TEACHER TRAINING PROGRAMS: THE IMPACT OF ADOLESCENT DEVELOPMENT COURSEWORK ON TEACHER EFFICACY

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Abstract

This case study examined a teacher training program and its respective coursework, specifically coursework surrounding adolescent development in the K-12 setting. Evaluating teacher training programs has been a topic of great interest for educational researchers and theorists however little research exists that supports the necessity for teachers to be proficient in adolescent development. This study, consisting of twelve educators, will provide a sample of data to help support the notion that coursework in teacher training programs must be inclusive of adolescent development content.

Two questions guided this study: (1) How might the inclusion of mandatory adolescent development coursework in pre-service and teacher education programs influence the efficacy of future educators in understanding and meeting the needs of their students in developmentally appropriate ways? (2) How could adolescent development coursework be best infused in the teacher preparation curriculum? Data analysis revealed three key findings: (a) traditional teacher preparation programs are necessary, (b) ongoing professional development is necessary and (c) adolescent development coursework in teacher training programs is recommended. The data provided useful insights into the future opportunities that exist within the realm of adolescent development for both teacher training programs and professional development for educators. The findings suggested an intrinsic need for mandated coursework in adolescent development as to provide future educators the tools they need to be effectual, proactive, and positive contributors to their adolescent classroom communities.

Key words: teacher training, adolescent development, preparedness, teacher efficacy
Dedication

For my parents, Bill & Kathy, who instilled in me the value of education from day one. I love you both more than you’ll ever know.

In memory of my mother-in-law, Katherine A. Morton
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This, my friends, is the most difficult part of my dissertation journey. I spent many hours thinking about what to write and how to say it eloquently. I am not sure that I will ever capture what the process has meant to me through the written word but I can at least try.

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Chapter I: Introduction

Statement of the Problem

Over the last decade, significant research has centered on understanding adolescence as a developmental stage. The needs of adolescents during this critical time of their academic career must be effectively coalesced with opportunities that would allow for proper developmental growth while promoting educational achievement. According to the Office of Educational Research and Improvement (2011), between 4% and 18% of adolescents in the United States, specifically those in middle school, will drop out of school before attaining a high school degree. Furthermore, a reported 25% of adolescents between the ages of 10 and 14 begin to exhibit emotional, behavioral, and academic difficulties, ultimately affecting their long-term academic potential (Roeser, Eccles & Sameroff, 1998). Unless these trends can be reversed and the contributing issues remediated, students in the middle grades (5-9) will enter secondary schools with substantive risk factors.

Prior research has lead to significant gains in understanding the effects of individual factors leading to school failure in the junior high years. Eccles (1983) cited concerns stemming from emotional functioning (such as anger, school truancy, and misconduct) as those that exacerbate motivational declines towards academic performance. From the educational perspective, Eccles reiterated the parallel between adolescents’ motivation to learn and their effort and achievement. Quantitative studies over the last 10 years have corroborated hypotheses from previous research on adolescent development by linking the strong correlation between academic and emotional functioning (Roeser, Eccles & Sameroff, 2000). Previous studies suggested that adolescents’ perception of academic competence is an invaluable personal resource (Harter, 1985) while also protecting against emotional and behavioral difficulties.
As administrators and educators set out to create transformational academic environments, they can commit themselves to knowing and understanding their students. This is supported and driven in part by apprentice teachers, who as co-researchers assess the cognitive neuroscience coursework in their theoretical and practical applications. An appreciation and deep understanding of students’ present cognitive levels will not only have a positive impact within the professional’s role, but also facilitate the growth of teacher training programs to reflect the current research in the cognitive development of adolescence (Roeser, Eccles & Sameroff, 2000).

While the research to date has provided a basis for both theoretical and descriptive questions relating to the developmental needs of the early adolescent child and how that transcends into the middle school years, little had been done to investigate the preparedness of the educator at facilitating the cognitive growth of their students from year to year. Hunt (1973) argued the necessity for educators to maintain a developmental perspective in order to “take account of a student’s contemporaneous needs by providing structure” (p.221) while understanding the developmental continuum of the school-aged child. There had been little to no attention given to the pragmatic correlation between effective pre-service teacher training in cognitive neuroscience and the impact it bears on understanding the developmental framework of students in an academic setting. Martin (1983) stated, “because some teachers themselves did not have the benefit of systematic cognitive development in their own schooling, they are often unprepared to foster cognitive skills in their students” (p.1).

**Significance of Research Problem**

Teacher training programs have been thrust into the national spotlight in recent years as research has shone that class size and other noticeable variables do not impact students’ learning
potential as much as the quality of their teachers (Kane, Rockoff, & Staiger, 2007). Effective teacher training is paramount in this country, yet research shows the traditional path of becoming an educator as intrinsically flawed (Darling- Hammond, 2000). With such programs plagued with inconsistencies stemming from poor curricular evaluations, conceptual deficits and lack of fundamental elements such as field placements (Levine, 2003), a focus must be placed on preparing future educators that are competent who possess elaborate knowledge structures of adolescent development, curricular content and pedagogy.

The role of a teacher is one of great complexity. When evaluating teacher training programs through a critical lens it is important to delineate those that expose apprentice teachers to classrooms in which delivery of instruction effectively meets the needs of students, aligning specific subject matter with targeted educational purpose (Shulman, 1986). Teachers entering the field must possess a solid framework of both teaching and learning (Darling-Hammond, 2000) including the knowledge of how their students learn in both a developmental and social context. Once this framework is dependably in place for the apprentice, it is then that the emergence of their true identity as a professional practitioner develops. Until both pre-service and veteran teachers attend to the real diversity of learners in their classrooms, instruction will prove to be a formidable task.

**Setting Background**

The research took place at an independent, coeducational school near Boston, Massachusetts. The study focused on an apprentice program for those seeking to enter the field of education. The motto of the Teacher Training Program (TTP-pseudonym) at the Hillsborough School (HS-pseudonym) is “learn to teach by teaching.” For over 80 years, the school has been a national leader in the area of teaching training and development. The school’s first director of
program saw a need to train teachers in a progressive pedagogical movement, still in its infancy when the school was founded. Over the years, the program has made a significant contribution to the national debate on education reform and teacher preparation. However, the researcher had come to the realization that there was a fundamental aspect missing in the course structure of the program – a focus on adolescents’ cognitive development. There was a vital and essential need for the program to restructure the course offerings to include cognitive development in adolescent children. Unfortunately, as many school leaders recognize the importance of students’ cognitive skills, there is little to no attention given to the teachers’ ability to address these skills appropriately (Martin, 1983). Martin (1983) stated, “because some teachers themselves did not have the benefit of systematic cognitive development in their own schooling, they are often unprepared to foster cognitive skills in their students” (p.1). Therefore, it was mandatory that the teacher training program at the Hillsborough School implements a course or sequence of courses through planned experiences and “opportunities to apply that learning in practicum settings” (p.1). Cognitive training in this TTP program must be integrated across the core curriculum as it provides the missing prerequisite enabling skills that will deepen and broaden the teacher’s behavior in the classroom, benefitting adolescent students.

**Positionality**

I began my professional career in finance and worked in industry for three years. Shortly before applying to an MBA program, I realized I was not fulfilled emotionally nor mentally in my profession, and something needed to change. Discarding the business school applications, I embarked on my journey towards education by enrolling in the M.Ed. program at Lesley University. When I began my teaching career, what was most important to me was seeing the world through the eyes of my students. Their energy, optimism, and determination
were catalysts for me, spurring my desire to learn more about the cognitive aspects of education. Since my journey began, I have engrossed myself in literature, attended innumerable conferences, and presented to my colleagues on the issues surrounding education and the need to understand the developmental approach to teaching. My position and proposed initiative detailed in this research are about the promise of future educators and the fervent desire I have to affect change throughout the teacher training programs.

**Who to whom.** Over the last year, I have come to think of myself as a reflective practitioner. Charged with the arduous task of honing in on a research task seemed overwhelming at first, but when I began to ruminate over topics, what became clear to me was my desire to affect change on a level that was plausible. The research site provides the perfect opportunity for me to conduct both active and reflective research with an ultimate goal of programmatic implementation.

**Who I am, what I am aware of, and what I need to know.** I continue to propel my thinking towards objectivity. As a scholar-practitioner, maintaining an acute awareness of my own identity and how that can both help and hinder my own research is critical. Briscoe (2005) reminded us that our own experiences can frame our positionality and thinking. My research is emerging based on inconsistencies seen in my field and trends identified that lack legitimacy and/or consideration of the “other.” Parsons (2008) articulately considered various experiences when framing her case, and encouraged the use of a “sensitive research approach” (p.1141) utilizing “historical, contemporary and cultural” interpretation of research data. We must be cognizant of our theoretical framework and define a research methodology that is grounded in our own strong, conceptual understanding of the chosen topic. As Fennell & Arnot (2008) stated, it is not always easy to do so. Cultivating my research to be inclusive of the ‘other’ will foster an
equitable collaboration between myself (the questioner) and the diverse participants of my research studies.

I aim to transform the landscape of teacher education programs, at first on a small, independent platform, with the hopes of doing so on a larger scale. By converting an old, well-established program into one that embodies the values and characteristics of the future in education through combining neuroscience content with educational concepts, the student is at the heart of the issue. With the national concern surrounding teacher preparedness and performance, the need for implementation is immediate. TTP graduates will be well on their way and ‘learn to teach by teaching.’

Briscoe (2005) encapsulated my feelings towards research and positionality by saying, “the greater the number of interpretations, the fuller our understanding of others’ experiences will become” (p.35). It is impossible for any one person to have the cognitive capacity to understand the idiosyncrasies and dynamic underpinnings of every layer of their overarching topic, but we can commit ourselves to relying more on objectivity versus personal perspective or experience when framing our educational discourse. In general, my hope is to embrace new learning at this scholarly level. In practice, we want to see evidence in terms of studying outcomes by comparing a control group with the treatment group. Yet, education research is fraught with dueling interpretations of how data is gathered, what it means and to whom.

**Research Questions**

Building from this problem of practice and the researcher’s background and approach to the issues surrounding teacher education, the following research questions were proposed for this study:
1. How might the inclusion of mandatory adolescent development coursework in pre-service and teacher education programs influence the efficacy of future educators in understanding and meeting the needs of their students in developmentally appropriate ways?

2. How could adolescent development coursework be best infused in the teacher preparation curriculum?

These questions were intended to address the relationship between the coursework that is offered within the teacher education program (TTP) and the success of educators within the field. The purpose of this study was to gain a deeper understanding surrounding mandatory coursework that has been a part of the teacher training program over the last fifteen years and whether teachers felt prepared to address the needs of adolescent learners as there was little extant research examining teacher education curricula and the inclusion of adolescent development courses. This qualitative research project utilized a case study methodology to address these research questions.

**Theoretical Framework**

Three theoretical frameworks informed the investigation of the problem: pedagogical content knowledge, neurodevelopmental framework for effective teaching, and teacher development theory. Together, these theories present how effective teaching emerges from an inherent understanding of cognitive constructs within education. The theories were based on the work of Shulman (1986); Levine (2003); and Fuller & Brown (1975).

Three key theories and frameworks were embedded within the two research questions guiding this study: Shulman’s (1986) theory of pedagogical content knowledge, Levine’s (2003) neurodevelopmental framework for effective teaching and Fuller & Brown’s (1975) theory of
teacher development.

In developing a theoretical framework for the research a constructivist approach was taken. Through this lens in the given research construct, a purely qualitative approach was used to gain a deeper meaning to inform the underlying problem. Under this framework, the data gathering process allowed for an understanding of the multiple perspectives.

The convergence of educational theorists Shulman, Levine, Fuller and Brown may present differences among philosophical, ontological, and epistemological premises, these differences are viewed as complementary scaffolds from which to build a body of research. Previous preservice teacher education research had provided a basis for both theoretical and descriptive questions relating to the developmental needs of the early adolescent child and how that transcends into the middle school years. However, little had been done to investigate the preparedness of the educator at facilitating the cognitive growth of their students from year to year. This research study related to the efficacy of future educators in a classroom setting while also exhibiting a cognitive capacity to understand the learners before them. Hunt (1975) argued the necessity for educators to maintain a developmental perspective in order to “take account of a student’s contemporaneous needs by providing structure” (p.221) while understanding the developmental continuum of the school-aged child.

**Pedagogical content knowledge theory.** Shulman (1986) stated teachers must master two types of knowledge: content knowledge and knowledge of curricular development. Paramount to this theory is the notion that content knowledge deals with the processes of teaching, including the most useful forms of presenting and communicating content, while understanding how students best learn. “If beginning teachers are to be successful, they must wrestle simultaneously with issues of pedagogical content (or knowledge) as well as general
pedagogy (or generic teaching principles)” (Grossman, as cited in Ornstein, Thomas, & Lasley, 2000, p. 508). The research applied to this theory drew on experiences of preservice teachers during their field placements to garner their (preservice teachers’) understanding of the students’ cognitive processing levels.

Shulman’s groundbreaking work (1986) originally provided a framework for understanding K-12 teacher knowledge. Shulman (1986) contended that the emphasis on teaching has historically centered on central issues such as classroom management and activities, time allocation, structure of assignments, and lesson planning. However, an intrinsic element that had been widely overlooked is the focus on the content of lessons taught, the questions asked and the explanations offered by teachers (Shulman, 1986). Shulman (1986) stated, “the cognitive psychology of learning has focused almost exclusively on such questions in recent years, but strictly from the perspective of learners” (p.8). For the purpose of this study, Shulman’s research on pedagogical content knowledge provided a useful framework to draw on the experiences of preservice teachers during their field placements.

Research on teaching had ignored these central questions and issues with respect to teachers. Shulman’s theory was based on a foundation for teaching reform that allows both preservice and in-service educators an opportunity to reason, reflect and transform. Preservice teachers must understand the essence of what it means for children to explore, create, experiment and question. Furthermore, preservice teachers must have the requisite skills to develop and advance curriculum with children’s changing cognitive status in mind. If curricula do not take into account students’ levels of conceptual development, classroom learning and teaching become inefficient. Preservice teachers need essential training in the development, design and effective dissemination of curricula.
This study sought to understand the value of adolescent development coursework within a preservice teacher program. Examining this aspect of preservice teaching through the theoretical lens focused on cognitive development enabled the researcher to investigate the needs of the future educators while considering children’s cognitive skills and abilities; as to be aware of sensitive and effective periods for optimal learning. Essential to understanding students, one can surmise that the educator holds not only the knowledge of how, but also of what and why curricular decisions are made. Those entering the field of education must be armed with the insights of content and rationale (Shulman, 1986) thrusting them into a reflective endeavor of metacognitive awareness that distinguishes the apprentice teacher from the master educator.

Neurodevelopmental framework for effective teaching. A second theory that framed the research is the neurodevelopmental framework for effective teaching (Levine, 2003). Levine (2003) developed an intrinsic set of neurological constructs that describes learning within seven tiers and advocates that teachers can help all students succeed by providing simple accommodations that correlate to the constructs. Ultimately, learning is broken down into component parts to help educators understand where learning develops for students. The constructs provided a fair and inclusive teaching environment for a wide range of learners.

The interrelatedness of cognitive psychology and education is a hallmark feature of Levine’s (2003) neurodevelopmental framework for effective teaching. Through interdisciplinary studies with a goal of explaining children’s learning styles, Levine (2003) utilized the medical model of viewing health within an overall system for both understanding and identifying children’s learning needs, as shown in Figure 1.
Figure 1. Neurodevelopmental systems (Levine, 2002).

Fundamental to the study, the elements detailed in Figure 1 elucidate the necessity for teachers to model teaching and learning towards developing instructional programs that, in turn, access individual learning modalities. The framework provided a structure for understanding metacognitive strategies that must be employed within the classroom setting as to augment students’ understanding of their own learning while developing educator awareness of cognitive functioning.

The neurodevelopmental constructs shown in Figure 2 highlights the system of learning as a totality that, when working in unison, provide optimum functionality for students to acquire knowledge, enhance memory, and promote scholarship. As Levine (2002) illustrated throughout his neurodevelopmental constructs, the relative importance of appreciating and valuing cognitive neuroscience in the classroom enables educators to create complex and engaging learning environments. Within this learning system, it is vital for educators to advance their
understanding of learning situations as to promote a deeper connection between teacher and student.

**Figure 2.** Neurodevelopmental constructs (Levin, 2003).

**Theory of teacher development.** Within this research, a critical element toward understanding teacher training and teacher’s successes within the classroom emanates from Fuller and Brown’s Theory of Teacher Development (1975). This comprehensive theory surrounding teachers’ concerns within the classroom: survival, teaching situations, and practicing impartial teaching. Furthermore, it encompasses all aspects of teaching as well as “concerns about recognizing the social and emotional needs of pupils” (p. 37). This theory will provide the investigator an overarching view of how advanced teaching practices should manifest themselves within the classroom.
A three-phase model of teacher development presented by Frances Fuller (1969) has been used as a means of understanding the critical needs and concerns of teachers in both preservice and continuing stages of their careers. Detailing the specified phases, Fuller (1969) noted that in pre-teaching phase, student teachers “rarely had specific concerns relating to teaching itself” (p.219). It was at this phase that student teachers were not able to detail their concerns as future educators, and merely saw themselves as students rather than teachers.

In the second phase of Fuller’s theory, early teaching, student teaching is at the crux of the issue. A myriad of concerns about self emanated during this phase. Teachers were inwardly worried about receiving effective professional support from administrators, relationships with school personnel, and outward appearance as professionals. Fuller (1969) wrote, “These concerns were covert in nature as they were never conveyed during routine conversations, yet only during confidential interaction” (p.220). Teachers were ultimately concerned with their ability to effectively perform in classroom settings as “the intensity of concern with self-adequacy is so great that it is almost underestimated” (Fuller, 1969, p. 221).

Finally, in stage three, Fuller (1969) noted that a shift occurs. Teachers become much less concerned with self and more consumed with the needs of their students. Their own success, teachers believed, was measured by student achievement, and in order to attain the rank of an effectual teacher one must understand the capabilities and capacities of the students before them. In this phase, teachers consume themselves with objectifying the goals of the students while assessing their (student) needs. Fuller contended, however, that “concerns are not actions” (p. 221).

In 1975, Fuller and Brown revisited this model through further analysis and data collection. What emerged was a more comprehensive theory and three new areas of teacher
concern were identified: survival, teaching situations, and practicing impartial teaching (Fuller & Brown, 1975). These additions to the theory of teacher development encompassed all aspects of classroom teaching from practicing classroom management techniques to “concerns about recognizing the social and emotional needs of pupils” (p.37).

Fuller & Brown’s (1975) theory offers an overarching view of how advanced teaching practices should manifest themselves within the classroom. As Darling-Hammond (2006) posited, beginning teachers may not be capable of integrating various areas of learning and applying them in distinctive ways while focusing on the needs of their students unless they have successfully moved through “concerns dealing with their own behavior and survival in the classroom” (p. 118). Additionally, with a focus on teacher candidates in programs where the study is rooted in pedagogical practice and the result that practice bears upon the students, it is suggested that beginning professionals can more easily shift from a focus on self to a focus on students if they have the tools in place to help them train their sights on the effects of their actions and decisions (Hammerness, Darling-Hammond, & Bransford, 2005).

Conclusion

Martin (1983) stated, “because some teachers themselves did not have the benefit of systematic cognitive development in their own schooling, they are often unprepared to foster cognitive skills in their students” (p.1). The theoretical frameworks discussed reaffirm the notion that a qualitative investigation of the adolescent development and cognitive coursework that preservice teachers undergo allows for the discernment of proper sequencing within their respective curricula. Furthermore, investigating how future educators view their own role within a classroom lends credence to the belief that educators must know who they are before they are able to effectively embrace the totality of teaching. Apprentice teachers as co-researchers can
aide in inspiring the future work of researchers and administrators alike through the assessment of cognitive neuroscience coursework in their theoretical and practical applications. An appreciation and deep understanding of students’ present cognitive level not only has a positive impact within the professional’s role, but also facilitate the growth of teacher training programs to reflect the current research in the cognitive development of adolescence.

Chapter II: Literature Review

Introduction

The development of an individual’s ‘teacher identity’ is a critical step in the process of student teaching (Gaudelli & Ousley, 2009). Teacher preparation programs culminate at the juncture where learning, observing and the future role of the educational leader converge to form the definition of a teacher. As Gaudelli & Ousley (2009) remarked, “a person who sufficiently knows content, pedagogy, and student cognitive and emotional development is able to be effective in a classroom” (p.931). At the onset of pre-service teaching, teacher education manifests itself as a holistic experience embedded in assessments, content knowledge, multiculturalism, and developmental psychology (Marsh & Furlong, 2002). Through these experiences, future teachers begin to lay a foundation of their own identity, one’s “skin” (Gaudelli & Ousley, 2009, p.931), with the understanding that, over time, changes in the educational landscape may occur that will be restorative, protective, and generative to the skin’s outer layer. As these changes occur, a teacher’s identity may reconstitute itself through experience, gaining invaluable insights and opportunities through the professional intersections between teachers and students (Gaudelli & Ousley, 2009). This chapter explores the following bodies of literature: teacher identity, response to education programs, teacher education, adolescence, schools, and the future of education.
Teacher Identity and Its Place in the Classroom

There is great irony with student teaching: student teaching provides an opportunity for students to act as teachers. As Gaudelli & Ousley (2009) posited, the formulation of teacher identity is largely explored through nascent stages of professional training, thus contending that those in teacher-training stages are “struggling with meanings and extents as they labor under the responsibilities of independent and demanding roles that require a reformulation of identity” (p.932). While the struggle undoubtedly exists between expectations of schooling and training, what has also emerged is the gap between teacher education and schools (Smagorinsky, Cook, & Johnson, 2003) and how future educators must navigate and tread the meaningful paths before them.

The National Academy of Education (2005) evaluated the effectiveness of teachers at three stages throughout their career: entry, mid and end-point. Accordingly, in order to determine adequate preparation of teacher candidates based on measurable outcomes, common elements constituting an effective teacher are namely content knowledge, pedagogical knowledge, professional knowledge, skills, and dispositions (NCATE, 2007). NCATE measured teacher competency by evaluating performance “according to socially diffused expectations of what it means to be a teacher” (Gaudelli & Ousley, 2009, p.932). NCATE failed, however, to provide clarity to this formulaic definition of teacher competency. Pinar (2006) argued the role of a teacher is not so prescribed. Possessing targeted pedagogical knowledge is too exacting, as it standardizes the role of a teacher and may instead demote intellectual vigor from the profession as an unintended consequence.

Identity work is a critical component to the formation of a teacher. This reflexive discourse that accompanies the teacher training curriculum allows for “healthy development of
the teacher” while development of self through the pedagogical lens (Gaudelli & Ousley, 2009, p.938). Yet, Britzman (2007) maintained teacher education programs subscribe to a one-size-fits-all mentality, lacking true scholarship or “robust criticality and situated reflection” (as cited in Gaudelli & Ousley, 2009, p. 938). Gaudelli and Ousley’s (2009) phenomenological study provided compelling details as to the limitations of teacher education programs. While a focus on scholarship and content-focused pedagogy remains a driving force behind the profession, what the authors argue is the lack of an “earnest dialogue” about who teachers are and how that teaching is “enacted in particular schools” (Gaudelli & Ousley, 2009, p. 938).

**Response to Teacher Education Programs**

In recent years, the emphasis placed on teacher preparedness and efficacy has illuminated the national lens in regard to student achievement. In 2011, Bell and Youngs investigated the university response to teacher education accreditation. Through a cognitive perspective, the authors deduced that conceptual frameworks emanating from the national level had a positive effect on the program offerings at universities. Prior research on national policy implementation (Achinstein et al., 2004; Frank et al., 2004; Spillane & Thompson, 1997) affirmed the notion that institutions of higher education (IHE) “placed greater emphasis on the assessment of teacher candidates, and implemented data collection systems” (Bell & Youngs, 2011, p.305). While the contributions of this study are critical to understanding what informed accreditation programs and the institutional response in higher education, it failed to address the crux of the overarching issue: coercion by accreditation to focus on tasks versus the essential skills and foundational knowledge that guide and shape pre-service educators. Stone and Friedman (2002) reasoned that national policy implementation creates clear standards within the education sector, resulting in progress towards internal accountability within IHEs - a deemed professional responsibility. An
examination of this study lends credence to the belief stating that the interplay of factors that influence and lay the groundwork for teaching is a decisive mechanism in understanding the quality of teachers entering the U.S. educational system. The variability in student achievement may well be explained (Darling-Hammond, 2000) by institutional responses to state mandates related to teacher preparation programs.

**Teacher Education: A National Crisis**

The correlation between teacher behavior and teacher learning demonstrates a fundamental and dire need to understand their impact within the classroom - on both teaching and learning. Grossman (2008) avowed this fact given the disappointing trends in recent years and the less than influential impact teacher education has imparted on both teacher behavior and teacher learning. A meta-study conducted in 1998 by Wideen, Mayer-Smith, and Moon concluded that the impact of teacher education programs in the United States had minimal effect on actual pedagogical practice within the classroom. Furthermore, the AERA Panel on Research and Teacher Education concluded that there is no substantive evidence backing the claim that teacher education makes an inherent difference in the classroom (Cochran-Smith & Zeichner, 2005). The divide between theory and practice exists within institutions (Korthagen, 2010), exacerbating the fundamental tenets of apprenticeship and teacher education programs. Researchers noted one plausible justification for this divide is the lack of the *insider perspective* point-of-view (Anderson and Herr, 1999). However, Kvale (1996) disputed this, divide through his qualitative approach with “the purpose to obtain a description of the life world with respect to interpreting the meaning of the described phenomena” (p.5). Prior to Kvale’s (1996) assertions, researchers simply judged teachers and schools from the outside-looking-in, void of any anthropological stance in their research and findings (Korthagen, 2010). What has yet to be
reconciled in teacher education programs is the most effective way to learn. Marton (1996) believed in the experiential practice: *I experience, therefore I learn.* Yet, contrast that to DeCorte, Greer, and Verschaffel (1996) and the result is a shift in educational paradigm: *I learn, therefore I experience.*

Profound understanding of developed habits, ideals, strategies and pedagogies align to form effective knowledge-base for future teachers. However, as Korthagen (2010) inferred, any of these in isolation do not lead to effectual training for future teachers. Both social and individual contexts ground themselves within each of the aforementioned categories of the analysis provided by Korthagen (2010) and present strong implications for the future of educators.

**Paying Attention to Adolescence**

Prior research has lead to significant gains in understanding the effects of individual factors leading to school failure in junior high years. Eccles (1983) cited concerns stemming from emotional functioning such as anger, school truancy and misconduct as those that exacerbate motivational declines. From the educational perspective, Eccles (1983) reiterated the parallel between adolescents’ motivation to learn and their effort and achievement. Quantitative studies over the last 10 years have corroborated hypotheses from previous research on adolescent development by linking the strong correlation between academic and cognitive capacity (Roeser, Eccles & Sameroff, 2000). Data gathered throughout these studies lends credence to the notion that adolescents’ perception of academic competence is an invaluable personal resource (Harter, 1985) while also protecting against emotional and behavioral difficulties.

While the research to date has provided a basis for both theoretical and descriptive questions relating to the developmental needs of the early adolescent child and how that
transcends into the middle school years, little has been done to investigate the preparedness of
the educator at facilitating the cognitive growth of their students from year to year. Hunt (1973)
argued the necessity for educators to maintain a developmental perspective in order to “take
account of a student’s contemporaneous needs by providing structure” while understanding the
developmental continuum of the school-aged child (p. 221). There is little to no attention given
the pragmatic correlation between effective pre-service teacher training in the extant cognitive
neuroscience literature and the impact that it bears on understanding the developmental
framework of students in an academic setting. For educators, not having “systematic cognitive
development “ (Martin, 1983) throughout their schooling, the ability to fully understand and
promote cognitive skills within their classrooms would serve as a tremendous asset.

Schools: Promise and Problem

Experience is nourishment. Changes in academic settings throughout adolescence are
both promising and inhibitive. As Roeser, Eccles & Sameroff (2000) asserted, instructional,
interpersonal, and organizational changes are directly correlated with the quality and character
education for adolescents. Dryfoos (1990) maintained that more than half of adolescents
effectively and constructively manage myriad transformations and transitions throughout their
first decade of life. Furthermore, not only are they managed, but managed without any
significant problems (Roeser, Eccles & Sameroff, 2000).

Transitions to middle school. As the years progress and the transition to middle school
begin to occur, the intellectual synapses take hold and social opportunities begin to unfold for
students (Carnegie Council on Adolescent Development, 1989; 1995). Yet, with the
overwhelming statistics of high-risk behaviors (drugs, violence, vandalism), the challenges that
the middle-school generation faces belies the claims of Roeser et al. (2000) in that problems do
exist, and to an alarmingly high degree. With debilitating social conditions that overwhelm school communities and fragment student learning, basic physiological and developmental needs of students are not met (Erikson, 1968).

**Positive environments.** The cultivation of a positive environment in the middle grades is crucial. According to Erickson (1968), the needs of early adolescents and those of middle school students are largely similar. Both require interpersonal, organizational and instructional experiences that aid in their developmental processes to provide consistent, motivational functions. Roeser, Eccles & Sameroff’s (2000) work suggested “many students need more than basic educational services to help them to stay on track to a positive future” (p.467). The Carnegie Council (1989) reported that middle school grades were not meeting requirements, thus falling short of expectations and resulting in the lack of preparedness in students grades 5-9.

**Moving Forward as Educators**

While the literature provides a backdrop on the facets of teacher education and teacher education programs, the focus is principally on either the teacher (student-teacher and/or new teacher) or the student. However, little research has been done to review the reciprocal relationship between the two. With nearly 25% of adolescents in the United States between the ages of 10 and 14 manifesting social, emotional, academic and behavioral difficulties in school, a paradigm shift in identifying and harnessing the source of these issues must be realized. Research must be done to effectively and legitimately analyze the coursework in relation to pre-service teachers and the way in which the coursework can augment successful and optimal understanding of adolescent development.

Roeser, Eccles & Sameroff (2000) emphasized “successful adolescent development requires adult development and vice versa, and middle school environments must be reshaped to
meet the needs of both adolescents and the adults who serve them through the school” (p.468).
Social environments within schools is a difficult course to navigate, yet with qualified teachers who are trained to both identify and comprehend the developmental, academic, social and emotional needs of students requires expertise and patience from scholars, researchers and the school communities. “A fundamental transformation of the education of young adolescents is urgently required” (Carnegie Council on Adolescent Development, 1989, p.36)

Chapter III: Methodology

This chapter will present the research design of the study. The following research questions guided this case study:

Research Questions

1: How might the inclusion of mandatory adolescent development coursework in pre-service and teacher education programs influence the efficacy of future educators in understanding and meeting the needs of their students in developmentally appropriate ways?

2: How could adolescent development coursework be best infused in the teacher preparation curriculum?

A single instrumental case study approach was used to investigate the topic of this study. Defined by Creswell (2007), it is “a qualitative approach in which the investigator explores a case over time, through detailed, in-depth data collection involving multiple sources of information” (p. 73). A qualitative approach allowed the researcher to study a phenomenon in a natural setting and draw conclusions based on the meaning the individual brings to the experience (Denzin and Lincoln, 2000). Within the confines of a single instrumental case study, understanding the complexities of the case is secondary to understanding other facets that may
evolve from the research (Stake, 1994). The investigator identifies the boundaries, and these boundaries (what is and what is not a case) are continually kept in focus (Stake, 1994). This case study is an in-depth exploration (Yin, 2009) of a preservice teacher education program at an independent PreK-8 school in Cambridge, MA.

**Research Design**

As noted, the study was a qualitative research design, specifically a single instrumental case study. Rationale for selecting this type of research design was simply that the research questions were best answered using qualitative methods. Yin (2009) stated case studies should be utilized when the focus of the study is to answer ‘how’ and ‘why’ questions, and when the researcher cannot manipulate the participants within the study. Yin further advised case study research when the researcher sets out to discover the contextual conditions that exist because they believe they are pertinent to the phenomenon under study, and boundaries are not clear between the context and phenomenon. The research study was a single-case design within an independent school (PreK-8). The intention of the instrumental nature of the study is replication at other schools, both public and private, throughout the country (Yin, 2009).

**Research Tradition**

Case study research is based on interviews that are used in a thesis involving a body of knowledge (Creswell, 2007). This methodology was justified in order to investigate the need for adolescent development coursework throughout preservice teacher training, as the object of study was delimited and hence the case was considered a bounded system (Merriam, 1998). The primary investigator used a single, instrumental case study, qualitative in nature, of 12 participants consisting of apprentices, directing teachers, program graduates and program administrators. Creswell (2007) stated this approach is used when “the investigator explores a
case over time, through detailed, in depth data collection involving multiple sources of information” (p. 73). Stake (1994) wrote that the examination of the cases’ complexities is secondary to understanding what may evolve outside of the primary focus. Therefore, the researcher remained open to emergent themes throughout the case exploration. The purpose of this case study was to gain an understanding of how preservice teachers apply coursework throughout their field placements, and to understand the impact adolescent development coursework bears on their teaching outcomes when determining if teachers felt prepared to address the needs of adolescent learners.

Two key approaches guided the case study methodology. Yin (2003, 2006) and Stake (2005) sought to ensure that the research topic was not only thoroughly explored, but that the essence of the phenomena was ultimately revealed. The development of this approach has facilitated an exploration of a phenomenon through a variety of data sources which allows for multiple facets of the stated phenomenon to be both revealed and understood (Stake, 2005; Yin, 2006). As Yin (2003) states, case study methodology allows the researcher to explore organizations or individuals through complex interventions, relationships and constructs through deconstruction of the phenomena and subsequent reconstruction. Case studies have proven to be a valuable methodology in social science research, allowing investigators to develop theories, evaluate programs (as is the case in this study) and develop plausible interventions (Stake, 2005).

Merriam (1998) has made significant contributions over the last twenty-five years in the areas of qualitative research methodologies, specifically those surrounding case studies. Furthermore, Creswell (2007, 2012) advanced the case study approach by providing researchers with effective procedures and guidelines to augment the use of this specific methodology.
Participants

The case study focused on an in-depth exploration (Yin, 2009) of a preservice teacher education program at an independent PreK-8 school in Cambridge, MA. Twelve participants were enrolled in the study. Target population was comprised of current and former educators who were enrolled in or are graduates of an M.Ed. program at one of two local universities, and who also completed their fieldwork at the independent school. To enhance the research study, directing teachers at the institution, alumni of the teacher training course, M.Ed. advisors, and program (teacher training program) administrators were also recruited to participate in the study.

Students enrolled in the M.Ed. program bring varying levels of experience. The population was comprised of graduate students, some of whom have been teachers in classrooms, some were career-changers with no experience in the field of education, and some were returning to graduate school for additional certifications in their respective fields of study in the K-8 sector. Purposeful criterion sampling (Creswell, 2012) was used as a basis for selection. This sampling process was appropriate because participants must meet certain requirements (e.g., preservice or newly trained teachers, those currently enrolled in an apprenticeship program, as well as directing teachers) for inclusion.

Recruitment and Access

The questions at the center of this research allowed the researcher to define the sample; in this case, preservice teacher educators and those who deal directly with them in a specific context, were included. The sample selection allowed all actors, events and processes to be effectively studied, leaving room for emergent themes and ideas (Miles & Huberman, 1994).

Participants were recruited from the teacher training program at an independent school,
given the pseudonym of The Hillsborough School. Access to the research site was approved by the program director and head of school, as the researcher made initial contact with the individuals prior to the inception of the study. Pseudonyms were used for all participants as well as the school site and university to maintain confidentiality at all times. Informed consent was obtained from all participants using a standardized form (see Appendix A). All participants had the option to opt out of the study at any time. No financial or other forms of incentives were to participants.

**Data Collection**

One of the intrinsic elements of conducting case study research is the use of multiple data sources for collection (Creswell, 2009; Stake, 1994; Yin, 2008). Data collection for this study included field notes, participant interviews (semi-structured), document review, direct observations, and participant observations.

**Interviews.** Yin (2009) described participant interviews as “one of the most important sources of information” (p.106). For each of the 12 participants, interviews were conducted for a maximum of 60 minutes. Rubin & Rubin (2012) stated the use of semi-structured interviews requires the investigator to have a pre-planned topic in mind for each interview coupled with a plan for follow-up questions. Rubin & Rubin (2012) advised to begin interview transcription immediately following the communication and translating everything (verbatim) into a word document. This was then uploaded to analysis software. The primary researcher (investigator) was the sole collector of data. Interview data was collected through data recordings, note-taking, and verbatim transcript reviews. For the primary researcher, asking the questions that address the ‘how’s’ and ‘why’s’ of the central issue enabled the participant(s) to feel more comfortable while, at the same time, yielding important research data (Yin, 2009). Interview subjects were
asked to review transcripts and assure that the transcript accurately reflected their thoughts and feelings. This member-checking process was a critical trustworthiness check.

**Document review.** Part of the data collection is document review and the researcher will be describing the program in its entirety in Chapter 4.

**Data Storage**

In order to assure confidentiality of the research data, any and all audio files that were garnered through interviews were stored in four different locations. Rubin & Rubin (2012) suggested computer hard drives. A folder identified as “researcher data-transcriptions” was the location for stored information on the hard drive. In addition, two personal flash drives stored collected data. These flash drives were maintained in a fire safe that was always securely locked. Finally, the data was stored online using both the Google Docs and Dropbox platform. Butin (2010) does warn investigators to not store study data on work computers as this could compromise the confidentiality between participants and researcher. It is critical for all computers and external software devices to be password protected (Butin, 2010). Once the thesis was successfully defended, the files were destroyed.

**Data Analysis**

Analysis is an ongoing process. A multi-step approach creates a more focused, specific and clear interpretation of the data. Merriam (1998, 2001) suggested that data analysis begins at collection as to allow for an illuminated understanding through analysis and interpretation. Data analysis was by the use of third-party interpretive software, MaxQDA, as a mechanism to effectively code the transcribed interviews. Coding of the data is an essential component of the process as it enables the researcher to begin the process of categorization, allowing for designations to “various aspects of one’s data” (Merriam, 1998, p. 164). As defined by Saldaña
coding is either a word or a phrase that is used to summarize thematic elements found within the transcribed data. Software allows for a streamlined process in which the researcher condensed data into analyzable units by assigning tags or labels (Coffey & Atkinson, 1996). Codes are links between connected ideas and/or concepts with specifics pieces of data, so they can be considered “heuristic devices” (p. 27). Coding allows for effective condensing of data, but it also acted to differentiate and combine selected data segments (Miles & Huberman, 1994).

Categories were constructed to code data while regularly comparing and contrasting the data to find throughlines and/or patterns. As Merriam (2001) stated, “recurring patterns” emerged throughout the analysis phase of coding (p. 179). The procedure of coding is seen below:

- Develop a case study data-base (Yin, 1994) for the individual case(s). This consisted of all data collecting mechanisms – interviews, field notes, transcripts, and collected documents.
- Use of MaxQDA software for coding stages (initial coding and subcoding) and color-code thematic elements.
- Merriam (1998) suggests maintaining one master list of concepts. With this in mind, the researcher will enlist this as to ensure recurring regularities and/or patterns are highlighted within the case(s).
- If multiple cases were decided upon, it is at this point that cross-case analysis would emerge.
- Constructed and contextualized data for the research write-up will take place (Denzin, 2000).

Through a qualitative case-study design, the results were both rich and detailed allowing
the researcher to glean a greater depth of knowledge surrounding participant beliefs, perceptions, and understandings. Implications of the research findings were informed by the salient themes that emerged from a thorough review of literature on teacher education and preparation programs.

**Trustworthiness**

Trustworthiness in this study was built by using multiple data points to support the findings. The data collection included questionnaires, interviews, observations, journals and documents (Creswell, 2007). As part of the data triangulation, participants were consulted to check the interpretation and overall research findings of the researcher’s work (i.e., member-checking). A researcher’s reflective journal was used to document as it “supports not only the credibility but also the transferability, dependability and conformability of the study” (Erlandson et al., 1993, p.143). Such a journal ensured that the researcher kept a running record of her thoughts and reflections, as well as her overall research experience. Through the reflective nature of the journal, the researcher wrote about any biases that she may have had and how she intended to handle these biases while collecting, analyzing and interpreting data.

Data was examined using constant comparative analysis (Erlandson et al., 1993) and codes were created, examined and refined as data analysis evolved throughout the course of study. Member-checking and triangulation across methods of data collection occurred on a regular basis to ensure data analysis and emergent themes were both accurate and credible (Lincoln & Guba, 1985).

**Protection of Human Subjects**

Prior to data collection, the study was reviewed and approved through the researcher’s institution’s institutional review board, assuring the protection of human subjects. All
participants were asked to carefully read and affirm that they understood the content of an informed consent form before they participated in the study. Participants had the option to withdraw at any time. All documents (field notes or interview transcripts) were disclosed to the participants to provide a lens into the research and served as an opportunity to review the documents with the participants. Participants’ names were kept confidential to protect their identity, including the labeling of files with assigned pseudonyms and the use of a third party transcription service that had confidentiality protocols in place.

**Chapter IV: Report of Research Findings**

This chapter presents the findings of the data collected both during and after participant experiences within the teacher training program. The purpose of this study was to gain a deeper understanding surrounding mandatory coursework that has been a part of a teacher training program over the last fifteen years and if teachers felt prepared to address the needs of adolescent learners. The selected participants had each been exposed to the program in various capacities. Participants included former apprentice teachers, program administrators, directing teachers and course instructors. Participant voice and input were the major drivers of the study. The data was collected through interviews that were conducted over the span of several months. In some instances, second and third interviews were conducted to gain greater clarity through participant responses. The study used a qualitative case study methodology to investigate the coursework, both mandatory and elective, that drives the teacher training program. The following research questions guided the study:
1. How might the inclusion of mandatory adolescent development coursework in pre-service and teacher education programs influence the efficacy of future educators in understanding and meeting the needs of their students in developmentally appropriate ways?

2. How could adolescent development coursework be best infused in the teacher preparation curriculum?

The first section of this chapter provides a brief overview of the study’s context followed by a description of emergent themes within the data relevant to the research questions that guided the study. The final section presents a summary of the key research findings as assessed through thorough analysis of the collected data.

**Study Context**

The teacher training program (TTP) has graduated over 1,400 apprentice teachers since its inception in 1928. The goal of the well-respected program is to train teachers for rewarding and influential careers in the field of education. Apprentice teachers are accepted into the program as either M.Ed. candidates or as candidates for state teaching certification. In conjunction with two university programs, the apprentices complete a year of coursework (see Appendix I) and field placement in their respective disciplines.

The teacher training program began in 1928 just outside of Boston, Massachusetts. The program accepts between fifteen and twenty apprentices each school year. Apprentices earn teaching certification from the Massachusetts Department of Education. Program highlights include working alongside a directing teacher during field placement at either a private or a public school on the basis of individual interests: early childhood education, elementary education, middle school education, mathematics and science education. The apprentices
complete coursework at both the Hillsborough School as well as at one of two local universities. The primary goal of the coursework is to advance the understanding of the beginning teachers around issues of relevant to teaching school-aged children. Upon successful completion of the program, an initial teaching license is earned from the Commonwealth of Massachusetts and the majority of apprentices will also earn a master’s degree from one of the two accredited universities. Through practical teaching experiences and hands-on learning, the apprenticeship program serves as an innovative and leading model for teacher preparation in the Boston area.

**Participants.** Twelve teachers, administrators and former apprentices participated in interviews for this study. The participants were both male and female and represented a wide range of experience within the teacher training program as exhibited in Table 1 on the following page.
Table 1

*Interview Participants*

| NAME (pseudonym) | Years Experience | Program Graduate | Program Affiliation                                                                 | Current Educator |
|------------------|------------------|------------------|----------------------------------------------------------------~~~~~~~~~~~~~~~~~~~~|------------------|
| Hillary          | 26               | No               | Former Administrator, Current Directing Teacher                                    | Yes              |
| James            | 3                | Yes              | Graduate                                                                           | Yes              |
| Sarah            | 28               | No               | Directing Teacher, Course Instructor                                              | Yes              |
| Cory             | 3                | Yes              | Graduate                                                                           | No               |
| Beth             | 2                | Yes              | Graduate                                                                           | Yes              |
| Genny            | 1                | Yes              | Graduate                                                                           | Yes              |
| John             | 18               | Yes              | Graduate, Directing Teacher                                                        | Yes              |
| Hira             | 20               | Yes              | Graduate, Directing Teacher, Program Administrator                                 | Yes              |
| Kelly            | 12               | No               | Directing Teacher                                                                  | Yes              |
| Calla            | 25               | No               | Directing Teacher, Advisor                                                        | Yes              |
| Lou              | 15               | Yes              | Graduate, Advisor                                                                  | Yes              |
| Diane            | 43               | No               | Learning Services Director, Course Instructor                                      | Yes              |
Findings

In order to fully understand the perspectives and beliefs of the participants within the study, the researcher conducted interviews over the span of several months. The results from those interviews, organized by the two research questions, are reported in this section.

Research question 1. How might the inclusion of mandatory adolescent development coursework in pre-service and teacher education programs influence the efficacy of future educators in understanding and meeting the needs of their students in developmentally appropriate ways? Table 2 highlights themes that emerged throughout the responses from among the interviews.

Table 2

<table>
<thead>
<tr>
<th>Research question #1 emergent themes</th>
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<tbody>
<tr>
<td>Supported and guided instruction remain important elements throughout a teacher’s career</td>
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<tr>
<td>TTP practicum experience pertaining to adolescent development is seen as the most effective tool for increasing teacher efficacy</td>
</tr>
<tr>
<td>Insufficient TTP adolescent development coursework diminishes teacher efficacy</td>
</tr>
<tr>
<td>Understanding the learners in the classroom is an essential task of effective teaching</td>
</tr>
<tr>
<td>Educators feel burdened by the intersection of content and the process of learning</td>
</tr>
</tbody>
</table>

Supported and guided instruction remain important elements throughout a teacher’s career. The participants spoke often about their experiences within education and whether or not they felt adequately prepared to teach 21st century learners. When asked about teacher preparation there was a clear delineation in responses among participant groups. Those who were graduates of the teacher training program spoke of their lived experiences as both
students and apprentices. A first year teacher and graduate of the program found “… the model of the teacher preparation program to be very attractive. I almost did Teach for America in college and it would have been opposite of this program.” She went on to say that she felt the program was dynamic in that it “… allowed for me to have a practical experience in the classroom. I was not just sitting and learning, but rather teaching and doing.” For the newly minted teachers that participated in the study, there was an overall sense of feeling “well-equipped” and ready to enter their own classrooms in the fall.

A core strength of the program, as noted by all participants, is the continued support that apprentices receive throughout the practicum year. Apprentices and veteran teachers noted that this type of professional support is critical in building a strong pedagogical foundation for educators. Additionally, whether a first year teacher or one who has been teaching for several years, being a member of a community that provides support is crucial. Said one participant, “I can honestly say that I need the help of my team on a daily basis. I defer to their guidance in more ways than one and anyone who says this support is not needed is not an effective teacher.” Simply put, supportive working environments breed effective educators.

**TTP practicum experience pertaining to adolescent development is seen as the most effective tool for increasing teacher efficacy.** The recent program graduates each felt compelled to mention the most preparation they received was not through any direct instruction in the classroom setting at the university, but rather when they began their practicum experience. “I think I learned a little bit about the developmentally appropriate activities in my content area in my readings. Some of that I think is I am falling back to the coursework that I did through the program and the training I received.” One former apprentice quipped, “…there are a lot of resources so I can go and read the test results and there are specific people who can help me
interpret them and what they mean. Basically, though, none of my coursework helped me understand what the kids should know and when.”

The directing teachers were eager to speak about their preparedness in the realm of adolescent development and how that can impact the apprentices they welcome into their classrooms each year. In general, the directing teachers felt that they were “well-equipped” to address issues that stemmed from an adolescent perspective in their classroom. Many noted that there is a notion of the “adolescent continuum” and understanding the progression of students from one year to the next is critical. When pushed to comment on this given their role as a directing teacher and their ability to help apprentices, the responses varied. One of the directing teachers remarked that she felt “…apprentices were pretty well grounded in child development where they’re getting it from courses and while they are working with me in the classroom.” Furthermore, nearly all of the directing teachers made mention of their apprentice’s understanding of Maslow and a basic “understanding of child development.”

In summation, a directing teacher qualified the experience of apprentices throughout the teacher training program in the following way:

I think what really enhances the preparation of a teacher, any teacher, is that those two-dimensional words on a page becoming three-dimensional by living with adolescent kids every day and working with a more experienced educator around the nuances of what it means to be an adolescent. I think apprentices struggle with empathizing with adolescents because they are often at the tail end of their own adolescence. The experiences of apprentices within the teacher training program allow for enhanced learning to take place all while providing a practicum environment for apprentice teachers to thrive and acquire knowledge through inquiry and observation.
Insufficient TTP adolescent development coursework diminishes teacher efficacy.

When speaking about overall preparedness as a new teacher, program graduates felt generally prepared. James spoke of his preparation through the lens of adolescent development and felt somewhat confident. He described his first week as an apprentice:

I kind of well, I guess to quantify it. I went at it a 0 not really knowing much and then came out a few notches ahead. On a scale of 1 to 10, maybe a 3 or a 4, which I think is a lot more than, well, I think it is growth compared to where I came in at. But I think actually being at the school I am at, I have experienced even more of an increase. So, from maybe a 3 or a 4 to a 6 or a 7 even in terms of my understanding of some of these, just neuroscience a little and cognitive testing that is done to all these students.

When asked to describe situations or examples that demonstrate lack of preparation in terms of dealing with specific issues that arise under the scope of adolescent development, one apprentice noted that she seeks the advice of another professional:

Really, whenever I have a tough situation with a kid or whenever I am not really sure what’s going on, what I want is for somebody who is better at it than me to come jump in, handle it, and I watch. You know what I mean?

Interestingly, out of the four apprentices, each of them spoke of the one mandated course in adolescent development that they encountered throughout the tenure of their program. They each explained that while the other courses wove some theory into the curriculum, the majority of discussions centered on behavior:

I don’t think anyone really thought about adolescent development that much in my courses. We talk about behavior issues a lot, but I think behavior is thinking of the micro and we need to think of the macro needs of a kid. Why does the kid look sad in class or
yell at you? So much of this is not discussed in the courses we took and thus I can freely say I felt ill-prepared to deal with some underlying issues of my students.

Without question, apprentices welcomed the opportunity to speak about experiences they had throughout the course of their early teaching in which they felt a direct link back to their coursework. One noted, “I could give a scenario from every single day of my first year of teaching this year of what you would do if that I wish I had been forced to think about throughout my classes at the university and practicum last year.” While the coursework did provide an indelible year of learning for the apprentices, they also yearned to continue their quest of professional development and education. As one remarked, “I’ve had expert knowledge and I’ve read some things but somehow I didn’t grab on to it like ‘this is my passion’ and, you know what? I really want to know more about it.” This sentiment was true of not only apprentice teachers but also those directing teachers who served as mentors. In terms of actual support, one apprentice encapsulated the sentiment of his peers when he expressed that there are “bumpy roads” throughout that first year of teaching but the overall preparation seemed “solid and varied.”

**Understanding the learners in the classroom is an essential task of effective teaching.** Throughout each interview with the participants, embedded in their questions and thinking, the reality of education and 21st century learners was discussed in earnest. To put it simply, the field of learners is diversified and the teaching must adapt. A key administrator in the teacher training program noted that a focus in today’s educational marketplace is on English language learners and the program is now forced “to design a much broader multicultural lens on our coursework and what we’re asking our apprentices to think about.” There are both state and national changes (such as a shift in multicultural education, focus on math and science) that have
impacted teacher training programs. As the administrator remarked, “…when it is required of us on the state or federal level we feel very strongly to make the changes as to prepare our teachers to teach anywhere.” Apprentices agreed saying that they felt it was necessary to adapt to the learners and the needs of these learners as ultimately this impacts their teaching and “ability to connect students to the outside world.”

Directing teachers and learning resource personnel were asked about their ability to differentiate instruction to meet the needs of a classroom of learners. One tutor commented, “it is nearly impossible. They can never get rid of tutoring here. No matter what the educational system looks like in this country there will always be a bottom third of learners who need support. Period.” A directing teacher felt strongly about benchmarks and what the responsibilities need to be of the system:

Then there’s the learning disability piece. That’s why the school’s implemented benchmarks just to make sure that they don’t let a kid drop through the net who might have an LD issue that’s undiagnosed. I think for teachers in the lower grades that is hard. I would say I am feeling the accountability movement, how it has impacted the school and all of these learners in my classroom. On the one hand we’re learning more about how people learn and at the same time there’s a lot of standardizing going on at the school right now.

A former apprentice mentioned that it was the teacher training program in conjunction with her practicum that allowed her to “build a unit and structure a lesson…using the backward design and planning toward a goal at all times for all learners in my room.” While a peer agreed that this was a beneficial exercise, she also felt that in her classroom there are “…a disproportionate amount of students with very severe learning needs and teachers need help.”
She went on to say, “What scares me is that I am often sitting in these meetings as a brand new teacher. I can’t help but think, ‘how would I handle being fourteen and told I have a learning disorder that makes me not understand.’”

Many participants noted that their student populations have changed in recent years. One noted, “teachers are telling me that they have a little bit of a different population these days. Their instruction is more explicit, less inquiry-based.” The population has become much more diverse and therefore the student population has changed. The challenge, as each participant noted, was the differentiation of education. For many of the participants, there remained a strong and fervent desire to educate in an engaging and inquiry-based methodology. As one participant stated, “I love the fact that we are constantly putting pieces together and we’re taking them apart and we have both the big and little picture. That is what makes this program so good.”

Learning takes on various forms whether it is kinesthetic, visual or auditory. There are fast learners and slow learners. When educators are introduced to the complexity and variety of learners it is then that teachers begin understanding compassion and knowledge. A former apprentice who recently left teaching said:

The program kind of softened us all to be more compassionate towards everyone else, even those learners you yourself don’t identify with. I think that’s probably a lesson that just takes repeated conversation and just to learn about it to be able to live it is most meaningful.

Throughout the interviews, when the directing teachers were asked to discuss their preparedness and understanding alongside adolescent development, the response was largely the same: “I know some, but not enough.” Among the participants, three were not only current directing teachers but also graduates of the teacher-training program. The directing teachers are
in a unique position in that they are the mentor teachers for the apprentices enrolled in the program. Within that role they carry years of classroom experience, professional development and mentorship. Looking back upon their years as a directing teacher, some found it difficult to identify intrinsic elements that pointed to their effective role as a mentor. In recounting his ability to deal with the myriad students that enter his classroom each year, one teacher explained:

   Am I prepared to deal with all of the different learning issues? There’s a lot out there and a lot we have to deal with and it’s always changing. It’s hard for even experienced teachers to be on top of everything. For a new teacher and my apprentices I think they are pretty well prepared but there are only so many things I can teach them and impart upon them. You’ve got to go out and experience stuff.

As the learners change from year to year within the classrooms, educators must adapt and demonstrate a multifaceted teaching approach to successfully meet the needs of their student population.

   Educators feel burdened by the intersection of content and the process of learning.

The researcher spoke with two administrators who were directly linked to the teacher training program. As a director of learning services, one of the administrators had experience in not only teaching the apprentices in a seminar course, but also working with them to help assess the needs of the students they would encounter each day in their classrooms. When thinking about “what constitutes preparation for teachers” she immediately discussed processes. “What do these students look like in a group of learners and what are the reasonable expectations in the continuum, the vast framework?” She continued, “…you have all that stuff to sort of view what their expectations are, but you need to understand the process behind it.” The administrators commented that the conversations surrounding adolescent development happen frequently in the
educational setting. With the focus on learning and the brain, one administrator quipped that whenever she “…attends learning resource meetings and stuff we are sort of scratching our head and asking ourselves questions that center on this.” Noting that there are myriad factors that contribute to students’ learning and potential learning difficulties, both administrators mentioned that there are significant “executive functioning issues that are sprouting up. Lapses are occurring. We need to ask ourselves, ‘what are the trends that we are seeing and how are we preparing our educators?’

As the topic of learning and teacher preparation was further discussed, what emerged was the idea that schools are not and should not be “isolated silos of learning.” One of the interviewed administrators described this by saying:

Things are interconnected in education today. They are connected in many ways and that is important. That’s what develops brain cells. But at the same time, we have to figure out how are we going to provide the explicit instruction that is needed. How do we train the next generation of teachers and tutors to help in this type of instructional practice?

An enriching conversation ensued between the researcher and the administrator participants in relation to apprentices and their preparation in the teacher education program. When asked about apprentices’ ability to understand the learning of the students throughout their practicum experiences, one administrator stated:

I think that all the apprentices each understand learning, just the concept of learning, and then there’s the ‘what it looks like in Pre and K and grades one, two, three, etc. and all the way up so that they can look at a student and get an idea of where they are developmentally. Because you have a couple of sixth graders in front of you and one may developmentally still be back in that very concrete learning stage that a fourth grader
might be in and another one at the eighth grade level and you have to be able to respond to that. What are they prepared to do?

Administrators each noted that they see emergent trends and patterns in education. Developmentally speaking, educators must be equipped to effectively assess the learning needs of their students in a comprehensive and succinct manner.

**Summary.** Five themes emerged through the data analysis phase of the research. Teacher preparedness underscores the belief that the participants, inclusive of teachers, administrators and former apprentices, recognize the necessity for both new teachers and those who have been in education for some time to receive both supported and guided instruction throughout their years of service. Each participant highlighted the teacher training program as a beacon in its quest to formally educate prospective teachers through well guided experiences where “practice and theory merge masterfully.” While the majority of the participants felt the new wave of teachers to enter the classroom from the teacher training program were well prepared, some of the apprentices expressed some concerns and frustrations; much aligned with those of any first year teacher. Data analysis of discussions surrounding teacher preparation pointed to overwhelming support of practicum experiences, whereas deficiencies did exist in the course setting for apprentices. Directing teachers remarked that the wave of apprentices is improving year after year. There is more focus on the school-aged child and the needs of the learners, thus resulting in this being a prime focus on teacher preparation programs.

The final topic to emerge upon data analysis was the notion of diverse learners. Each participant group stated the need to truly understanding the students in the classrooms and how they best learn. There was a necessity to discuss the continuum of learners from age three right on through the middle school years. Many of the participants struggled with understanding
common diagnoses of their students due to the fact that they felt burdened by the intersection of content and the process of learning. The question was repeatedly asked, “who are the learners in our classrooms and are we equipped to teach them?” Participants expressed a desire to work in an environment of educators that promotes teaching, acceptance and collaboration but not at the expense of learning by way of the students.

Research question 2. How could adolescent development coursework be best infused in the teacher preparation curriculum? Table 3 highlights themes that emerged throughout the responses from among the interviews.

Table 3

Research question #2 emergent themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Description</th>
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<tbody>
<tr>
<td>Infusing adolescent development content through an organic blend across the core academic curriculum is most effective</td>
<td>A combination of experience and coursework is the best way to heighten understanding of adolescent development</td>
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Infusing adolescent development content through an organic blend across the core academic curriculum is most effective. Participants in the study spent a significant amount of time reflecting on coursework that is offered to apprentice teachers in the teacher training program. As noted in Appendix F, there is one course that is both offered and mandated centered around adolescent development. When asked if this was suitable for today’s educator, a directing teacher who is currently enrolled in a master’s program (with emphasis on adolescent and cognitive training) remarked:

After spending a year pursuing a master’s degree in this specific area, it is obvious that the apprentice teachers do not receive anywhere near the adequate training around child and adolescent development. There is a particular void in the area of cognitive as well as
moral capacities, not to mention differentiated learning strategies.

Along with her colleagues, the directing teacher felt an “alarming alacrity” with which students are diagnosed with various learning issues and this necessitates a classroom where the teacher must be specialized to understand the needs of his/her learners. All participants agreed that it is more than challenging to infuse this into an already saturated curriculum. One participant felt that “more often than not, nearly every day, I am faced with another adolescent development issue I didn’t even know existed.”

Of particular note, one of the books that many of the participants recalled was “Yardsticks”, (Wood, 1997). As one of the former apprentices described, “I think the book gives you a very developmental, *this is what their handwriting looks like*, picture.” She went on to say “… you need to look at the reality of the situation. The volume of issues we are dealing in the classroom is vast and one class? Psh. It’s not enough.” Each participant, administrator, directing teacher and apprentice alike, believed that there was great relevance to gaining deeper insights into learning and the best way to understand adolescent development was through experience (practicum) and in a course module. One participant elaborated, “…if I continue teaching seventh and eighth grade students I am going to need more education around this area. That’s all there is to it.”

When asked about a specific course that held particular meaning or relevance, apprentices had a difficult time answering. A former apprentice encapsulated the sentiments of her peers when she stated, “everything we did in the practicum was structured around inquiry-based learning and what skills do we need and want to build in our student. I actually don’t ever think about *one* course. *It was the program* for me.”

A directing teacher recalled a conversation with a former apprentice that detailed “a
specific adolescent development class”. She continued, “my apprentice said it was interesting but that he didn’t learn anything new or mind-blowing. Is that bad?” Another directing teacher recalled her past apprentices and expressed that the very successful “ones are engaged by human and adolescent development and want to be doing more reading around the topic. It’s both theoretical and practical.”

For the majority of the participants, coursework, to them, was hard to recall. They all agreed that being emotionally available and emotionally “intelligent” was necessary, as was the need to understand where the adolescents “are coming from in the classroom, what they are dealing with, and with what emotion.” One of the participants is a graduate of the teacher training program and is currently employed by the school as a tutor in the learning services department. He felt strongly that adolescent development coursework was shunned in teacher education programs:

You don’t see the courses anymore. I don’t recall taking any! I’ve had to learn over time that adolescent development is a learned trait. The whole spectrum of learning disorders sits on top of that, as an overlay. It’s an addition to adolescent development and it is all very complex. Can you learn it in one course? Absolutely not! It needs to be scaffolded in just as we scaffold for our own students. In my experience, the coursework in the teacher education program(s) was around very specific curriculum: math, science, language.

During one of the final interviews, an administrator spent time reflecting on the program and course load of the apprentices. Having been an instructor in the program, she was able to offer valuable insight when she stated, “…we get side tracked by the bells and whistles of the fun stuff. That can happen and it’s great. Yet, we have to remember that before the fun there is
significant learning that must take place around adolescent development. It’s frustrating!

A combination of experience and coursework is the best way to heighten understanding of adolescent development. Regardless of their role within the teacher training program, each participant made mention of the fact that it was critical for them to remain focused on the school-aged child. Many of the directing teachers noted that the age of apprentices, while it can vary, has seen a shift to the younger generation in recent years. One directing teacher explained, “…stay focused on the child. Get back to the child. It’s all about the child. That’s another part of dealing with young teachers. Being a new teacher is very self-involving, understandably. Especially when in their first term as apprentices they are so unaware!” The directing teachers and administrators alike commented that the apprentice teachers spend a great deal of time thinking about lesson plans and execution rather than the students that are in their classroom. One teacher said, “it is maybe in November that they are actually noticing their ‘students’ and thinking about them developmentally. Ah-ha. Now, it all starts to come together.”

Similarly, former apprentices discussed that moment in their practicum when they came to the realization that nothing was scripted. One stated:

Class isn’t scripted, it’s an interaction and there are all these unpredictabilities. Those are terrifying and I suddenly realized that I was not paying attention to the students. What do they know? How do I know what they know? Suddenly I figured it out…I knew nothing.

For another apprentice, he spoke of his experience in a classroom with students who were dyslexic and didn’t get diagnosed until they were students in his classroom. He commented, “I’ve dealt with this firsthand and these students did not get diagnosed until 4th grade. As my directing teacher and I discussed, a developmental window had shut and we lost our opportunity to have an impact.” For apprentices, seeing their directing teachers focus on students and
struggle with their needs is a powerful moment on their path to becoming educators. As one directing teacher said:

They get to see me struggle. I’ve been doing this for twenty-five years but I’m still puzzling through. An apprentice gets to see that. But, you know what else they get to see? They see me never lose sight of the class in front of me. Those students are my priority and I must understand their needs. The apprentices get to be a part of those very conversations with the different experts in our community on behalf of a child. They get to see you don’t just buy a curriculum and package it. Then implement it.

A member of the learning services department spoke eloquently when explaining why the emphasis on the school-aged child is so critical. She stated, “…apprentices must be taught to watch and learn. They need to look at what a kid is ‘telling’ us. They can use a lot of conversational skills to cover up weaknesses yet not develop other learning muscles because they are so good at other stuff.” In her first year of teaching, a former apprentice teacher recalled her practicum year fondly and said, “…I had to remind myself that there is one goal. It’s manageable. It’s to focus on the kids. That’s that.”

**Summary.** When analyzing the coursework available to the apprentice teachers in the program, most felt that there were gaps in learning. While the focus on core academic areas seemed strong and varied, overarching educational themes such as learning issues, curricular planning and most importantly, adolescent development lagged behind. In researching the mandated coursework for the teacher training program at both the university partner and the research site, there was a solo course on adolescent development. The remaining courses centered on core subject areas and grade level classes.

Secondly, all participants expressed a strong desire for their classrooms and the world of
education to ‘focus on the child.’ The prevalent theme of educators remaining dedicated and concentrated on the students before them was expressed time and time again. As one directing teacher articulated, “I just want to watch my students. The time to observe children is now. Because of my job I really get that when kids are socialized into habits of mind at our school in a way that is powerful.”

Summary of Findings

This study was designed to explore the following research questions:

1. How might the inclusion of mandatory adolescent development coursework in preservice and teacher education programs influence the efficacy of future educators in understanding and meeting the needs of their students in developmentally appropriate ways?

2. How could adolescent development coursework be best infused in the teacher preparation curriculum?

This study used a qualitative case study approach that included data collection in the form of interviews. The data collected provided deep insights into the experiences, observations, and recommendations, as well as identified obstacles and challenges that the teachers, apprentices and administrators faced throughout their affiliation with the teacher training program.

The findings suggest that the participants, given their varied backgrounds and experiences, shared common beliefs that teacher preparation is a fundamental aspect to success in the classroom. Alongside preparation, participants highlighted the need for understanding the learners within the classrooms as well as the learning challenges that face the school-aged children of today. While a general sense of preparedness paved the way for graduates of the teacher training program, frustrations and concerns still exist. As content and the process of
learning coalesce in classrooms, findings point to the necessity that promote teaching and learning in a collaborative sense, not at the expense of the students.

In the next chapter, the researcher will discuss how these finding relate to the theoretical framework and literature on topic, and then form conclusions and recommendations for future research.

**Chapter V: Summary of Findings and Recommendations**

This chapter will review the problem of practice and methodology for the study. Major findings of the research will be presented and discussed. Findings will also be presented within the contexts of both the theoretical framework and literature review. The conclusion of the chapter will detail the significance this study bears upon teacher training programs and recommendations for future research within the field.

**Revisiting the Problem of Practice**

This qualitative research study sought to investigate the necessity for adolescent development course offerings within a reputable teacher training program in an independent PreK-8 school in suburban Boston, Massachusetts. The goal was to identify if there was an intrinsic need for a more comprehensive approach in adolescent development coursework. The researcher investigated the preparedness of the educators at facilitating the cognitive growth of their students from year to year.

This study considers the underlying issue that there is little or no attention given to the correlation between effective pre-service teacher training in adolescent development and the impact it bears on understanding the continuum of the school-aged child in an academic setting. In order to realize the full potential of the students within the 21st century classroom, effective teachers must continually add to their range of practice and commit to a deep and inclusive
understanding of adolescent development.

Discussion of the Research Findings

Through a careful data analysis inclusive of first and second cycle coding (Saldaña, 2009) involving nearly 300 pages of interview transcripts, documents detailing course offerings and program specifications, this study explored the teacher training program at an independent, coeducational day school just outside of Boston, Massachusetts. Study findings yielded that while administrators, directing teachers and apprentices all had quite favorable views of the overall program and practicum experience for those involved in the teacher training program, there was a definite need for coursework that supported teachers’ understanding in adolescent development. While various themes emerged, three major findings were identified from the analyzed data across teacher, apprentice, and administrator interviews. Table 4 presents these findings:

Table 4

<table>
<thead>
<tr>
<th>Major findings identified by teachers, apprentices and administrators</th>
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<tr>
<td>Traditional teacher preparation programs are necessary</td>
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<tr>
<td>Ongoing professional development is necessary</td>
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<tr>
<td>Adolescent development coursework in teacher training programs is recommended</td>
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Traditional teacher preparation programs are necessary. A clear and consistent theme expressed by all participants within the study was the belief that traditional teacher preparation programs are necessary for anyone seeking to enter the field of education. Each participant detailed significant experience within the teacher training program, whether that was as a student, teacher or administrator. The participants that were former apprentices within the program stated their intrinsic desire to enter into a program that taught them how to become
teachers while earning certification through a state-endorsed program. Furthermore, they mentioned that not only was the program endorsed, but that they were learning alongside directing teachers who had been educators for five, ten, twenty years. As one former apprentice said, “I think that the combination of getting a master’s degree and the licensure/practicum would give me the best shot and being prepared and finding a job.”

When speaking of the traditional course of teacher preparation, a TTP instructor and school administrator spoke passionately about the need for such a program to even exist when she said, “…we need to teach future educators how to think about teaching. How to get them to the point to help their students to the best of their ability is critical.” With traditionally prepared teachers remaining in the field of education longer than those who were alternatively prepared (Boyd, Grossman, Lankford, Loeb & Wykoff, 2006), the participants reiterated the requirement for structured training to exist for newly minted teachers.

Working alongside a mentor or directing teacher prepares the apprentices in more ways than one. Said one apprentice, “…I have the ability to place theory in the hands of practice. I can scan the class, address individual learning needs and enact lesson plans accordingly.” This type of practical learning trains future educators in teaching methods and successful pedagogical practice while learning to address the cognitive needs of their students.

**Ongoing professional development is necessary.** For each participant, there was an overwhelming desire to discuss their role as an educator in terms of what they do not know. While this study researched the need for adolescent development coursework in teacher training programs, the participants were eager to discuss their fervent desires to engage in more ongoing professional development (PD). Many spoke of PD initiatives within their current schools that began and suddenly stopped, “…we have all of this meeting time but I don’t think we use it as
well as we should. I think right there, that’s the way I could make myself a more effective teacher.” Participants who were former apprentices spoke candidly about their experiences in classrooms during their practicum year. For them, this was the most eye-opening and constructive point during their training. During the interviews, teachers and administrators discussed their desires to further their professional careers through PD opportunities. Said one participant, “…let’s do something on the brain, or let’s spend the month of September on executive functioning.” As the participants discussed, thoughtful reflection surrounding their practice propelled them toward effective teaching.

Adolescent development coursework in teacher training programs is recommended. No matter the role of the participant, each explained that teaching must not only meet the needs of students but also create a meaningful learning environment. In order to do so, as one teacher explained, “…including students as active participants in the learning process” generates a classroom that promotes a sense of caring for the student and adapting without being overwhelmed by outside pressures. Reflecting on the teacher training program was a positive experience for the participants yet each expressed a desire to see more coursework steeped in adolescent development. Directing teachers explained that their years of experience provided them with a more “adolescent lens” when asked to decipher and understand the scope of their students’ learning. However, for the apprentices, their lack of experience was, to them, a detriment. One former apprentice stated, “I found myself working backwards from the unknowns to the givens and this was tremendously difficult.” Shanteau (1992) states that experts tend to “reason forward” (p.13), providing them with an ability to problem solve in a way that a more novice teacher or apprentice is unable to think. To this point, a first year teacher said, “…if I knew more in the realm of adolescent development I could turn to recognizing instead of
Infusing adolescent development theories and constructs into the comprehensive teacher training program would foster the developmental approach of teaching for apprentices. This type of accumulation of knowledge and observations in adolescent development from subject to subject will enable educators, both novice and expert, to make informed decisions from previous insights. Good teaching, participants explained, requires “…a facility in not only curricular understanding but also that of how and why our students think and learn.” To this point, educators must be adept in examining the cognitive capacities of students in a way that allows them to meet the requirements for the academic growth of the individual child.

**Summary.** These findings suggest that teacher preparation begins early on in the educator’s career and continues well into their profession. Teacher training programs are a vital aspect to the successful preparation of future educators. However, preparation does not end at the inception of their career. Professional development must continue for educators to enhance teaching, improve curricular understanding, and allow for proper reflection and opportunity to engage with other professionals. Central participants in a community of practice can provide a powerful motivation of learning.

**Findings in Relation to the Theoretical Framework**

There was a perceived gap among the defined frameworks detailed within this study (Fuller & Brown, 1975; Levine, 2003; Shulman, 1986). Through alignment, a more comprehensive understanding reaffirmed the notion that an appreciation and deep understanding of students’ present cognitive level will not only have a positive impact within the professional’s role, but also facilitate the growth of teacher training programs to reflect the current research in the cognitive development of adolescence.
The findings from this study were examined through the three framework lenses of pedagogical content knowledge theory, neurodevelopmental framework for effective teaching theory, and teacher development theory. Together, these theories coalesced to form an understanding of the cognitive constructs within education for the newly minted teacher.

**Theory of pedagogical content knowledge.** The teacher training program is a one year practicum for apprentice teachers to gain experience in the classroom while earning licensure and/or master’s degree in education. The experiences of the apprentices during their field placements provided them with a learned opportunity to reason, reflect and transform (Shulman, 1986) throughout their practice. The graduates of the TTP expressed a strong desire to maintain the course structure within the program. Shulman’s (1986) theory provides a strong foundation for this study as it perpetuates the belief that teachers entering the field must possess the requisite skills needed to develop and enhance the curriculum with the students’ present cognitive level in mind. The participants within the study reflected on the role of the educator and often embodied Shulman’s (1986) theory when they stated that educators must make curricular decisions that are crucial to effective teaching and student understanding. One educator made a powerful assertion when he said the following, “…I need to think, really think, about my role as a teacher each day and what the content is that I am presenting. Am I armed with the tools for effective delivery and dissemination of curriculum?” The findings support this theoretical construct and purport the professional awareness that teachers must be able to integrate, transform, and represent subject matter knowledge in a way that is both accessible and comprehensible to students.

**Neurodevelopmental framework for effective teaching.** Findings reported from the study support Levine’s (2003) neurodevelopmental framework for effective teaching. According to Levine (2003), teachers have an obligation to model teaching and learning in a way that
allows students to access their own individual learning modalities. Throughout the interviews, participants commented that the TTP enabled apprentice teachers to hone in on individual learning styles of students and focus on metacognitive strategies that they would implement in lesson plans and employ in classroom settings. Levine (2003) focused on promoting a deeper connection between teacher and student in order to build an engaging and complex learning environment. An inherent aspect for the TTP is building this type of learning environment for the apprentice teachers as their teaching is fostered by directing teachers and, concurrently, their teaching is challenged by students. For apprentices and teachers alike, Levine’s neurodevelopmental construct promotes the ideals of the TTP and highlights the system of learning that is all-encompassing.

**Theory of teacher development.** Becoming a teacher is a process. The theory of teacher development (Fuller & Brown, 1975) informed the researcher throughout the study when analyzing teachers at each stage of their careers. Fuller & Brown’s (1975) theory provides a backdrop for education practices at the various points throughout a teacher’s career. When speaking about her journey, one of the directing teachers said the following:

> If only I had known about reflecting on my practice when I was a young teacher. I went straight from college into a teaching situation with some light mentorship, but I really felt like it could have saved me eight or nine years of my career had I entered a teacher training program like this one. I would have done it. I just didn’t know they existed, and, I didn’t want to go to education school. I didn’t want to do that. That’s all of the curriculum design, classroom management and coaching. Man, did I need it. It took me a long time to realize this. What a process teaching is, don’t you think?”

This comment speaks to the journey of educators and how they come to understand their role
within the classroom. Another educator, also a program graduate, remarked that each experience of a teacher acts “…as a gateway to build personal teaching.” The findings of this study support what Fuller and Brown (1975) offer as a means for understanding the critical needs of teachers throughout their careers, whether as novice teachers or those with years of experience behind them.

**Findings in Relation to the Literature Review**

The study supported the current research on teacher education and teacher training programs in the United States. The literature review in the study examined teacher identity, a national response to teacher education programs, adolescence, and the impact all of these have within the schools in this country. The findings reported in this study have a relevant connection to the work presented in chapter two.

Several bodies of literature reviewed on teacher identity suggested that the formation of a teacher often begins during professional training (Britzman, 2007; Gaudelli & Ousley, 2009; Smagorinsky, Cook & Johnson, 2003). The teacher training program that was the focus of this study places a great emphasis on the formation of the teacher. From the time of acceptance into the program until the point of graduation, the apprentices are under the watchful eye of a directing teacher who carefully helps guide and instruct them. One of the major facets of this journey is the creation of their own identity as a teacher. The apprentices’ experiences within the TTP are consistent with Gaudelli & Ousley’s (2009) assertion that experiences over the course of one’s teaching lifetime create the opportunities and professional intersections between teachers and students.

While there is a great deal of literature that points to the lack of student successes in the middle school years (Eccles, 1983) stemming from emotional functioning or lack thereof,
research is lacking on ways to help new educators target early and how teachers may facilitate the cognitive growth of their students. This gap in the body of literature validated the need for the current research study as it presented a deeper look into the specific coursework that was offered for new teachers in training as well as targeted coursework that was deemed crucial for the future efficacy of educators.

The participants frequently noted that the students of today are meeting greater demands both academically and socially. With greater demands put upon them, responsibilities of the teachers begin to shift and take on greater meaning. Participants raised concerns such as, “we have a greater range of focus these days” and “students have learning needs that should be addressed and identified early on in their academic careers.” Roeser et al. (2000) explain that basic developmental needs of students are often not met once the intellectual synapses begin to take hold as the transition to the middle grades occurs. The findings of the study revealed that identifying the needs of the earliest learners is a decisive first step in ensuring that academic services and supports were in place (Roeser, Eccles & Sameroff, 2000) as students reached the middle grades.

The literature reviewed on teacher education showed disappointing trends in recent years (Grossman, 2008) in terms of the impact it bears on actual pedagogical practices. The teacher training program reviewed in this case study has graduated thousands of teachers over the course of its eighty plus years. The literature served as a critical component for the researcher to study the specific site and program which merged a successful apprenticeship and teacher education course. The findings in the current study not only promote the necessity for teachers to truly understand the learners before them in the classroom, but to embrace the diversity of learners within the 21st century.
Teacher education is facing a national crisis. With both traditional and nontraditional programs available to those seeking jobs or entry points into the profession, the trends are disappointing, pointing to a less than influential impact within the classroom. The literature reviewed in the study pointed to a demonstrated need for the reshaping of the environments that serve both students and educators. The results provided in this study fill this gap in literature by providing a reliable solution which is to further coursework in the teacher training program surrounding adolescent development within the K-12 spectrum. This will allow for successful and optimal understanding of the school-aged child.

Practitioner and Scholarly Significance

Teacher training programs in the United States are under scrutiny. In recent months, a national conversation has emerged as to the validity of such programs and their efficacy in producing successful educators. Graduates of teacher training and teacher education programs must be ready to enter classrooms and make informed decisions regarding, not only curriculum, but also their students. With an understanding of the school-aged child, newly minted teachers will undoubtedly have a positive impact in their students’ learning in both a general and specific sense.

This study was conducted to gain a deeper understanding surrounding coursework that has been a part of a teacher training program over the last fifteen years and whether teachers felt prepared to address the needs of adolescent learners in their respective classrooms. Administrators and educators can recommit themselves in knowing how to assist students with learning differences, assess and scaffold learning, and make judgments in relation to students’ needs that will result in long-term academic gains as they set out to create an academic environment that is transformational. Apprentice teachers will feel confident as co-researchers
and be compelled to aide in inspiring the future work of researchers and administrators alike, through the assessment of cognitive neuroscience coursework in their theoretical and practical applications.

The data gathered was conclusive that mandatory coursework in the realm of adolescent development was a necessity for all educators. Throughout the study, the researcher came to the conclusion that each participant involved with the teacher training program gleaned deep insights from coursework that focused on adolescent development. However, there were definite deficiencies when it came to course offerings. As noted, one course was available for graduate students. While the graduates of the program spoke highly of their practicum experience, each verbalize a desire to “dig a little deeper” into the adolescent continuum as to better prepare themselves for the classroom in September. Simply put, they felt there was “so much more to learn.”

This study will be helpful to districts both in the state of Massachusetts and beyond, specifically those districts and schools with teacher training/apprentice programs in place. The time has come for a reevaluation of the teacher preparation programs while challenging administrators as to the efficacy of the coursework and preparedness of the future teachers. It will be crucial for program administrators and state officials to ensure effective dissemination of information while promoting a sense of preparedness for all newly minted teachers.

The researcher addressed the perceived gap among the frameworks detailed within this study. Through this alignment, a more comprehensive understanding reaffirmed the notion that an appreciation and deep understanding of students’ present cognitive level will not only have a positive impact within the professional’s role, but also facilitate the growth of teacher training programs to reflect the current research in the adolescent development of the school-aged child.
Conclusions

This study has afforded the researcher a tremendous opportunity to reflect on a substantive and well-established teacher training program that first opened its doors nearly ninety years ago. Through interviews conducted with former apprentices, directing teachers, program administrators and course instructors, the researcher gleaned valuable insights into the hallmark characteristics that differentiate Hillsborough School’s teacher training program from those in surrounding communities. Study participants praised the preparation this program provides to future teachers, cohesion, camaraderie and support for educators, and the path it has paved for similar programs to follow suit. The data consistently illustrates a structured, dynamic and overall positive experience for all involved with the program. The program has successfully evolved each year and the data presented in this study supports curricular evolvement in the field of adolescent development in order to effectively prepare and train future educators.

Transferability Limitations

While chapter III of this study addressed some of the limitations in relation to the study design, it is important to understand the limited scope of the research to place the data results and implications in context. Furthermore, by way of addressing the limitations, the researcher will suggest areas of future research. Given the small number of participants within the study, the ability to generalize the findings will be limited (Mears, 2009). Limitations of the research within the confines of case study design are “generalizeable to theoretical propositions and not populations or universes” (Yin, 2009, p.15). The research for this case study took place at a single site. There were only twelve participants at the single site and the researcher was known to each of the participants. Limiting the study to one site does make it difficult to generalize the findings to larger, public and urban districts. As findings from this case study cannot be widely
transferable, there is great promise in future contributions to both practice and study as teacher training programs continue to evolve and adapt with the 21\textsuperscript{st} century learners. Noting that myriad teacher training programs exist both locally and nationally, it would be beneficial to study the changes and adaptations of such programs in the coming years in relation to the actions with this work.

**Future Research**

The study contributed to the perceived gap in preservice teacher education that existed for future educators to maintain a developmental perspective in order to “take account of a student’s contemporaneous needs by providing structure” (Hunt, 1975, p. 221) while understanding the developmental continuum of the school-aged child. More importantly, the researcher bridged the gap between the preparedness of tomorrow’s educator and their understanding of their students’ cognitive capacity.

Building from the research on teacher training programs, there exists opportunities for future research, including:

- Analyzing teacher preparation programs’ coursework to reflect multifaceted curricula in core academic areas with an emphasis in adolescent development
- Continue professional development in schools for educators that promotes critical thinking, perception and understanding of 21\textsuperscript{st} century learners
- Investigating other teacher training models and programs to enhance the current practice of the TTP
- Survey high school dropouts about their early academic careers to identify potential correlations between missed learning diagnoses and the realization of one or more risk factors
• Perform a longitudinal study tracking student performance alongside teacher experience to characterize the potential correlation between student success rates and adolescent development training during a teacher training program for newly minted teachers.

Recent studies have linked teacher preparation and student achievement and this is a targeted area of research, and one that is in the national spotlight. It is recommended that all teacher training programs implement mandatory coursework surrounding adolescent development, as it is a fundamental aspect missing in the course structure of myriad apprenticeship and teacher education programs.

**Personal Reflection**

Ten years ago I made a life changing decision. When I was eighteen I left for college and headed to Washington, DC. I had long wanted to pursue a career in business and, with this in mind, I decided on a major in International Finance. I graduated and took a job as an accountant for State Street Bank in Boston. I was seeking the challenges of my work and chasing new opportunities, but I never felt fulfilled. I decided to apply to business school in order to continue the learning process while bettering myself, professionally. However, twenty-four hours prior to mailing B School applications, I made a decision—and I never looked back.

The next summer I found myself, not as an accountant, but as a nanny who was enrolled in a full-time masters program in education. I left a lucrative career and followed my heart. I never looked back, yet I continually look forward.

Being a teacher has afforded me tremendous opportunities and enables me to see the strong, reciprocal relationship between a teacher and his/her students. Everyday I learn something new; I challenge myself and push myself to be the best educator I can be. That
decision I made nine years ago still fuels me. The next chapter of my life is just beginning with this earned doctorate. I have attended numerous conferences on adolescent brain development, learning, and differentiated curriculum instruction. I am thrilled to share my research with the educational community that I am a part of with the goal of helping those who are becoming teachers. There is so much to learn and there is a great deal of support needed!

My research has only further reminded me to evaluate each student with a holistic approach: read each and every evaluation, talk to practitioners, and continue conducting my own research regarding the cognitive development of those I teach. This aspect of teaching is critical and necessary to fully comprehend the how’s and why’s of both learning and teaching. Through my own professional development the most important lesson I have learned is that there is always more research to be done in the field of education. I want to evolve from a dedicated teacher to an informed educator driven to shape educational philosophy. Education needs to be an evolutionary science in the eyes of teachers.

In closing, a quote by the late Mr. Jim Henson truly encapsulates my life as a teacher. It reads:

I cannot say why I am good at what I do, but I can say that I work very hard at it. Nor am I aware of any conscious career decisions. I’ve always found that one thing leads to another, and that I’ve moved from project to project in a natural progression. Perhaps one thing that has helped me in achieving my goals is that I sincerely believe in what I do, and get great pleasure from it. I feel very fortunate because I can do what I love to do.
References


classroom: Motivational and informational components. *Developmental Psychology, 17*, 300-312.


Appendix A: Informed Consent Form

The purpose of this qualitative study is to explore the correlation between effective pre-service teacher training in cognitive neuroscience and the impact that bears on understanding the developmental framework of students in an academic setting at affective and cognitive levels. This study is expected to generate some benefits toward professional development for newly minted teachers as well as those already in the field. In this study, I will first conduct an informal questionnaire to know briefly about each participant. Then, I will ask all the participants to keep a collaborative journal together (including me) and attend bi-weekly meetings to discuss journal entries. Some general guidelines for journaling will be provided in a bi-weekly meeting before we begin journaling. While keeping the collaborative journal and participating in bi-weekly meetings, I would like to hear about your experiences of collaborative journaling and discuss journal entries individually.

The information obtained in this study will be used for my dissertation project. However, your name will not be disclosed in the dissertation. Your participation in this study is voluntary. You are free not to participate in or to withdraw from the study at any time. Your decision will not result in any loss of benefits to which you are entitled. If you choose to participate, you may withdraw at any time by notifying me. Upon your request to withdraw, all information pertaining to you will be destroyed. If you choose to participate, all the information will be kept in strict confidence and will have no bearing on the grades given to you or services you received from your schools or field placement.

If you are willing to take part in this study, please sign the statement on this form and submit it to me. If you would like to contact either me or the faculty co-investigator, please use the address given on this form. Thank you very much for your cooperation.

Sincerely,
Kara L. Morton

Contact Information:
Kara L. Morton

Morton.ka@husky.neu.edu

508.963.4532

I have read and understood the information on the form, and I consent to volunteer to be a part of this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this Informed Consent Form to keep in my possession.

Name (please print): _____________________________________________
Signature: ______________________________________________________
E-mail address: __________________________________________________
Phone number or location where I can be reached: ___________________
Appendix B: Initial Participant Recruitment Letter – e-mail

November, 2013

Dear Colleagues,

As many of you know I am currently enrolled in a doctoral program at Northeastern University and I am in the process of completing the dissertation stage of the program. My research is focused on teacher training programs and the scope and sequence of cognitive development coursework within preservice teacher education. The project title is: Teacher Training Programs; *Through a Cognitive Lens*. The practical goal of this study is to identify, through a case study approach, whether there is a definitive need for cognitive development coursework for those enrolled in teacher education programs.

You are being asked to participate for the following reasons:

- Your experience within the Teacher Training Course (TTP) at the Hillsborough school; (pseudonyms)
- Your unique experience as either an apprentice, school leader, directing teacher or advisor at Hillsborough during multiple phases of the TTP initiative including its implementation and sustainment;
- Your thorough understanding of the TTP program including but not limited to coursework, professional development training including workshops, conferences and site visits;
- Your demonstrated skills as a thoughtful and interactive communicator sharing thoughts, ideas, beliefs, reflections as well as your extremely proficient verbal and written communication skills;
- Your established relationship of trust and professional respect with colleagues;
- Your willingness and availability to further educational research and reform.

I am currently looking for your insights as apprentices, teachers and administrators that have been connected to the Teacher Training Course (TTP) at Hillsborough School. The purpose of the evaluation is to investigate to what extent your coursework and/or experience within the program focused on adolescent development and how, if at all, it augmented your teaching within the classroom setting.

By participating, you will provide a lens into the TTP and teacher training programs by reflecting on both your experience within the program and the impact it has had (or will have) on your professional career. Participating in this study would entail participating in email communication and an in person interview. Subsequent interviews may be necessary given the scope of the research.

At this time, I am looking for an initial interest response from apprentices, administrators and
teachers that participated in the Teacher Training Program. Please be aware that agreeing or not agreeing to participate in this study will have no reflection on your work within your districts, school or system as a teacher or administrator. Also, any participation in the study will be completely confidential; names and other personal information will not be used.

Please respond via e-mail to Morton.ka@husky.neu.edu if you are interested or have any questions. Thank you in advance for your time.

Sincerely,

Kara L. Morton

Math Department
Appendix C: Recruitment Letter

Dear Colleagues and former Apprentices,

I hope this email finds you all doing well and gearing up for the holiday season. I am writing to ask for your participation in my doctoral research study that is in the final stages. Your input would be greatly appreciated. I am in my 7th year at Hillsborough and a few years ago I decided to return to the classroom and begin work towards a Doctorate in Educational Leadership. Below, I have outlined the study and provided you with some intrinsic information regarding the research.

As stated, I am currently enrolled in a doctoral program at Northeastern University and I am in the process of completing the dissertation stage of the program. My research is focused on teacher training programs and the scope and sequence of cognitive development coursework within preservice teacher education. The project title is: Teacher Training Programs; Through a Cognitive Lens. The practical goal of this study is to identify, through a case study approach, whether there is a definitive need for cognitive development coursework for those enrolled in teacher education programs.

You are being asked to participate for the following reasons:
- Your experience within the Teacher Training Course (TTP) at the Hillsborough school;
- Your unique experience as either an apprentice, school leader, directing teacher or advisor at Hillsborough during multiple phases of the TTP initiative including its implementation and sustainment;
- Your thorough understanding of the TTP program including but not limited to coursework, professional development training including workshops, conferences and site visits;
- Your demonstrated skills as a thoughtful and interactive communicator sharing thoughts, ideas, beliefs, reflections as well as your extremely proficient verbal and written communication skills;
- Your established relationship of trust and professional respect with colleagues;
- Your willingness and availability to further educational research and reform.

I am currently looking for your insights as apprentices, teachers and administrators that have been connected to the Teacher Training Course (TTP) at Hillsborough School. The purpose of the evaluation is to investigate to what extent your coursework and/or experience within the program focused on adolescent development and how, if at all, it augmented your teaching within the classroom setting.

By participating, you will provide a lens into the TTP and teacher training programs by reflecting on both your experience within the program and the impact it has had (or will have) on your
professional career. Participating in this study would entail participating in email communication and an in person interview. Subsequent interviews may be necessary given the scope of the research.

At this time, I am looking for an initial interest response from apprentices, administrators and teachers that participated in the Teacher Training Program. Please be aware that agreeing or not agreeing to participate in this study will have no reflection on your work within your districts, school or system as a teacher or administrator. Also, any participation in the study will be completely confidential; names and other personal information will not be used. All information gathered, once published in the dissertation, will be shared with all participants and the institution.

Please respond via e-mail to [Link]kara.morton@shs.org or Morton.ka@husky.neu.edu by Monday 12/16/13 if you are interested or have any questions. Thank you in advance for your time. I sincerely appreciate your consideration.

Sincerely,

Kara L. Morton
Math Department
Appendix D: Unsigned Informed Consent for Participants

Northeastern University College of Professional Studies Department of Education

Researcher: Kara Morton, Candidate Ed.D. Northeastern University

Principal Investigator and Advisor: Sara Ewell, Ph.D. co-leader of the Curriculum, Teaching, Learning, and Leadership concentration, Doctoral Programs, College of Professional Studies, Northeastern University

Title of Project: Teacher Training Programs: Through a Cognitive Lens

Introduction

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

Participation Criteria

You are being asked to participate in this study because of the following:

- Your experience within the Teacher Training Course (TTP) at the Hillsborough school;
- Your unique experience as either a school leader, directing teacher or advisor at Hillsborough during multiple phases of the TTP initiative including its implementation and sustainment;
- Your thorough understanding of the TTP program including but not limited to coursework, professional development training including workshops, conferences and site visits;
- Your demonstrated skills as a thoughtful and interactive communicator sharing thoughts, ideas, beliefs, reflections as well as your extremely proficient verbal and written communication skills;
- Your established relationship of trust and professional respect with colleagues;
- Your willingness and availability to further educational research and reform.
Purpose of this Study

The current study will inform practitioners through the lens of cognitive training, and allows for the discernment of effective content through proper sequencing within their respective curricula. Administrators and educators can recommit themselves to knowing and understanding their students as they set out to create an academic environment that is transformational. Apprentice teachers as co-researchers can aide in inspiring the future work of researchers and administrators alike, through the assessment of cognitive neuroscience coursework in their theoretical and practical applications.

As a Participant – What You Will Do

If you decide to take part in this study, you will be asked to do the following:

- Participate in one interview lasting approximately 2 hours or two shorter interviews lasting approximately 1 hour each. These interviews will include in-depth, semi-structured questions to be administered by the researcher to each participant in a private setting such as the school leader’s office or school conference room. There will be an opportunity for free flow of ideas, thoughts, reflections, beliefs. There will also be an interchange of responses between the researcher and participant during the interview(s). With your permission – the interview will be audiotaped.

- Participate in online surveys that will ask about your participate, knowledge and understanding of the TTP program.

- If necessary for purposes of clarification and at the request of either the researcher or the participant, you will also be asked to participate in short, follow up verbal conversations with the researcher for purposes of clarification of earlier shared information during the interview(s). These conversations are not required or scheduled but will allow for additional clarification and a free flow of ongoing interaction if requested by either the researcher or participant.

- In addition, if necessary for the purposes of clarification and at the request of either the researcher or the participant, you will also be asked to participate in short, follow up written documentation (probably emails) with the researcher for purposes of clarification of earlier shared information during the interview(s). This documentation isn’t required or scheduled but allows for a free flow of ongoing interaction if requested by either the researcher or participant.
Completely Voluntary Participation with No Risk, Discomfort or Cost

Your decision to participate in this research study is completely voluntary as is your continued participation. Even if you begin the study, you may quit at any time. Even if you do not participate or if you decide to quit, you will not lose any rights benefits or services that you would otherwise have. You may choose not to answer any interview question and may leave the interview location at any time. There is no risk, discomfort or cost for you as a participant. Because there is no potential for risk or discomfort to the participant, no special arrangements will be made for compensation or for payment of treatment solely because of your participation in this research.

Benefit to the Participant

There is no remuneration for participation in this study or direct benefit to you for your participation in this study. However, by reflecting on and sharing your practices of successful school leadership in this study you will significantly add to the body of education literature on the leadership practices in a successful professional learning community. Your participation in this study will help other education scholars and leaders better understand and discover meaning about preservice teacher training programs and the coursework that allows future educators to develop and improve upon their practice, and perhaps their own professional learning communities as well.

Confidentiality

Your responses in this study will remain strictly confidential. The following process of data collection, transcription, reporting, storage and disposal will be followed:

- With your permission, your interview questions will be audiotaped, however, your responses will be transcribed through a coding process that does not match your responses to your identity.

- The audiotapes will be stored with this Informed Consent Agreement at a secure location and destroyed when the research report (dissertation) is completed and approved.

- The written findings in the research report (dissertation) will be based on transcribed data and will not identify or attribute your responses in anyway.

- As required by Northeastern University, the Informed Consent Agreement will be saved for 3 years. In rare instances, authorized people may request to see research information about you and other people in this study. This is done only to be sure that the research is done properly. Only those people who are authorized by organizations such as Northeastern University will be permitted to see this information.

Contact

If you have any questions about this study please contact the researcher Kara Morton at Morton.ka@husky.neu.edu and/or the Principal Investigator and Advisor Sara Ewell, Ph.D., co-leader of the Curriculum, Teaching, Learning, and Leadership concentration, s.ewell@neu.edu
If you have any questions about your rights as a participant, you may also contact Nan C. Regina, Director, Human Subject Research Protection, 960 Renaissance Park, Northeastern University Boston, MA 02115, 617-373-7570, irb@neu.edu.

Signature of Approval

Signing below indicates you have heard the explanation of the study verbally by the researcher, read and/or verbally heard this agreement read to you by the researcher and you agree to take part in this study.

I ____________________ agree to take part in this research. Name of participant
_____________________________________ Signature of Participant

Date _________________

_____________________________________ Printed Name of Person Above

Date _________________

_____________________________________ Signature of Person who explained (if needed)

Date _________________
Appendix E: Letter of Request to Site Access

Dear Mark and Des,

Thank you for taking the time to speak to me regarding my study. In accordance with our conversation, I am writing to request access to documents within the Teacher Training Program (TTP-Pseudonym) as well as access to the alumni database. My intent is to have a sample population of approximately 16 apprentices as well as 5-7 directing teachers within the program.

The purpose of this study is to inform practitioners through the lens of cognitive training, and allows for the discernment of effective content through proper sequencing within their respective curricula. Administrators and educators can recommit themselves to knowing and understanding their students as they set out to create an academic environment that is transformational. Apprentice teachers as co-researchers can aide in inspiring the future work of researchers and administrators alike, through the assessment of cognitive neuroscience coursework in their theoretical and practical applications.

This study is of particular interest to me as an educator and scholar practitioner for myriad reasons. The TTP has, for decades, been a leader in teacher preparation and placement. I am eager to understand the intrinsic elements of the coursework and to have ongoing conversations with apprentice teachers and directing teachers, alike, to glean insights into their feeling of preparedness within the classroom.

The general criteria for participation in this proposed study includes the following:

• Participants must be either current or former apprentice teachers within the TTP program
• Participants (non-apprentices) must be current Directing Teachers at the Hillsborough School
• Participants will be administrators at HS, University (Pseudonyms)

Interested participants in either your database or on site will be asked to participate if they meet the criteria as identified above. If they respond to the recruitment/solicitation letter to be emailed to them directly by me, and meet the study’s participation criteria, I will provide my contact information and instructions of how to contact me in order to set an appointment to meet them on campus or at a location of their convenience. If they decide to participate, they will be asked to sign an informed consent form. Each interview session will be at approximately 75 minutes audio-recorded with time spent to review the informed consent form. Permission for follow-up conversation by telephone will be requested if needed, as will permission for subsequent email conversations (if needed).

All collected data will be safeguarded from unauthorized access and the researcher will ensure that none of the participants will be identifiable in the final report and future publications as pseudonyms will be used to protect the identity of those who will participate. Identifiable data will be destroyed after three years once the study is completed and de-identifiable materials will be kept indefinitely. All survey responses and interview data will be shared with Hillsborough School upon completion of the dissertation.

Thank you for your interest in my study. Once you have agreed to grant me access to the TTP
program, the alumni database and the apprentice and directing teachers, please sign/date this letter to acknowledge approval. Please return a signed copy to me at the email address or mailing address listed below.

X__________________________________________________________________________
Date: _________________________

Thank you, again, for the opportunity to conduct educational research at your institution. Please let me know if you have any questions or concerns. I can be reached at:

Morton.ka@husky.neu.edu
Cell phone: 508.963.4532
Mailing address: 19 Longbow Circle, Lynnfield, MA 01940

With thanks,

Kara L. Morton
Appendix F: Interview Questions (Administrators)

Interviewee (Title and Name):

Interviewer: Kara L. Morton

Date: __________________ Location of Interview: _______________________

1.) How long have you been affiliated with the TTP in your current role as Assistant Director?
2.) Would you describe your experience within the TTP as a positive experience?
   a. If yes…please describe the positive aspects for me.
   b. If no…please describe the negative aspects for me.
3.) Looking back over your years as an administrator within the program, what changes have you noticed within the program that have had either a positive or negative impact on your position
4.) Can you detail the affiliation with the universities and speak to the courses that are offered both on campus and off campus for apprentices?
5.) In thinking about the coursework of the Apprentice Teachers, do you feel they have received adequate training around adolescent development and understanding the cognitive capacities of the students within your classroom?
6.) Can you detail any coursework/ideas that apprentice teachers have brought into the classroom that has coursework informed/impacted your teaching experiences? What about the experience of the students?
7.) What changes have been made to the curriculum?
   a. Are these changes in response to the needs of students in the classroom or the preparedness of the newly minted teachers?
   b. Who determines what changes are to be made and why?
8.) Do you feel you received adequate training in terms of teaching and responding to the cognitive needs of the students in the classrooms on campus?
    i. If Yes..please expand
    ii. If No…please expand
9.) Apprentices most likely turn to you, as an advisor, when problems do arise so how can you help them navigate situations such as this?

**Additional questions may be appropriate to clarify or expand on themes developed in the research.**
Appendix G: Interview Questions (Apprentices)

Interviewee (Title and Name):

Interviewer: Kara L. Morton

Date: ________________________ Location of Interview: _________________________

1.) Why did you decide to pursue a Masters in Education and what lead you to the Teacher training program?

2.) Would you describe your experience within the TTP as a positive experience?
   a. If yes…please describe the positive aspects for me.
   b. If no…please describe the negative aspects for me.

3.) In your Masters program, what coursework has been particularly meaningful to you?

4.) In looking at the aforementioned coursework, which would you describe as most relevant to your teaching experience?

5.) How did you feel about coursework pertaining to adolescent development coursework?
   a. In what ways has this coursework informed/impacted your teaching experiences?
   b. Do you feel you received adequate training in terms of truly understanding the cognitive needs of the students in your classrooms?
      i. If Yes..please expand
      ii. If No…please expand

6.) Prior to entering the TTP, please detail your educational experience.

7.) Prior to entering the TTP, please detail your experience (if any) within a classroom setting.

**Additional questions may be appropriate to clarify or expand on themes developed in the research.**
Appendix H: Interview Questions (Directing Teachers)

Interviewee (Title and Name):

Interviewer: Kara L. Morton

Date: ________________________ Location of Interview: _________________________

1.) How long have you been a Directing Teacher (DT) in the TTP?
2.) Would you describe your experience within the TTP as a positive experience?
   a. If yes…please describe the positive aspects for me.
   b. If no…please describe the negative aspects for me.
3.) Looking back over your years as a DT, what changes have you noticed within the program that have had either a positive or negative impact on your experience as a DT?
4.) In thinking about the coursework of the Apprentice Teachers, do you feel they have received adequate training around adolescent development and understanding the cognitive capacities of the students within your classroom?
5.) Can you detail any coursework/ideas that apprentice teachers have brought into the classroom that has coursework informed/impacted your teaching experiences? What about the experience of the students?
6.) Do you feel you received adequate training in terms of truly understanding the cognitive needs of the students in your classrooms?
   i. If Yes..please expand
   ii. If No…please expand

**Additional questions may be appropriate to clarify or expand on themes developed in the research.**
Appendix I: Teacher Training Courses  
Course Sequence Sheet 2014-2015  

**EARLY CHILDHOOD EDUCATION WITH AND WITHOUT DISABILITIES PRE K-2**

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<thead>
<tr>
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<th>Course Title</th>
<th>Location</th>
<th>Credits (9)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>EEDUC 5115</td>
<td>Families, Schools and Society</td>
<td>University</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EEDUC 5131</td>
<td>Developmental Learning</td>
<td>University</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EEDUC 5137*</td>
<td>Language, Literacy and the Arts for the Early Years (*prerequisite to EEDUC 5138)</td>
<td>University</td>
<td>3</td>
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</tbody>
</table>

<table>
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<tr>
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<th>Course Title</th>
<th>Location</th>
<th>Credits (15)</th>
</tr>
</thead>
<tbody>
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<td>EEDUC 5128.55</td>
<td>Integrated Curriculum for Early Childhood: Social Studies and Classroom Life</td>
<td>HS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EEDUC 5130.55</td>
<td>Integrated Curriculum for Early Childhood: Math, Science &amp; Health</td>
<td>HS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EEDUC 5138*</td>
<td>Language, Literacy and the Arts for the Primary Grades (*prerequisite: EEDUC 5137)</td>
<td>University</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EEDUC 5139.55</td>
<td>Learning Mathematics in Early Childhood</td>
<td>HS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EEDUC 6109.55</td>
<td>Observation, Documentation and Assessment</td>
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<td>3</td>
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</table>

<table>
<thead>
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<th>Location</th>
<th>Credits (16)</th>
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</thead>
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<td></td>
<td>EECLD 6115</td>
<td>Sheltered English Instruction (Prek-6)</td>
<td>University</td>
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<tr>
<td></td>
<td>EEDUC 5120</td>
<td>Young Children with Special Needs</td>
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</tr>
<tr>
<td></td>
<td>EEDUC 6058.55</td>
<td>Anti-Bias Early Childhood Education</td>
<td>HS</td>
<td>3</td>
</tr>
</tbody>
</table>
|         | EEDUC 7727.55| Practicum and Seminar in Early Childhood  
*Note: Apprentices must pass all required MTELs prior to registering for this course.* | HS       | 6 (1-cr. fee) |

**Total: 40 credits (19 credits @ University)**  
*HS→Hillsborough School*

Notes for all course listings:  
1) **Apprentices in the HS/University collaborative master’s program must register for all of the above-listed courses through the partnership University.** HS courses will be taught on Hillsborough’s campus during weekly seminars and workshops. “University’s” courses will be taught on evenings and/or weekends at the University’s School of Education, or online. Both sets of courses are degree requirements, so registration in all 40 credits is essential.

2) **Apprentices will participate in additional courses (through weekly workshops and seminars) at HS, as required by the TTP, which are not listed on this form or other University records. They will appear on the HS TTP transcript instead.**
# ELEMENTARY EDUCATION 1-6

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# MIDDLE SCHOOL HUMANITIES

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<td>Classroom Assessment for Middle School &amp; High School Teachers</td>
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<td>• Contact Assistant Director for Academic Advising for registration permission.</td>
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(1-cr. fee)
# MIDDLE SCHOOL SCIENCE

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**Summer**

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| EEDUC 6166 | Classroom Assessment for Middle School & High School Teachers  
*Contact Assistant Director for Academic Advising for registration permission.*  
*Select 14/FA1 for Term and ZZ-Distance Learning for Location.* | University (online) | 3 |
| EEDUC 6170 | Middle School and High School Content Area Literacy | University | 3 |
| EEDUC 6204.55 | The Middle School: Historical Context and Promising Practices | HS | 3 |

**Fall**

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| EEDUC 7732.55 | Practicum and Seminar in General Science  
*Note: Apprentices must pass all required MTELs prior to registering for this course.* | HS | 6 (1-cr. fee) |
# MIDDLE SCHOOL MATH/SCIENCE

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| Various       | Two courses in apprentice’s major field. | 2       | University |
Appendix J: NIH Certificate of Completion

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that Kara Morton successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 09/15/2012
Certification Number: 809724