vacillate in their perceptions of whether the School fulfills this promise or not. They qualify their responses to some degree. A senior member of the math department opines,

I think that the School lives up to its promise within the constraints of the rather rigid structure we follow. Or, to put it another way, to the extent that it’s possible to teach the way students learn within this framework we do our best. (12)

The rigid structure refers to the pressures the math department, specifically, feels in annually completing the breadth of each course’s prescribed curriculum. It is the department’s belief that they must properly expose all students to all necessary content and math skills before they advance to the subsequent year’s sequential math course and curriculum. The world languages department is the one other content area that expresses a sense of pressure in completing each course’s curriculum since its courses are sequentially designed.
Furthermore, in regards to fulfilling the promise, two teachers provide examples of informed opinion based on what they have heard from the student body. A math teacher notes, “I have heard students say we do and some who have said we don't” (7), while a science teacher explains, “while there are many teachers that embrace this, I often hear from students (taken with a grain of salt...) that there are some that do not” (4).

Among the 14.7% of the teaching faculty responding “no” to the question: Does the School live up to its promise to “teach the way students learn” through M.I.-informed pedagogy; the provided rationale for these stances are varied. First, one teacher explains that the School does not provide the proper structure to allow for fulfilling this promise: “each student, each person, learns differently and learns best when she is in control of the way she learns. We do not currently provide a structure that allows for much of this” (5). At the same time, a couple of teachers note that while the structure does allow for the promise to be fulfilled, teachers are falling short of using a flexible school structure, with elements like extended learning time and office hours, to empower their transformative move from traditional pedagogy and assessment to differentiated instruction in an M.I. framework. As a Skills and Academic Support teacher explains,

While the students do have some opportunities to apply multiple intelligences, the bulk of their assignments do not incorporate them. The School has certain MI-conducive elements, such as block scheduling, and certainly a desire and much support from administrators and some faculty to deliver MI, but other elements of the School are based on a very traditional form of education. (32)

Similarly, a colleague in the SAS department provides further commentary on this
unfortunate happenstance witnessed too frequently among members of the CH-CH teaching faculty:

We still have too many formal assessments. A truly MI-friendly school would make a formal exam, for example, just one among many assessments used. In class, the MI assignment is the fun surprise, not the norm. Again, in an MI school, we wouldn't need to point out the many good MI examples of coworkers since they would be what happens regularly in class. (19)

Finally, a couple of the teachers not believing in the School’s fulfillment of the promise articulate that the reason lies in undertrained faculty. While a visual and performing arts teacher notes, “there is not enough training for faculty in this type of pedagogy” (25), a colleague in the history department provides a more detailed explanation:

We are working towards implementing an MI-based curriculum and pedagogy, but at this point it is still very much on the periphery...we have not yet established our faculty as truly understanding and implementing MI, and often it comes at the expense of breadth of content, instead of augmenting it. (6)

Despite the lack of perceived clarity in whether the School is or is not fulfilling its promise to “teach the way students learn” through M.I.-informed pedagogy in the form of differentiated instruction, there is common understanding that the School is working toward this end and that further practicum time and professional development are needed to fully live into the School’s brand promise.
How to improve D.I. delivery and fulfilling M.I. promise.

The final question I explore in this section of findings is how can the School improve the delivery of D.I. to fulfill its M.I. promise? The data provide myriad examples and anecdotal support in seven major areas for suggested improvement toward the School’s delivery of differentiated instruction within its M.I. framework: (1) external professional development; (2) internal professional development; (3) peer-to-peer collaboration; (4) increased planning time; (5) classroom improvements and resources; (6) observation and feedback; and (7) clarity in standards and expectations.

External professional development. A common remark by the majority of CH-CH faculty members is that they need to take advantage of more external professional development opportunities. These range from, “lots of good iPad professional development” (11), to “more classes for the faculty to teach various techniques of DI within the MI theory” (13). Moreover, “more professional development funding” (8) can lead to “greater access to content-based professional development” (6). This might include, “more workshops on differentiated instruction, specific to teaching foreign languages” (20), or to “invest in professional development that is more specific to M.I. and differentiated instruction in the math classroom” (2), as an example. The ability to attend external classes in support of the School’s M.I./D.I. framework is certainly held in high regard by the CH-CH faculty. Here are two strong statements concerning the importance of ongoing professional development in these areas provided by a history teacher and visual arts instructor, respectively:
I would like professional development around using MI in classroom activities, in particular around subjects which are heavy in content detail and writing skills. (22)

More professional development opportunities on the latest research and approaches to differentiated instruction and multiple intelligence pedagogy. The ability to take classes and participate in trainings in subject areas to expand knowledge base. (9)

In addition to these suggestions, one Skills and Academic Support teacher provides some specific programs as examples for what all CH-CH teachers should be seeking to attend. It is her opinion that content-area teachers have a responsibility to become better informed in some of the learning challenges CH-CH students face.

Continued opportunities for professional development, and actually it would be really great if the content-area teachers could attend one of the ILD or Learning and the Brain conferences on Executive Functioning, so our work on EF could be supported and reinforced in the content classrooms. Professional development conferences/seminars are great for us. (33)

**Internal professional development.** 15 members of the faculty provide specific statements in support of the power of internal professional development. As two representative examples, the first comes from a science teacher reflecting on the importance of further training on M.I. theory, differentiated instruction, as well as other learning differences/disorders such as Attention Deficit Disorder, Attention Deficit Hyperactive Disorder, and Dyslexia.

Provide more in-school workshops and sessions to train us more formally on the MI theory and DI instruction. Also, it would be good to have more background information on the disorders of ADD, ADHD, and Dyslexia. (34)
And in a more general sense, a science colleague emphasizes the importance of “better facilitation of learning about what other teachers at the School do for MI/DI, especially in the context of what works best for our students” (31).

**Peer-to-peer collaboration.** As an offshoot of internal professional development, 11 CH-CH teachers express the importance of peer-to-peer collaboration in terms of the creation of dedicated time and space as a means to improve differentiation within the M.I. framework at CH-CH. An English teacher suggests that the School “offer more formal opportunities to collaborate with teachers in other departments and disciplines in assignment creation, team teaching, interdisciplinary lessons and field trips” (23). A Skills and Academic Support teacher highlights, “more time to teach other faculty members my approach and also learn from their approaches” (10). Furthermore, a science teacher adds her similar improvement suggestion:

> For me it would be more professional development. It is very helpful for me to bounce ideas with other teachers. I have seen a marked increase this year in the school funding and suggesting PD opportunities for me which I greatly appreciate. (26)

Finally, a mathematics teacher expresses her one word need for improvement, followed by a thoughtful justification:

> Collaborate. The fact there is no space for teachers within a discipline or across disciplines to meet and gather during lunch, free blocks, etc. feels very stifling. I love to hear about other people's instruction and then see how I can incorporate it into my own palimpsest of practices. (27)

**Increased planning time.** Creating the necessary time for teachers to plan differentiated instruction and think about students’ M.I. profiles is another area that eight
CH-CH teachers identify on the road to improved teaching and learning. While some state that they simply need “more time for planning” (17), others explain the rationale for more time:

I find it very time consuming to develop DI lessons and allow for MI in the classroom, and I only teach one class! Teachers need more time to prepare to teach the way the School wants them to, and to give the attention to the students in a way we say we do. (4)

Planning often requires meeting with other colleagues and/or students to gain a better sense of curricular directions vis-à-vis student needs. For example, a visual arts teacher explains why she really needs more planning time:

Give more time to meet with students one-on-one; perhaps give more time in between classes. I'm often trying to deal with issues right after class, making both my student and me late for the next class! I'd also like to hear more about MI-related instruction in the arts curriculum and how other educators deal with this. We often discuss the more 'academic' classes but since arts classes seem to deal with MI already, it's not always easy to know what to do in that regard. (28)

In short, teachers “would love time and funds to do research and more high quality professional development” (16), as well as gain “more time to exchange ideas and plan with coworkers, both within the department and outside” (19).

**Classroom improvements and resources.** The fifth strategy identified by three teachers for improved delivery of differentiated learning is in regards to classroom improvements and additional classroom resources. Having more square footage, more M.I. resources, and increased flexibility in furniture all make the list. And as one history teacher notes, “with a smaller class size, I could rearrange the tables in the space to
accommodate different types of activities” (24). Maintaining flexibility in the teaching-learning environs is a defined difference-maker for CH-CH teachers striving for improved differentiation.

**Observation and feedback.** While the faculty participates in an annual performance review and goal-setting process each February, there are not as many informal opportunities for peer observation and feedback sessions. Three teachers express the desire for “more frequent observation and productive feedback” (25). There is a desire for more regular classroom visits from peers and department chairs alike. These visits, sandwiched by pre- and post-observation meetings, can provide valuable peer review for improvement, particularly in terms of D.I. strategies in an M.I. framework.

**Clarity in standards and expectations.** As a final area for suggested improvement, another three teachers express the need for the School’s administration to clarify teaching standards and learning expectations for teachers and students, respectively. An English teacher requests,

> Provide more information on grade-level appropriate standards and expectations. I love how creative I get to be in the classroom, but sometimes I wonder if I am pushing my students hard enough. (29)

Similarly and specifically, a relatively new science teacher states that she “would like it if the School could evaluate (her) lessons to make sure they fit the MI/DI framework” (18). And, at the other end of the range of teaching experience, a veteran history teacher notes, “everything is kind of connected, but how you get to Bloom's Taxonomy is through the
MI stuff. They can't get it just top down—just me telling them—that would not work” (24).

These seven areas for suggested improvement toward the School’s delivery of differentiated instruction within its M.I. framework provide pragmatic teacher suggestions that could go far in assisting the School in fulfilling its brand promise to “teach the way students learn.”

**Summary**

In the four distinct sections of this chapter, I explore the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices. I examine the pedagogical strategies found within Chapel Hill-Chauncy Hall School that are perceived to be most effective by the faculty in embracing and leveraging individual student strengths and interests. It is clear, however, that there are ineffective M.I. strategies at play as well. Third, I identify approaches to differentiated instruction at this independent secondary school that are based upon a multiple intelligences framework and school environment. These approaches, however, are not always balanced. Lastly, I explore the perceived relationship between multiple intelligences theory and differentiated instruction in this school setting. While the conceptual fit appears to be appropriate, the understanding of the interconnectedness of the two remains unclear to teachers at times.

Completely rooted in my research questions, my findings affirm that M.I. theory influences, and is being used in, the CH-CH learning environs. This is achieved through
various approaches to differentiated instruction, a methodology that supports an M.I. framework for human understanding. CH-CH teachers, in general, work hard to deliver differentiated learning in an M.I. framework. However, understanding the relationship between the two constructs remains a true challenge for the teaching faculty of this unique secondary school. Happily, there is a desire among the faculty to further their understanding and professional development so that they can execute a brand experience equal to the brand promise. “We teach the way students learn.”
CHAPTER 5

IMPLICATIONS & DISCUSSIONS

Introduction

There are several important implications defined by this study that I will discuss in this chapter. After reaffirming the significance of the study, I will reevaluate the literature and provide an opinion as to how this study informs the existing body of literature I discussed in chapter 2. I will then assess implications for both practice and further research in the remaining two sections of this chapter.

Significance of the Study

Chapel Hill-Chauncy Hall believes itself to be one of the few American secondary schools committed to explicitly embracing Gardner’s (1983) theory of multiple intelligences and applying it to our various approaches in teaching and learning. This study not only serves to document particular teacher understandings and perceived positive practices in differentiated instruction within an M.I. framework, it also highlights areas in need of improvement for the School. It provides a platform for further school engagement in M.I.-based differentiated learning practices and the creation of a shared forum for knowledge co-creation and consumption in the field of M.I.-centric learning for the 21st century.
Reevaluation of the literature

The literature does not provide empirical research supporting approaches to differentiated instruction that might foster an M.I.-informed teaching-learning environment. Although the literature review provides supporting evidence for differences in individual thinking and ways of processing information, no specific empirical studies have reliably tested the viability of using Gardner’s (1983) theory of multiple intelligences as a framework for human understanding and learning through differentiated instruction. Many case studies and site-specific examples highlight how M.I.-informed schools think about differentiating student learning, but they do not specifically discuss differentiated instruction as the primary vehicle to promote education in a multiple intelligences framework. At Chapel Hill-Chauncy Hall School, we do.

This study provides evidence that CH-CH is a living laboratory for differentiated teaching and learning in the context of M.I. theory without the benefit of previously published empirical research and literature presenting perceived best practices in this endeavor. While the majority of teachers believe that they possess the necessary knowledge and understanding of M.I. theory and differentiated instruction, many have a difficult time understanding the interdependencies of the two constructs and the implications they have, combined, for teaching and learning. The clear and present absence in the literature has, therefore, not provided CH-CH teachers with the benefit of a roadmap to better guide their practice. With little research endeavoring to explore connections between differentiated instruction and M.I. theory, teachers and administrators alike have not had research on the perceived efficacy of differentiated
learning in a multiple intelligences framework to help them work within an M.I. framework.

This study provides insight into one independent college prep secondary school’s teaching faculty and their perceptions on how an M.I. framework for human understanding can inform and cohabitate with differentiated instruction in a dynamic construct for teaching and learning. With that said, however, the study also provides data suggesting that there are many teachers, although the minority, that have a difficult time understanding how the two constructs might operate together, with clarity, to form one strong teaching and learning paradigm. There is evidence that many teachers perform the best they can with what they know and understand about the relationship between M.I. theory and D.I., but that this relationship is difficult to fully understand and properly achieve in teaching and learning at CH-CH. For those teachers demonstrating confusion, misunderstanding, and/or anxiety about the M.I./D.I. construct that the School promises, their default position is to primarily embrace differentiated instruction as their guiding methodology to teaching and learning since they have experienced more significant professional development in this pragmatic construct.

Drawing on the findings of this study, the literature and greater educational community conversation should be enhanced with the knowledge that while teachers may be proponents of differentiated instruction in an M.I.-informed learning environment, they cannot leverage the dynamic possibilities that the two separate constructs might possess together without gaining: first, a better, clearer understanding of each construct separately; second, an understanding of the interdependent and symbiotic relationship the two constructs can maintain in each other’s presence; and, third, time for collaboration
and practice within the M.I./D.I. constructs. In support of ongoing practice within this conceptual framework, teachers need the necessary and ongoing professional development to support their work. Internal and often collaborative professional development activities, as well as external opportunities, provide teachers with the necessary ongoing support required to improve their differentiation practices. Teachers perceive the lack of professional development time as the primary reason for not advancing the School’s teaching-learning experience to meet the brand promise.

**Understanding each construct separately.** Specifically, the findings tell us that teachers need to possess better knowledge and understanding of both multiple intelligences theory and differentiated instruction. With greater knowledge and understanding comes improved efficacy in practice. Moreover, greater knowledge and understanding will lead to improved promotion of a school’s defined teaching and learning approach, understanding that brand experience should match brand promise. The findings also highlight that improved knowledge and understanding of M.I. and D.I. will assist teachers in their ability to support students with metacognition, or learning to learn. This, in turn, can lead to improved empowerment of learning for both teachers and students. That empowerment helps students understand themselves as individual learners, identify their particular M.I. strengths, appreciate the power of aptitudes and motivations to the learning process, understand how to best access effective learning, as well as prepare for life beyond the classroom. In order to achieve this, teachers must be able to readily recognize individual student strengths in nine multiple intelligences and successfully navigate appropriate choices provided at four access points within differentiated learning: content, process, product, and learning environment. To this end,
teachers must possess better knowledge and understanding of multiple intelligences theory and differentiated instruction.

**Understanding the relationship between the two constructs.** Second, the findings also highlight that teachers need to have a better understanding of the relationship between M.I. theory and D.I. While D.I. is the understood methodology, or vehicle, for delivering an M.I.-informed curriculum at CH-CH, not all teachers possess the same level of knowledge, understanding, and/or enthusiasm for M.I. and D.I. Faculty members carry a range of understanding in terms of their perceived connections between the two. Some feel the relationship is symbiotic; others have a difficult time connecting the two constructs. Because of this uneven understanding, teachers need training to improve their knowledge of M.I. theory while understanding the methodology of differentiated instruction. A faculty must achieve a minimum standard of understanding and performance when it comes to a school-prescribed teaching and learning construct. This requires an institutional commitment to nurturing the core enterprise of the school: teaching and learning. This would mean establishing and maintaining formalized, focused, and robust professional development.

**Dedicating time for collaboration and practice.** My findings support this need but also uncover the teachers’ desire to engage in professional growth pursuits that provide more time and collegial collaboration to gain a better understanding of the M.I./D.I. construct and how it should inform practice. Teachers suggest seven key areas of focus toward improving their delivery of differentiated instruction within an M.I. framework: external professional development, internal professional development, peer-to-peer collaboration, increased planning time, classroom improvements and resources,
mutual observation and feedback, and clarity in standards and expectations. These seven areas of pragmatic teacher suggestions could go far in assisting a school’s professional staff in fulfilling its mission and improving its professional learning community.

Proponents of differentiated instruction in an M.I.-informed learning environment should understand that teachers cannot leverage the dynamic possibilities that the two separate constructs might possess together without gaining (1) a better, clearer understanding of each construct separately, (2) an understanding of the interdependent and symbiotic relationship the two constructs can maintain in each other’s presence, and (3) a necessary commitment of time for collaboration and practice within the M.I./D.I. construct. These are all significant implications for the literature. Moving forward, the literature should explore each area further but, in particular, focus on the second major implication for it will be the most compelling and groundbreaking following my findings in chapter 4. Seeking better understanding of the interdependent and symbiotic relationship the two constructs can maintain as one single paradigm will have profound usefulness to the education community. My findings are the first step to better understanding their interconnectedness.

**Implications for practice**

At the heart of this study’s implications are lessons about how its findings might inform my school’s practices moving forward. As the organizational and instructional leader of the School, I have the responsibility to consider applying lessons learned from this study to my work as a practitioner in educational leadership. Beginning with my research questions and associated findings, there are three major implications for
practice: (1) the need to promote identified pedagogical practices that are perceived to be the most effective in an M.I. framework; (2) the need to nurture differentiated learning grounded in M.I. theory; and (3) the need to provide a better understanding of the M.I./D.I. relationship and how these constructs present themselves at Chapel Hill-Chauncy Hall. I will discuss all three of these. Furthermore, I believe there are four additional distinct implications for practice worthy of discussion at this time that I will be sharing with my board of trustees and administrative team: (4) the need to better define M.I., D.I., and their interdependencies, as well as standards of excellence for CH-CH teaching and learning in relationship to them; (5) the need to make the case for how the M.I./D.I. construct can effectively support a college preparatory curriculum within the School’s defined mission; (6) the need to create a robust professional development program balancing individual needs through both internal and external opportunities; and (7) the need to contribute to the shared conversation for knowledge co-creation and consumption in the field of M.I.-centric learning for the 21st century.

As for the first major implication for practice, the need to promote identified pedagogical practices that are perceived to be the most effective in an M.I. framework, I will first distribute this dissertation to the faculty, staff and trustees as this summer’s required reading from school leadership. Emphasizing the Findings section from chapter 4 that explores how M.I.-informed teachers approach differentiated instruction, the CH-CH faculty, staff and trustees will gain an understanding of some pedagogical practices perceived to be both effective and ineffective. The next step will bring the faculty together to create a working strategy and sample book for the school to which all teachers will contribute. This reference guide will provide subject-specific
pedagogical practices that are perceived by CH-CH educators to be effective in an M.I.-
friendly teaching and learning environment. I have, in fact, already begun its creation
through the data collection process in this study. Finally, this reference manual will be
shared as part of new faculty orientation and undergo annual faculty review and updating
as part of regular instructional leadership work. This resource will guide individual
pedagogical design as well as provide a touchstone for ongoing professional
conversations informing pedagogy and practice for the teaching community. Dedicating
the necessary time and space for collaborative enterprises regarding pedagogical practices
will need to become a priority for me, as head, and the rest of the school’s academic
leaders as we design a more robust professional development program that provides
greater emphasis on leveraging internal resources and experts. I will make this larger
professional development initiative a priority for the two Academic Program Directors,
Dean of Faculty, and department chairs in the months ahead.

Second, and similarly, the need to nurture differentiated learning grounded in
M.I. theory provides the school with an opportunity to advance both conversation and
understanding through a more robust professional development program that leverages
internal experts while also providing ongoing external professional growth opportunities.
As I ask the School’s academic leaders to dedicate significant resources, both time and
funding, to a new professional growth paradigm for the CH-CH faculty, they will need to
consider the necessary components to advance teachers’ knowledge of M.I. theory and
understanding of differentiated instruction. This should be realized through a
combination of internal learning opportunities, which would include online webinars,
visiting experts, and/or collegial discussions, along with external professional growth programs, such as workshops, conferences, and/or school visits.

Third, as for **the need to provide a better understanding of the M.I./D.I. relationship** and how this construct presents itself at Chapel Hill-Chauncy Hall, I will establish dedicated time to explore this component in faculty orientation during the School’s pre-sessional week in early September, before the school year commences. It will be my responsibility to share my understanding of the M.I./D.I. relationship, as well as our unique teaching and learning construct at CH-CH, with colleagues. Academic leaders and classroom teachers alike will join me in presenting our understanding of the M.I./D.I. relationship and how it presents itself at CH-CH through actual M.I.-informed differentiation. We will practice what we preach. By modeling the manner in which we wish to approach teaching and learning at CH-CH, we will be reinforcing our expectations. Understanding that our teachers possess various M.I. strengths that we wish to leverage in a variety of ways, we will differentiate our content, process, product, and learning environment during this pre-sessional training workshop. By providing choice to the manner in which our teachers access learning and leverage strengths, we will better model our understanding of the benefits to the M.I./D.I. relationship.

Fourth, in terms of **the need to better define M.I., D.I., and their interdependencies**, it is imperative that I continue to foster the concept that CH-CH is a learning institution, even for its faculty. This will be achieved through community-wide addresses that are delivered a few times each year. It should also be a marketing strategy used with prospective families and students. Teachers must feel regularly supported and engaged in their own learning process as education practitioners. They must continually
seek to learn and wish to advance themselves as teachers. To this end, assuming the role of practitioner researcher is something that should be built into the job description for CH-CH teachers and, as such, the School will need to increase professional development and graduate school funding for the faculty. In particular, Chapel Hill-Chauncy Hall teachers must be well versed in M.I. theory, differentiated instruction, and how the two constructs support one another in creating a dynamic teaching and learning environment for the students the School serves. The School must maintain the responsibility of clearly defining the standards of excellence for CH-CH teaching and learning so that teaching expectations are clearly understood and surpassed by the faculty. Both of these endeavors will need to be guided by the work of the School’s Academic Program Directors, the Dean of Faculty, and the Curriculum Committee. To this end, I will establish a summer work group to design the necessary professional development program and craft the School’s teaching standards of excellence. Ultimately, the brand experience must meet and beat the brand promise provided to CH-CH families and students.

Fifth, in discussing how the M.I./D.I. construct can effectively support a college preparatory curriculum within the School’s defined mission, the School must dedicate the time necessary for community discussion amongst its educators. In particular, the teaching faculty need to be afforded the opportunity to describe and define the tension, as many see it, and share the range of opinions on how well the school does or does not achieve this desired outcome, and why. The vocal minority must gain the audience of the supportive majority, and vice versa, in learning about both the perceived symbiosis and perceived dysfunction that exists between the School’s college prep
curriculum and the mission which “embraces differences in learning style and culture in a richly diverse and supportive community” by challenging students “to realize their individual potential, experience academic success” through differentiated learning. As head, I will convene a “town meeting” each trimester in order to frame and embrace this conversation for my colleagues. By creating a forum for this discussion, reflections will be articulated and current impressions openly discussed in a judgment-free manner. The goal will be to share understandings on how best to support a college preparatory curriculum within the School’s defined mission and M.I./D.I. construct. Acknowledging that the school wishes every senior apply and be accepted to college, CH-CH must assure itself that its graduates are properly prepared for the challenges of higher education through its college preparatory curriculum. Achieving this goal while sustaining mission and the school’s unique approach to teaching and learning is the proposition to strive for and promote.

Sixth, there is a need to create a robust professional development program that balances individual needs through both internal and external opportunities. This speaks to one solution for the fifth implication for practice noted above. CH-CH teachers need the collaborative time and space to share perceived best practices with one another and gain further understandings of the M.I./D.I. construct. To this end, I will establish a summer work group to review our annual, monthly, and weekly calendars through the lens of faculty professional development opportunities. This work group will partner with the Academic Program Directors and Dean of Faculty as they simultaneously create a new professional development program that better meets the needs of the School and advances knowledge and understanding of the M.I./D.I.
construct. Moreover, beyond internal school-based initiatives, identifying external opportunities that allow for teachers to gain expert, outside, and often subject-specific guidance toward improved practice is prudent in providing the type of professional development program that teachers identify in this study. To identify, promote and support these external professional development opportunities, all department chairs will be given a reduced course load of one less class in order to provide them with the necessary time to direct these often subject-specific endeavors. This strategy is articulated in the board-approved Strategic Plan and supported by the board’s Faculty Experience Committee. People support what they help create, and to this end the CH-CH senior administration, specifically the Academic Program Directors and Dean of Faculty, and department chairs should partner to work directly with the teaching faculty to design, budget, and execute a rich, multidimensional professional development program that addresses individual needs for the collective whole and common good of the School.

A seventh and longer-term implication for practice is the need for the CH-CH teaching faculty to contribute to the shared conversation for knowledge co-creation and consumption in the field of M.I.-centric learning for the 21st century. To date, the teaching faculty has not formally engaged with other M.I. educators outside the CH-CH community. Organizations like the Association for Supervision and Curriculum Development (ASCD) maintain Professional Interest Communities (PICs) that are “member-initiated groups designed to unite people around a common area of interest in the field of education. PICs allow participants to exchange ideas, share information, identify and solve problems, grow professionally, and establish collegial relationships” (ASCD, 2015). The ASCD Multiple Intelligences Network is a PIC that CH-CH teachers
would be well served to join and actively participate in as a means of professional
development; this will be encouraged. Facilitated by Dr. Tom Hoerr, Head of New City
School in St. Louis, MO, the M.I. Network “promotes the use of multiple intelligences as
a tool to improve individual instruction and help all students learn” (ASCD, 2015), as
well as “provides a forum for members to share strategies and techniques for
implementing multiple intelligences” (ASCD, 2015). CH-CH teachers should capture
and contribute to the collaborative enterprises being promoted on the M.I. Network.
Participation in professional learning communities like the M.I. Network will be required
of all teachers at the School. This will be achieved through enhanced job descriptions
and the oversight of department chairs.

Beyond participation in professional learning communities, I will continue to
push for the possibilities of supporting our teachers in creating a summer institute for
educators interested in learning more about M.I. theory and sharing how differentiated
instruction can be a helpful vehicle in delivering an education based on the multiple
intelligences. There would be great value in our teachers facilitating professional
development endeavors with other educators from outside the CH-CH community.
School leadership will begin to develop a business plan for the creation of an annual
summer M.I. Institute that would provide both day and residential components to a one-
week session for the advancement of a professional learning community beyond the
School’s current faculty. Furthermore, the Board of Trustees has previously entertained
the idea of creating a Center for Multiple Intelligences in the 21st Century. This virtual,
global forum would maintain a significant web-presence as a primary repository of
information and material supporting M.I. theory in teaching and learning targeting
various constituent groups. As a final implication for practice, and as a core organizational design component to the Center for Multiple Intelligences in the 21st Century, school leadership will discuss with the Board of Trustees the benefits of creating a new non-profit, networked association to bring educational leaders, researchers, teachers, students, and parents together to advance the body of work and understanding of how the theory of multiple intelligences can and should inform educational practices in the upcoming century, not just in the United States but across the globe.

**Implications for further research**

Looking ahead, this study has four major implications for my further research beyond the findings explored in chapter 4: (1) the need to study other M.I. schools and their faculty’s perceptions; (2) the need to discover the opinions of other constituent groups at CH-CH, such as students, parents, and alumni; (3) the need to further explore the perceived tension described by some teachers between the School’s college prep mission and curriculum operating within an M.I.-based framework for differentiated instruction; and (4) the need to better research, define, and implement a data- and teacher-informed professional development program that supports the School’s M.I./D.I. paradigm.

**To study other M.I. schools and their faculty’s perceptions.** First, to better understand the efficacy of delivering differentiated instruction through an M.I. framework, it is necessary to research other self-defined M.I. schools and explore their instructional practices that embrace and leverage individual student strengths and
interests. While perhaps not explicitly defining their teaching methodology as
differentiated instruction, these schools may present data on student-centered solutions to
teaching and learning that better inform practices at CH-CH as well as both amplifying
and challenging my findings. Returning to this study’s research design and methodology,
the data collection instruments and protocol could be quite similar as the opinions of
teachers at other M.I. schools are explored.

To discover the opinions of other constituent groups at CH-CH. The second
implication for further research points to the need to discover the opinions of other
constituent groups at CH-CH, such as students, parents, and alumni. In meeting and
speaking with Dr. Howard Gardner at CH-CH on October 17, 2013, we discussed the
pros and cons of my strategy toward participant selection for this study. While he
acknowledged that it would be ideal to involve all members of the faculty in my research
as a demonstrable act of solidarity in this endeavor for institutional improvement,
Gardner also questioned whether the study could be expanded to include students and
parents, two key stakeholders. We discussed the advantages of capturing a greater range
of constituent opinion, but recognized that it would too significantly expand the shape
and scope of the study. While he re-emphasized the benefits of gaining student input, in
particular, on their experiences and opinions, he ultimately acquiesced to my more
limited focus on the teaching faculty but recommended I consider returning to this
research in the future to gain the student, parent, and alumni perspective on effective
differentiated instruction within an M.I. framework.

To explore the perceived tension of the School’s college prep mission
operating within an M.I.-based framework for differentiated instruction. Moreover,
during the course of data collection and analysis, two dominant inductive findings were
discovered and warrant further exploration beyond what I can present here. I would like
to further examine the perceived tension described by some teachers between the
School’s college prep mission and curriculum operating within an M.I.-based framework
for differentiated instruction. While not the majority, many teachers recognize this
tension, attempt to define and understand it to some degree, and wish for the School to
make sense of and alleviate it, if possible. A mixed-method study that explores teachers’
assumptions about CH-CH graduates’ preparedness for higher education vis-à-vis their
success rates as undergraduate students and in completing college or university would
capture the necessary data to better understand the legitimacy underlying this perceived
tension. It may very well be true that there are many unfounded assumptions driving this
belief held by a vocal minority of the faculty.

The rationale for further research in exploring the perceived tension between a
college prep mission and curriculum operating within an M.I.-based framework for
differentiated instruction is based upon frustration expressed by the CH-CH teaching
faculty in trying to understand and balance their co-existence and co-dependencies. As
stated succinctly by a Skills and Academic Support teacher: “We have the MI framework
idea as well as the college prep idea. Reconciling the two is sometimes difficult” (33).
In a more descriptive statement that identifies the role of higher education in creating this
tension, one veteran teacher reflects on an unfortunate happenstance that is placed in-
between our students and their lives after college and university, and that is higher
education itself.
Personally, I think that's the problem with college right now. It is too steeped in what worked in 1950 and 1960. I think we are doing an excellent job preparing our students for life beyond college and for college, but I think the problem with college right now is that it is high bound and too traditionalist. It's changing, but it's changing a lot slower than we are which is kind of tragic. (3)

A common sentiment shared by CH-CH teachers is that while not impossible, there are very real challenges to successfully implementing an M.I.-informed stance to teaching and learning that is also college preparatory. Despite the challenges in executing an M.I. approach, teachers believe it is a fully legitimate enterprise in order to best prepare students for learning how to learn.

I don't think it's impossible. I don't think that embracing MI is at odds with being successful in college. I think it's actually important for being successful in college, to know how you're smart and to know what your strengths are. I think this whole grand education conundrum comes between these two things. (33)

As further research is contemplated, it should be noted that preliminary inductive findings both support and reject the School’s ability to match the brand experience with the brand promise that it can deliver a fulfilling M.I.-based college preparatory experience for its students. For example, supporting the School’s abilities in this endeavor, one senior member of the faculty explains,

I think we do a pretty good job of preparing kids for college. I think we have a lot of kids who come in here, who if they’d just gone on the path they were on before coming here, would have disastrous college experiences initially. We seem to turn out graduates who, although they still have differences in terms of their knowledge and academic ability, we have done what really needs to be done for them to survive in college, which is teach them how to survive in college. (12)
At the same time, there are those teachers who do not believe the School is successful in fulfilling this challenge and brand promise. As noted by this history teacher,

I think the single biggest issue as a school, in terms of embracing MI theory and us as educators, is the fact that we haven't figured out how to make the MI framework truly augment a college prep student experience. I think, at times, and in small snippets, we have ideas, we have lessons and practices that do augment, but as a whole, I don't think we're there. (6)

Further research among the CH-CH faculty would help the School identify where it comes up short, if at all, in its college preparations and how it might move forward in better fulfillment of its college prep curriculum operating within the M.I./D.I. construct.

To better research, define, and implement a professional development program that supports the School’s M.I./D.I. paradigm. The other major inductive finding worthy of further research is the need to better research and define a dynamic, rich, teacher-driven professional development program that supports the School’s M.I./D.I. paradigm. Many, but again not the majority, of the teachers at CH-CH discuss the need for a professional development program that wedds internal and external opportunities for professional growth as M.I./D.I. practitioners if the School is to maintain this direction, which it is. The question to be explored is what should the shape and scope of such a professional development program be that nurtures the CH-CH M.I./D.I. construct? The answer to this query must be informed by both existing research on effective, appropriate professional development programs and the teaching faculty at CH-CH.
Teachers remark that the professional growth ethos exists: “Working here at CH-CH, I have learned more than I have learned at any institution. I think we take learning very seriously” (15). At the same time, not all teachers appear to be taking advantage of this support for professional development:

I think differentiated instructions is the way to go. My concern is that we still have teachers that are not fully understanding of it or maybe not fully understanding how they can participate in it. I think that we have teachers that are open and willing to learn but I’m concerned that we haven’t fully reached them yet and, therefore, they’re not reaching our kids in the best way possible. It doesn’t mean that they’re bad teachers at all. It just means that they need a little bit more guidance and a little bit more time invested in learning about their approach and telling them and educating them and helping them understand how to tie in that differentiated instruction into their approach, if that makes sense. (10)

Teachers remark that if the School could do one thing to support their teaching practice, it would be to:

Invest in professional development that is more specific to M.I. and differentiated instruction in the classroom. (2)

For me, it would be more professional development. It is very helpful for me to bounce ideas with other teachers. I have seen a marked increase this year in the School funding and suggesting PD opportunities for me which I greatly appreciate. (26)

I think there are a lot of opportunities for creating an in-house curriculum for teaching MI. Because for me, again, it’s still sort of a nebulous concept in that you have to kind of feel it out a little bit. (21)

Understanding that CH-CH teachers are identifying the need for further professional development, opinions fall into a couple of different strategic areas: (1) internal resources, collaborations and opportunities, and (2) external professional development engagements. As for internal professional development, teachers note that
the School should, “provide more time to exchange ideas and plan with coworkers, both within the department and outside” (19), and that there should be “better facilitation of learning about what other teachers at the School do for MI/DI, especially in the context of what works best for our students” (31). “More observations and feedback” (21) is another area of internal support that the School can improve for teachers. As a summary of faculty opinion,

I have collaborated with the art department here and there, but I would love to do it more. Part of this is just logistics and time and when do you get together, but I think that it's something, given our size, that we can figure out ways to do, even if it's just planning time, coming together to create MI-friendly lessons, and using the expertise and knowledge of our extremely diverse and talented faculty. I think that's something that really could allow us to make a huge jump in terms of our MI practice, and also our DI practice. (23)

Six teachers at CH-CH specifically state that further investment in, and planning for, external professional development programs is also an important endeavor for the School to consider. It is, therefore, an important implication for future research. The school and I must seek to identify effective, data-informed professional development programs that would appropriately support the needs of the CH-CH faculty. Answering the query of what the School could do to better support teaching practice, one math teacher responded by saying,

I think in terms of how the administration can support us beyond what we can just do by ourselves, I think any opportunity to bring in outside people who are very experienced in incorporating multiple intelligences into discipline-based practice would be excellent. (2)
Beyond bringing in outside experts to the School, there is also the belief that I can further encourage teachers to attend off-campus workshops and conferences by making time and class coverage more readily available for these pursuits. This is both an implication for educational leadership practice and an implication for further research. Research needs to be conducted to better understand how best to construct a vibrant professional development program to satisfy the School’s particular needs, as well as what types of professional development in this area have been previously designed, and to what degree of success have they achieved.

Despite calls for further administrative support for professional development, teachers at CH-CH believe the faculty to be ripe for further professional growth in the areas of multiple intelligences theory and differentiated instruction. The CH-CH faculty is a dynamic group of learners, not just teachers. They have every intention to maximize teaching and learning as they can with the knowledge and understanding that they possess. And, for the most part, most teachers seek to increase that knowledge and understanding as a matter of ongoing professional growth. This is the norm, not the exception at CH-CH. Framing this as an implication for further research, there needs to be a call for all teachers at the School to become active practitioner researchers, sharing their learnings with colleagues and advancing the institutional understanding of our unique M.I./D.I. construct, as well as practice. This, in turn, will then need to be shared with the larger, global education community. As one teacher with multiple advanced degrees reflects,

I certainly can't speak for everyone, but just in terms of what I have observed in our group professional developments, in conversations, I think largely, by and large, that this is a community of learners and people that
are interested in improving their practice. I think sometimes the dissenting voices stick out. Sometimes, they're a little bit louder, but that doesn't necessarily mean that they are of the majority or in the majority. From what I have seen by and large, I think people are interested in becoming great teachers. That's what I've seen. (23)

Summary

This qualitative study aimed to answer a set of three research questions: Exploring the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what pedagogical strategies in an independent secondary school college preparatory education are perceived as most effective by the faculty in embracing and leveraging individual student strengths and interests? Specifically, what approaches to differentiated instruction at Chapel Hill-Chauncy Hall School are based upon a multiple intelligences framework and school environment? In particular, what is the perceived relationship between multiple intelligences theory and differentiated instruction in this school setting? The results of the study provide us with teachers’ understanding of M.I. theory and how the theory can be both useful and not useful in the context of differentiated teaching and learning. I argue that teachers enhance differentiated teaching and learning when it is grounded in an M.I.-informed and –friendly learning environment. However, teachers must possess solid knowledge and understandings of both M.I. theory and differentiated instruction, respectively, as well as emerging interdependencies, to best apply the combined construct to teaching and learning. Without proper understanding, teachers tend to default to
differentiated instruction absent of an M.I.-informed stance while questioning the symbiotic relationship of the two constructs.

While the study provided insight to each query connected to the research questions, it also presented insights beneficial to the existing literature in the area of multiple intelligences theory and how it can be implemented in teaching and learning through differentiated instruction. The study also presented implications for improved practice in seven areas at CH-CH, as well as four implications for further research in the name of improving practice at CH-CH, specifically in studying other M.I. schools, discovering the opinions of other CH-CH constituents, further exploring the tension between the School’s mission and its college preparatory curriculum, and better defining and implementing a strategic professional development program for the School to execute in the years to come. In doing so, the study has spotlighted a CH-CH faculty highly committed to teaching and learning with a willingness to execute an M.I./D.I. construct with the proviso that it will be supported by the School with professional growth opportunities fostering improved conceptual understandings and pedagogical practices. At Chapel Hill-Chauncy Hall School, teachers “teach the way students learn,” and are proud of their work, as they should be.
### APPENDIX

**Appendix A: Sample Learning Profile for a Student at Chapel Hill-Chauncy Hall**

Learning Profile: _________________________

<table>
<thead>
<tr>
<th>Address:</th>
<th>Phone:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoB:</td>
<td>DoE:</td>
</tr>
<tr>
<td>Parents:</td>
<td>Author(s): (9/19/11, 10/9/13); (6/12/12)</td>
</tr>
</tbody>
</table>

#### Relevant Background

___ lives at home with her mother and a sister. She has also three older, non-biological siblings. She was born in China and adopted at age 13 months. ___ was previously diagnosed with dyslexia, auditory processing difficulties, mild depression, Epilepsy, and ADHD. In order to help her coping she sees a therapist weekly. ___’s teachers describe her as a diligent and meticulous student, who is confident enough to help her peers. In 8th grade ___ suffered from two seizures which affected her anxiety and memory in a negative way. At home, ___ is kind to the family animals, loves to do arts and crafts, and is described by her mother as a “kind, honest, and fair minded person.” Freshman year: repeated 9th grade from ___ High, caught (significantly) plagiarizing twice in English and history. More concerned with people and problems then academics. Works well with quieter, less drama-filled, students. Was linked to having relationships, not always appropriate, with many boys in the class. Does play the role of the “victim” to try to get out of trouble or avoid work. Much of her lack of producing work comes from her lack of understanding the material.

#### Strengths
- MI: intrapersonal, visual/spatial, kinesthetic
- LS: visual
- strong verbal comprehension
- intrinsically motivated
- hard-working
- visual/hands-on learner
- expressive language (written and oral, untimed)
- athletics
- arts (theater, chorus)
- strong sense of justice

#### Challenges
- relative weak working memory and processing speed (motor tasks)
- ADHD/Executive Functioning:
  - organization
  - study skills
  - switching tasks
  - attention
- Dyslexia:
  - reading comprehension
  - higher order language
  - writing fluency
- struggles with math
- auditory processing
- anxiety about school performance/perfectionist
- low self-esteem
- stress
- stress-caused physical and medical challenges (seizures)

#### Recommendations for the classroom
- provide auditory information with visual information
- identify key points and relevant vocabulary before a new lesson starts
- let ___ compare notes with a peer/teacher to fill in gaps
- check in with ___ regularly for comprehension
- supply study and test-taking strategies
- provide class outlines and study guides
- allow extra time to process questions and comments
- encourage the use of graphic organizers for written tasks
- review and practice basic math facts: fractions, decimals
- break down larger tasks into smaller parts
- set timer for completion of various tasks

#### Recommendations for home
- use graphic organizers to apply pre-writing strategies
- encourage regular, shorter study periods over cramming sessions
- create visuals about learned material and talk about it

#### Accommodations
- Extended time on assessments (50%)
- Test-completion in alternative location (quiet, private)
Appendix B: Chapel Hill-Chauncy Hall School: M.I. Statement of Purpose

Chapel Hill-Chauncy Hall School
M.I. Statement of Purpose

In our collaborative community of learners, we challenge students to discover and develop their strengths while also exploring other paths to learning. We use Gardner’s theory of multiple intelligences as a framework to guide our everyday practices in teaching and learning, and this, combined with our college preparatory mission, means that we:

- Acknowledge that all learners in the classroom, teachers and students alike, bring different strengths to the learning process
- Work diligently to help learners develop core academic skills that require linguistic and logical-mathematical intelligences by helping students find effective paths to acquiring those skills
- Offer students opportunities to use traditionally underutilized intelligences (kinesthetic, musical, visual, existential and naturalistic)
- Encourage development of strong interpersonal and intrapersonal skills as tools to further student learning
- Believe that experiential learning is a key component of a student’s educational journey and that we should extend learning beyond the classroom
- Allow learners to demonstrate their knowledge and understanding of different content areas by assessing in multiple ways, both traditional and non-traditional, formative and summative
- Provide opportunities for authentic interdisciplinary work that helps students develop & share their talents and knowledge
- Strive to create relationships, classrooms and a school environment that allow for and celebrate multiple paths to learning and success
- Build deep understandings of our learners’ strengths and challenges

In setting forth these beliefs, we understand that teaching, like any other great endeavor, cannot become proscriptive. The ways in which we live these beliefs about learning will be varied and constantly changing, always with an eye to making CH-CH the strongest learning environment possible for our entire community.
Appendix C: *Faculty Online Questionnaire*

Chapel Hill-Chauncy Hall School
Questions for Faculty Online Questionnaire

Please state your name:

How many years have you been teaching at CH-CH?

How many total years have you been teaching?

**Questions:**

1. Using a 10 point scale (10 being expert and 1 being novice), “How would you rate your knowledge of M.I. theory?”

2. Using a 10 point scale (10 being expert and 1 being novice), “How would you rate your enthusiasm of M.I. theory?”

3. “Please provide an example of how you use M.I. theory in your practice.”

4. Using a 10 point scale (10 being expert and 1 being novice), “How would you rate your knowledge of differentiated instruction?”

5. Using a 10 point scale (10 being expert and 1 being novice), “How would you rate your enthusiasm of differentiated instruction?”

6. “Please provide an example of how you use differentiated instruction in your practice.”

7. “How do you understand the connection between differentiated instruction and M.I. theory?”

8. “If the School could do one thing to support your teaching practice, what would it be?”

9. “Finally, in your mind, does the School live up to its promise to teach the way students learn through M.I.-informed pedagogy? Please explain why or why not?”
Appendix D: Individual Interview Protocol

Chapel Hill-Chauncy Hall School
Individual Faculty Member Interview Protocol

Research Questions:

Exploring the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what pedagogical strategies in independent secondary school college preparatory education are most effective in embracing and leveraging individual student strengths and interests? Specifically, what approaches to differentiated instruction at Chapel Hill-Chauncy Hall School foster a teaching-learning environment based on a multiple intelligences framework?

Main Questions: The purpose is to structure the interview so as to best answer the research question.

1. How does multiple intelligence theory lend assistance and/or strength to your own pedagogy? What are effective M.I. design strategies that you maintain or strive to maintain?

2. How is it not useful?

3. Beyond, or expanding on, what you shared in your online questionnaire, can you describe a specific example or two from your own practice that you would identify as effective M.I.-informed pedagogy through differentiated instruction that embraces and leverages individual student strengths and/or interests?

4. Are there examples of failed design strategies that you might care to share? Please describe them. What is it about these less successful attempts at teaching and learning in an M.I.-informed manner that made them unsuccessful?

5. What are some differentiated instruction examples you have witnessed that foster an effective teaching-learning environment based on the multiple intelligences?

6. How strong and/or necessary is differentiated instruction in realizing multiple intelligence theory in the classroom? Are you able to identify other vehicles for effective M.I. implementation in teaching and learning?

7. Do you have any additional observations about the efficacy of Gardner’s theory of multiple intelligences as it pertains to your own practice as a teacher at CH-CH that you care to share?

Follow-Up Questions (as necessary and needed): The purpose is, “to get depth, detail, richness, vividness, and nuance, helping to assure thoroughness and credibility.” (Rubin and Rubin, p. 119).

- Concerning that event, could you describe what happened, who was there, what was accomplished, what remained unsolved, or what was not even discussed? What were your initial and later reactions to the event? Were people emotional afterward? How so?

- In regards to that concept, could you explain what it means to you? Why is the concept important? Was there a misunderstanding surrounding this concept for you and/or others?

- As for the identified theme of ____________, why is that relevant or important to better understand? Was it misunderstood by you and/or others? How so?
Appendix E: Classroom Observation Protocol

Research Questions:

Exploring the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what pedagogical strategies in independent secondary school college preparatory education are most effective in embracing and leveraging individual student strengths and interests? Specifically, what approaches to differentiated instruction at Chapel Hill-Chauncy Hall School foster a teaching-learning environment based on a multiple intelligences framework?

As the observer and a non-participant, I will focus on individual teachers and their pedagogical practice during each 30-45 minute classroom visit. The protocol is comprised of: (a) an initial description section, (b) the identification of the presence of focus domains, and (c) observable indicators and exemplars related to each focus domain.

The focus domains are twofold and are derived directly from the research questions: (1) As seen in practice, what pedagogical strategies are most (in)effective in embracing and leveraging individual student strengths and interests? (2) As seen in practice, what approaches to differentiated instruction foster a teaching-learning environment based on a multiple intelligences framework?

The observable indicators form an incomplete and emergent list that will be refined during the course of the observation and through subsequent check-ins, as necessary.

Before the Observation:

- Contact teachers to schedule classroom visitation times.
- Review the research questions defining the observation focus domains with teachers prior to conducting the observations.
- Reiterate that I will have no involvement with evaluating the teacher’s practices.

During the Observation:

- Provide as vivid a description as possible of the pedagogical design and practice, noting connections to M.I. theory and differentiated instruction.
- Provide running observation notes related to each focus domain (the research questions), taking care to address connections to both multiple intelligences theory and differentiated instruction.
- Provide indicators of both effective and ineffective pedagogy and practice.

After the Observation:

- As necessary, check-in with teachers to gain greater clarity or insights to observable classroom practices.
- Annotate my observation notes as I synthesize information from any follow-up teacher discussions.
Appendix F: Classroom Observation Form

Research Questions:

Exploring the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what pedagogical strategies in independent secondary school college preparatory education are most effective in embracing and leveraging individual student strengths and interests? Specifically, what approaches to differentiated instruction at Chapel Hill-Chauncy Hall School foster a teaching-learning environment based on a multiple intelligences framework?

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Connection Notes:


Appendix G: Focus Group Protocol

Chapel Hill-Chauncy Hall School
Focus Group Protocol

Research Questions:
Exploring the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what pedagogical strategies in independent secondary school college preparatory education are most effective in embracing and leveraging individual student strengths and interests? Specifically, what approaches to differentiated instruction at Chapel Hill-Chauncy Hall School foster a teaching-learning environment based on a multiple intelligences framework?

Main Questions: The purpose is to structure the focus group so as to best answer the research question. The main questions for this protocol will not be finalized until after the individual interviews and classroom observations. As examples, here are some projected questions that might be pursued:

1. How strong and/or necessary is differentiated instruction in executing multiple intelligence theory in the classroom? Can anyone identify other vehicles (besides differentiated instruction) for effective M.I. implementation in teaching and learning? If so, what might they be?

2. Do you have any additional observations about the efficacy of Gardner’s theory of multiple intelligences as it pertains to your particular discipline’s delivery of the curriculum that you care to share? If so, please share.

3. What ideas might you share in creating a more effective institutional approach at CH-CH to teaching the way students learn while embracing the virtues of Gardner’s multiple intelligence theory?

4. During the individual interviews, many faculty members identified an existing tension at CH-CH. This is the tension created by the School’s mission to be college preparatory and, at the same, its stated aim to embrace differences in learning style through a multiple intelligences framework for human understanding, one that uses differentiated instruction as a vehicle for teaching and learning. At the epicenter of the tension sits the question: Are we truly preparing our students for college when delivering an M.I./D.I. education?

5. Another theme that emerged deductively from the individual interviews could be defined as professional development. That is, the identified need for further professional development in both multiple intelligence theory and differentiated instruction. To what extent does this need exist? How so? And what types of professional development opportunities would be most impactful?

Follow-Up Questions (as necessary and needed): The purpose is, "to get depth, detail, richness, vividness, and nuance, helping to assure thoroughness and credibility” (Rubin and Rubin, p. 119).

- Concerning that event, could you describe what happened, who was there, what was accomplished, what remained unsolved, or what was not even discussed? What were your initial and later reactions to the event? Were people emotional afterward? How so?

- In regards to that concept, could you explain what it means to you? Why is the concept important? Was there a misunderstanding surrounding this concept for you and/or others?

- As for the identified theme of ______________, why is that relevant or important to better understand? Was it misunderstood by you and/or others? How so?
Appendix H: Preliminary List of Coding Themes

Research Questions:
Exploring the efficacy of Gardner’s (1983) theory of multiple intelligences and its implications for effective teaching and learning practices, what pedagogical strategies in independent secondary school college preparatory education are most effective in embracing and leveraging individual student strengths and interests? Specifically, what approaches to differentiated instruction at Chapel Hill-Chauncy Hall School foster a teaching-learning environment based on a multiple intelligences framework?

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# Appendix I: Code List for Qualitative Research Data

## Working List of Codes

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<td>General reflections on MI theory and frameworks for the School</td>
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<td>MI-PRAC</td>
<td>Examples of MI theory observed or demonstrated in practice</td>
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<tr>
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<td>MI-NU</td>
<td>Examples of when MI is not a useful framework for the School</td>
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<td>Examples of effective MI teaching and learning design strategies</td>
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## Inductive Codes

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