ABSTRACT

Influences on Beginning Teachers' Differentiated Instructional Practices with Diverse Students

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Teachers need to consider diversity when making decisions about differentiating their instructional practices since children come to school with varied experiences, abilities, learning preferences, interests, and talents. Previous studies have shown teachers' resistance to differentiation, as well as their lack of success in implementing differentiation practices. This limited implementation may be associated with different influences such as the teacher's knowledge and beliefs, the classroom, the campus, the school district, and state rules and regulations. Since no research examined these influences on beginning teachers' differentiation practices, the purpose of this study was to identify these influences within the context of a complex educational system. The primary research question was: what factors influence beginning teachers' differentiated instructional practices with diverse students? The researcher used the *Classroom Instructional Practices Scale* (CIPS) to determine the beginning teachers' current level of differentiated instructional practices and compared current ratings to the ratings of their differentiation practices during their intern or senior year. The CIPS focused on four

major areas of individual differences requiring differentiation: content, rate, preference and environment. The Influences on Differentiation framework (IoD), a researcher-developed framework that adapted Bronfenbrenner's theory, was used to identify the influences on any changes in their differentiation practices implemented during their pre-service program to their current teaching. This framework suggested five possible systems: (a) individual or the teacher, (b) the microsystem or the elements at the classroom level (c) the mesosystem or the campus level and the interactions within the campus (d) the exosystem or the school district level and (e) the macrosystem or the state level. In an effort to closely examine variables, the researcher observed the teachers in their classrooms, conducted interviews, reviewed archival data, including e-folio entries, observation notes, candidate reflections, and conference summaries. Using the two frameworks, the researcher analyzed each individual case and then conducted a cross-case analysis to identify expected findings, as well as surprising and conceptually interesting information. Overall, the findings showed the importance of teacher preparation programs, each individual's knowledge and beliefs about differentiating for children, and supportive environments that nurture differentiation practices.

Influences on Beginning Teachers' Differentiated Instructional Practices with Diverse Students

by

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A Dissertation

Approved by the Department of Educational Psychology

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DEDICATION

"To be able to look back upon one's life in satisfaction, is to live twice"
-- Gibran Khalil Gibran --

And for this reason, with my deepest gratitude and warmest affection I dedicate this dissertation

To my grandparents--for their endless love.

To my parents--the reason for whom I am today.

To my brother--my inspiration.

CHAPTER ONE

Introduction

Diversity must be considered by teachers when preparing and delivering instruction. Demographic trends in the United States show that the nation's schools are increasingly populated by students from diverse backgrounds related to differences in culture, language, ethnicity and race, abilities, and socioeconomic status (NCES, 2010). In fact, the percentage of students who are White is projected to be less than 50% beginning in 2014 and to continue to decline as the enrollments of Hispanics and Asians/Pacific Islanders are expected to increase. When teachers have a clear understanding, as well as implementation of instructions to address the ethnic, cultural and cognitive differences, the academic achievement of students increases (Au, 1980; Gandara, 2002; Garcia, 1993; Lee, 1995; Palinscar & Brown, 1987; Philicps, 1972; Reynolds, Walberg, & Weissberg, 1999).

Towards Meeting the Needs of Diverse Students

The progression of education towards inclusion, standards and accountability, and the increasing diversity in the student population highlight the important need for teacher expertise in effectively practicing differentiation (Darling-Hammond & MacLaughlin, 1998; Gamoran & Weinstein, 1995; McLaughlin & Talbert, 1993). Students attending school should have access to appropriate materials, supportive resources, and teachers with expertise in differentiating, curriculum, instruction, and assessment to meet their

needs (Ducette, Swell, & Shapiro, 1996; McLaughlin & Talbert, 1993; Shapiro, Swell, & Ducette, 2001; Tomlinson, 1999).

This climate has pushed policy makers to initiate, develop, and mandate laws that reflect diversity. The *No Child Left Behind Act of 2001* (NCLB) is a federal law that champions the accountability for "all students, including groups based on poverty, race and ethnicity, disability, and limited English proficiency" (p. 2082). In addition, the legislative act contains principles emphasizing the use of teaching methods that have proven to work (National Center on Educational Outcomes, 2003). This federal law highlights the importance of meeting effectively the needs of diverse learners.

To address clearly this need for increasing responsiveness, standards have been developed by several professional organizations. For example, to promote improvement in mathematics education, the National Council for Teachers Mathematics (NCTM) have defined and described the principles and actions that are essential for a high-quality mathematics education for all students. The *Principles to Actions* (2014) document explains that commitment to access and equity is a one of the essential elements for effectively teaching and learning mathematics. In order to achieve access and equity, teachers should have the following productive belief:

> Mathematics ability is a function of opportunity, experience, and effort- not of innate intelligence. Mathematics teachings and learning cultivate mathematical abilities. All students are capable of participating and achieving in mathematics, and all deserve support to achieve at the highest levels (Principles to Action, 2014, p.63)

In fact, their goal is to eliminate the persistent racial, ethnic and income achievement gaps apparent in the national standardized mathematics achievement tests. All students should have opportunities and support to achieve high level of mathematics learning.

Similarly, to promote improvement in English language arts classroom activities and curriculum, the National Council of Teachers of English (NCTE) reaffirmed their standards for English Language Arts in 2012, which have the guiding vision of promoting equity and excellence for all. In fact, central to the standard is the aspiration to provide equal education opportunities for students including students from certain linguistic and cultural groups, children from low-income families, and those in need of special education. In fact, the NCTE position statement on standards says, "the opportunity to learn is the inherent right of every child in America" (p. 10).

In addition, professional organizations dedicated to improving educational outcomes for individuals with disabilities and gifts have also developed professional standards documents. To aid teacher programs and in-service teachers at meeting the needs of diverse students, the Council for Exceptional Children (CEC) has written the following documents: (a) *Special Education Professional Ethical Principles and Practice Standards* (2010), (b) *Standards for Professional Preparation* (2012), (c) *Council for Exceptional Children Standards for Evidence-Based Practices in Special Education* (2014), (d) *Professional Standards and Practice: Policies and Positions* (2012), and (e) *CEC Paraeducator Professional Development Standards*. At the core of these documents are standards, ethics, practices, and guidelines to assure that individuals with exceptionalities have well-prepared, career-oriented educators.

Furthermore, CEC in collaboration with the National Association for Gifted Children (NAGC) developed the *Teacher Preparation Standards in Gifted and Talented Education* (2013) to provide teachers with standards when working with gifted and talented students.

The nation is moving towards a mission to educate all students. This movement resulted from changing demographics. In fact, cultural diversity has increased in the United States and is expected to increase in the future (U.S. Department of Education, 2014).

Effective Instructional Practices with Diverse Students

John Dewey, whose ideas have been influential in education and social reform, explained that knowledge and experience are different (Cain & Cain, 1991). In fact, one way of acquiring knowledge is through the process of experience. Hence, one should understand that since individuals learn from experience, and each experience is individualized, then each individual learns differently. Children come to school with multiple and varied experiences, abilities, learning preferences, interests, and talents (Bruner, 1985; Darling-Hammond, 1995). For this reason, an effective use of instructional practices takes into account individual differences (Tomlinson, 2000).

Tomlinson and Allen (2000) define differentiation as "a teacher reacting responsively to a learner's needs" (p. 4). In order to match the instructional methods to each student's needs, the teacher should consider four major areas: (a) the knowledge and skills needed as well as desired by the student, which represents the content; (b) the time needed to learn new material, which represents the rate; (c) the type of setting that enhancing the learning experience, which represents the environment; and (d) the student's choice of learning resources, which represents preference (Johnsen, Haensly, Ryser, & Ford, 2002).

The goal for differentiation in the content area is to match each learner's interest and ability to the content, process and product (Johnsen, Haensly, Ryser, & McIntosh,

1994). In fact, the content dimension determines the particular domain of inquiry to be explored and the aspect of that domain to be addressed (VanTassel-Baska, et al., 1988). When teachers differentiate the content, they have thought about the sequence of skills, concepts, and strategies to be taught, as well as the generalizations and themes within and across disciplines (Johnsen et al., 2002).

The goal in differentiating rate is that each learner has the time that he or she needs to learn the subject matter or related skills. The rate dimension represents the alignment of the instructions with the time that the student needs to learn new material (Tomlinson, 2001). By continuously assessing students, teachers should adjust the subject matter, process, and product to match with the amount of time needed by the students to learn new content (Johnsen et al., 2002).

The environment dimension represents the physical arrangement organized by the teacher with the aim of facilitating interaction and learning among students (Johnsen et al., 2002). To differentiate in this dimension, the teacher should take into consideration the student's interests, learning needs and characteristics to plan the physical environment arrangement (Clark, 2002). However, effective differentiation of the environment will lead to differentiation in the other dimensions as well (i.e., content, preference, and rate; Hunt & Seeley, 2009).

The goal in differentiating preference is to give students the opportunity to "select the learning resources that best fits their way of learning. The tasks vary in task format and response dimensions. Students may choose to work in small groups, large groups, pairs, or individually" (Johnsen et al., 1994, p. 56).

> What we call differentiation is not a recipe for teaching. It is not an instructional strategy. It is not what a teacher does when he or she has time. It is a way of thinking about teaching and learning. It is a philosophy. (Tomlinson, 2000, p.1).

Research has supported differentiated practices for students in four major areas: (a) the knowledge and skills needed as well as desired by the student, which represents the content; (b) the time needed to learn new material, which represents the rate; (c) the type of setting that enhancing the learning experience, which represents the environment; and (d) the student's preference in learning, which represents the preference.

Problem Statement

Although the literature on instructional practice recommends the use of differentiated instruction, the majority of research related to teachers' use of differentiated instructional practices has shown, in general, teachers tend not to use these practices (Anderson, 2007; Latz, Speirs Neumeister, Adams, Pierce, 2009; Tomlinson, 2003, 2008; Wormeli, 2005). Schumm and Vaughn (1991) and Tomlinson et al. (2003) found that although teachers may believe in responsive instruction and differentiation, they expressed concerns regarding its feasibility:

- Although teachers may be knowledgeable about differentiating, they seldom employ it.
- Few teachers instruct in ways that are culturally and racially sensitive.
- When differentiated instruction is used, it is reactive and tangential, not planned and substantive.
- Even special and gifted educators, who may be knowledgeable about students' multiple exceptionalities, fail to use differentiation to maximize optimal learning.
- Few teacher preparation programs provide in-depth information on effective, responsive instruction.

Teacher resistance to differentiation, as well as lack of success implementing differentiation to the degrees it should be, can be associated with different factors such as the teacher (Anderson, 2007; Erman, 2006; Georege, 2005; Hawkins, 2009; Waldron &

McLeskey, 2001; Young, 2011), the classroom (King-Shaver, 2008; Pederson & Lui, 2003; Petrilli, 2001; Walther-Thomas & Brownell, 2001), the campus (Davis, 2009; Hawkins, 2009; Kapusnick & Hauslein, 2008; Pederson & Lui, 2003), school district (Deal & White, 2009, Lewis & Batts, 2005; Young, 2011), and state rules and regulations (King-Shaver, 2008; Lane, 2007; Levy, 2010). However, the research regarding influences specifically on beginning teachers implementing differentiation is not present.

Instead of differentiation, the literature on novice teachers have focused more on (a) developing models describing the teacher's career, (b) perceptions of beginning teachers about their preparation for teaching, (c) factors influencing beginning teachers' practices in the classroom, and (d) changes in beginning teachers through their experiences in the classroom. Using Bronfenbrenner's bio-ecological system as a framework, this study examined the influences on beginning teachers' differentiation practices.

Theoretical Framework

The bio-ecological system is a broad conceptual and operational framework for research proposed by Bronfenbrenner (Bronfenbrenner, 1976, 1977, 1994). This framework helps in identifying the different factors influencing the developing individual. The bio-ecological system suggests that the joint product of the variety of dimensions within the environment and the personal attributes of the specific individuals influence the individual's development. This framework is unique to each individual representing a series of nested and interconnected structures. The innermost structure is the individual. Then, the most proximal and significant structure is the individual's microsystem. The following structure, the mesosystem, represents the connection

between the elements of the microsystem. The next structure is the mesosystem, which refers to the environmental influences that do not directly interact with the person, but even so influences the setting of the individual, which in turn affects the individual. The most removed structure from the individual is the macrosystem, which represents the societal ideology and cultural values. Hence, the relationships between the active individual and the active multi-level ecology constitute the basic process of human development, which occurs over time forming the chronosystem.

By merging the literature related to influences on teacher's instructional practices and the bio-ecological system framework developed by Bronfenbrenner, the following systems were identified:

- The individual or the teacher, included his or her knowledge, and beliefs;
- The microsystem or the elements at the classroom level, consisted of the classroom composition, and the students characteristics;
- The mesosystem or the campus level and the interactions within the campus, encompassed the school personnel such as the principle and the fellow or team teachers, as well as the parents;
- The exosystem or the school district level included the school policies related to time, resources, and paper work; and
- The macrosystem or the state level represented the culture regarding the implementation of standards and high-stakes testing.

With this in mind, the researcher aimed at understanding how these different levels might influence beginning teachers' differentiation.

Purpose of the Study

The purpose of this study was to identify the influences on beginning teachers' differentiation within the context of a complex educational system. The primary research question was: what factors influence beginning teachers' differentiated instructional practices with diverse students? This guiding question led the researcher to investigate

the factors at different levels (i.e., individual, class, school, district, and state levels) that may influence beginning teachers in the implementation of the differentiation to meet the needs of diverse students in the classroom.

CHAPTER TWO

Review of the Literature

The purpose of this study was to identify the influences on beginning teachers' differentiation within the context of a complex educational system. The research question was: what factors influence beginning teachers' differentiated instructional practices with diverse students? For this reason, the literature review began by discussing the need for meeting the needs of diverse students, then explained effective instructional practices for differentiation, followed by an examination of research on teachers' implementation of differentiation, and research related to instructional practices of beginning teachers. This chapter ended by presenting the theoretical framework for this study, and how it related to the research question.

Towards Meeting the Needs of Diverse Students

Throughout the educational reform movement in the nation, there has been a consistent concern and shift towards providing all students with an appropriate education based on student needs (Darling-Hammond, 2004, 2006; Darling-Hammond, Wise, & Klein, 1999; Gay & Kirkland, 2010; Melnick & Zeichner, 1998). The progression of education towards inclusion, standards and accountability, and the increasing diversity in the student population highlight the important need for teacher expertise in effectively practicing differentiation (Darling-Hammond & MacLaughlin, 1998; Gamoran & Weinstein, 1995; McLaughlin & Talbert, 1993). Students attending school should have access to appropriate materials, supportive resources, and teachers with expertise in

differentiating, curriculum, instruction, and assessment to meet their needs (Ducette, Swell, & Shapiro, 1996; McLaughlin & Talbert, 1993; Shapiro, Swell, & Ducette, 2001; Tomlinson, 1999).

Laws and Standards

The educational landscape in the United States has undergone ongoing forces pushing for higher quality education, access to education for all students, and meeting the needs of all learners. The *No Child Left Behind Act of 2001* (NCLB) is a federal law that champions the accountability for "all students, including groups based on poverty, race and ethnicity, disability, and limited English proficiency" (p. 2082). In addition, the legislative act contains principles emphasizing the use of teaching methods that have proven to work (National Center on Educational Outcomes, 2003). This federal law highlights the importance of meeting effectively the needs of diverse learners.

To address clearly this need for increasing responsiveness, standards have been developed by several professional organizations. For example, to promote improvement in mathematics education, the National Council for Teachers Mathematics (NCTM) have defined and described the principles and actions that are essential for a high-quality mathematics education for all students. The *Principles to Actions* (2014) document states:

> An excellent mathematics program requires that all students have access to a high-quality mathematics curriculum, effective teaching and learning, high expectations, and the support and resources needed to maximize their learning potential. Equitable access means high expectations, adequate time, consistent opportunities to learn, and strong support that enable students to be mathematically successful. Instead of one-size- fits-all practices and the differential expectations for students who are placed in different academic tracks, equitable access means accommodating differences to meet a common goal of high levels of learning by all students. (p. 59)

In fact, their goal is to eliminate the persistent racial, ethnic, and income achievement gaps apparent in the national standardized mathematics achievement tests. All students should have opportunities and support to achieve high level of mathematics learning.

Similarly, to promote improvement in English language arts classroom activities and curriculum, the National Council of Teachers of English (NCTE) reaffirmed their standards for English Language Arts in 2012, which have the guiding vision of promoting equity and excellence for all. In fact, central to the standard is the aspiration to provide equal education opportunities for students including students from certain linguistic and cultural groups, children from low-income families, and those in need of special education. The *Standards for English Language Arts* (1996, 2012) states, "it is, in fact, teachers' responsibility to recognize and value all children's rich and varied potential for learning and to provide appropriate education opportunities to nurture them" (p. 7).

In addition, professional organizations dedicated to improving educational outcomes for individuals with disabilities and gifts have also developed professional standards documents. To aid teacher programs and in-service teachers at meeting the needs of diverse students, the Council for Exceptional Children (CEC) has written the following documents: (a) *Special Education Professional Ethical Principles and Practice Standards* (2010), (b) *Standards for Professional Preparation* (2012), (c) *Council for Exceptional Children Standards for Evidence-Based Practices in Special Education* (2014), (d) *Professional Standards and Practice: Policies and Positions* (2012), and (e) *CEC Paraeducator Professional Development Standards*. At the core of these documents are standards, ethics, practices, and guidelines to assure that individuals with exceptionalities have well-prepared, career-oriented educators.

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The nation is moving towards a mission to educate all students. This movement resulted from changing demographics. In fact, cultural diversity has increased in the United States and is expected to increase in the future (U.S. Department of Education, 2014).

Increase in Diversity

Demographic trends in the United States show that the nation's schools are increasingly populated by students from diverse backgrounds related to differences in culture, language, ethnicity and race, abilities, and socioeconomic status (NCES, 2010). *The Conditions of Education 2014* represents the most current indicator of the conditions and trends of the education in the United States.

Children living in poverty. According to the NCES, in 2012, approximately 21% of school age children in the United States were living in families in poverty. The percentage of school age children living in poverty ranged across the United States from 11% in North Dakota to 32% in Mississippi. In addition, there has been noticeable increase in the percentage (from 12% to 19%) of children who are eligible to participate in the National School Lunch Program between 1999-2000 and 2011-2012.

Racial and ethnic enrollment. From fall 2001 through fall 2011, the number of White students enrolled in prekindergarten through 12th grade in U.S. public schools

decreased from 28.7 million to 25.6 million, and their share of public school enrollment decreased from 60% to 52%. In contrast, the number of Hispanic students enrolled during this period increased from 8.2 million to 11.8 million students, and their share of public school enrollment increased from 17% to 24%. The number of Black students enrolled during this period fluctuated between 7.8 million and 8.4 million, and Black students' share of public school enrollment decreased from 17% in 2001 to 16% in 2011.

The percentage of students who are White is projected to be less than 50% beginning in 2014 and to continue to decline as the enrollments of Hispanics and Asians/Pacific Islanders are expected to increase. Although the number of Black students is projected to fluctuate between 7.6 million and 7.8 million during this period, their enrollment share is projected to decrease from 16% to 15%.

English language learners. The percentage of students enrolled in public school who were English language learners (ELL) was higher in school year 2011–12 (9.1%) than in 2002–03 (8.7 %). In 2011–12, ELL students in cities made up an average of 14.2 % of total public school enrollment, while in suburban areas, ELL students constituted an average of 9.0 percent of public school enrollment.

Children with disabilities. The number of children and youth ages 3–21 receiving special education services was 6.4 million (13% of total public school enrollment) in 2011–12. From school years 1990–91 through 2004–05, the number of children and youth ages 3–21 who received special education services increased, as did their percentage of total public school enrollment: 4.7 million children ages 3–21 (11% of public school enrollment) received special education services in 1990–91, compared with 6.7 million (14% of public school enrollment) in 2004–05. However, the number and

percentage of children and youth served under IDEA (Individuals with Disabilities Education Act) have declined each year from 2005–06 through 2011–12. By 2011–12, the number of children and youth receiving services had declined to 6.4 million.

In addition, about 95 % of school-age children and youth ages 6–21 who were served under IDEA in 2011–12 were enrolled in regular schools. The data also showed that among all children and youth ages 6–21 who were served under IDEA, the percentage of children and youth who spent most (80%) of their school day in general classes in regular schools was higher in 2011–12 than in any other year.

The data provided by the National Center for Education Statistics portraits the diversity present in current schools. Students in the same class have varying abilities and come from different ethnic, racial, and socioeconomic backgrounds. Teachers have the responsibility to address the needs of this highly diverse population (Gay, 2000).

Effective Instructional Practices for Differentiation

Many years ago, John Dewey pointed out that learning, in its broadest non-school sense, is a reconciliation of tensions between the self and its surrounding (Fishman & McCarthy, 1998). In other words, an individual learns when they are working on a goal and overcoming roadblocks. The person uses the knowledge they have from the past, studies the present situation, and then reflects and achieves the objective in mind. "In the classroom this means teachers must encourage students to find genuine problems which excite their interest, problems which can be explored and ameliorated by engagement with the curriculum" (Fishman & McCarthy, 1998, p 19). However, students come to class with multiple and varied experiences, different abilities, and unique interests

(Bruner, 1985; Darling-Hammond, 1995). For this reason, an effective use of instructional practices takes into account individual differences (Tomlinson, 2000).

According to Tomlinson and Allen (2000), differentiation is when "a teacher is reacting responsively to a learner's needs" (p. 4). Differentiation is not a teaching method, a kit or a step-by-step strategy. In fact, differentiation is a belief system about how to create curriculum, instructional experiences, and supportive resources that are appropriate for a wide range of learners (Tomlinson, 2000). In order to match the instructional methods to each student's needs, the teacher should consider four major areas: (a) the knowledge and skills needed as well as desired by the student, which represents the content; (b) the time needed to learn new material, which represents the rate; (c) the type of setting that enhancing the learning experience, which represents the environment; and (d) the student's choice of learning resources, which represents preference.

Content

The content dimension determines the particular domain of inquiry to be explored and the aspect of that domain to be addressed (VanTassel-Baska et al., 1988). Hence, to differentiate in this dimension, the teacher needs to match the subject matter, the process, and the product to the students' abilities and interests (Davis, Rimm, & Seigle, 2011; Kaplan, 2009).

The subject matter. Differentiation of the subject matter requires the teacher to organize the content around a broad theme that allows for the integration of a variety of topics within learning activities (Davis, Rimm, & Seigle, 2011). The use of themes

provides wider opportunities for multidisciplinary study by promoting connections within and across disciplines (Avery & Little, 2011; Davis, Rimm, & Seigle, 2011; Roberts & Roberts, 2009; VanTassel-Baska, 2003). Through this intra- and interdisciplinary connections, emphasis is given to concepts, issues, and generalizations, which will facilitate differentiation in the process and product areas (Roberts & Roberts, 2009; VanTassel-Baska, 2003).

Process. In order to allow students to learn to think independently of textbooks, materials, and other resources, as well as be equipped with skills that can be transferred from one area to another, teachers should focus on higher level thinking skills, lifelong skills (Davis, Rimm, & Seigle, 2011; Seney, 2009; VanTassel-Baska, 2003; VanTassel-Baska et al., 1988). These higher level thinking skills include critical thinking, creative and productive thinking, problem solving, and research skills (Davis, Rim, & Seigle, 2011; Gunning, 2008; Seney, 2009; VanTassel-Baska, 2003).

Critical thinking skills. According to Halpern (2014), "although the ability to think critically has always been important, it is imperative for the citizens of the 21st century" (p. 1). Higher-level thinking is important since the skills emphasize using information rather than just acquiring facts and skills (Seney, 2009; Udall & Daniels, 2005). The students are engaged in thought.

According to the National Commission on Excellence in Education (1983), the United States is a nation at risk because the educational system is failing to provide student with the most essential elements of education, which is instruction fostering the development of the ability to think. By analyzing the K-12 national standards and

benchmarks in the United States for 12 disciplines, Kendall and Marzano (2000) identified certain general critical thinking skills common to all content areas. These included judging the validity of arguments, constructing simple valid arguments, formulating problems from everyday situation, formulating problems within a variety of situations, making and testing conjectures, following logical arguments, and formulating counter examples.

Teaching critical thinking is needed in the United States since it encompasses several benefits. Researchers of critical thinking agreed on specific abilities: critical thinkers have the skills to analyze arguments, claims, or evidence (Ennis, 1985, Facione, 1990; Halpern, 1998; Paul 1992); make inferences using inductive or deductive reasoning (Ennis, 1985, Facione, 1990; Paul 1992, Willingham, 2007); judge or evaluate (Case, 2005; Ennis, 1985, Facione, 1990; Lipman, 1988; Tindal & Notel, 1995); and make decisions or solve problems (Ennis, 1985; Halpern, 1998; Willingham, 2007). Furthermore, studies have shown that children who engage in critical thinking gain in the areas of self-reliance, risk taking, exploration of problems, and organization of ideas (Dellett, Fromm, Karn, & Cricchi, 1999; Scalan, 2006). In fact, critical thinkers develop open mindedness (Bailin, Case, Coombs, &Daniels, 1999; Ennis 1985; Facione, 1990; Halpern, 1998), the desire to be well informed (Ennis 1985; Facione, 1990), flexibility (Facione, 1990; Halpern, 1998), and respect for others' viewpoints (Bailin et al., 1999; Facione, 1990). In a meta-analysis of 117 empirical studies examining the impact of instructional interventions on students' critical thinking skills and dispositions, Abrami et al. (2008) found that these interventions, in general, have a positive impact, with a mean effect size of 0.34.

Several researchers have provided guidance on development of critical thinking. Beyer (1987) proposed the following as critical thinking skills:

1. Distinguishing between verifiable facts and value claims
2. Distinguishing relevant from irrelevant information, claims, and reasons;
3. Determining factual accuracy of a statement;
4. Determining credibility of a source;
5. Identifying ambiguous claims or arguments;
6. Identifying unstated assumptions;
7. Detecting bias;
8. Identifying logical fallacies;
9. Recognizing logical inconsistencies in a line of reasoning;
10. Determining the strength of an argument or claim.

Later, Paul (1995) wrote that critical thinking is a unique and purposeful form of thinking that is practiced systematically and purposefully. The thinker imposes standards and criteria on the thinking process and uses them to construct thinking.

A more recent process of critical thinking proposed by Ennis (2014) requires the individual to:

1. Seek and offer clear statements of the thesis or question;
2. Seek and offer clear reasons;
3. Try to be well informed;
4. Use credible sources and observations, and usually mention them;
5. Take into account the total situation;
6. Keep in mind the basic concern in the context;

7. Be alert for alternatives;
8. Be open-minded and
    a. Seriously consider other points of view;
    b. Withhold judgment when the evidence and reasons are insufficient;
9. Take a position and change a position when the evidence and reasons are sufficient;
10. Seek as much precision as the nature of the subject admits;
11. Seek the truth when it makes sense to do so, and more broadly, try "get it right" to the extent possible or feasible; and
12. Employ their critical thinking abilities and dispositions.

Ennis explained that if students are to engage in developing critical thinking abilities, they must first be cognizant of the aspects of the thinking process.

Although research and analysis of standards and benchmark have shown that critical thinking is embedded in the curriculum being taught (Kendall and Marzano 2000; Patry, 1996), teachers do not include it in their daily instruction (Darling-Hammond, 2004; Patry, 1996; Neil, 2003). When faced with the challenges of covering the content identified by the state standards, teachers believe that they do not have the time or resources to integrate critical thinking into daily instruction (Astleitner, 2000; Petri, 2011) so they concentrate on lower-order thinking skills (American Diploma Project, 2004; Darling-Hammond, 2004; Neil, 2003).

Creative thinking. Many of the higher level thinking skills require both critical and creative thinking (Struck & Little; 2011); however, the thinking process is not the same (Beyer, 1987). Beyer (1987) clarified by saying that critical thinking is concerned

with breaking down reality to arrive at some point of understanding, while creative thinking deals with combining elements of reality in novel ways to formulate new perceptions, concepts, and new understandings.

Many theorists have defined creativity (i.e.; Boden, Feist, Gruber & Wallace, Lubart, Lumsden, Martindale, and Nickerson). The overarching definition of creativity seems to have two main characteristics: Originality and Usefulness (Table 2.1; Mayer; 1999).

Table 2.1

Two Defining Features of Creativity.

Author	Feature 1: Originality	Feature 2: Usefulness
Boden	Novel	Valuable
Feist	Novel	Adaptive
Gruber & Wallace	Novelty	Value
Lubart	Novel	Appropriate
Lumsden	New	Significant
Martindale	Original	Appropriate
Nickerson	Novelty	Utility

Note. Adapted from Mayer, 1999.

Although theorists have not agreed on a definition of creative thinking, researchers emphasize the importance of teaching this process skill in schools (Davis, Rimm, & Siegel; 2011; Gallaghar & Gallaghar, 1994; Struck & Little; 2011; Treffinger, Schoonover, & Selby, 2013). Treffinger (1980) explained that creative learning is important because:

1. It helps learners be more effective when teachers aren't around.
2. It creates possibilities for solving future problems that cannot be anticipated.

3. It may lead to powerful consequences in lives.
4. It can produce great satisfaction and joy.

Torrance (1981) specifically discussed the importance of the teacher as a stimulator in creativity. He suggested three ways in which teachers can promote creative thinking: (a) 'sparking' creative ideas, (b) encouraging follow-up of creative ideas, and (c) evaluating and rewarding creative ideas. In a review 142 studies on creative thinking, Torrance (1986) found that deliberate teaching of the creativity process leads to students attaining a 90% success rate in problem solving. Similarly, Greca (1980) found that academic performance is improved when children engage in creative thinking.

Benefits of creativity were also found by Rule, Baldwin, and Schell (2009). Through the use of repeated measures, they studied the effect of using creative strategies on second graders' product invention. By comparing the use of SCAMPER (treatment group) to the traditional unit used in the classroom, it was apparent that creative strategies were more effective in producing product inventions (Rule, Baldwin, & Schell, 2009).

Creative thinking has also been associated with benefits other than sole improvement in academic performance. Hébert (2002) found that creative thinking had positive effects on students in the areas of motivation, alertness, curiosity, self-confidence, boldness of ideas, and enthusiasm for learning and school.

Creativity has also been found to be beneficial in using other thinking process, such as problem solving (Sternberg, 1997). In fact, the ability to switch from one style to another, which characterizes a creative thinker, plays a role in finding solutions (Sternberg, 1997). In any case, the ability to generate novel and useful ideas applies to problem solving (Lubart & Mouchiroud, 2003).

Problem solving. Although creativity can benefit the problem solving process, not all problem solving involve creativity nor does creativity always benefit the problem solver (Lubart & Mouchiroud, 2003). As Beyer (1987) explained, humans face various types of issues and dilemmas each requiring a specific thinking process. Problem solving is a major higher order process that can be used within and across disciplines (Struck & Little, 2011). According to Wheatley (1988) "problem solving is a process of resolving discrepancies" (p. 386), and requires goal-oriented cognitive operations (Schiever & Maker, 2003). Numerous problem-solving models have been developed (Beyer, 1991; Brandford & Stein, 19993; Isakson & Treffinger, 1985; Osborn, 1953; Parnes, 1981; Polya, 1957).

Coming from a mathematician perspective, Polya (1957) identified four key phases involved in approaching and solving problems, which are applicable across many disciplines and contexts. Polya's phases are as follows:

1. Understand the problem;
2. Devise a plan;
3. Carry out the plan; and
4. Look back.

Similar to Polya, Beyer (1991) also proposed a four-step problem solving process:

1. Identifying the problem;
2. Making a plan to solve the problem;
3. Carrying out the plan; and
4. Checking the answer.

Bransford and Stein (1993) added a step to the problem solving process that makes a distinction between the identification of the problem and defining the problem. Their five-step problem-solving model included:

1. Identifying the problem or potential problem;
2. Define, delineate or clarify the problem;
3. Explore options or approaches to solving the problem;
4. Act or carry out the planned solutions; and
5. Examine the effects and evaluate the solutions.

These three models are sequential, easily adapted to teaching, and can be modeled (Struck & Little, 2011; Udall & Daniels, 1991).

Osborn (1953) initially proposed a sequential stage-based view of the problem solving; however, a recent reformulation of the model moves away from the idea of a fixed sequence of activities (Isakson & Treffinger, 1985; Parnes, 1981). His model of the creative problem solving process involves three sets of sub-processes: understanding the problem, generating idea, and planning for action. The sub-process of understanding the problem includes mess finding, data finding, and problem finding. The sub-process of generating ideas includes using divergent thinking for idea finding, elaboration of ideas, and convergent thinking to evaluate ideas. The planning for action sub-process includes developing and implementing ideas through solution finding and acceptance finding. This creative problem solving process requires the ability to use divergent and convergent thinking. The sequence of the three sub-processes can vary depending on the type of task or the problem solver.

Problem solving has been recognized as an important component for children at an international level. *The Future Problem Solving Program* is a worldwide interscholastic competition that was intended to provide opportunities for high-ability students to practice solving real-world-like problem (Treffinger, Selby, & Crumel, in press). This program has been successful for nearly four decades and continues today.

The benefits of problem solving have been studied over the years. Carmon, Martin and Shaw (1990) found that students who are trained in creative problem solving are able to use their newly acquired skills in multiple settings, even contexts outside the training sessions. Other studies have found that learning problem solving methods in science improves children's ability to analyze data and provide anticipation of research or experiment results (Aksoy, 2002; Kalaci, 2001; Lee et. al, 2000).

Yildizlar (1998) studied the effect of teaching problem solving in mathematics courses in elementary school. The findings showed that students who were taught the problem-solving process had a significant increase in their success and attitudes towards mathematics when compared to students who were taught using the tradition teaching methods. Similarly, Sewell, Fuller, Murphy and Funnell (2002) found that students who participated in problem solving experience during social studies class benefitted. In fact, the students were then assuming leadership roles, and working better cooperatively to make decisions.

In a more recent study where the effect of problem solving methods in third grade science class was examined, the researchers found that student's science process skills improved significantly (Ince Aka, Guven, & Aydogdo, 2010). In fact, through the

problem solving process, students obtained skills related to scientific thinking, discovery and research.

Research skills. According to Brown (2009), "the research process presents an open-ended, inquiry-based approach to learning that, if facilitated well, can lead to numerous positive student learning outcomes" (p. 383). In fact, VanTassel-Baska (1989) recommended including research as part of the essential curriculum components. In addition, she advocated introducing challenging research skills beginning in kindergarten and progressing through high school. Incorporating research skills in the curriculum will help students develop skills associated with autonomy and independent learning (Brown, 2009). Several models have been developed to incorporate student research as a key element (Betts, 1985; Betts, 1986; Betts & Kercher, 1999; Brown, 2008 Renzulli, 1977; Renzulli & Reis, 1986, 1997)

The Autonomous Learner Model (Betts, 1985; Betts, 1986; Betts & Kercher, 1999) highlights the importance of developing lifelong learners through research. The model includes five dimensions with each having a different level of research skills development. The orientation dimension represents the first dimension during which the student focuses on deepening their understanding of the self by exploring their potential and developing interaction skills. The second dimension, individual development, focuses on developing the student in becoming autonomous in learning. In fact, students are provided with opportunities to develop the cognitive, emotional and social skills, concepts and attitudes necessary for learning. The third dimension, enrichment, provides students with opportunities to research and learn new and unique content related to area of interest. In this dimension, learners are exploring and broadening their knowledge of

many novel topics, as well as getting exposed to new ideas, opportunities, and investigation. The next dimension, seminars, is designed to further develop research skills by working in small groups. The students are given the opportunities to present their research. They then create evaluations that are used by others to assess their products and performances. The in-depth study dimension represents the fifth dimension where students are allowed to pursue an individual or group in-depth study over a long period of time. The study conducted should have complexity and depth in the content, follow examples of professional in the field, and then be presented to an audience. Through the five dimensions, the Autonomous Learner Model aims at developing independent learners who are responsible for the development, implementation and evaluation of their own learning.

The Enrichment Triad Model (Renzulli, 1977; Renzulli & Reis, 1986, 1997) includes three separate types of learning. Type I Enrichment, also known as General Exploratory Experiences, includes activities with the purpose of exposing students to a wide variety of disciplines, topics, issues, events, and field knowledge. Type II Enrichment, also known as Group Training Activities, consists of instructional methods and materials that are purposefully designed to promote the development of thinking processes. These include creative thinking, problem solving, critical thinking, and communication skills. Type III Enrichment provides students with activities and productions to investigate as a first-hand inquirer. In fact, students are engaged in real-world problems and acquire advanced level of knowledge and methodology that are used within particular disciplines.

Brown (2009) developed a research process depicting a continuous cycle that teachers should strive to see developed in their students (see Figure 2.1). According to this model, whichever method an individual chooses to conduct research, the process includes these major seven steps. In fact, the student will develop their skills and knowledge, as well as their critical and productive thinking.

Developing research skills in students has several benefits. In fact, according to Schack and Starko (1998),

> The focus of research is the discovery or production of new knowledge and understanding. This role is somewhat different for students who have traditionally been expected to consume information, not produce it. Researchers deal with questions without known answers, problems without effective solutions. Rather than re-examine what others have done, cutting-edge-researchers add to the body of knowledge by producing new information (p.1).

Research should not be viewed as solely some collection of information; it also includes the production of new knowledge. Through research, students will go through systematic inquiry and will discover their area of interests (Brown, 2009). When students are engaged in authentic, interest-based research project they are more motivated towards learning (Betts, 1985; Betts & Kercher, 1999, Clark, 1997; Renzulli, 1977; Renzulli & Reis, 1997; Schack & Starko, 1998). Studies have shown that students who participate in independent research experiences are more likely to maintain interest and career aspiration in college (Delcourt, 1993); experience improvement in self-concept and self-efficacy (Olenchak, 1991; Schack, 1986); and plan to pursue post-secondary education (Taylor, 1992).

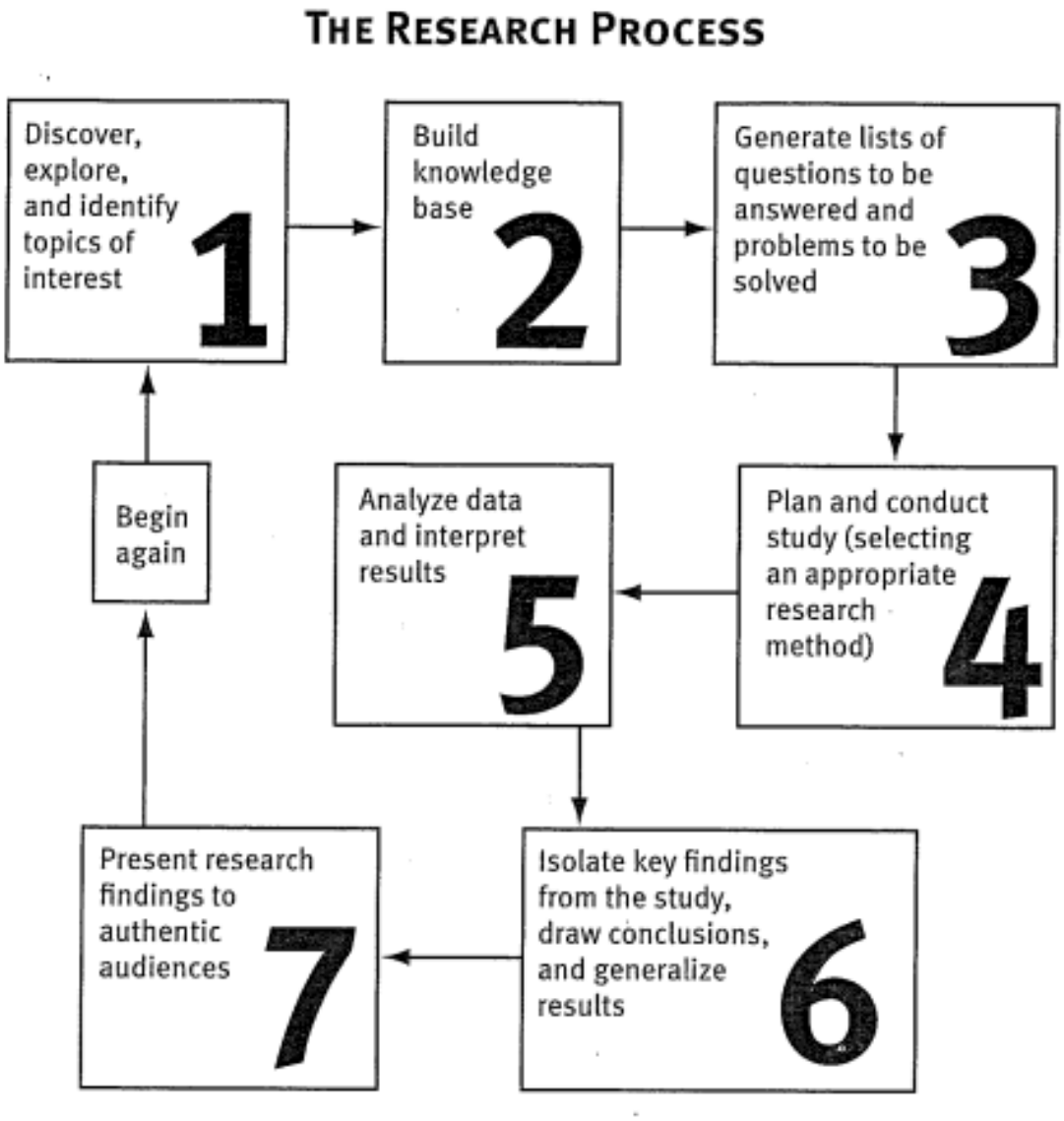

Figure 2.1. The research process (Brown, 2009)

The research process enables teachers to develop the important skills in their students (Brown, 2009). Teaching research skills represents a strategy that enables differentiation in the subject matter, process, as well as product.

Products. According to Maker and Nielson (1996), a product is "the tangible evidence of student learning" (p.186). VanTassel-Baska (1988) explained that products

are tool for evaluation of student synthesis capacities and should be considered as core activity of the curriculum.

According to Karnes & Stephens (2000), when creating a product students go through seven stages of product development:

1. Formulation of a topic;
2. Organization of production aspects;
3. Transformation of content;
4. Communication through products;
5. Evaluation;
6. Celebration; and
7. Reflection.

Although product development follows a general sequence, it is multifaceted in scope and sequence (Brown, 2009), which gives teachers the opportunity to differentiate, as well as incorporate a variety of content and process skills. When differentiating products, teachers should make sure they are authentic and relate to the real world (Maker & Nielson, 2005). In fact, the variety of products that students can create is abundant (see Figure 2.2); however, the selection should be done in accordance to the learning goal. For example, when working with gifted students to challenge their product development skills, VanTassel-Baska (1988) recommended that teachers increase the complexity in product demands rather than increasing the quantity of products. In other words, when giving an assignment that requires students to write a report summarizing the story being read, instead of asking gifted students to write five extra pages than the rest of the class, a better challenge would be to have them write a critique of the story.

Studies focusing on the development of diverse and challenging products during enrichment showed that students are more interested in the process over a longer period of time, and will then seek producing more creative work (Starko, 1986; Westberg, 1999). Research has also shown through the development self-selected study products, gifted underachieving student made positive gain during the course of the year (Baum, Renzulli, and Hebert, 1999). In fact, the majority of the students were no longer underachieving in their school at the end of the program. It is crucial to identify students from early age who are capable of producing sophisticated creative products in order to meet their needs and foster their high ability through accelerated learning (Delcourt, 1993).

A synthesis of best practices of qualitative differentiation is presented in Figure 2.3. This table represents a roadmap to guide differentiation opportunities in the classroom. Teachers should keep in mind that adaptations made to the subject matter, processes, and products should be qualitative, rather than quantitative. As Riley (2009) stated qualitative differentiation is "doing different kinds of things, not more of the same things" (p. 635).

In fact, the Ministry of Education (2000) explained that differentiation incorporates "well-thought-out, meaningful learning experiences that capitalize on students' strengths and interests" (p. 36). The principles presented in the table should be woven through acceleration and pacing options; which will be discussed in the following section.

Figure 2.2. Product ideas (Karnes & Stephens, 2000)

PRINCIPLES OF QUALITATIVE DIFFERENTIATION

Subject-Matter should be:	Processes should be:	Products should be:
• Abstract, centered around broad-based themes, issues, and problems • Integrated, making multidisciplinary connections • In-depth and with breadth • Self-selected based upon student interests and strengths • Planned, comprehensive, related, and mutually reinforcing • Culturally inclusive, appropriate, and relevant • Advanced in both complexity and sophistication • Gender-balanced and inclusive • Enriched with variety, novelty, and diversity • Embedded within methods of inquiry, emulating the work of professionals • Inclusive of moral, ethical, and personal dimensions • Explored through the study of the lives of gifted people	• Independent and self-directed, yet balanced with recognition of the value of group dynamics • Inclusive of a service component, or opportunity to share outcomes for the good of others, like the community or family • Stimulating higher levels of thinking (analysis, synthesis, and evaluation) • Creative, with the chance to problem find and problem solve • Accelerated in both pace and exposure • An integration of basic skills and higher level skills • Open-ended, using discovery or problem-based learning strategies • Real—mirroring the roles, skills, and expertise of practitioners • Designed to develop research skills; time management, organizational and planning abilities; decision-making processes; and personal goal setting • Metacognitive, allowing students to reflect upon their own ways of thinking and learning • Created with the aim of developing self-understanding, specifically in relation to giftedness • Facilitated by mentors, as well as teachers	• The result of real problems, challenging existing ideas, and creating new ones • Developed using new and real techniques, materials, and ideas • Evaluated appropriately and with specific criteria, including self-evaluation • Self-selected • Wide in variety • Designed for an appropriate audience • Transformations of ideas, shifting students from the role of consumers to producers of knowledge

Figure 2.3. Principles of qualitative differentiation (Adapted from Riley, 2004).

Rate

> Acknowledging that students learn at different speeds and that they differ widely in their ability to think abstractly or understand complex ideas is like acknowledging that students at any given age aren't all the same height. It is not a statement worth, but of reality (Tomlinson, 2001, p. viii).

Accordingly, the goal of differentiating rate is to align the instructions with the time that the student needs to learn new material. As previously said, if a student learns at fast pace, the goal is not to offer more of the same, but something qualitatively different. In order to accommodate the subject matter, process, and product to the student's needs, the teacher must ensure that instructional time is used effectively (VanTassel-Baska & Feldhusen, 1988). Thus, both acceleration and pacing are options to be used and should involve modification to subject matter, processes, and products (Riley, 2009).

Acceleration. Acceleration is an educational intervention that is ideally suited to gifted students (Feldhusen, 1985; Gallagher & Gallagher, 1994). Pressey (1949) defined the term acceleration as the "progress through an educational program at rates faster or ages younger than conventional" (p.2). Acceleration may be using pre-assessments to determine mastery of knowledge and skills and by using instructional arrangement that allow students to proceed through the curriculum at a pace that parallels with their ability (Callahan, 2009).

In 2004, *A Nation Deceived* (Colangelo, Assouline, & Gross, 2004) identified 18 different types of acceleration and divided them into two general categories based on the instructional management: subject-based accelerative options and grade-based accelerative options. Subject-based acceleration is an educational intervention which

allows the child to be exposed to knowledge, skills, and understanding beyond expected age or grade level. This acceleration category includes 10 different forms:

1. Compacted curriculum
2. Single-subject acceleration
3. Talent search programs
4. Correspondence courses
5. Distance learning
6. Independent study
7. Advanced placement courses
8. International baccalaureate
9. Mentorship
10. Credit for prior learning/testing out

On the other hand, grade-based acceleration is an educational intervention that allows the child to progress quicker through the k-12 curriculum and leave the k-12 school system earlier than the expected age. This accelerative category includes 8 forms:

1. Early entrance to kindergarten or first grade
2. Concurrent/dual enrollment
3. College-in-school programs
4. Grade skipping,
5. Non-grade/multi-age classrooms,
6. Multi-grade/combination classrooms,
7. Grade telescoping, and
8. Early admissions to college.

Acceleration in general has been researched, reviewed and discussed a great deal (Culross, Jolly, & Winkler, 2013). In the review of the research on acceleration, studies with quantitative data collected from both accelerated and nonaccelerated students of similar abilities have shown positive achievement effects (Kulik & Kulik, 1984; Rogers, 1991). In fact, when comparing with same-age group, the accelerated group outperformed the bright non-accelerated control group on achievement tests. By reviewing 314 studies, Rogers (1991) recommended certain acceleration practices to be done at certain grade levels in order to be most beneficial (see Table 2.2)

Table 2.2

Recommended Methods of Acceleration at each Grade Level (Rogers, 1991).

Grade Level	Type of acceleration
Elementary	– Early entrance – Grade skipping – Non-grade classes – Curriculum compacting
Middle	– Grade skipping – Grade telescoping – Concurrent enrollment – Subject acceleration – Curriculum compacting
Senior-high	– Concurrent enrollment – Subject acceleration – Advanced Placement Classes – Mentorship – Credit by examination – Early admission to college

Some teachers and parents believe that gifted students are psychologically vulnerable and therefore fear that acceleration will lead to social and emotional disturbance (Winebrenner, 2001). However, studies on acceleration have shown no evidence of social or emotional difficulties. In their study, Hoogeveen, Hell, and Verhoeven (2009) focused on the development of self-concept and social status of secondary students who have either been admitted early to school or skipped a grade and compared to same grade-peers. The overall findings showed no difference on total and general self-concept between accelerants and non-accelerants. Two studies focused on the current lives of former early entrants to college. Noble et al. (2007) examined the work, education and social affiliation, while Boazman and Sayler (2011) looked at well-

being, satisfaction, and some characteristic traits. Both studies found that early entrants to college lead a successful life and are satisfied with their outcomes.

Pacing. Pacing is extending or shortening the time allowed for students to interact with the content (Hayes, 2012). For students who are facing difficulties with the content, deceleration of instruction would aid them in mastering the necessary knowledge and skills (Edgecombe, 2011) and accelerating instruction aids gifted and advanced learners. Bickel and Bickel (1986) explain that decisions about the pace of instruction directly affect student learning outcomes.

Simmons and his colleagues (2007) examined the role of instructional time on their future early literacy skills with kindergarten students identified at-risk. Students were randomly assigned to receive either 15 or 30 minutes of highly explicit and systematic intervention focused on phonological awareness and alphabetic understanding. The results showed that students who had more instructional time made significantly more growth on measures of letter identification, phonemic decoding, and word reading, than students who received a shorter amount of instructional time. Similarly, Gersten and his colleagues (2008) investigated the role of time on the outcomes of students identified at-risk for reading difficulties. The findings showed that students who received the intervention for a longer period, spent twice as much time and showed significantly greater growth on fluency-based measures of sigh words, word analysis, and passage level reading.

When decelerating the instructions, teachers should make sure to provide appropriate content as well. For students at risk, Bickel and Bickel (1986) explained that pacing works better when provided with explicit and direct instruction. Bereiter and

Engelmann (1966) proposed the initial approach to direct instruction, which is a common practice in special education, and has gone through modifications over the years. Gersten, Carmine, and Woodward (1987) identified the six critical features that are still currently considered crucial:

1. Teaching a skill or concept in an explicit step-by-step fashion
2. Developing student mastery at each step of the process
3. Correcting student errors at each step
4. Gradually fading from teacher-directed activities towards independent work
5. Giving students adequate, systematic practice with a range of examples
6. Providing a cumulative review of newly learned concepts

Teachers should monitor student's performance, ability, and learning rate to make decision about pacing of instructions. Direct instruction, drill, and practice used with extended time on content results in positive learning outcomes for students with special needs (Gersten et. al, 2008).

Children progress in learning at different rates and teachers should adjust the instructional practices to meet their needs. For students who are capable of learning the content at a fast rate, accelerative options should be considered. Pacing is also an option that teachers can use, in both cases, if the child needs a faster rate or slower rate (Colangelo, Assouline, & Gross, 2004).

Environment

Although modifications in content, rate, environment and preference are all equally important, Marker and Nielson (1996) placed emphasis upon the modification of the environment:

> Learning environment modifications are prerequisites for making modifications in content, process and product. The learning context shapes input, processing, and output. The environment affords certain kind of learning experiences; when the environment is properly modified, great opportunities are afforded to its

> inhabitants. Without needed modifications to the environment, opportunities are restricted (p. 23).

Modification in the environment will help make the necessary changes in the other areas (i.e., content, preference and rate; Hunt & Seeley, 2009). In fact, "the way classrooms are structured reflects the teacher's thoughts and philosophies on how students learn and how the students, in turn, will perform" (Hunt & Seeley, 2009, p. 37). For example, if the goal is learning by investigation, then the learning environment should be structured for exploration by making sure students have access to many resources, are able to interact with other students in the classroom, and have the opportunity to test their investigations. The teacher should take into consideration the student's interests, learning needs, and characteristics when planning (Clark, 2002).

According to Kaplan (2009), the classroom environment can provide a support system:

> 1. The environment serves as a constant reinforcement to focus students' attention and interest on the elements of the curriculum, and
> 2. The environment provides opportunities for students to engage in self-directed activities that review and enrich the elements of the curriculum. (p. 125)

Hence teachers should be aware of the different ways the classroom can be organized by thinking about the readily available resources such as bulletin boards and those that can be added such as learning centers or stations (Clark, 2002; Hunt & Seeley, 2009; Kaplan, 2009). When creating a learning station, teachers should take into consideration the follow seven steps:

1. Choose an area of focus.
2. Outline the cognitive and affective goals and objects by asking, "what should students gain?"

3. Design activities that are differentiated in subject-matter, processes, and products, thus reflecting student abilities and interest, ranging from simple to complex, short-term to long-term, structured to open-ended, and concrete to abstract.
4. Collect resources and materials to enhance activities. Package the resources and activities with title, instructions, and procedures for recordkeeping and assessment.
5. Give clear directions, both written and oral, so students can be successful in working independently.
6. Design a system for monitoring student involvement and evaluating their performance (e.g., journal, peer evaluation, self-evaluation, or teacher-student contract).
7. Evaluate the overall use and effectiveness, making adjustments to better meet the students' needs (Heacox, 2002; Riley, 2009; Tomlinson, 1999; Winebrenner, 2001).

Learning stations are invitations for learning. Although they might be topic driven, they allow for differentiating content, process, product, rate, and preference (Riley, 2009). Each of these steps allows the teacher to provide the students with choice and encourages independent or small group work (Heacox, 2002). In fact, when students are aware of their own learning needs and are allowed to make decision about their needs, they become more productive, especially by developing creative products (Olenchak & Renzulli, 1989).

Preference

Differences among students can also be seen in learning preferences. The goal in differentiating preference is to give students the opportunity to "select the learning resources that best fits their way of learning. The tasks vary in format and response dimensions. Students may choose to work in small groups, large groups, pairs, or individually" (Johnsen, Haensly, Ryser, & McIntosh, 1994, p. 56).

Tomlinson (1999) recommended that all students in differentiated classrooms be given an opportunity to examine and share their individual differences early on. The strategies she suggested are:

- Graphing their perceived strengths and weaknesses of skills, understandings, and likes;
- Writing autobiographies about themselves as learners; and
- Answering questions about positive and negative school experiences, best and worst subjects, or effective and ineffective ways of learning.

Getting to know the students will help in determining their preferences and give them appropriate choices. In fact, Renzulli and Smith (1984) stated, "students may become more involved in learning what has to be learned if we offer choices of how information of skills can be acquired" (p.47). Also, Griggs (1991) explained that accommodation to individual's style or preference for learning can result in positive attitudes towards learning, increased productivity, academic achievement, and creative production.

In summary,

> Teachers in differentiated classes use time flexibly, call upon a range of instructional strategies, and become partners with their students to see that both what is learned and the environment are shaped to the learner. They do not force-fit learners into a standard model. You might say these teachers are students of

> their students… They do not reach for standardized, mass-produced instruction assumed to be a good fit for all students because they recognize that students are individuals (Tomlinson, 1999, p.2).

Research has supported differentiated practices for students in four major areas: (a) the knowledge and skills needed as well as desired by the student, which represents the content; (b) the time needed to learn new material, which represents the rate; (c) the type of setting that enhancing the learning experience, which represents the environment; and (d) the student's preference in learning, which represents the preference.

Research Related to Teachers' Use of Differentiated Instructional Practices

Although the literature on instructional practice recommends the use of differentiated instruction, the majority of research related to teachers' use of differentiated instructional practices has shown, in general, teachers tend not to use this practice (Anderson, 2007; Latz, Speirs Neumeister, Adams, Pierce, 2009; Tomlinson, 2003, 2008; Wormeli, 2005). Schumm and Vaughn (1991) and Tomlinson et al. (2003) found that although teachers may believe in responsive instruction and differentiation, there was a concern regarding its feasibility:

- Although teachers may be knowledgeable about differentiating, they seldom employ it.
- Few teachers instruct in ways that are culturally and racially sensitive.
- When differentiated instruction is used, it is reactive and tangential, not planned and substantive.
- Even special and gifted educators, who may be knowledgeable about students' multiple exceptionalities, fail to use differentiation to maximize optimal learning.

- Few teacher preparation programs provide in-depth information on effective, responsive instruction.

Teacher resistance to differentiation, as well as lack of success implementing differentiation to the degrees it should be, can be associated with (a) individual characteristics, (b) the classroom, (c) the campus, (e) the school district, and (f) the state rules and regulations.

Individual Characteristics

Anderson (2007) explained that teachers often feel it is unrealistic to believe they will be able to differentiate instruction to meet the needs of all their students. Also, teachers "perceive individualized instruction to be a responsibility that is nearly impossible" (Waldron & McLeskey, 2001, p. 176). In a national survey commissioned by Fordham Institute, more than 80% of teachers considered differentiated instruction to be "very" or "somewhat" difficult to implement. Hawkins (2009) explained that differentiating instruction has failed to become common practice in classroom because of the lack of teacher confidence, lack of teacher efficacy, and lack of perseverance.

Young (2011) found that teachers' concerns revolved around their ability to translate differentiated instructional theory into practice. Also, Latz et al. (2009) reported that k-6 classroom still infrequently used differentiated instruction due to the gap from pre-service training to implementation in the classroom. On the other hand, Erman (2006) found that teachers who perceived themselves as proficient in differentiated instruction actually used differentiated instruction significantly more consistently than those who did not.

In addition to this belief of differentiation being an "impossible mission" and the lack of confidence in implementing it, research has shown that teachers also resist change (George, 2005). As Tomlinson (2005) stated, teachers develop a set of routines, and it is very difficult to drastically change these routines. In fact, Dugger (2008) found that teachers who seem particularly averse to differentiation also are resistant to any kind of long-term changes in teaching methods.

Within the individual characteristics, it is apparent that teachers who understand differentiation still do not implement it due to their beliefs, their confidence level, and position towards change. However, some studies have found that teachers do not implement differentiation because they do not understand the concept. In fact, Tomlinson (2005) explained that teachers will not incorporate differentiation into their instructional practices because they are unclear of what students should gain from such learning activities. King-Shaver (2008) found that the lack of differentiation in the classroom may be explained by the teacher's misunderstanding of what a truly differentiated classroom should look like. This poor understanding of differentiated instruction has also been enhanced with some teachers lacking the knowledge about diverse instructional strategies (Kapusnick & Hauslein, 2008; Tomlinson, 2008; Waldron & McLeskey, 2001).

In summary, the knowledge and beliefs that teachers carry into classroom practices might be a barrier as well as support for implementation of differentiated instruction.

The Classroom

The diversity of learners within the classroom has been reported as a major concern for teachers. (Latz. et al., 2009). In fact, classroom teachers don't believe that

they can individualize instruction for 10% of the class without jeopardizing the learning for the remaining 90% (Walther-Thomas & Brownell, 2001). Pederson and Lui (2003) also found that teachers worry about students not accepting individualized instruction.

In addition, the wide range of learners has put teachers in a situation where they fear they will fail to recognize the needs of individual students (Kapusnick & Hauslein, 2008; Tomlinson, 2008; Waldron & McLeskey, 2001). As the principal stated in the interview conducted by Petrilli (2001) "there's no such thing as a homogenous group. One kid is a homogenous group. As soon as you bring another student in, you have differences. The question is: how do you capitalize on the difference?" (p. 53). Hence, this requirement to meet every student's needs when the class is comprised of no students who are exactly the same, builds fear in teachers concerning the complications and difficulties of individualizing (King-Shaver, 2008), which in turn influences teachers to avoid differentiating their curriculum and instruction.

The Campus

The campus represents the interactions taking place between school personnel; accordingly, if the belief system supports differentiation as a successful pedagogical method that uses student differences of readiness, interest, and learning preference to improve achievement, then teachers will adopt differentiation practices in the classroom (Hawkins, 2009).

Support from the administrator or principal of the campus has been identified as a major influence on the teacher's use of differentiation (Kapusnick & Hauslein, 2008). When teachers feel uncertain about the school administration's position regarding

differentiated instruction, then there is a lower probability of actually implementing such instructional practices in the classroom (Pederson & Lui, 2003).

A study by Hertberg-Davis and Brighton (2006) suggested that a successful implementation of differentiated instruction requires the school principal's explicit commitment and support. In many cases, administrative support in the form of professional development programs may be inconsistent or completely absent (Hawkins, 2009). In fact, Dugger (2008) found that teachers believe there are insufficient professional development opportunities available to make the transition to using differentiation instruction comfortable. As Davis (2009) noted, most teachers are expected to use differentiation in their classes but are provided with little more than a single day of training, which is not enough. Hawkins (2009) suggested providing teachers with a number of professional development topics related to the same theme such as best practices, reflection on individual leaners, and modeling strategies to help overcome inertia. In addition, Tomlinson and McTighe (2006) recommended that teachers should be exposed to classrooms in which differentiation was successfully implemented so they have a good grasp of the concept.

For differentiation to be successful, all members of the teacher team at different grade levels should "think about what is good for all children and then determine how they can work together" (Walther-Thomas & Brownell, 2001, p.178). Weinbaum et al. (2004) identified two factors that contributed to failed implementation of differentiation: (a) the newness of collaboration, and (b) the lack of an environment, which encourages a collaborative professional learning community.

Not only does the campus environment influence teacher's practices of differentiation, but also the school district's culture and regulations.

School District

The resources, the time for planning or collaboration, and the required paper work have been reported as influences on instructional practices (Deal and White, 2009). Bloom (2009) identified time and resources as two major requirements needed to develop lessons with multiple learning preferences. However, teachers do not seem to have that luxury. According to Hawkins (2009) teachers need to deal with the lack of resources and class time, which influence their decisions of using certain instructional practices over the other. Young (2011) also found that teachers report the lack of time to present individualized materials as a major factor influencing their decision not to differentiate instruction. Similarly, Lewis and Batts (2005) reported the lack of planning time as one of the biggest barriers in differentiated instruction for teachers. One teacher summarized the obstacles by stating, "I have neither the time nor the funding for all that" (Nunly, 2006, p. 29).

Although the school districts have their own culture, the state rules and regulations also influence teacher's instructional practices.

State Rules and Regulations

Though differentiation is being promoted in the field of education and by research, its application is limited by the fact that students will be evaluated using standardized tests whose results will be scrutinized by state and federal governments (Levy, 2010). Teachers feel constrained because they need to get all of the standards

taught before the high-stakes test take place at the end of the year (Lane, 2007). In fact, high-stakes testing has been identified as an influence on teacher's perception of the feasibility of implementing differentiated instruction (Latz et al., 2009). Young (2001) found that teachers use traditional instruction because they fear not using content that conflicts with the state's official curriculum and standards. In fact, King-Shaver (2008) explains that teacher do not implement differentiation because they fear moving away from the authorized curriculum may result in lower standardized test scores.

Although instructional practices occur at the classroom level, they are influenced by different factors at different levels. Research related to differentiation has shown that its implementation is influenced at (a) an individual level, (b) the classroom level, (c) the campus level, (e) the school district level, and (f) a state and federal level.

Research Related to Beginning Teachers

The literature on beginning teachers can be viewed using four major themes: (a) models describing the teacher's career, (b) perceptions of beginning teachers about their preparation for teaching, (c) factors influencing beginning teachers' practices in the classroom, and (d) changes in beginning teachers through their experiences in the classroom.

Models Describing Teacher's Careers

The path to becoming a teacher varies due to a wide range of factors, such as the school's approach, the teacher's training, and the laws and regulations of the country (Bayer, 2009). These paths have been described in a number of frameworks (e.g., Day, 1999; Fessler, 1985; Huberman, 1993, 1995; Steffy, 2000).

Fessler's Teacher Career Cycle Model. Fessler's (1985) and Fessler and Christensen (1992) career cycle model was developed by synthesizing data gathered through observation of common practices, interviewing 160 teachers, conducting case studies, and reviewing previous literature on adult development, life stages, and teacher's career stages. According to Fessler, the model should not be viewed as fixed, but rather as a paradigm offering the best explanation of teachers' career path at the moment the data was collected.

The Teacher Career Model offers a comprehensive picture by incorporating the context of influences from personal and organizational factors (see Figure 2.4). This is the first model that presents contextual influences and a view of teacher career cycles as dynamic and flexible rather than static and fixed. The career progression process responds to the environmental conditions. A supportive nurturing reinforcing environment can assist a teachers in a positive progression, while interference and pressure can impact negatively their career path. Among the variables from the individual's personal environment that impact the career path are family support, positive critical incidents, life crises, individual dispositions, avocational outlets, and developmental life stages experienced by the teacher. These facets may impact individually, or in combination, the career cycle. The organizational environment for teachers include the school, the school's regulations, management styles of administrators and supervisors, the atmosphere of public trust present in the community, the expectation the community places upon its educational system, the activities of professional organization, and the union atmosphere present in the system.

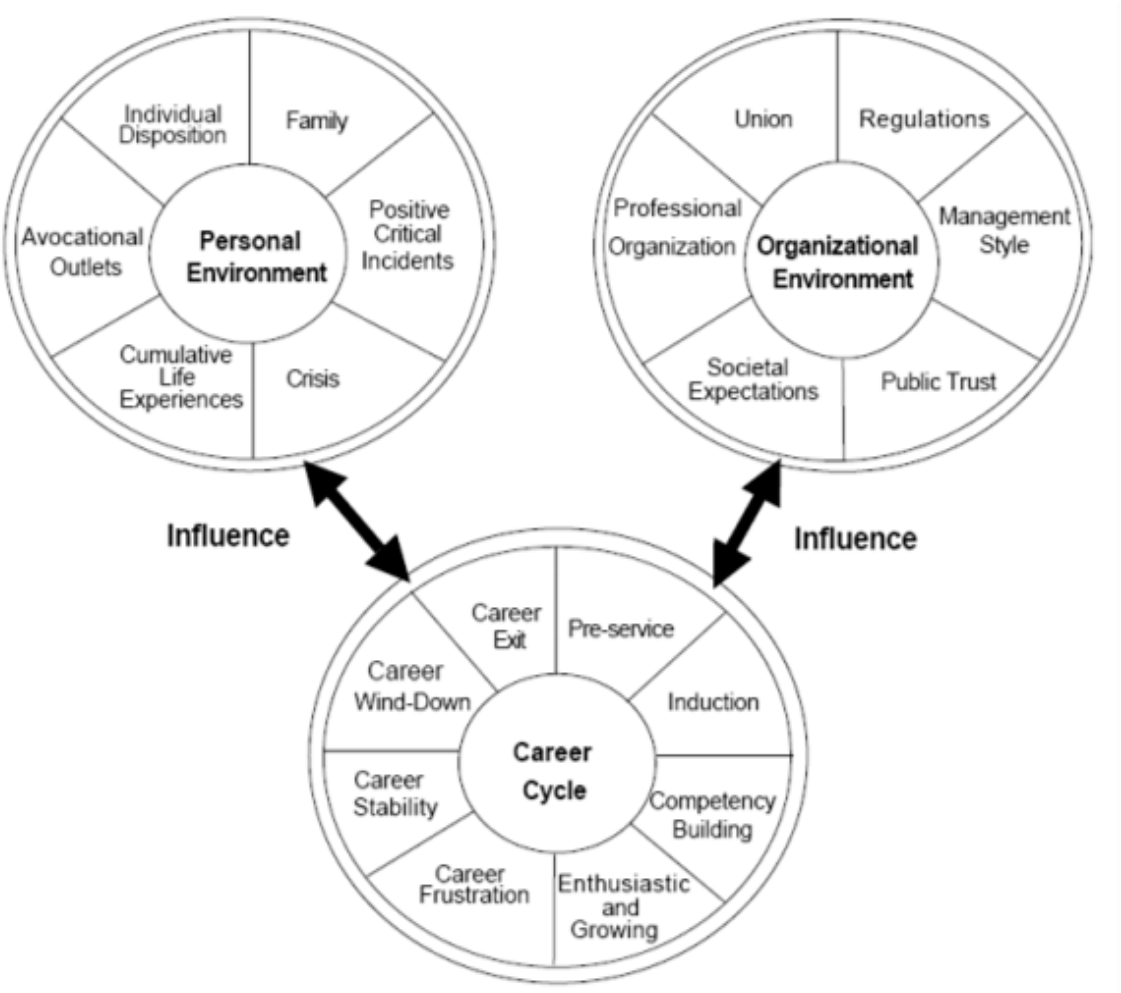

Figure 2.4. The Teacher Career Cycle (Fessler & Christensen, 1992)

The career cycle in this model includes eight progressive stages; however, the move from one stage to another is not linear, but rather dynamic in response to environmental factors. Pre-service is the first stage that incorporates the preparation for the professional role. During this stage, the individual is exposed to the field through college or university courses and supervised training. The individual then goes through the Induction phase that represents the first few years of teaching. During this stage, the

teacher is learning to become part of the school community. According to Fessler, teachers in this phase strive for acceptance by students, peers, and supervisors, as well as surviving and dealing with everyday problems and issues. The next stage, Competence Building is when the teacher focuses on improving his or her teaching abilities and skills. During this stage, teachers are more receptive to new ideas and eager to improve their skills by seeking out new materials, methods and strategies, and willingly attend workshops and professional development conferences. Then, teachers move into the Enthusiastic and Growing phase. In this stage, teachers enjoy and look forward to teaching because they have reached a high level of competence and continue to progress. Fessler explained that teachers in this phase can be considered as supportive and helpful when it comes to identifying appropriate in-service education activities. However, the teachers then pass through Career Frustration, where doubts about their career choice and sense of frustration begin to emerge. When teachers arrive at a plateau in their career, they enter the Stability phase. At this point in their career, some focus on fulfilling the terms of their work contract while others still feel enthusiasm for teaching. Again in the Career Wind-Down phase, two common characteristics can describe teachers. During this stage teachers are preparing to leave the profession. While some perceive it as a pleasant period to reflect on their positive experiences, others perceive it as a bitter period either due to resentment of job termination or waiting to leave the job they are not enjoying. Career Exit represents the stage when teachers leave the profession. The leave can be for retirement or a temporary career exit.

This model represents a dynamic interaction where teachers move in and out of stages in response to environmental factors from both the personal and organizational

dimensions. At first glance, a reader might have the tendency to view the Teacher Career Cycle as linear. However, a more accurate picture of the process represents a teacher's development and career path as dependent on the dynamics of the individual's surrounding. This model suggests that schools and school systems may want to examine their practices, policies, and dynamics in order to support teachers.

Huberman's Life Cycle of Teachers. Huberman (1989, 1993, 1995) reviewed the research and literature related to sociology, life cycle, and stages in teaching. In addition, he did extensive qualitative research involving interviews with 160 teachers to understand their experiences. Accordingly, he built a schematic model representing the teacher career cycle (see Figure 2.5).

Teachers entering the profession are considered part of the first phase of the model, Career Entry. Individuals in this period can be characterized as surviving and discovering their profession and typically have been teaching for one to three years. They are faced with challenges of using the training they have received, with little to no support. As this exploration is occurring, they start shifting into a stabilization phase where they become committed to this profession. In this phase, they are seen as teachers by themselves and others and feel comfortable with their identity as member of their school community.

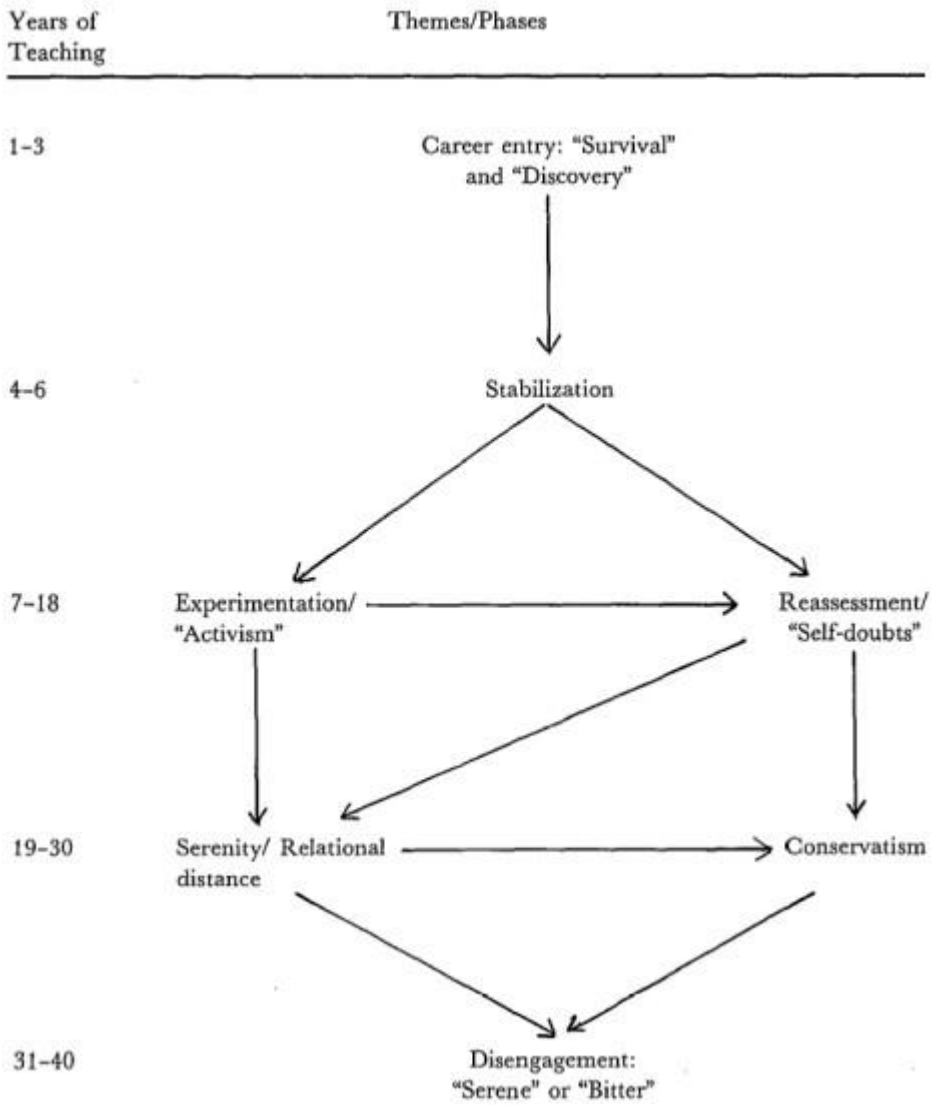

Figure 2.5. Model sequences of the teacher career cycle: A Schematic Model (Huberman, 1989)

Then, the career cycle model represents multiple paths teachers can take which converge again towards the end of their career. The most harmonious stream is shown on the left side of the path in figure 2.5 (i.e., Experimentation/Diversification→ Serenity→Disengagement [Serene]); while the most problematic is shown on the right side of the path (i.e., Stoking-taking/Interrogations→ Conservatism→ Disengagement (Bitter).

In addition, teachers might move from the most harmonious stream to the most problematic stream. The phases the teacher passes through depends not only on the individual but also on the context. The individual variables include the person's association, the person's drive, self-assessment, and the human development phases. The context variables include institutional support or constraints, classroom characteristics, resources, and peers.

The Experimentation/Diversification phase represents teachers who have consolidated the characteristics of their school community, have a repertoire of instructional practices to refer to, and have a stable group of teachers. These circumstances lead the teacher to attempt to increase one's effectiveness within the classroom, one's impact on students, and one's repertoire of ideas and strategies. On the other hand, the Stoking-taking/Interrogations phase includes teachers who feel being a teacher is routine, self-question their career path, self-doubt their impact as teachers, and are confused or dissatisfied with their job. These conditions make teachers focus on themselves and review their lives, maybe considering becoming administrators.

Teachers who have arrived at a phase of relaxation, secure sense of self, and a more mellow drive are considered in the Serenity phase. In this phase, teachers are more reflective, self-accepting, and no longer feel the approval of others as being important. On the other hand, the Conservatism phase includes teachers who have negative attitudes towards education, are less motivated to have structural reform, and increase their level of rigidity with classroom management and choice of instructional practices.

Towards the end of their career, teachers enter the phase of Disengagement when they tend to increase introspection. Teachers in this phase make way for others, either by

mentoring them and are proud of their own work (serene) or by being enthusiastic leaving the line of work (bitter).

The model developed by Huberman represents the trend of teacher's career path. Although the individual and context are considered to influence the path of the teacher, there is no explicit conceptualization of the significance of the impact.

Life Cycle of the Career Teacher. Steffy and Wolfe (1997) used information from their personal experiences, observations of teachers, and the extant literature on the nature of the teaching environment, the nature and practice of reflection, the relationship between adult development and teaching, and the professional development of teachers to identify six distinct phases in the development continuum of teachers. The Life Cycle of the Career Teacher model describes a directional progression of developmental phases from the individual's first practicum experience to beyond the time they leave the profession (see Figure 2.6). The phases are progressive and are influenced by a variety of factors such as the individual's characteristics, school context, and support system (Steffy, Wolfe, Pasch, & Enz, 2000; Steffy & Wolfe, 1997). The main characteristic that propels the teachers to a positive growth is the strive for excellence standards, reflection, and commitment. Hence this model not only represents the individual as an active participant in his or her development but also considers the interaction between the person and their environment as playing a role in the growth process. Committed classroom teachers pass through six phases during their careers: Novice, Apprentice, Professional, Expert, Distinguished, and Emeritus.

The Novice phase represents pre-service learning when the individual encounters classroom experiences through practicum experiences. During this phase, individuals are

acquiring skills necessary to effectively guide a classroom. Through courses, observations, and the practice of teaching, each individual becomes more aware of teaching skills and sensitive to student's needs and the characteristics of a learning environment.

Figure 2.6. Phases of teacher growth (Steffy & Wolfe, 1997)

The next phase, known as the apprenticeship, is the period in which teachers receive for the first time the full responsibility for planning and delivering instructions independently. Teachers at this career phase are energetic, idealistic, and ready to use what they have learned. The growth during this phase represents the integration and synthesis of knowledge and pedagogy. In addition, the teacher starts developing confidence. Typically this period spans over the first three years of teaching.

Teachers who continue to grow enter the Professional Teacher phase. During this phase, teachers focus more on student's feedback, can be characterized as patient, kind and understanding, and become the backbone of school. Although administrators must acknowledge their valuable contribution, teachers at this level are given less attention and

are taken for granted. For support and guidance, teachers seek assistance from their colleagues. Typically, teachers in this phase are happiest when interacting with children and do not have aspiration for becoming administrators.

Teachers who meet the expectations required for national certification are in the Expert Teacher phase (Steffy, 1989). Teachers at this level are able to nurture all students, regardless of their ability level or background. In fact, these teachers anticipate student response, modifying and adjusting instruction to promote growth of every student in a safe environment. Once teachers arrive at a level that exceeds the expectation for what teachers know, then they become Distinguished Teachers. Teachers at this level have the capability of impacting educational decisions at the city, state, and national levels.

The Emeritus phase marks a lifetime of achievement in education. When teachers retire, they should be recognized and honored for their commitment to students. The majority of teachers who retire after this lifelong commitment continue to serve the profession through tutoring, becoming substitute teachers, and mentoring.

Teacher's growth through these phases is achieved by individual effort and supportive environmental contexts. Steffy and Wolfe (1997) explained that teachers propel themselves through a Reflection-Renewal-Growth Cycle (see Figure 2.7). Through this cycle, teachers connect their current knowledge and skills to their vision and desired actions. From this purposeful process, teachers can expand their strategy repertoire, acquire new knowledge, and develop self-awareness.

Figure 2.7. Reflection-Renewal-Growth cycle (Steffy & Wolfe, 1997)

Factors related to developmental issues and social context also influence the teacher's growth. In fact, teachers are adults and develop as persons, as well as professionals. In addition, the school is a community incorporating individuals of multiple ages and various stage of development (i.e. students, teachers, administrators, and other school personnel). Hence this diversity creates a developmental community propelling conflict and imbalance in one's own point of view. Furthermore, the social context is ever changing with new students, new teachers, and new laws and policies.

The models presented in this section explain the career path of teachers and uncover some trends (see Table 2.3). They all recognize that teachers have different aims, different dilemmas, and different contexts at various moments in their profession. There is clearly a great deal of common ground to be found, which stresses the unique characteristics for teachers beginning their career. The first few years of their career seem to share acclimating to the new environment, identifying ways of applying their previous knowledge and training, and developing experience. Also all three models have a phase representing the end of the teaching career. Furthermore, the path within those two phases, although divided and named differently, have some common streams. There seems to be a period following the first phase in which teachers develop more confidence

in teaching and seek more knowledge. Both the Teacher Career Cycle and the Life Cycle of Teachers recognize that teachers have to go through smooth phases and problematic phases. In addition, these two models view teachers as reverting to and moving from a phase to another; while, the Life Cycle of Career Teacher is the only one that identifies the path as being linear. However, in all of these circumstances, progression is seen as influenced by factors related to the individual and the context, although only the Teacher Career Cycle represents both in the figurative model.

While present in all of the models, the context factors identified by each model vary. The Teacher Career Cycle model identifies factors related to the organizational environment of teachers. These include the school's regulations, management styles of administrators and supervisors, the atmosphere of public trust present in the community, the expectation the community places upon its educational system, the activities of professional organization, and the union atmosphere present in the system. On the other hand, the Life Cycle of Teachers considers the context variable as the institutional support or constraints, classroom characteristics, resources, and peers. The Life Cycle of the Career Teacher also considers the school environment and the support system as factors influencing the progression of teachers, however, the main characteristic that propels teachers to a positive growth is their motivation toward striving for excellence, standards, reflection, and commitment.

Table 2.3

Three Models of Teacher's Career

Model	Influence		Linearity	Beginning and ending career phase	Smooth and problematic phases
	Individual Characteristics	Environmental Context			
TCC	X	X		x	x
LCT	X	X		x	x
LCCT	X	X	x	x	

Note. TCC= Teacher Career Cycle. LCT= Life Cycle of Teachers. LCCT= Life Cycle of the Career Teacher

Beginning Teachers' Perceptions of their Strengths and Needs

Research has consistently demonstrated the importance of well-prepared teachers because of their influence on student achievement (Darling-Hammond, 2004 2006; Rowan, Correnti, & Miller, 2002; Sanders & Horn, 1994). Therefore, understanding the perception of beginning teachers about their preparation for teaching is crucial. Research in this area has shown that beginning teachers have negative views on diversity (Caspersen, 2013; Paine, 1999), feel prepared in some areas and unprepared in others (Casey & Gable, 2011; Clark, Jones, Reutzel, & Andreasen, 2013), and change their perceptions (Casey & Gable, 2011; Caspersen, 2013).

The ease and beliefs of beginning teachers in facing diversity in their classrooms seem to be an issue. Paine (1999) found that teachers often see differences within the classroom as weakness or problems. Through open-ended questions, Paine realized that the majority of beginning teachers believed that minimizing differences or treating different learners the same is best. According to the teachers, the class is diverse in terms of motivation, ability, personality attitude, interest, race, learning style, pace, and prior educational experience. Although being aware that each child is different and that every

class is different, fairness does not preclude recognizing diversity. In fact, differences were described as problems and barriers. Very few held the view that diversity might be a positive resource. The negative perception of diversity was supported in a more current study (Caspersen, 2013). Caspersen found that beginning teachers had a negative attitude towards inclusion and this attitude was similar to more experienced teachers within their school. In fact, out of the 218 beginning teachers in the study, 212 believed that inclusion is a nice principle, but hard to implement practically, and 211 believed that some students demand so much that they are better off being taught outside the classroom.

The fact that beginning teachers perceived diversity negatively (Paine, 1999) and had a preference for homogenous classrooms (Caspersen, 2013) might be due to their perceived lack of ability to meet the needs students with different needs. In fact, using a mixed method approach, Casey and Gable (2011) studied the degree to which beginning teachers felt prepared by the education program to differentiate instruction. Thirty beginning teachers answered 28 Likert-type items from the Survey of Beginning Teachers' Perceived Preparedness and Efficacy for Differentiation Instruction. The results showed that beginning teachers felt least prepared in using compacting and learning contracts, incorporating higher-level thinking tasks, using independent study, and using high level cooperative strategies. On the other hand, they felt most prepared in using varied resources, a variety of materials, support mechanisms, accommodating diversity, and formative and summative evaluations.

In a later study, Clark and his colleagues (2013) also found that, teachers expressed the need for additional help in making instructional decision to meet individual student needs and in bridging theory and practice. In addition, beginning teachers

expressed a desire for continual and more interaction, feedback, and consultation from their pre-service teacher educators now that they are facing the realities of teaching in today's classroom.

Although teachers have expressed a lack of confidence in their ability of teaching a heterogeneous class (Caspersen, 2013; Clark et al., 2013), the number of years of teaching appears to influence the teachers' perceptions of their preparation for teaching (Casey & Gable, 2011). For example, Casey and Gable (2011) reported that teachers' ratings of their overall preparedness increased over the first three years of their teaching. In addition, the teacher's overall preparedness also increased with the number of certifications held. Similarly, Clark and his colleagues (2013) found that the perceived ability to teach reading increased from the time the individual was a pre-service teacher till the end of his or her first in-service year of teaching

Beginning teachers viewed preparation programs as preparing them better in some areas than others (Casey & Gable, 2011; Clark, Jones, Reutzel, & Andreasen, 2013). These perceptions seemed to change as they become more experienced within the school context (Casey & Gable, 2011; Caspersen, 2013). Several factors, as well as the experiences in the classroom, may contributed to this change which will be discussed in the next section.

Growth towards Expertise

Research on beginning teachers has shown that teachers experience change, during their beginning teaching years, and their instructional practices can be distinguished from experienced and expert teachers.

Change during their beginning teaching years. In their self-study, Olsher and Kantor (2012) found that change in beginning teachers can occur through questioning process during the mentoring situation, which included the interaction between an experienced teacher educator and a beginning teacher. In fact, the beginning teacher gradually shifted the focus from looking solely on content-related topics to topics related to pedagogical issues and professional identity. The nature of the interaction between the experienced teacher educator and beginning teacher also changed. Instead of the mentor providing answers to questions asked by the beginning or suggesting a practice, they became colleagues who brainstormed together ideas related to teaching and learning.

Kang and Cheng (2014) used a qualitative research approach to examine whether an English as a Foreign Language (EFL) beginning teacher's classroom practice changed over time. They found that the teacher modified the practices in the way she taught language. In fact, during the first semester the teacher used form-focused drills and exercises that were modified into meaning-focused language activities such as dialogues and role playing during the semester. According to the teacher, this change occurred due to an increased knowledge of the students' abilities. Her teaching of language skills also changed, by eliminating sentence-by-sentence translation of the text and using oral text translation to using more guided-discovery activities. The teacher justified this change of moving from a teacher-led classroom to a student-led classroom because she had learned this approach during her pre-service training. In addition, after attending a conference, the teacher's classroom discourse changed from the frequent use of "ok" as oral feedback to more immediate and positive oral feedback. Regarding the use of teaching materials, her teaching changed from merely using the textbook to supplementing the textbook with

multi-media materials. The last area of change was in her differentiation practices. After the mid-term examination that took place at the end of the first semester, the teacher began assigning different tasks to students according to their varying abilities.

Differences between beginning teachers and expert teachers in instructional practices. Chen and Rovegeno (2013) examined the characteristics of beginning and expert teachers in using a constructivist-oriented approach to teaching elementary school physical education. Three beginning and three expert teachers were interviewed, videotaped, and rated using an observational rubric. The analysis of the results showed that both expert and beginning teachers used constructivist-oriented approaches; however, the beginning teachers did not use all the characteristics of a constructivist-oriented approach. The beginning teachers encouraged students to be actively engaged in exploratory and discovery learning activities, guided them to elaborate on their initial responses, and helped them share their ideas about exploring a movement variety task. Some of the characteristics that were more apparent in the expert teacher's lesson, but were lacking in the novice's lesson included: facilitating self-regulation, critical thinking, activating prior knowledge, and emerging relevance.

Another study also found a distinction between expert and beginning teachers. Through a mixed-method approach, Huang and Li (2012) examined the patterns in beginning and expert teachers' awareness of classroom events. Ten experts (at least 14 years of teaching) and ten beginning teachers (less than 3 years of teaching) watched two videotaped lessons and wrote responses to open-ended questions. One video reflected reform-oriented teaching, while the other demonstrated traditional features of teaching. The analysis showed a difference in the awareness of classroom events. Expert teachers

seemed to notice more mathematically essential aspects and contextual aspects. In fact, experts paid greater attention to developing mathematical thinking and abilities, developing knowledge coherently, developing higher-order thinking, teacher's enthusiasm, and students' participation. On the other hand, beginning teachers paid more attention to classroom atmosphere, teachers' image, teacher's instructional language, and board writing.

In summary, as teachers move through their career, changes occur in their instructional practices. The first change occurs when teachers move from pre-service to in-service. Now that they are in classrooms, their experiences in teaching changes from being a learner to being a teacher, which in turn affects the knowledge that frames their instructional decisions (Deal & White, 2009; Watske, 2007). In addition, their experiences as beginning teachers influenced their beliefs (Deal & White, 2009). Through collaboration with other teachers they become their colleagues (Olsher & Kantor, 2012), shifting their focus from looking solely on content-related topics to topics related to pedagogical issues (Kang & Cheng, 2014; Olsher & Kantor, 2012). In addition, teachers start changing their classrooms from teacher-led to student-led instruction (Kang & Cheng, 2014; Watzke, 2007). Although changes occur within the first few years of practicing teaching, beginning teachers and expert teachers can be distinguished. Expert teachers use the entire instructional method, while beginning teacher focus on only some aspects of the method (Chen, & Rovegeno, 2013). Also, expert teachers pay attention to different aspects of the classroom than do beginning teachers (Huang & Li, 2012). The growth from beginning to expert teaching and use of instructional practices might be

explained by the factors influencing the teachers, which will be discussed in the next section.

Factors Influencing Beginning Teachers Practices in the Classroom

Research in the area of influences on beginning teachers have shown that the factors affecting classroom practices are at: (a) individual level, (b) classroom level, (c) school campus level, (d) district level, and (d) state level.

Individual level. In their qualitative study, Roehrig and Luft (2004) found that teacher's content knowledge, views on the nature of science, teaching beliefs, and pedagogical knowledge collectively influenced the implementation of inquiry-based science instruction. These factors could not predict the implementation of inquiry-based instruction if considered independent factors but needed to be considered as a whole. They collected data from 14 teachers in their first, second or third year of teaching and included demographic information, open-ended interviews regarding the knowledge about inquiry, semi-structured interviews about teacher beliefs, monthly classroom observations, and a nature of science questionnaire. The analysis showed that as a beginning teacher, holding a contemporary view of the nature of science was a necessary but not sufficient condition to implement inquiry-based instruction. Teachers who held predominantly student-centered beliefs successfully implemented inquiry-based instruction. Content knowledge alone did not guarantee the implementation of inquiry-based lessons. The beliefs about the content and attitude regarding students (i.e. low ability or high ability) played a primary role in determining practices. Hence prior beliefs,

knowledge, and understanding, reinforced during their teacher education program, influence the implementation of inquiry-based lessons.

Reflection and experience have been found in several studies as factors influencing teachers' instructional practices (Deal, & White, 2009; Kang, & Cheng, 2014; Watzke, 2007). By collecting data on a beginning English middle school teacher, Kang and Cheng (2014) found teacher's experiences and reflections were major influences on her classroom practices. The teacher was able to identify the change in instruction, as well as the reason for the changes made. The teacher went through thought processes to identify the weaknesses and adjust the practices being used in the classroom. Similarly, Watzke (2007) found that increased experience in the field and reflections on one's own teaching skill changed instructional and academic considerations. Through bi-monthly electronic entries representing reflection on current events, as well as success and challenges in teaching, the pedagogical practices of nine teachers changed to become more student-centered, allowed creativity, used task performance, and responded to student affect. In another study, Deal and White (2009) found that disposition factors such as the natural inclination to critically reflect on one's own teaching and learning was a support and major influence on instructional practices. In fact, the beginning teachers in this study who had written reflections about their instruction used these to aid them in reviewing, evaluating, and modifying the practices they were using with students.

Other studies have also found that dispositions and the frame of mind are factors that influence teacher's classroom practices (Clark, Jones, Reutzel, & Andreasen, 2013; Roehrigh, Turner, Grove, Schneider, & Liu, 2009). Jones and her colleagues (2006) explored the factors influencing the beliefs and practices of second and third year

beginning prekindergarten and kindergarten teachers. They found that teacher's beliefs were mirrored in their teaching practices. In fact, the majority of the participants in the study considered themselves as major influences on their teaching. Positive self-being was a source of support and included personal traits and abilities such as being a hard worker and wanting to do well.

Roehrigh and his colleagues (2009) also found that beliefs played a major role in teaching practices. The analysis of the data in their study showed that expert teachers and the strongest beginning teachers had complete alignment between effective practices exhibited and promotive beliefs expressed. On the other hand, the two weakest beginning teachers had complete alignment between ineffective practices exhibited and undermining beliefs expressed. However, only two teachers had mismatch of promotive and undermining practices and beliefs. From the analysis of the complete data, the authors developed a model showing that beliefs about exemplary teaching practices as well as views of students had an effect on classroom practices, which was mediated and moderated by the sense of responsibility for class outcomes. In addition, students' academic engagement and motivation, influenced by the classroom practices, fed into the teachers' metacognitive awareness, and in turn affected the teachers' sense of responsibility. This model suggested a mechanism by which beginning teachers may improve the quality of their practice.

Deal and White (2009) found across participants that teacher preparation programs are considered a support for their instructional practices. In fact, participants stated using the teaching strategies they learned during their coursework, field experiences, and supervisor support made positive influences on classroom practices. In

addition, the courses they took related to special education provided them with justification and strategies to implement modification for meeting the needs of individual students. Jones and her colleagues (2006) also found that teachers considered their teacher preparation program to be a source of support for their teaching practices. The nine teachers in the study reported previous experiences during pre-service teaching as the major positive contribution to their current practices. However, the beginning teachers wished they received more field experience, learned classroom management, and were exposed to teaching expectations during their college years. In a more recent study, Clark and his colleagues (2013) found that beginning teachers used strategies, concepts, and ideas they learned in their preparation programs during their teaching of reading. However, all beginning teachers in the study expressed the need for additional help in making instructional decision to meet individual student needs and in bridging theory and practice. In addition, beginning teachers expressed a desire for continual and more interaction, feedback, and consultation from their teacher educator now that they were facing the realities of teaching in today's classroom.

The number of certifications and continued education has also been seen as an influence on teacher's practices on the level of the individual. Casey and Gable (2011) found that teacher's overall preparedness increased with the number of certifications held. In fact, teachers holding at least three certifications rated higher in their preparedness to differentiate when compared to teachers with one or two certifications. Similarly, Jones and his colleagues (2006) found that teachers considered continuing education through college, workshops, and professional organizations as being a source of support for their teaching practices.

Classroom level. Through their exploration of the factors influencing the beliefs and practices of second and third year beginning prekindergarten and kindergarten teachers, Jones and her colleagues (2006) found that beginning teachers considered the class composition as a barrier. In fact, teachers mentioned that the number of children in the classroom and their unique behaviors made it harder to give individualized attention.

By qualitatively studying five beginning secondary teachers, He and Cooper (2011) also found classroom demographics as being a factor identified by teachers as restricting their classroom practices. While teachers located at a school with high ethnic minority population wanted the principal's support when disciplinary issues occurred, they had to face disciplinary issues alone. They learned more about their students' needs through discussions about their interests, families, and backgrounds and were then able to adjust their instructional practices. Understanding students' interests and abilities has also been cited as a factor influencing instructional decisions by beginning teachers in their study (Deal &White, 2009).

Using classroom observation and interviews, Roehrigh and his colleagues (2009) developed a model representing the factors aligning and influencing teachers' practices and beliefs. In their model, classroom practices affect students' academic engagement and motivation, which in turn feeds back into the metacognitive processes of teachers which affects their classroom practices because of the teachers' sense of responsibility toward class outcomes. According to this model, their model represents a loop where, along with and through other variables, classroom practices and student academic engagement and motivation influence each other.

Students' performance is another influence on teacher's instructional methods emerging from the classroom level (Clark, Jones, Reutzel, & Andreasen, 2013; Olsher & Kantor, 2012). Using a mixed methods approach, Clark and his colleagues (2013) found that teachers took into account assessment data to make decisions regarding lesson content and instructional practices. Similarly, using a self-study approach, Olsher and Kantor (2012) realized that students' performance helped them shift the focus of their instructional planning from purely content-related to include pedagogical issues. This change in perspective highlighted a new issue to consider--whether students were satisfied with their teaching strategies, and whether students had learned what was intended.

Campus level. Olsher and Kantor (2012) found that beginning teachers' learning and modification of their instructional practices was dependent on their interactions with mentors. Through the use of a dynamic questioning process by the mentor that focused on assessing the knowledge and understanding of students, the beginning teacher gradually shifted the focus from looking at content-related topics solely to topics related to pedagogical issues. In addition, the nature of the interaction was similar to two colleagues who are brainstorming together ideas related to teaching and learning. Stanulis, Little, and Wibbens (2012) also found that mentoring aided beginning teachers. Using a quasi-experimental method, participants in the treatment group met monthly in a three-hour study group and received monthly one-on-one coaching with mentor. The follow-up survey with participants from the treatment and the control group showed that mentors had a supportive influence on beginning teachers by helping them set up the

classroom for discussion, ask questions, use evidence to support thinking, and link ideas during discussion.

Other individuals who are also considered as a source of influence on teachers' practices are fellow teachers. Daves, Morton, and Grace (1990) found that reading instructional practices had a low correlation with practices learned during teaching education programs. Although the teachers knew that their instructional methods could be improved, the teaching methods they decided to use were the ones promoted by fellow teachers. Likewise, Casey, and Gable (2011) found that despite feeling prepared to differentiate instruction, the views of cooperating teachers presented challenges for beginning teachers when attempting to differentiate. In fact, traditional teaching approaches were the norm, which imposed restrictions on beginning teachers to implement their pre-existing beliefs about differentiation. In another study, different teaching philosophies of coworkers were also identified as a source of barriers (Jones et al., 2006). When co-workers adopted traditional ways of teachings, beginning teachers had difficulties implementing what they had learned during their teaching programs because it was viewed as play and chaos.

Another school personnel who have been found in different studies as being a major influence on teaching practice is the school's principal (Daves, Morton, & Grace, 1990; Hertberg-Davis & Brighton, 2006; Youngs, 2007). By surveying new teachers, Daves et al. (1990) found that teachers knew how to improve their instructional methods, but needed support from the principal and fellow teachers to make the desired adjustments. Youngs (2007) studied qualitatively how principals' direct and indirect actions and beliefs influenced new teachers' experiences. In fact, principals have major

influence on teachers' professional growth through direct interactions and facilitating the work between mentors and mentees. In addition, the principal's beliefs were reflected through their decisions and actions. Teachers had more opportunities to address instructional issues when the principals were willing to analyze their instruction, had experience in instructional practices, and guided the mentors.

The principal's influence has also been studied specific to differentiation. Using a qualitative case study, Hertberg-Davis and Brighton (2006) examined the characteristics of principals that impacted the teacher's willingness and ability to differentiate instructions for all learners. Participants included four principals representing three middle schools and an academic team at each grade level. All teachers went through professional development and monthly individual coaching sessions aimed at increasing the teachers' knowledge and skills in differentiation. Data were collected through interviews, classroom observations, and documents from the coaching sessions and through secondary data from lesson plans, assignments, and student work. The analysis showed that the level of a principal's verbal and behavioral support of differentiation had a major influence on the teachers' implementation of differentiation. In fact, the classroom practices mirrored the principal's views and priorities towards differentiation. The analysis also highlighted the importance of administrative support in terms of resources and emotional support. These elements were crucial for teachers to feel comfortable with differentiation curriculum, instruction and assessment. In addition, when the principal had a desire to see changes and believed that change was possible, then the implementation of differentiation was effective. However, the encouragement of the principals was more effective when it was systematic and had a long-term vision.

In their article, Roberson and Roberson (2008) suggested two strategies for principals that aid in meeting the needs of first-year teachers. The first strategy recommended that principals establish regular professional development meetings with new teachers. These meetings should aim at getting to know the new teachers, getting to know their needs, sharing meaningful information related to teaching, and providing opportunities to share experiences. The second strategy recommended for principals was to provide teachers with meaningful instructive feedback. This feedback should help new teachers use their previous training and meet the school and districts goals for student achievement.

Although not considered school personnel but still at the campus level, parents have been found in many studies as a major factor influencing beginning teacher's instructional practices. Even though teachers are concerned about parent's reactions towards their teaching, usually parents have been seen as a support of their teaching strategies (Deal & White, 2009). Using a case study approach, Deal and White (2009) found that teachers valued parents' contributions especially when they volunteered in helping within the classroom or preparing materials needed for the following lesson. Beginning teachers considered parents' involvement as a support for their instructional practices (Daves, Morton, & Grace, 1990; He & Cooper, 2011). Drawing from 45 survey responses, Daves, Morton and Grace (1990) found that teachers rated parents as the fourth most important support in making adjustments in instructional practices, which followed principals being ranked first, fellow teachers as second, and resources as third. In addition, He and Cooper (2011) found that beginning teachers considered the lack of parental involvement as a factor restricting their classroom practices. In fact, beginning

teachers hoped for additional involvement from parents whose child's academic success and behavior were of concern. They believed that parents can be the greatest ally or biggest enemy depending on their involvement with the teachers and their children.

District level. Although individual school personnel and their interactions with beginning teacher influence teacher's practices, the school-wide system is also considered as a major contributor to teacher's instructional approaches (Case & Gable, 2011; Daves, Morton, & Grace, 1990; Deal & White, 2009; He & Cooper, 2011; Jones et al., 2006). In their study, Case and Gable (2011) found that even though teachers felt prepared to differentiate, the lack of school-wide support included lack of resources, and lack of time to collaborate with other teachers. These system obstacles made it difficult for teachers to deviate from traditional structures and differentiate instruction to meet the needs of the classroom. Similar findings were reported by He and Cooper (2011) who examined the concerns and struggles of student teachers as they became first-year teachers. These beginning teachers stated that a lack of school-wide support and a lack of resources were factors restricting their classroom practices. In previous research, resources have also been found as a major influencer on beginning teacher's instructional practices (Daves, Morton, & Grace, 1990; Jones et al., 2006). By studying the changes from pre-service to the teacher's first year of teaching, Deal and White (2009) found that first-year teachers cited the lack of time to prepare, the lack of time to collaborate with their teams, and the large amount of paper work required as a negative influence on instructional practices, which was not considered during pre-service teaching. Jones et al. (2006) also found that school-district duties including daily tasks, scheduling and time

issues being mentioned by beginning teachers as a source of barriers for their teaching practices.

State level. The culture of the state in regards to standards and high-stakes testing has been identified as a major source of influence on teachers' instructional practices, especially for beginning teachers. In fact, Case and Gable (2011) found that beginning teachers consider high-stakes testing as a pressure on them and hence adjusted their instructional practices to make sure they were able to teach all required materials before the end of the academic year. Similar findings were reported by He and Cooper (2011) who examined the concerns and struggles of student teachers as they became first year teachers. These beginning teachers stated that standardized testing was a major concern and guided their decisions during lesson planning.

The research on factors influencing beginning teachers' instructional practices have identified several factors originating at the individual level, the classroom level, the campus level, the district level and the state level. Table 2.4 summarizes the findings in terms of level, the areas within each source, and the supportive literature.

At the individual level, teachers' knowledge and teacher preparation program appear to influence teachers' instructional practices in the classroom. Another area of influence, also within the individual level, is the types of beliefs (promotive or undermining), and beliefs about the students' academic engagement and motivation.

Within the classroom, the class composition and the student characteristics are both areas of influence. Beginning teachers considered the number of children, the students' behaviors and the demographics as playing a major role in their planning and

implementation of different instructional methods. Beginning teachers also mentioned understanding and getting to know their students better as a factor that supports their instructional practices within the classroom. They explained having a better knowledge of each student's engagement and motivation towards the academic subject, interests, performance, background, and ability can help them develop appropriate teachings methods.

At the campus level, some school personnel have been identified as influencing instructional practices. The principal, mentors within the school, and fellow teachers can be viewed as either a barrier or a source of support for instructional methods. The instructional practices used by beginning teachers are also influenced by parents. Whether parents contribute through volunteering or are involved with their children's academic success also helps or hinders teacher's practices.

Furthermore, at the district level, beginning teachers tend to be influenced by the district's system and policies. Research found that beginning teachers consider the availability of resources, time to collaborate, paper work, and time to prepare as guiding their planning, decisions, and implementation of instructional practices. At the state level, the standards and high-stakes testing are considered influences on teacher's instructional practices.

Table 2.4

Influences on Beginning Teacher Instructional Practices Identified by the Literature

Level	Areas of influence	Supportive Literature
Individual	Knowledge	➢ Content knowledge (Roehrigh & Luft, 2004) ➢ Pedagogical knowledge (Roehrigh & Luft, 2004) ➢ Teacher preparation program (Deal & White, 2009; Clark, Jones, Reutzel, & Andreasen, 2013) ➢ Number of certification (Casey & Gable, 2011) ➢ Continued Education through college, workshop and professional organizations (Clark, Jones, Reutzel, & Andreasen, 2013)
	Beliefs	➢ Frame of mind (Jones, Burts, Buchanan, & Jambunathan, S., 2006 ➢ Teaching beliefs (Roehrigh & Luft, 2004) ➢ Promotive or undermining beliefs (Roehrigh, Turner, Grove, Schneider, & Liu, 2009) ➢ Beliefs about students' academic engagement and motivation (Roehrigh, Turner, Grove, Schneider, & Liu, 2009)
Classroom	Classroom composition	➢ Number of children (Jones, L. D, Burts, D. C., Buchanan, T., K., & Jambunathan, S., 2006) ➢ Student's behaviors (Jones, L. D, Burts, D. C., Buchanan, T., K., & Jambunathan, S., 2006) ➢ Demographics (He & Cooper, 2011)
	Student characteristics	➢ Engagement and motivation (He & Cooper, 2011; Roehrigh, A. D., Turner, J. E., Grove, C. M. Schneider, N. & Liu, Z., 2009) ➢ Interest (Deal & White, 2009; He & Cooper, 2011)

(continued)

Level	Areas of influence	Supportive Literature
		➢ Student performance (Clark, Jones, Reutzel, & Andreasen, 2013; Olsher & Kantor, 2012) ➢ Background (He & Cooper, 2011) ➢ Ability (Deal & White, 2009)
Campus	School personnel	➢ Mentors (Olsher & Kantor, 2012; Stanulis, Little, & Wibbens, 2012) ➢ Fellow and team teachers (Casey & Gable, 2011; Daves, Morton, & Grace, 1990; Jones, L. D, Burts, D. C., Buchanan, T., K., & Jambunathan, S., 2006) ➢ Principal (Daves, Morton, & Grace, 1990; Hertberg-Davis & Brighton, 2006; Youngs, 2007)
	Parents	➢ degree of contribution (Daves, Morton, & Grace, 1990; Deal & White, 2009; He & Cooper, 2011)
District	School policies	➢ Resources (Casey & Gable, 2011; Daves, Morton, & Grace, 1990; He & Cooper, 2011; Jones, L. D, Burts, D. C., Buchanan, T., K., & Jambunathan, S., 2006) ➢ Time to collaborate and prepare (Casey & Gable, 2011; Deal & White, 2009) ➢ Paper work (Deal & White, 2009; Jones, L. D, Burts, D. C., Buchanan, T., K., & Jambunathan, S., 2006)
State	Culture	➢ Pressure of high-stakes testing and standards (Casey & Gable, 2011; He & Cooper, 2011)

Theoretical Framework: Bronfenbrenner's Bio-Ecological System

In response to the restricted method and scope of research being conducted at the time, Bronfenbrenner proposed a broad conceptual and operational framework for research, the bio-ecological system (Bronfenbrenner, 1976, 1977, 1994). According to Bronfenbrenner, progress of educational system and processes will occur when researchers do not restrict themselves to the laboratory, but also carry their research in real-life educational settings. In addition, it is crucial to understand that development within the educational setting is a function of set of systems at two distinct levels. The first level refers to the relationship between the individual and the surroundings (i.e., person-environment), and the second level refers to the relationships occurring between the surroundings (i.e., environment-environment). Hence studying these two levels should be the focus for educational research and constitutes the ecology of education (Bronfenbrenner, 1976).

Bronfenbrenner's bio-ecological system considers the influence on an individual's development within the context of the complex system of relationships that form his or her environment. This framework suggests that the joint product of the variety of dimensions within the environment and the personal attributes of the specific individuals influence the individual's development. In fact, the bio-ecological system goes beyond just providing a framework for identifying the multi-system factors that influence the individual, but also considers the individual's topology. In other words, the setting and the individual are not understood as different sets but as interplaying forces that influence the individual.

The Bio-Ecological System

In order to understand Bronfenbrenner bio-ecological system, it is important, first, to understand the defining properties. The properties were explained by Bronfenbrenner (1994) through two propositions.

> Proposition 1 states that, especially in its early phases, and to a great extent throughout the life course, human development takes place through processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate environment. To be effective, the interaction must occur on a fairly regular basis over extended periods of time. Such enduring forms of interaction in the immediate environment are referred to as proximal processes. (Bronfenbrenner, 1994, p. 38)

The first property as defined by Proposition 1 explains that human development is not unidirectional, but rather a reciprocal process. There is interrelatedness between the person, the context, the time, and the occurring processes (Bronfenbrenner, 1994, 1999, 2005). However, the nature of proximal processes varies according to aspects of the individual and of the context.

> Proposition 2 states that the form, power, content and direction of the proximal processes effecting development vary systematically as a joint function of the characteristics of the developing person; of the environment-both immediate and more remote- in which the processes are taking place; and the nature of developmental outcomes under consideration. (Bronfenbrenner, 1994, p38)

This second property identifies the three sources of dynamic force: (a) the person, (b) the environment, and (c) the developmental outcomes. Thus, in order to use the bio-ecological system as a framework, the research should consider the person, the context, the time, and the occurring processes (Bronfenbrenner, 1994, 1999, 2005). The conceptualization of the bio-ecological system is defined in a model representing a set of nested structures (see Figure 2.8).

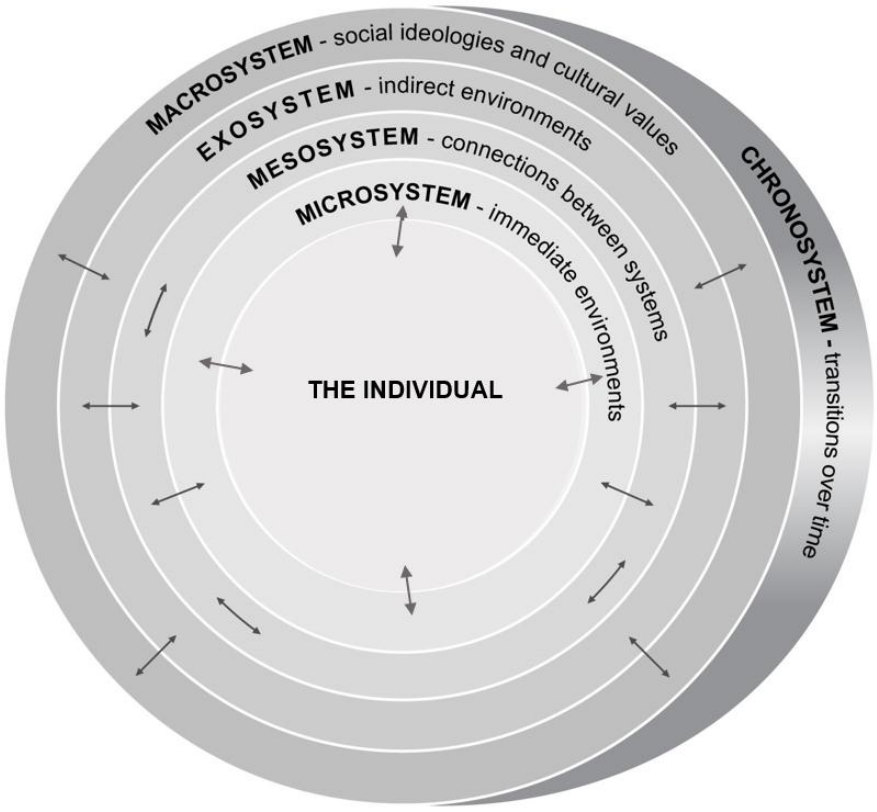

Figure 2.8. Representation of the Bio-Ecological system model

For Bronfenbrenner, the bio-ecological system is unique to each individual representing a series of nested and interconnected structures. The inner most structure is the individual. Then, the most proximal and significant structure is the individual's microsystem. The remaining three structures are less immediate but still influence the individual development. The mesosystem represents the connection between the elements of the microsystem. The following structure is the mesosystem, which refers to the environmental influences that not directly interact with the person, but even so influence the setting of the individual, which in turn affects the individual. The most removed structure from the individual is the macrosystem, which represents the societal ideology and cultural values. Hence, the relations between the active individual and the active

multi-level ecology constitute the basic process of human development, which occurs over time forming the chronosystem.

The Individual

Although Bronfenbrenner acknowledged the biological and genetic aspects of the person, he devoted more attention to the personal characteristics the individual brings into the environment (Bronfenbrenner, 1994, 1995, 2005). According to Bronfenbrenner, the individual possesses personal characteristics that support, create barriers, or even prevent engagement in sustained interaction with and in the immediate environment (Bronfenbrenner, 2005). The individual is not a blank slate on which the environment makes its impact, but rather a growing and dynamic entity having specific characteristics (Bronfenbrenner, 1979). The individual progressively moves into and restructures the context.

Bronfenbrenner (1995) divided the personal characteristics of the individual into three types: demand, resource, and force. Demand characteristics refer to those that may influence initial interaction between individual because of the expectation formed immediately. Examples of demand characteristics include the individual's age, gender, and physical appearance. The other two personal characteristics are not immediately apparent. Resource characteristics represent what the individual brings along to the context. These include past experience, skills, ability, and material resources (e.g., housing, educational opportunities, or food). While the force characteristics consist of the individual's unique temperament, motivation, persistence, and the like.

Bronfenbrenner (1995) divided the individual's personal characteristics into three types to illustrate the different roles of the individual during change of the context. One

way the change can occur would be in a relatively passive manner where a person changes the environment by simply being present and hence others interact with him or her differently because of the demand characteristics. Another way the change can occur is through a more active manner where the resource characteristics of the individual change the environment. The last way the change can occur is by being most active in which the individual intentionally exerts changes in the environment by using his or her force characteristics.

Ecological Systems

The ecological system represents the environment in a nested arrangement of structures. However, it is crucial to keep in mind that the environment is defined as relevant to the development processes. In addition the ecological system is not limited to a single setting but extends to incorporate interconnections between different settings. The structures in the ecology system are referred to as the microsystem, mesosystem, exosystem, and macrosystem and will be defined in what follows. However, since Bronfenbrenner's theory of human development was in continual state of development until his death in 2005, the definitions provided are those found in his latest book (Bronfenbrenner, 2005).

Microsystem. Bronfenbrenner explained that the microsystem

> involves the structure and processes taking place in an immediate setting containing the developing person (e.g., home, classroom, playground). (Bronfenbrenner, 2005, p. 80)

This structure represents the relationships between the developing person and the environment containing that person. It includes the pattern of activities, social roles, and

interpersonal relations experience by the developing person (Bronfenbrenner, 1979, 1994, 2005). Any physical, social, and symbolic features that the individual encounters face-to-face are considered part of this immediate structure.

In educational psychology research, where the teacher is considered the developing individual, the physical features of the microsystem includes the classroom, the playground, the school building, the resources, and any other school related materials, objects, or structure. The social features of the microsystem of the teacher include the students, fellow teachers, the principal, the parents, and any other school personnel. The symbolic features of the microsystem for the teacher includes the subject matter being taught, the language being used, the classroom policies, the school policies, and any other systematic description of a space without the physical object or materials (Bronfenbrenner, 1979, 1994, 2005).

> *Mesosystem.* The mesosystem, which constitutes the second ecological structure, comprises the linkages and process taking place between two or more settings containing the developing person (e.g., the relations between home and school, school and workplace). In other words, the mesosystem is a system of microsystems." (Bronfenbrenner, 2005, p. 80)

This structure is formed through the links and interconnections that take place between the features of the microsystem. For a teacher, the mesosystem might include the communication between students, between students and fellow teachers, between fellow teachers, between parents and students, between parents and fellow teachers, between fellow teachers and the principal, and so on. It also might include the social networks, after school programs, and school activities that link the individuals from the microsystem in a new setting (Bronfenbrenner, 1976). The mesosystem is harder to

identify without first defining the feature of the microsystem for the specific teacher being studied.

Exosystem. The exosystem, which represent the third ecological structure,

> encompasses the linkage and processes taking place between two or more settings, at least one of which does not ordinarily contain the developing person, but in which events occur that influences processes within the immediate setting that does contain the person (e.g., for a child, the relation between the home and the parent's workplace; for a parent, the relation between the school and the neighborhood peer group). (Bronfenbrenner, 2005, p. 80)

This structure includes any immediate environment having the individuals in the microsystem, but not the developing person in question. In general, for teachers, the exosystem includes the student's home and its relation to the school, and the school district and its relation to the school (Bronfenbrenner, 1976). Other environments might be taken into consideration, depending on the developing individual being studied.

Macrosystem. The macrosystem, which is the last ecological structure,

> is defined as an overarching pattern of ideology and organization of the social institutions common to a particular culture or subculture. In other words, the macrosystem comprises the pattern of micro-, meso-, and exosystems characteristics of a given society or segment thereof. It may be thought of as a societal blueprint for a particular culture or subculture. (Bronfenbrenner, 2005, p. 80)

This structure includes educational, legal, and political system carrying information and ideology that explicitly and implicitly define and motivate individuals to behave in certain ways. For teachers, this structure includes high-stakes testing policies, government curriculum decisions, and national evaluation (Bronfenbrenner, 1976). The components of this structure influence the individual on a large scale in regards to what, why, and how to interact with others.

Chronosystem

Although the dimension of time was mentioned since the conception of the bio-ecological system, it was not until later that Bronfenbrenner decided to include it as a dimension (Bronfenbrenner, 2005).

> A chronosystem encompasses change or consistency over time not only in the characteristics of the person but also of the environment in which that person lives (e.g., changes over the life course in family structure, socioeconomic status, employment, place of residence, or the degree of hecticness and ability in everyday life). (Bronfenbrenner, 1994, p. 40)

This added structure extends the parameter of the environment so that time is taken into consideration. Instead of looking at the chronological age alone as a factor of influence, this structure considers the time as an attribute of the developing individual and of the surrounding environment (Bronfenbrenner, 1994, 2005). For teachers, this might include the years of teaching.

Having defined and outlined the structure of the bio-ecological system, an examination of how to study this construct follows.

Using Bronfenbrenner's Bio-Ecological System

The bio-ecological system, as defined above, helps in identifying the different factors influencing the developing individual. However, it is crucial to understand that there are interrelations among those systems and that the researcher should consider the person, the context, the time, and the occurring processes (Bronfenbrenner, 2005).

In addition, according to Bronfenbrenner (1976),

> it is only when two similar but different systems are put side by side, that once can begin to see clearly the nature of differences between them. The systematic juxtapositions of the similar but different constitutes the core of experimental methods and creates its magnifying power….It is from this [experimental] perspective that the primary purpose of the ecological experiment becomes not

> hypothesis-testing but discovery- the identification of those system-properties and processes that affect, and are affected by, the behavior and the development of the learner (p.6).

In order to detect the factors and structures of the bio-ecological system that constitute the context-individual interaction for the developing individual, differentiating among two similar but different systems is key. As a result of this procedure, detection of the features within each structure is more precise and sensitive.

The bio-ecological system is a framework suggesting that the joint product of the variety of dimensions within the environment and the personal attributes of the specific individuals influence the individual's development. This framework is unique to each individual representing a series of nested and interconnected structures. The inner most structure is the individual. Then, the most proximal and significant structure is the individual's microsystem. The following structure, the mesosystem, represents the connection between the elements of the microsystem. The next structure is the mesosystem, which refers to the environmental influences that not directly interact with the person, but even so influence the setting of the individual, which in turn affects the individual. The most removed structure from the individual is the macrosystem, which represents the societal ideology and cultural values. Hence, the relations between the active individual and the active multi-level ecology constitute the basic process of human development, which occurs over time forming the chronosystem.

By merging the literature related to influences on teacher's instructional practices and the bio-ecological system framework developed by Bronfenbrenner, the following systems were identified (Figure 2.9):

- The individual or the teacher, included his or her knowledge, beliefs, views, and psychosocial abilities;

- The microsystem or the elements at the classroom level, consisted of the classroom composition, and the students characteristics;
- The mesosystem or the campus level and the interactions within the campus, encompassed the school personnel such as the principle and the fellow or team teachers, as well as the parents;
- The exosystem or the school district level included the school policies related to time, resources, and paper work; and
- The macrosystem or the state level represented the culture regarding the implementation of standards and high-stakes testing.

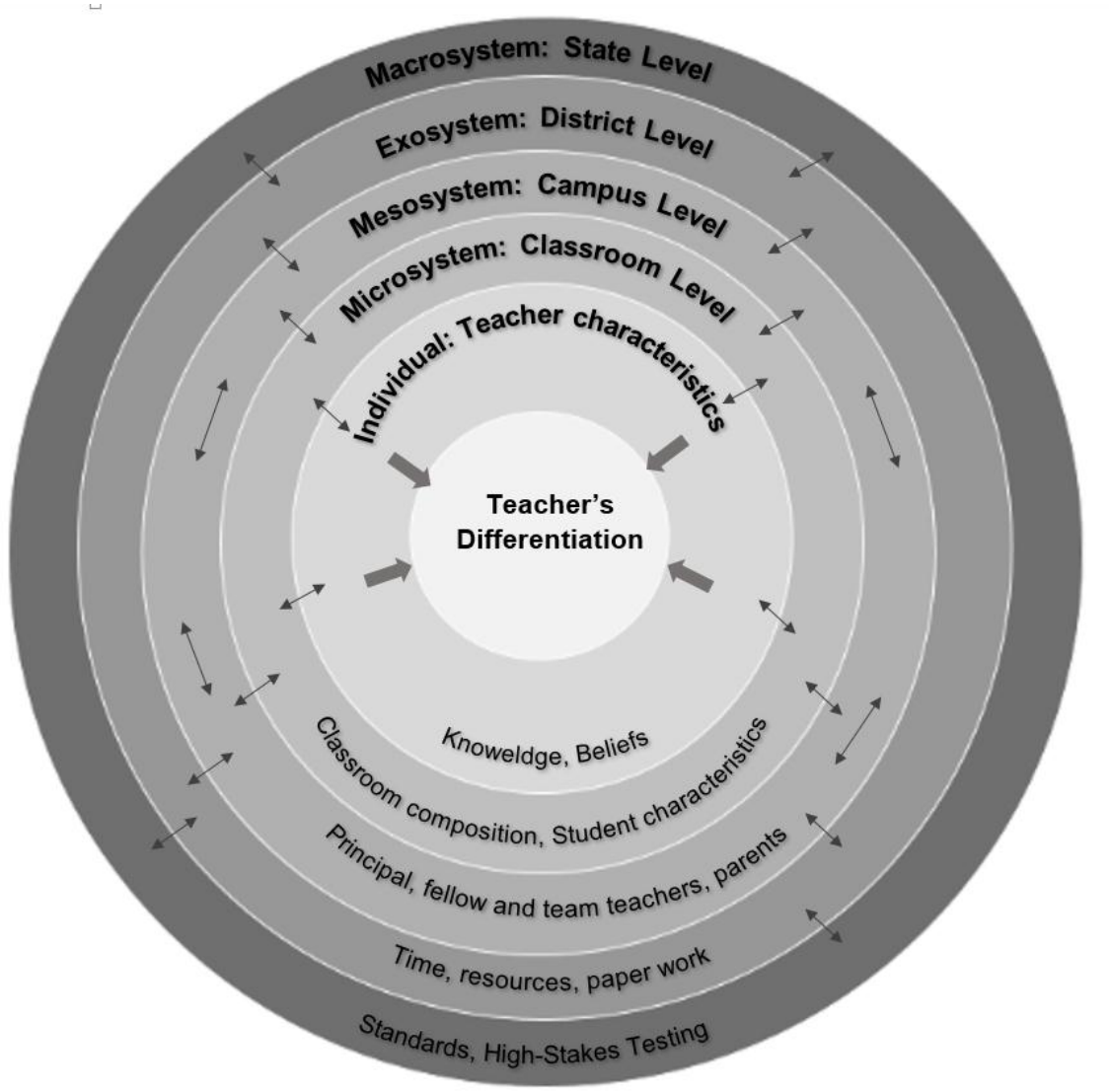

Figure 2.9. Representation of the Influences on Differentiation

Summary

The examination of factors influencing beginning teachers' instructional practices with diverse students is complex due to the array of factors that may contribute to the decision of using practices to meet the needs of diverse students. Looking through Bronfenbrenner's bio-ecological system framework, the diverse influences at different levels can be captured. No studies have conducted an examination of the multiple factors at different levels that contribute to the use of differentiated instructional practices of beginning teachers. It is important to understand the barriers and how to support teachers in implementing differentiated instruction successfully (Tomlinson, 2005). This study aimed at exploring the factors influencing beginning teachers' instructional practices with diverse learners, providing results that contribute to the research in the field of education.

CHAPTER THREE

Methods

The progression of education towards inclusion, standards and accountability, and the increasing diversity in the student population highlight the important need for teacher expertise in effectively practicing differentiation (Darling-Hammond & MacLaughlin, 1998; Gamoran & Weinstein, 1995; McLaughlin & Talbert, 1993). Therefore, the purpose of this study was to identify the influences on beginning teachers' differentiation with diverse students. Specifically, what factors influence beginning teachers' differentiated instructional practices with diverse students? This guiding question led the researcher to investigate the factors at different levels (i.e., individual, class, school, district, and state levels) that may influence beginning teachers in the implementation of the differentiation to meet the needs of diverse students in the classroom.

Research Design

Since the purpose of this study was to examine a phenomenon as it is, in rich details, a qualitative research design was selected as advised by Ary, Jacobs, Girensen, and Walker (2013). Two of the key features of qualitative study are (a) the natural setting, and (b) the participant perspective (Creswell, 2013). For qualitative researchers, the lived experiences of people in the real setting are the object of study. In addition, the researcher is interested in understanding the world from the perspective of those living in it (Creswell, 2013; Hatch, 2002). In this study, the researcher aimed at understanding how the environment influences beginning teacher's differentiation with diverse students.

Hence, beginning teachers were studied in their natural settings, and data was collected to understand their perspective on the implementation of differentiation with diverse students.

Framework

The differentiation framework was used in this study to understand the teacher's instructional practices with diverse students. According to Tomlinson and Allen (2000), differentiation is when "a teacher is reacting responsively to a learner's needs" (p. 4). The framework focuses on four major areas of adaptive classroom practices (i.e., content, rate, preference and environment). In order to match the instructional methods to each student's needs, the teacher should consider four major areas: (a) the knowledge and skills needed as well as desired by the student, which represents the content; (b) the time needed to learn new material, which represents the rate; (c) the type of setting that enhancing the learning experience, which represents the environment; and (d) the student's choice of learning resources, which represents preference.

The content area determines the particular domain of inquiry to be explored and the aspect of that domain to be addressed (VanTassel-Baska et al., 1988). In other words, it represents the way the teacher organizes and sequences skill, concepts, strategies, and generalizations within and across disciplines (Johnsen et al., 2002). Hence, to differentiate in this area, the teacher needs to match the subject matter, the process and the product to the students' abilities and interests (Davis, Rimm, & Seigle, 2011; Kaplan, 2009).

The rate area represents the alignment of the instructions with the time that the student needs to learn new material (Tomlinson, 2001). By using assessment, the teacher

should accommodate the subject matter, process, and product to match with the amount of time needed by the students to learn new content (Johnsen et al., 2002). Hence, to differentiate in this area, the teacher can use both acceleration and pacing options (Riley, 2009).

The environment area represents the arrangement of the physical environment to facilitate interaction and learning among students (Johnsen et al., 2002). The modification of the environment will help make the necessary changes in the other dimensions (i.e., content, preference and rate; Hunt & Seeley, 2009). In fact, the structure of the physical environment reflects the teacher's thoughts how the student will learn and perform (Hunt & Seeley, 2009). To differentiate in this area, the teacher should take into consideration the student's interests, learning needs, and characteristics to plan the physical environment arrangement (Clark, 2002).

The preference area focuses on the differences among students in terms of learning preferences. The goal in differentiating preference is to give students the opportunity to "select the learning resources that best fits their way of learning. The tasks vary in task format and response dimensions. Students may choose to work in small groups, large groups, pairs, or individually" (Johnsen et al., 1994, p. 56).

Once the teacher's instructional practices with diverse students was analyzed using the differentiation framework, the researcher focused on the influence of these practice. The framework used in this study to determine the influences originated from Bronfenbrenner's bio-ecological system (Bronfenbrenner, 1976, 1994, 2005). The bio-ecological system is a framework suggesting that the joint product of the variety of dimensions within the environment and the personal attributes of the specific individuals

influence the individual's development. This framework is unique to each individual representing a series of nested and interconnected structures. The inner most structure is the individual. Then, the most proximal and significant structure is the individual's microsystem. The following structure, the mesosystem, represents the connection between the elements of the microsystem. The next structure is the mesosystem, which refers to the environmental influences that may not directly interact with the person, but may influence the setting of the individual, which in turn affects the individual. The most removed structure from the individual is the macrosystem, which represents the societal ideology and cultural values. Hence, the relationships between the active individual and the active multi-level ecology constitute the basic process of human development that occurs over time forming the chronosystem.

By using this framework to understand influences on teacher's instructional practices with diverse students, the following systems were identified:

- The individual or the teacher, included his or her knowledge, beliefs, views, and psychosocial abilities;
- The microsystem or the elements at the classroom level, consisted of the classroom composition, and the students characteristics;
- The mesosystem or the campus level and the interactions within the campus, encompassed the school personnel such as the principle and the fellow or team teachers, as well as the parents;
- The exosystem or the school district level included the school policies related to time, resources, and paper work; and
- The macrosystem or the state level represented the culture regarding the implementation of standards and high-stakes testing.

Figure 3.1 provides an illustration of the framework for this study, showing the different levels being considered as influence on teacher's differentiation. According to Bronfenbrenner (2005), the bio-ecological system framework is unique to each individual representing a series of nested and interconnected structures. For this reason, along with others that will be discussed in the next section, case study approach was chosen, in which within-case analysis followed by the cross-case analysis was done.

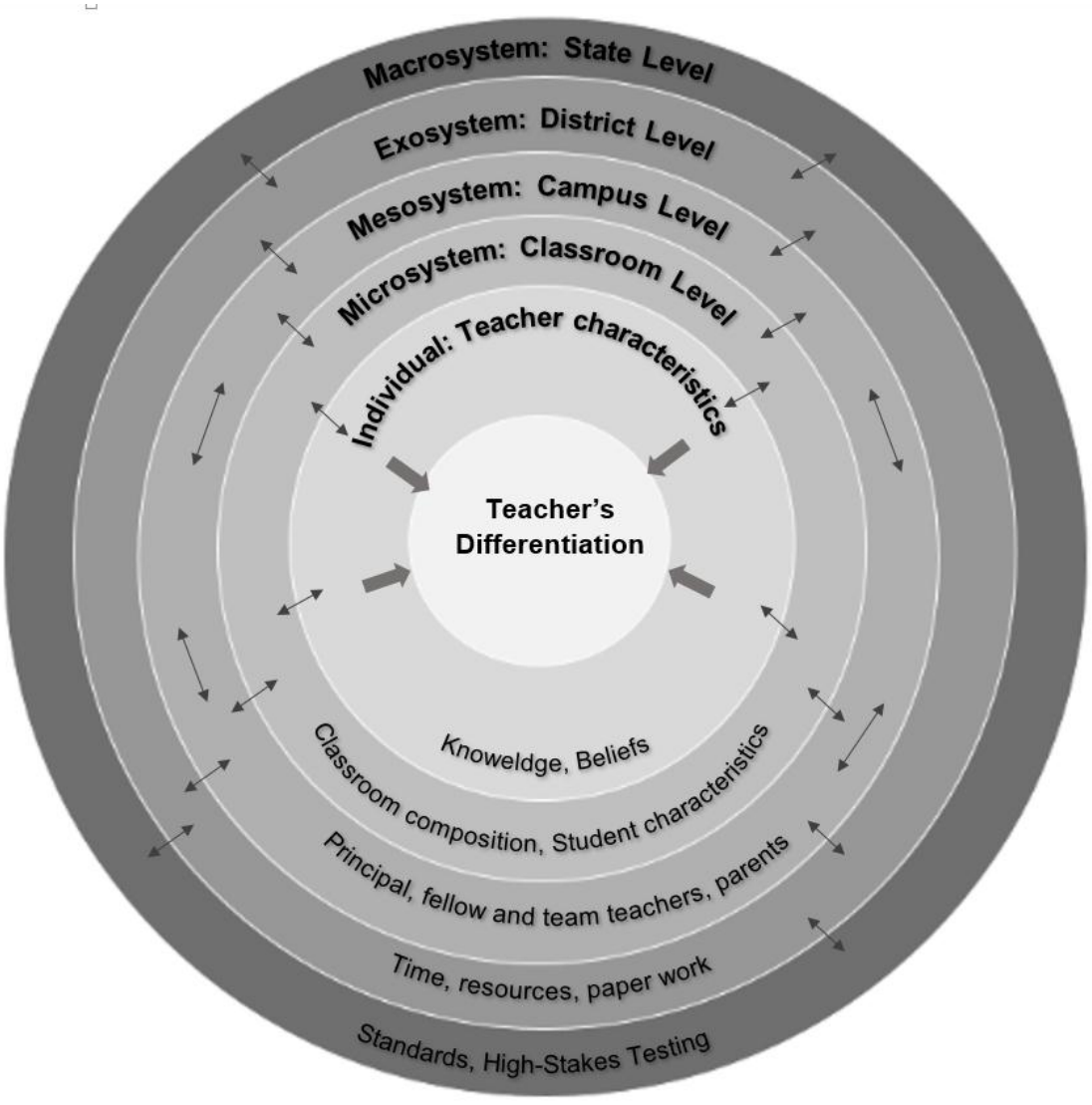

Figure 3.1. Influences on Differentiation.

Qualitative Research Approach

According to Yin (2009), case study research involves the study of a case within a real-life, contemporary context or setting. He explained that there is no formula in choosing the case study method,

> but your choice depends in large part on your research question(s). The more that your questions seek to explain some present circumstances, the more the case study research will be relevant. The method also is relevant the more that your questions require an extensive and "in-depth" description of some social phenomenon (Yin, 2013, p.4).

Previously, Yin (1995) explained that

> Case study research excels at bringing us to an understanding of complex issue or object and can extend experience or add strength to what is already known through previous research. Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. (p. 23)

Taking into account Yin's (1995, 2009, 2013) advice, it is clear that a case-study approach best fits the aim and question targeted in this study. In fact, previous research in the field of education has shown that teachers tend not to use differentiation (Anderson, 2007; Latz, Speirs Neumeister, Adams, Pierce, 2009; Tomlinson, 2003, 2008; Wormeli, 2005). Understanding the influences of the context on teacher's differentiated practices adds to the literature in understanding the reasons behind the limited use of such practices.

In addition, Merriam (1998) stated "because of its strengths, case study is particularly appealing design for applied field of study such as education. Educational processes, problems, and programs can be examined to bring about understanding that in turn can affect, and perhaps even improve practice" (p.41). However, one must not ignore the weakness of this approach and consider minimizing them.

The challenges that have been associated with a case study approach include the bias and credibility of the research; lack of clearly defined concepts or term among different field workers; difficulty of obtaining accurate information from participants; and problems of representativeness between the sample and the population (Denzin & Lunvoln, 1994; Miles & Huberman, 1994; Mykut & Morehouse, 1994; Patton, 2002). According to Yin (2013), to minimize these limitations and improve the quality of the research design, the researcher should consider (a) the construct validity, (b) the internal validity, (c) the external validity, and (d) the reliability.

Construct validity refers to "establishing correct operational measures for the concepts being studied" (Yin, 1994, p.33). In order to increase construct validity, Yin (1994, 2013) suggested steps to be taken prior and during data collection, which were conducted by the researcher for this study. Prior to data collection, the researcher should specify and define concepts under investigation. During data collection, the researcher should use multiple sources of evidence, in order to converge the lines of inquiry.

Internal validity refers to "establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguishes from spurious relationships" (Yin, 1994, p.33). First, through triangulation of the data (Merriam, 1998) the researcher should make sure to obtain a wider and more accurate picture of circumstances under which the case being studied reside. Then, using pattern matching increases the internal validity during data analysis (Yin, 1994). Pattern-matching is when the researcher compares the empirical pattern found in the study with predicted pattern formulated from review the literature.

External validity refers to "establishing the domain to which a study's findings can be generalized" (Yin, 1994, p. 33). Although replication is best way of increasing external validity in case-study approach (Yin, 1994), it is not always feasible. Gerring (2006) explains that "cross-case research is always more representative of the population" (p. 43) and hence can be used to increase external validity.

Reliability refers to "demonstrating that operations of a study, such as the data collection procedure can be repeated, with the same results" (Yin, 1994, p. 33). Yin (1994) suggested that the reliability problem can be approached by making the steps taken by the research as operational as possible.

In this study, the researcher followed these recommendations as closely as possible:

- Concepts and terminologies were defined by the researcher;
- The data was collected using different sources: archival documents, interviews, and observation;
- The data collection procedure were described in details;
- Pattern-matching was done during data analysis by relating the findings of the literature; and
- A cross-case approach was used to determine general patterns that might be generalizable to the field of education.

Role of the Researcher

As Carla Willig (2001) has argued, qualitative research is usually concerned with meaning, and in particular how people make sense of the world and how participants experience events from their perspective. Using this approach, the researcher is usually the primary instrument for data collection. In this study, the data was obtained from archival documents, as well as systematic observations and semi-structured interviews conducted by the researcher. In this particular study, the researcher brought to this experience a five-year background in education. In fact, she had been an elementary homeroom teacher, a special education teacher, and a researcher on various educational psychology practices such as enrichment, functional behavior assessment, and questioning practices. These background experiences may have biased the study. In addition, the researcher was a student at the same university where the participants of the study graduated. This might have influenced the feelings of the researcher with regards to evaluating the implementation of differentiation by the program graduates. To reduce these possible biases, the researcher had no contact prior to the study with the participants and used triangulated data to increase internal validity. In addition, all terminologies and concepts were clearly defined and operationalized.

Participants

Participants in this study were elementary teachers who graduated from an EC-4/GT dual-certificate program at a southwestern university. The principal and team teachers at the participants' school campuses were also interviewed as part of the data collection.

Purposefully, the researcher selected participants who graduated from the same program. Through this strategic selection, the researcher was able to have a common factor of influence on instructional strategies among the participants. In fact, all participants in this study have an equivalent background knowledge in differentiation acquired from the same EC-4/GT dual-certificate program.

EC-4/GT Dual-Certificate Program

This teacher education program is a four-year program (see Appendix A). During the first year, the pre-service teachers are taking courses required of all of students who are interested in pursuing a teaching certificate. During their second year, the EC-4/GT dual-certificate teachers take a class related to gifted students where they work one-on-one with a gifted elementary student for 30 minutes twice a week for eight weeks. They also take two courses, one related to learning and one to development.

During their junior year of the program, the pre-service teachers are placed as a cohort in a Professional Development School. As part of this field experience, each pre-service teacher is assigned to an elementary classroom in which identified gifted students are clustered. They teach small groups of students that are heterogeneous and/or ability grouped. During the first semester, they differentiate their instruction in language arts and social studies and during the second semester, they differentiate their instruction in math and science with their assigned groups

During their senior year, the pre-service teachers work with a mentor teacher at an assigned campus for 15 weeks each semester. During one of the semesters, they are placed in a heterogeneous elementary classroom and during the other semester they are placed in a classroom that is part of the school district's gifted program (e.g., magnet

school, pullout classroom, cluster classroom). They also take two courses on campus. One of the courses requires the students to design a differentiated unit of instruction, and the other course focuses specifically on exceptionalities.

Throughout the fieldwork, mentors and university faculty supervise the pre-service teachers and evaluate their teaching practices. They use forms provided by the Office of Professional Practice. The pre-service teachers also collect artifacts that they describe in a web-based portfolio efolios to demonstrate their proficiency level with specific benchmarks. These evaluations will constitute the archival documents that will be analyzed by the researcher.

Since the study aimed at understanding the factors influencing beginning teachers' instructional practices, the researcher contacted teachers who graduated within the last three years from the EC-4/GT dual-certificate program. In fact, models describing teacher's career have identified beginning teachers as those who have been teaching for one to three years (Huberman, 1989, 1993, 1995; Steffy & Wolfe, 1997). In addition, the research in the field have consistently identified their beginning teachers as having three or less years of teaching (Casey & Gable, 2011; Caspersen, 2013; Clark et al., 2013; Huang & Li, 2012).

A total of 11 graduates in 2012, 10 graduates in 2013, and 12 graduates in 2014 were contacted. Four teachers agreed to participate in the study and constituted the main participants in this study (see Table 3.1). Two of the participants have three years of experience in education, one has two years of experience, and one has one year of experience. The participants are currently working at in two districts, three different campuses, in grades ranging from kindergarten to fourth grade.

Table 3.1

Participants' Demographics

Teacher	Campus	Ethnicity	Gender	Grade level	Years in Education	Highest Degree
T1	C1	W	F	2nd	1	Bachelor
T2	C2	H	F	3rd	2	Bachelor
T3	C3	W	F	4th	3	Bachelor
T4	C3	W	F	KG	3	Bachelor

Note. T= Teacher. C= Campus. W= White. H= Hispanic. F= Female.

Principals and team teachers have been identified in the literature as influences on beginning teachers' instructional practices. As part of this study, campus principals and team teachers were interviewed to determine what role, if any, they played in influencing the main participants' differentiated instructional practices. Table 3.2 and 3.3 provide demographic information about principals who were assigned to each campus, and one team teacher selected by the main participants to be interviewed.

Table 3.2

Principals' Demographics

Principal	Campus	Ethnicity	Gender	Years in Public Education	Years in Administration	Highest Degree
P1	C1	W	F	25	7	Masters
P2	C2	W	F	34	12	Masters
P3	C3	W	F	23	1	Doctoral

Note. P=Principal. C=Campus. W=White. F= Female.

Table 3.3

Team Teachers' Demographics

Teacher	Team Teacher	Campus	Ethnicity	Gender	Years in Education	Highest Degree
T1	TT1	C1	W	F	3	Bachelor
T2	TT2	C2	W	F	10	Bachelor
T3	TT3	C3	W	F	5	Bachelor
T4	TT4	C3	W	F	4	Bachelor

Note. T= Teacher. TT= Team Teacher. C= Campus. W= White. F= Female.

Sites

The teachers participating in this study worked at three different campuses in two districts. Table 3.4 provides information about the student demographics at each campus where the participants were teaching.

Table 3.4

Campus Demographics (TEA Division of Performance Reporting, 2015)

2013-2014 Enrollment profile		D1-C1 Percent (N=814)	D2-C2 Percent (N=442)	D2-C3 Percent (N=434)
Ethnicity	African American	2.0%	22.5%	23.2%
	American Indian	0.6%	0.7%	0.5%
	Asian	2.6%	0.0%	0.5%
	Hispanic	32.7%	70.4%	045.55
	Pacific islander	0.1%	0.0%	0.0%
	Two or more races	2.0%	1.4%	0.7%
	White	60.1%	5.1%	29.7%
Student Population	At-Risk	22.5%	86.3%	50.3%
	Economically disadvantaged	23.2%	96.3%	68.5%
	English Language Learner	3.2%	40.3%	5.7%

Note. D= District. C=Campus.

Data Collection Methods

In exploring the influences on beginning teacher's instructional practices, the researcher observed the classroom practices that are taking place, closely examined archival documents, and conducted interviews with the participants, campus principals, and team teachers.

Observations

Participants were observed in the context of a natural setting during the academic year 2014-2015. Observational data were used for the purpose of describing the setting, activities, and people and capturing the meaning of the context from the perspective of the participants. Patton (2002) explained that observations lead to more in-depth understanding than merely interviewing an individual. In fact, observation provides information about the context in which events occur. In addition, through observation, the researcher might be able to see occurrences that the participants may not be aware of that are happening (Patton, 2002). To collect the data, the researcher used the *Observation of Questioning Strategies, Engagement, and Curriculum* in order to interpret the differentiated instruction using the *Classroom Instructional Practices Scale* (CIPS).

Observation of Questioning Strategies, Engagement, and Curriculum. The researcher collected systematic observation and rated the teachers' classroom practices using the *Observation of Questioning Strategies, Engagement, and Curriculum* forms (see Appendix B). These forms were designed to measure how teachers organized their classrooms in adapting for learner differences in content, rate, preference and

environment. The data collected using these forms aided the researcher to interpret the differentiated instruction using the CIPS.

Questioning Strategies Data. During the observation, teacher and students questioning during the lesson was measured using the *Observation of Questioning Strategies* form (see Appendix B). The observer noted the questions and classified them based on the type of response elicited. Following are the categories by which questions were classified: cognitive connections (CC), affective connections (AC), process (PR), or evaluation/implications (EI). A single answer question is a question with one correct answer (e.g., did the Little Red Hen get any help?). A multiple answer question was defined as having several acceptable answers and was further defined by the four subsequent types of questions. A cognitive connections question required the student to link material, knowledge, and/or other constructs together (e.g., how are relationships like a pizza?). An affective connection question elicited a response from the student related to his or her own personal experience (e.g., how would you describe something similar that happened in your life?). A process question assessed for a student's ability to explain the method from which they derived an answer (e.g., how did you solve the problem?). An evaluation/implication question asked students to evaluate, discuss implications or ask for reasons (e.g., why did you select that answer? What criteria did you use?).

Engagement Data. During the observation, students' engagement during the lesson was measured using the *Engagement Data* form (see Appendix B). Six students were randomly selected to be observed during a 10-minutes sample. Their level of engagement with the lesson (i.e., on task, off task, or waiting) was noted for every 30

seconds of the 10-minutes sample. The observer also recorded the type of task and setting during which the student is observed. At the end of the 10- sample, the researcher determined the percentage of on task and off task for each student, as well as the total engagement.

Curriculum data. During the observation, the researcher used the *Observation of Learning Task* form (see Appendix B), which is a scale that used observable criteria to identify the characteristics of the learning task. The learning task was rated according to the presence or absence of 11 characteristics: theme, concept/generalization, problem-based lesson, method that is authentic to the subject area, independent study, variation in tasks, curriculum compacting, student-generated products, content beyond grade level, student interest, and choice. These characteristics are research-based and are associated with modifying the depth, complexity, and pacing of the curriculum for gifted and talented students.

Classroom Instructional Practices Scale. To understand the differentiated instructional practices used by the teachers, the data collected was interpreted using the *Classroom Instructional Practices Scale* (see Figure 3.2; Johnsen et al., 2002). To understand the structure of the CIPS, which is divided into four major areas (i.e., content, rate, preference and environment), Johnsen et al. (2002) explain that "the description of each area is hierarchical, beginning with the least adaptive classroom practice for individual differences and progressing to the most adaptive practice" (p.48). The four major areas can be defined as such:

> Content- describes the way the teacher organizes and sequences skill, concepts, strategies, and generalizations within and across disciplines. For examples, the

> lowest rating (C1) describes a content that is organized around the book's score and sequence, while C7 describes content organized around individual student interest.
>
> Rate-describes how the teacher uses assessment to vary the amount of time needed by the students in learning new content. For example, a teacher who receives an R1 rating provides the same amount of time for every student in the classroom, while a teacher receiving an R9 uses a pre-assessment to identify student who need or may choose in-depth study, enrichment, or acceleration.
>
> Environment-describes the way the teacher arranges the physical environment to facilitate interaction and learning among students. For example, the lowest rating (E1) describes a classroom in which the teacher limits interaction between students and with learning materials. Whereas an E6 rating describes a classroom where students learn from one another and use the community and the school as learning centers.
>
> Preference-describes how the teacher aligns activities with the content and provides for individual student choice. For example, at the lowest rating (P1), the student has no choice of learning materials and uses materials that have a similar format such as paper-pencil, at P5, the student may select to create learning activities. At the highest level, these activities also vary the task (e.g., visual, auditory, kinesthetic) and the response (e.g., written, oral, physical) (Johnsen et al., 2002, p. 48-50).

Accordingly, beginning teacher's instructional practices were analyzed through those four main areas, which represent the building blocks of differentiation (see Figure 3.2). In fact, the researcher was able to understand whether the teacher took into consideration the four major areas: (a) the knowledge and skills needed as well as desired by the student, which represents the content; (b) the time needed to learn new material, which represents the rate; (c) the type of setting that enhancing the learning experience, which represents the environment; and (d) the student's preference in learning, which represents the preference. In addition, the hierarchical nature of the instrument helped the researcher in determining the level of differentiation being used.

CONTENT

___	C1	Book or curriculum guide organizes content.
___	C2	Focus is on procedural knowledge.
___	C3	Focus is on concept learning.
___	C4	Includes creative and critical thinking skills; higher-level questions.
___	C5	Authentic to discipline/problem-based.
___	C6	Integration of multiple disciplines into discipline-based topics.
___	C7	Interdisciplinary; broad-based themes; authentic methods.
___	C8	Student's performance determines sequence.
___	C9	Student's interest guides content.

RATE

___	R1	Students have same/varied amount of time for tasks; early finishers do no assigned task.
___	R2	Students have same/varied amount of time for tasks; early finishers do an unrelated task.
___	R3	Students have same/varied time for completion of task; early finishers do a related task.
___	R4	Post assessment at set times with no recycling.
___	R5	Post assessment at varied times with no recycling.
___	R6	Post assessment at set times with recycling and/or in-depth study/enrichment/acceleration.
___	R7	Post assessment at varied times with recycling and/or in-depth study/enrichment/acceleration.
___	R8	Pre and Post assessment at set times with recycling and/or in-depth study/enrichment/acceleration.
___	R9	Pre and Post assessment at varied times with recycling and/or in-depth study/enrichment/acceleration.

PREFERENCE

___	P1	No variation in tasks and/or response dimensions; not correlated
___	P2	Variation in tasks and/or response dimensions; not correlated.
___	P3	No variation in tasks and/or response dimensions; correlated.
___	P4	Variation in tasks and/or response dimensions; correlated.
___	P5	Student choice of varied tasks and/or response dimensions; correlated.

ENVIRONMENT

___	E1	Arrangement with limited student interaction; no interest or learning centers present.
___	E2	Arrangement with limited student interaction; interest or learning centers present.
___	E3	Arrangement with student interaction
___	E4	Arrangement with student interaction; interest centers present.
___	E5	Arrangement with student interaction; learning centers present.
___	E6	Use of school and/or community as learning centers.

Figure 3.2. Classroom Instructional Practices Scale (Johnsen et al. 2002).

Archival Documents

Archival documents are "symbolic materials such as writing and signs and nonsymbolic materials such as tools and furnishing" (LeCompte & Preissle, 1993, p. 216). As Patton (2002) explained, archival documents provide the researcher with valuable information that cannot be observed, as well as guide the researcher in ways that would not have been thought of without such documentation. Merriam (1998) stated

> The presence of documents does not intrude upon or alter the setting in ways that the presence of the investigator often does. Nor are documents dependent upon the whims of human beings whose cooperation is essential for collecting good data through interviews and observations. Documents are, in fact, a ready-made source of data easily accessible to the imaginative and resourceful investigator. (p.112)

The analysis of archival data, as Lincoln and Guba (1986) explained, "lends contextual richness and helps to ground an inquiry in the milieu of writer. This grounding in real-world issues and day-to-day concerns is ultimately what the naturalistic inquiry is working towards" (p.234).

In this study, the researcher closely examined the archival documents that have been collected when each participant was a pre-service teacher. These documents included: (a) mentor and supervisor evaluations, and (b) reflections regarding their teaching and portfolio artifacts.

Mentor and supervisor evaluation. The mentor and supervisor evaluations included observations, benchmark evaluations, and the Texas Beginning Teacher Evaluation (TxBESS) collected during the participants' pre-service fieldwork experience. Each participant was formally observed for a minimum of two times during both the fall and spring semesters of her senior year.

Reflections. Reflections are another way of documenting and communicating one's own learning, beliefs and views (Bransford, Derry, Berliner, Hammerness, & Beckett, 2005). During their pre-service coursework, the teachers were required to reflect on their mentor or intern supervisor's observations and write narratives regarding their achievement of specific benchmarks. The researcher closely examined these reflections to understand each participant's beliefs in regard to their planning for differentiation, their instructional practices and its effects on students, and their overall performance on the program's benchmarks.

Interviews

Participants, principals and team teachers were interviewed to determine how the context influences the participant's instructional practices with diverse learners. The researcher developed the questions to determine how the participant's addresses the difference among individual, the position and support of the team teachers and campus principal in regards to differentiation, and the relationship between each participant and the team teachers and campus principal.

As Patton (2002) explained

> We interview people to find out from them those things we cannot directly observe…. We cannot observe feelings, thoughts, and intentions. We cannot observe behaviors that took place at previous point in time. We cannot observe situation that preclude the presence of an observer. We cannot observe how people have organized the world and the meanings they attach to what goes on in the world. We have to ask people questions about those things. The purpose of interviewing, then, is to allow us to enter into the other person's perspective. (p.196)

Previously, Patton (1990) proposed three different types of qualitative interviews: (a) informal, conversational interviews; (b) semi-structured interviews, and (c)

standardized, open-ended interviews. In this study, the researcher used semi-structured interview. In fact, previous to the interview, the researcher prepared a list of questions to be asked. This list ensured collecting the basic and necessary information from each participant. However, as the interviewee answered each question, the interviewer probed to explore within predetermined inquiry areas with no predetermined response. As Lofland and Lofland (1984) explained, having a semi-structured list of interview question ensures good use of limited interview time, makes the interview with multiple subjects more systematic, and helps keep the interaction focused. In what follows, the list of guiding questions for the interview with teachers, principals and team teachers are provided, along with tables describing the relationship between the interview questions and differentiation and the areas of influence that were considered in this study (see Tables 3.5-3.7 and Figures 3.3 -3.5).

In planning this study, the researcher aimed at understanding the influences on the beginning teacher's instruction with diverse students. For that reason, the selection of instruments and data sources was carefully done with the intent of capturing the influences at the different levels and at all levels of differentiation. Table 3.8 lists the levels of influences and areas of differentiations that were considered in the study. The table also includes the instruments that were used to collect the data for each influence and each area of differentiation, and the sources from which the data were collected.

By including data from a variety of sources, the researcher obtained a broader and in-depth understanding of the influences at different levels on the instructional practices with diverse students.

Teacher Interview Questions

Teacher: _____ Campus: _____

Grade Level: _____

1. How would you describe the composition of the classroom? Do you have any students who are identified for special education? For gifted education?
2. Do you see your class as more homogenous or more heterogeneous? And why? Do your students need differentiated instruction?
3. Do you think you were prepared to differentiate and meet the needs of diverse students?
4. What curriculum do you use in planning your lessons? Is the curriculum the same for all of the students?(If not, probe: How do you determine what curriculum to use with different students?)
5. What objective are you teaching today? Are there different objectives for different groups? Different children? (If different objectives, probe: How do you identify the different objectives? If same objective ask: do all students in the class always study the same things? Or how do you differentiate the objective? If no, ask for some examples and probe: How do you determine what they will study?)
6. How do you provide for rate differences—the time it takes for students to learn new content?
7. What choices are students provided in learning the content?
8. What and who do you consider as an influence on your decision to differentiate?
    - For each influence, ask: how does it influence your decision?
    - Make sure the following is discussed:
        i. Do you discuss the lesson with your **team teachers**? In what ways do they influence your decision to differentiate?
        ii. In what ways does the **school or district policy** influence your decision to differentiate?
        iii. How does your school **principal** influence your decision to differentiate?
        iv. How do **parents** influence your decision to differentiate?
        v. How does **high-stakes testing** influence your decision to differentiated
9. What type of support do you or beginning teachers at your campus receive?

Figure 3.3. Teacher Interview Questions

Table 3.5

Teacher Interview Questions Related to the Influences and Differentiation

Framework			Question								
			1.	2.	3.	4.	5.	6.	7.	8.	9.
Influences	Individual	Knowledge			X	X	X	X	X		
		Beliefs and Views		X	X			X	X		
		Psychosocial Abilities			X		X	X	X		
	Classroom	Classroom composition	X	X		X	X	X	X		
		Student characteristics	X	X		X	X	X	X		
	Campus	Principal								X	X
		Team teachers								X	X
		Parents								X	X
	District	School policies								X	X
	State	High-stakes testing								X	
Differentiation	Area	Content				X	X				
		Rate				X		X			
		Preference				X			X		
		Environment				X			X		

Principal Interview Questions

Principal: _____ Campus: _____

Highest degree: _____ Ethnicity: _____

Year in Public education _____ Year in administration: _____

1. How would you describe the school composition? Are the students in each class more homogenous or more heterogeneous? And why?
2. What curriculum do your teachers use in planning their lessons? In what ways does the curriculum influence differentiated instruction (or meet the needs of diverse learners)? Is the curriculum the same for all students in all of the classes? How does it influence differentiated instruction? Or how do you think it addresses the strengths and needs of diverse students?
3. What assessments do the teachers use in planning instruction? How do they use the information in their lessons?
4. What are specific products/ performances that you remember that the students in the teacher's classroom developed? Were they similar to one another? Different?
5. What do you look for during a walk-through/observation of the teacher's classroom?
6. What are your beliefs about differentiated instruction?
7. What and who do you think influences the teacher's decision to differentiate?
    - For each influence, ask: how does it influence their decision?
    - Make sure the following is discussed:
        i. Do teacher discuss the lesson with their **team teachers**? In what ways do they influence their decision to differentiate?
        ii. In what ways does the **school or district policy** influence teacher's decision to differentiate?
        iii. How do **parents** influence teacher's decision to differentiate?
        iv. How does **high-stakes testing** influence teacher's decision to differentiate?
        v. How does the teacher's **knowledge and beliefs** influence the decision to differentiate?
8. What type of support do beginning teachers at your campus/district receive?

Figure 3.4. Principal Interview Questions

Table 3.6

Principal Interview Questions Related to the Influences and Differentiation

Framework			Question							
			1.	2.	3.	4.	5.	6.	7.	8.
Influences	Individual	Knowledge							X	
		Beliefs and Views							X	
		Psychosocial Abilities								
	Classroom	Classroom composition	X							
		Student characteristics	X							
	Campus	Principal					X	X		X
		Team teachers							X	X
		Parents							X	X
	District	School policies							X	X
	State	High-stakes testing							X	
Differentiation	Area	Content		X	X	X	X			
		Rate		X	X		X			
		Preference		X	X	X	X			
		Environment		X	X		X			

Team Teacher Interview Questions

Teacher: _____ Campus: _____

Highest degree: _____ Ethnicity: _____

Years in education _____

1. What curriculum do you use in planning your lessons? Is the same curriculum used by all the teachers on your team? Do you use the same curriculum for all of the students?(If not, probe: How do you determine what curriculum to use with different students?)
2. What objectives are you teaching? Are there different objectives for different groups? Are teachers on your team teaching the same objective? (if not, probe: how do you identify different objectives?)
3. What was the last product/performance that the students developed for this class? Were students' product/performance different from one another? Different from other classes?
4. What assessment does your team use in planning instruction? How do you use the information in developing lessons?
5. How would you define differentiation?
6. Do you think teachers in your team differentiate instructions? If yes, ask in what ways do you support their differentiation?
7. What and who do you think influence your team teacher to decision on differentiating
    - For each influence, ask: how does it influence their decision?
    - Make sure the following is discussed:
        i. In what ways does the **school or district policy** influence teacher's decision to differentiate?
        ii. How does your school **principal** influence teacher's decision to differentiate
        iii. How do **parents** influence teacher's decision to differentiate?
        iv. How does **high-stakes testing** influence teacher's decision to differentiate?
8. What type of support do beginning teachers at your campus receive?

Figure 3.5. Team Teacher Interview Questions

Table 3.7

Team Teacher Interview Questions Related to the Influences and Differentiation

Framework			Question							
			1.	2.	3.	4.	5.	6.	7.	8.
Influences	Individual	Knowledge	X							
		Beliefs and Views	X							
		Psychosocial Abilities	X							
	Classroom	Classroom composition	X	X	X					
		Student characteristics	X	X	X					
	Campus	Principal							X	X
		Team teachers					X	X		X
		Parents							X	X
	District	School policies							X	X
	State	High-stakes testing							X	X
Differentiation	Area	Content		X	X	X				
		Rate				X				
		Preference			X					
		Environment								

Table 3.8

Data Source and Instruments used in Gathering Information about Influences and Dimensions of Beginning Teacher's Instructional Practices with Diverse Students.

Level/ Dimension	Data Source	Instrument
Individual		
Knowledge	Beginning teacher (Participants); mentor; supervisor	Mentor evaluation; supervisor evaluation; observations; reflection; interview
Beliefs and Views	Beginning teacher; mentor; supervisor	Mentor evaluation; supervisor evaluation; observations; reflections; interview
Psychosocial abilities	Beginning teacher	Assessment performance
Classroom		
Classroom composition	Beginning teacher	Observations; interview
Student Characteristics	Beginning teacher	Observations; interview
Campus		
Principal	Beginning teacher; team teacher; principal	Interview
Team Teacher	Beginning teacher; team teacher; principal	Interview
Parents	Beginning teacher; team teacher; principal	Interview
District		
School Policies	Beginning teacher; team teacher; principal	Interview
State		
High-Stakes Testing	Beginning teacher; team teacher; principal	Interview
Differentiation		
Content	Beginning teacher; team teacher; principal	Observations; interview
Rate	Beginning teacher; team teacher; principal	Observations; interview
Preference	Beginning teacher; team teacher; principal	Observations; interview
Environment	Beginning teacher; team teacher; principal	Observations; interview

Procedure

First, approval from IRB was obtained, ensuring that the rights of the participants were protected. Then the researcher formally contacted the potential participants. Once the participants consented to take part in this study, the researcher began by scheduling observations and interviews with beginning teachers, team teachers, and principals. Observations were done first before the researcher examined the archival documents and information related to the participants' previous or current instructional practices. This minimized the bias during the observation phase. For each beginning teacher, once the observation was done, then interviews with the beginning teacher, team teacher and principal were conducted. For beginning teachers who were working on the same campus, the interview with the principal were conducted after the observations of all teachers were done. Then the observation data and interviews were entered electronically. The researcher was the only one who had access to the electronic files in order to ensure confidentiality of information gathered. Next, the researcher examined the archival documents. Data coding and interpretation began once all data was collected. Table 3.9 lists the steps to be taken.

Data Analysis

As Creswell (2013) explained,

> data analysis in qualitative research consists of preparing and organizing the data (i.e., text data was in transcripts, or image data as in photographs) for analysis, then reducing the data into themes through a process of coding and condensing codes, and finally representing the data in figures, tables, or a discussion. (p. 180)

Table 3.9

Steps Taken by the Researcher

Steps taken
1. IRB approval
2. Contacted potential beginning teachers
3. Received consent from beginning teachers
4. Contacted and collected consent from Team Teachers
5. Contacted and collected consent from Principal
6. Scheduled observations and interview appointments from beginning teachers
7. Conducted observations and interviews with beginning teachers
8. Scheduled an interview with Team Teachers
9. Conducted interviews with Team Teachers
10. Scheduled an interview with Principal
11. Conducted interview with Principal
12. Entered observation data on a secure computer
13. Transcribed interviews and enter the information on a secure computer
14. Examined archival documents
15. Coded and interpreted data

In fact, the researcher aimed at organizing the raw data into logical, significant, and meaningful categories; representing the holistic image; and identifying the best mean to communicate the findings (Hoepfl, 1997).

In this study, the researcher engaged in the following steps: (a) organizing data; (b) describing and classifying the data into codes and themes; (c) interpreting the data; and (d) representing and visualizing the data (Creswell, 2013).

Organizing Data

Patton (1980) commented that the data generated by qualitative methods are voluminous. For that reason, the researcher should manage the data by first dividing them into files and folders and then transform them into appropriate text units for analysis

(Creswell, 2013). For this study, the researcher had a folder for each beginning teacher. Within each folder, the data was divided into files with (a) interview with the beginning teacher, (b) observation of the beginning teacher, (c) interview with team teachers, (d) interview with principal, and (e) archival documents (i.e., evaluations from university and school-based faculty and efolio artifacts such as lesson plans, units, and reflections). All data were transformed into electronic format, and will be saved into folders and files identical to the hard copy system.

Describing and Classifying the Data into Codes and Themes

Once the data were in a format ready to be analyzed, the researcher started with the process of coding (Madison, 2005). This process consisted of forming codes by "aggregating the text or visual data into small categories of information" (Creswell, 2013). In fact, Creswell (2013) encouraged researchers to look for code segments that can be used to develop themes. To do so, the codes should represent:

- Information that researchers expect to find before the study;
- Surprising information that research did not expect to find; and
- Information that is conceptually interesting or unusual to researchers and potentially participants and audiences. (p. 186)

Throughout this process the researcher began identifying themes. "Themes in qualitative research (also called categories) are broad units of information that consist of several codes aggregated to form a common idea" (Creswell, 2013, p. 186). Goetz and LeCompte (1981) explained that researchers involved in this process should be moving in analytic circles rather than using a fixed linear approach. "As events are constantly compared with previous events, new topological dimension, as well as new relationships, may be discovered" (p.58).

During this phase of the study, the researcher carefully examined the data in various ways. The researcher first identified codes related to the themes already identified through the literature. In addition, by going through the data several times, the researcher identified additional codes and themes emerging from the raw data. Words, phrases, or events that appeared to be analogous were grouped categorically. The researcher reviewed and re-reviewed the data in order maximize accuracy and identify the themes that were conceptually related to the question.

Interpreting the Data

According to Walcot (1994), once a large number of themes are identified, then the researcher should identify their relation to the research question in order to reduce or combine them into six or seven major themes. Once the major themes have been identified, it is important to establish how the words, phrases, or events within a category build a logical chain of evidence, as well as determine how the categories relate to each other, and the study's framework (Huberman & Miles, 1994). In case study, when the researcher is studying two or more cases, then interpretation should be done within and across cases (Yin, 2009). Yin suggested organizing the information in order to display it from individual cases, and then identify the similarities and differences among the cases.

For this study, first, the researcher reviewed the different themes identified and determined whether some should be combined, reduced, or left as separate categories. Then, the researcher began to look within cases for relations within categories, between categories, and with the analytic framework identified from the literature. When a pattern from one data type was confirmed by evidence from another, then the researcher noted such findings. When evidence conflicted, deeper probing of the differences was

examined and the researcher aimed at identifying the cause or source of conflict. In both cases, the researcher treated the evidence as is in order to produce reliable conclusions. Once the data for individual cases were organized and interpreted, then the researcher looked for patterns and correspondences across cases. This determined the commonalities between participants, as well as the outliers. This aided the researcher in refining the framework that was identified by the literature to a developing theory.

Representing and Visualizing the Data

The final phase in the data analysis requires the researcher to represent the findings through text, tables, or figural forms (Creswell, 2013). The researcher wanted to communicate the findings in the most appropriate representation: Madison (2005) recommended creating a graph or picture when discussing the framework; Huberman and Miles (1994) recommended developing tables that show contrasts and comparisons; and Wolcott (2994) explained that displaying the results in tables, charts, diagrams and figures makes it easier for reading to make connections.

In this study, data were reported first by individual cases followed by the cross analysis. For each case, the data were presented to parallel the framework identified from the literature. As this was developing, the researcher reported any surprising and un-expected findings within each level. Throughout each case, demographic information was presented in tables and participants' quotes were included to illustrate the themes and ideas being described. The cross-case analysis included the contrasts and comparisons between cases, and also related to the framework. The detailed structure how to represent the data was developed once the data had been interpreted and the researcher had a better picture of the findings.

Validation and Evaluation

Many perspectives exist regarding the importance of validation in qualitative studies and terms to describe it (Creswell, 2013). Creswell believed that validation is a strength of qualitative research in order to determine accuracy of the study. He said "I use the term *validation* to emphasize a process (see Angen, 2000), rather than *verification* (which has quantitative overtones) or historical words such as *trustworthiness* and *authenticity*" (p.250). In fact, validation does not occur at one point, but rather all along the period of the study. There are several validation strategies and the researcher is recommended to use more than one strategy depending on the procedures being used through the research study (Whittemore et al., 2001). The following were used as this study was being conducted:

1. Data triangulation: the researcher used multiple and different sources, instruments, and methods to provide corroborating evidence (Creswell, 2013; Miles & Huberman, 1994; Patton, 1980; Whittemore et al., 2001).

2. Clarifying researcher bias: in the methods section of this study, a subsection was dedicated to describe the researcher's role. This validation strategy was important so that the reader understands the researcher's position and any biases or assumptions that might influence the study and findings (Creswell, 2013; Whittemore et. al., 2001).

3. Debriefing: In this process, an individual who was not engaged in the study did an external check of the research procedures (Creswell, 2013; Lincoln & Guba, 1985; Whittemore et. al., 2001). In fact, the role of the debriefer was to "ask hard questions about methods, meaning and interpretation" (Creswell, 2013, p. 252), in order to help the research uncover biases taken for granted, think through the methods of data collection and its relation to the question, and become aware of the process and his/her position in regards to data analysis (Lincoln & Guba, 1985). Since this study was being conducted to write a dissertation, the researcher had to propose the research to five professors by sharing the research question, the literature related to the topic, and the methods section of the study. Feedback from of the professors gave the researcher an opportunity to refine and reflect on the study to be conducted.

4. External audit: an external auditor is someone who will take the role of a consultant to examine both the process and product of the research (Creswell, 2013; Lincoln & Guba, 1985). Since this was a dissertation study, the chair of the committee was a consultant throughout the research making sure the different sections of the study were being conducted appropriately, and that the interpretation and conclusions made were supported by the data. In addition, Once the data were analyzed, two external audit meetings were conducted in which the director of the office of professional practice and the university liaison checked for the accuracy of the representations.

5. Member checking: this validation strategy involves taking data, analyses, interpretations, and conclusion back to the participants so that they can judge the accuracy and credibility of the findings (Creswell, 2013; Lincoln & Guba, 1985; Whittemore et. al., 2001). The interview transcriptions were sent to the participants to review for accuracy of representation, before any data analysis was conducted. Also at the end of the data analysis and again at the end of the study, the researcher offered participants the opportunity to review the findings in order to reflect on the accuracy of the written information.

6. Rich and thick description: through this process, the researcher will enable the readers to make decision regarding transferability (Creswell, 2013; Lincoln & Guba, 1985; Whittemore et. al., 2001). In fact, a rich and thick description should include information about the sampling, each participant, clarification of the role of the researchers, rationale for certain procedures, steps taken to manage, analyze and report data, and any description that will make the research process as transparent as possible (Lincoln & Guba, 1985). In this study, the researcher aimed at having a clear description of the research path.

In addition to the above six validation strategies, the researcher made sure to follow the criteria recommended by Creswell (2013) for evaluating a good case study:

1. Is there a clear identification of the “case” or “cases” in the study?
2. Is the “case” (or are the “cases”) used to understand a research issue or used because the “case” has (or “cases” have) intrinsic merit?
3. Is there a clear description of the “case”?
4. Are themes identified for the “case”?
5. Are assertions or generalizations made the “case” analysis?
6. Is the researcher reflexive or self-disclosing about his or her position in the study? (p.265)

CHAPTER FOUR

Results

A multiple case study enables the researcher to explore differences within and between cases (Creswell, 2012). The goal is to replicate findings across cases to find linkages (Yin, 2003). In this study, data were collected on four cases. In the analysis that follows, the researcher collected data by observing current classroom practices, examining archival documents, and conducting interviews with the participants, campus principals, and team teachers. The archival documents included: (a) mentor and supervisor evaluations, (b) assessments of performance, and (c) reflections regarding their teaching and portfolio artifacts.

The research question guiding this study was: what factors influence beginning teachers' differentiated instructional practices with diverse students? Two models were used as frameworks to analyze the data: (a) the *Classroom Instructional Practices Scale* (CIPS), and (b) the Influences on Differentiation (IoD) framework (adaptation of Bronfenbrenner's theory). The *Classroom Instructional Practices Scale* was used in this study. The framework focused on four major areas of adaptive classroom practices: content, rate, preference and environment. The Influences on Differentiation framework was used to identify the influences on the beginning teacher's implementation of differentiated practices with diverse students. This framework suggested five systems: (a) individual or the teacher, which included her knowledge, beliefs, views, and psychosocial abilities; (b) the microsystem or the elements at the classroom level, which consisted of

the teacher's classroom composition and the students' characteristics; (c) the mesosystem or the campus level and the interactions within the campus, which encompassed school personnel such as the principal and fellow or team teachers, as well as parents; (d) the exosystem or the school district level, which included the school policies related to time, resources, and paper work; and (e) the macrosystem or the state level, which represented the culture regarding the implementation of standards and high-stakes testing.

Method for Analysis

Analysis of cases refers to ways of examining, comparing and contrasting, discerning, and interpreting meaningful patterns or themes in the data (Creswell, 2012). Yin (2003) described how multiple case studies can be used to either, "(a) predict similar results (a literal replication) or (b) predict contrasting results but for predictable reasons (a theoretical replication)" (p. 47). For this study, the researcher aimed at organizing the raw data into logical, significant and meaningful categories, representing the holistic image, and identifying the best means to communicate the findings (Hoepfl, 1997).

To begin the analysis, the researcher read through all the gathered information. This process provided the researcher with an overview of the entire accumulated data and an opportunity to identify any potential unexpected themes. Then, intra-case analysis was conducted, followed by cross-case analysis. The intra-case analysis concentrated on the data collected per case. The researcher read each case individually and used the two identified frameworks to code the data. For any unexpected themes that emerged the researcher reread previous data with the new theme in mind. For the cross-case analysis, the themes identified within each case were compared and contrasted between cases, as well as related to the frameworks.

State Context

All participants were teachers in public schools in the state of Texas. The Texas Education Agency (TEA) is the state agency that oversees public education in the state of Texas (Texas Education Agency, 2015). TEA's mission is "to provide leadership, guidance and resources to help schools meet the educational needs of all students and prepare them for success in the global economy" (Texas Education Agency, 2012). The TEA has identified the following roles and responsibilities:

- Administers the distribution of state and federal funding to public schools;
- Administers the statewide assessment program and accountability system;
- Provides support to the State Board of Education (SBOE) in the development of the statewide curriculum;
- Assists the SBOE in the instructional materials adoption process and managing the instructional materials distribution process;
- Administers a data collection system on public school information;
- Performs the administrative functions and services of the State Board for Educator Certification;
- Supports agency operations, including carrying out duties related to the Permanent School Fund; and
- Monitors for compliance with certain federal and state guidelines. (Texas Education Agency, 2015d)

According to the TEA, the curriculum and instructional materials are integral parts of a public school system. The current curriculum standards, which are adopted by the State Board of Education, outline what students are to learn in each subject area and grade and are called the Texas Essential Knowledge and Skills (TEKS). According to the TEA, the curriculum and instructional materials should be adapted to meet the needs of special student populations. TEA recognizes the following programs for special populations: bilingual education and English as a second language instruction, dyslexia, early childhood education, gifted and talented education, education for homeless

children, and migrant education. Table 4.1 provides information about the students' demographics in the state of Texas as reported by TEA (2015c).

TEA also assesses public school students on what they have learned, as well as evaluates districts and schools under the state accountability requirements. Public school students are required to take a statewide assessment called the State of Texas Assessments of Academic Readiness (STAAR). STAAR is an assessment designed to measure the extent to which students have learned and are able to apply the knowledge and skills defined in the state-mandated curriculum standards, the TEKS. The state also offers the STAARL assessment for English language learning (ELL) students; the STAAR-A assessment, an online accommodated version of the exam for eligible students; and the STAAR Alternate 2 assessment for students who have significant cognitive disabilities and are receiving special education services.

Table 4.1

Public School Students' Demographics in the State of Texas (TEA, 2015c)

2012-2013 Enrollment Profile		Percent
Gender	Female	48%
	Male	51.3%
Ethnicity	American Indian or Alaska Nat	0.4%
	Asian	3.6%
	Black or African American	12.7%
	Hispanic/ Latino	51.3%
	Native Hawaiian/ Other Pacific	0.1%
	Two or more races	1.8%
	White	30.0%
Program Participation	Bilingual Education	10.1%
	English as a Second Language	6.5%
	Gifted and Talented	7.6%
	Special Education	8.7%
Student Population	At-Risk	44.6%
	Economically Disadvantaged	60.3%
	English Language Learner	17.0%

District Context

Participants in the study came from two districts in Texas. Table 4.2 provides information about the students' demographics by district reported by TEA (2015a).

Table 4.2

Public School Students' Demographics by District (TEA, 2015a)

2012-2013 Enrollment profile		D1 Percent (N= 12,426)	D2 Percent (N=15,221)
Gender	Female	50.0%	48.1%
	Male	49.9%	51.8%
Ethnicity	American Indian or Alaska Nat	0.4%	0.6%
	Asian	1.4%	
	Black or African American	2.3%	30.2%
	Hispanic/ Latino	48.5%	56.9%
	Native Hawaiian/ Other Pacific	0.1%	
	Two or more races	1.6%	1.4%
	White	45.7%	10.5%
Program Participation	Bilingual education	6.4%	6.4%
	English as a Second Language	4.6%	10.4%
	Gifted and Talented	6.1%	8.8%
	Special Education	9.7%	10.0%
Student Population	At-Risk	33.6%	67.6%
	Economically disadvantaged	47.4%	86.9%
	English Language Learner	10.5%	17.7%

Note. D= District.

In comparing the two districts to the state demographics, D1 was overrepresented by White students (45.7% vs. 30.0%) and underrepresented by Black students (2.3% vs. 12.7%) whereas D2 was overrepresented by Black students (30.2% vs. 12.7%) and underrepresented by White students (10.5% vs. 30.0%). Moreover, D2 had higher percentages of at-risk (67.6% vs. 33.6%), economically disadvantaged (86.9% vs. 47.4%), and English language learners (17.7% vs. 10.5%) than did D1.

District 1(D1)

D1 is categorized as a major suburban district (TEA, 2015b). According to the TEA's (2015a) most recent public school students' demographic (N= 12,426), D1 has 0.4% American Indian or Alaska Native, 1.4% Asian, 2.3 % Black or African American, 48.5% Hispanic/Latino, 0.1% Native Hawaiian/Other Pacific, 1.6% two or more races, and 45.7% White. Program participation includes 6.4% of the students in the bilingual education program, 4.6% of the students in the English as a second language program, 6.1% in the gifted and talented program, and 9.7% in the special education program. In addition, the student population is comprised of 33.6% at risk, 47.4% economically disadvantaged, and 10.5% English language learners.

According to the school district's website, the first school in D1 opened in 1930. Today the district is comprised of 15 schools and several support buildings. The district has over 12,300 students enrolled, over 840 teachers, and over 920 other employees (i.e., instructional specialist, office worker, maintenance, etc.). The district also accepts volunteers who are usually parents and community members.

According to the website, the superintendent of the district is a high school graduate, former classroom teacher, and a former campus administrator at D1. Each campus is led by one school principal and one or more assistant principals. The teaching staff can be described as 33% having advanced degrees, an average number of years of experience teaching at D1 of 13 years, and only an 8.8% turn-over rate.

D1's curriculum philosophy is to provide programs of learning for all subjects and grade levels. The district embraces brain-based teaching and learning philosophies that encourage hands-on learning, small group work, and extensive questioning strategies.

The district's curriculum was created by teachers, for teacher use, as a tool to guide instruction and monitor pacing throughout the year. The curriculum documents included instructions aligned to the TEKS, and the testing requirement for the state of Texas. The department of instruction formed teacher committees at every grade level and in each content area to revise the curriculum on a yearly basis using assessment results to analyze gaps in student achievement. The district requires teachers to implement benchmark assessments and curriculum-based assessment to identify needed individual assistance.

According to the district website, the district has a bilingual program that follows a transitional model to serve students who are identified as Limited English Proficient according to the TEA standards. The PK-5 bilingual program is located on two elementary campuses and in one center. The district also serves students with dyslexia and other disabilities. D1 follows the policies and procedure outlined by the TEA for identification, intervention, and placement of children with dyslexia and children with other disabilities. In addition, the district has an advanced academics program for students who are identified as gifted, and a reading recovery program for students who have low achievement in literacy learning in first grade.

For the 2013-14 academic year, D1 has met state standards as a district, as well as all six elementary schools. The district also seems to have stability in their administration and hires from within the school district, even hiring their graduates who know the culture. For example, while the current superintendent will be resigning at the end of this academic year, he is a graduate from D1, and has been working with D1 since 1975 according to the local newspapers (2015, January 20). He started as a junior high teacher and coach, and eventually became assistant principal of a school in D1, then the

principal. Later, he moved to the district administration to work initially in the Department of Instruction, then became the assistant superintendent, next the deputy superintendent before becoming the superintendent for the next 11 years. The district has been open for more than 80 years and the new incoming superintendent will be only the fifth superintendent of D1. In fact, he will be the fourth one to actually be a graduate from a school at D1. He has also been working with D1 since he graduated from college.

District 2 (D2)

D2 is categorized as a central city district (TEA, 2015b). According to the TEA's (2015a) most recent public school students' demographic (N= 15,221), D1 has 0.6% American Indian or Alaska Native, 30.2 % Black or African American, 56.9% Hispanic/Latino, 1.4% two or more races, and 10.5% White. Program participation includes 6.4% of the students in the bilingual education program, 10.4% of the students in the English as a second language program, 8.8% in the gifted and talented program, and 10.0% in the special education program. In addition, the student population is comprised of 67.6% at risk, 86.9% economically disadvantaged, and 17.7% English language learners.

D2 may be considered a mid-sized district that has more than 15,000 students, more than 900 teachers, and more than 300 other employees (i.e., professional support staff, campus administration, etc.). The district includes 15 elementary schools, 4 middle schools, and 5 high schools.

According to the website, the current superintendent has been in public education for more than 35 years, with 15 of them as a superintendent. According to the local newspaper (2014, August 20), although the superintendent has been in her position since

2011, the departments' leaders have been changed within the past two years. The teaching staff's education can be described as 81% with bachelor's degrees, 18% with a master's degrees, 8% first year teaching, and 29% with one to five years of experience in teaching (TEA, 2015a). No information was available regarding leadership at each campus or retention rates of faculty or administrators.

According to the district website, D2's mission statement is "to ensure innovation and excellence in education to prepare all learners for productive engagement in global society". The district administration includes an office of curriculum and instruction that is responsible for providing high quality curriculum documents, instructional assistance, and programmatic support to all campuses. The district also has an advanced academic services department consisting of 5 staff members dedicated to providing appropriate education services for gifted and talented students by promoting rigor, depth, complexity, and challenges for the leaners. In addition, D2 has an English Language Learners (ELL) department consisting of 9 staff members with the mission of facilitating the services on campuses that provide services for ELL. The special education department at D2 includes 27 staff members who provide support and services to teachers who serve students with disabilities. Within this department, a number of staff (N=11) are specifically dedicated to supporting students with dyslexia.

According to local newspapers (2013, September 23) the district shared the aim to increase student testing performance at the beginning of the 2013-14 academic year. To achieve their goal, they wanted their individual campuses to be aligned with the district's curriculum and instructional goals. The principals at D2 signed a document stating that their campuses must meet state standards (2013, September 23). In fact, the principals

could be demoted to assistant principal positions if their campuses did not meet state standards. In addition, the Board of Trustees at D2 decided to award merit bonuses, varying between hundreds to thousands of dollars, to teachers whose students from low socioeconomic backgrounds passed the test; teachers whose students performed poorly could lose their jobs (2014, March 20). The pressure was also on the district's superintendent who also needed to meet the goals set by the Board of Trustees. According to local newspapers, one of the district's goals "is to increase 2014 STAAR performance, have all campuses with returning principals meet state standards and those with new principals that failed last year must show clear improvement" (2014, March 20).

At the end of 2013-2014 year, the district met state standards as a district, but nine campuses failed to meet the state standards. D2 had not had this high a number of campuses not meeting the standards since 2004 (2014, August 8). Table 4.3 shows D2's elementary schools that met standards on the STAAR for 2012-13 and 2013-14 academic years.

For the 2014-15 academic year, the district was still tweaking its curriculum to make sure that students progress on the STAAR test. In addition, the district developed tests similar to the STAAR tests according to local newspapers (2014, July 25). These tests were to be given to students in kindergarten through second grade, which might help the district in determining the weak spot before students actually took the STAAR test in grade 3. The state test results for the 2014-2015 school year had not been publically released at the time of this research.

Table 4.3

D2's Elementary Schools that Met Standard on STAAR

School Number	Academic Year	
	2012-13	2013-14
1	X	X
2	M	M
3	X	X
4	X	X
5	M	M
6	M	M
C1	M	X
8	X	X
9	M	M
10	M	X
11	M	M
12	M	M
C2	X	M
14	X	X
15	M	M

Note. C= Campus. M= Met Standard. X= Did Not Meet Standard.

Participants

There were four main participants in this study: T1, T2, T3, and T4. Table 4.4 provides the information on each teacher's grade level, campus, and school district. T1 was a teacher in D1, and the rest were teachers in D2. Within D2, T3 and T4 were teachers on the same campus (C3). T1 taught second grade, T2 taught third grade, T3 taught fourth grade, and T4 taught Kindergarten.

Table 4.4

Participants' District, Campus, and Grade Level

States	District	Campus	Teacher	Grade Level
Texas	D1	C1	T1	2nd
	D2	C2	T2	3rd
	D2	C3	T3	4th
	D2	C3	T4	KG

Note. D=District. C= Campus. T= Teacher.

In addition, team teachers and school principals were interviewed. In total four team teachers were interviewed (TT1, TT2, TT3, TT4) and three school principals (P1, P2, P3).

Case Study: Teacher 1 (T1)

Context

Campus 1(C1). C1 is part of D1. Similar to the district, the campus administration seemed to have some stability. The current principal, whose demographics are described below, took this position this year. However, the past principal had been working with D1 for 26 years and was the principal of C1 for five years. In addition, C1 seemed to be performing well in regards to the state accountability. Over the past 7 years, the campus was rated 'exemplary'. In the 2014 state ranking, C1 was ranked better than 88.3% of elementary school in Texas, as well as second among the six elementary schools in D1.

Currently, the campus has 814 students and more than 45 teachers (TEA Division of Performance Reporting, 2015). The class size ranges from 18 to 25 students, with an average of 20 students per teacher. The campus has 6.1% of teachers (n= 3) in their first

year teaching, 12.4% of teachers (n=6) with up 5 years of experience with an average of 13 years of experience.

According to the TEA Division of Performance Reporting (2015), C1 has 2.0% African American, 0.6% American Indian, 2.6% Asian, 32.7% Hispanic, 0.1 % Pacific islander, 2.0 % two or more races, and 60.1% White. In addition, the student population is comprised of 22.5% at risk, 23.2% economically disadvantaged, and 3.2% English Language Leaner (see Table 4.5)

Table 4.5

Student Demographics at D1-C1 (TEA Division of Performance Reporting, 2015).

2013-2014 Enrollment profile		D1-C1 Percent (N=814)
Ethnicity	African American	2.0%
	American Indian	0.6%
	Asian	2.6%
	Hispanic	32.7%
	Pacific islander	0.1%
	Two or more races	2.0%
	White	60.1%
Student Population	At-Risk	22.5%
	Economically disadvantaged	23.2%
	English Language Learner	3.2%

Note. D=District. C= Campus.

According to campus' website, its vision is "to use high level of rigor and real world relevance to nurture the desire within the students to become life-long learner within the 21st century". The school also aimed to develop students who will become productive and caring citizens.

Currently, the campus is comprised of a one-story building with a schoolyard surrounding the back and the left side of the building. The schoolyard includes a cemented basketball court, two playground-slide areas, ten swings lines in a row, and a

large green area with some benches. The school parking lot holds more than 50 cars and has a bike rack.

As I entered the building, I noticed that the glass door was locked that led to the classroom hallway. The administrative area was located on the right, which had a square common area with the administrative secretary's desks within cubicles and administrative offices on the sides. C1's administrative staff includes one principal, one assistant principal, one counselor, and one clinical nurse. All doors to the offices were closed at all times while I was present.

As I entered the classroom area, I noticed that grade levels were clustered in hallways. The kindergarten classrooms, first grade classrooms, and second grade classrooms were respectively in hallways on the left, and the library, fourth grade classrooms, and firth grade classrooms respectively on the right. Each hallway was decorated with students' products, pictures of students doing different educational activities, and some educational encouraging quotation posters. In addition, the classrooms' wall connected to the hallway had a half-wall window.

C1 Principal 1 (P1). P1 earned her Bachelor of Science degree in education in 1990. She taught for four years before becoming a teacher at D1 for 7 years. In 2007, she received her masters of education in educational administration, and served for six years as an assistant principal in D1 at C1 before becoming the principal of C1 (Principal 1, personal communication, April 27, 2015). The interview with P1 occurred in her office with the door closed. She welcomed me with a smile and asked about my educational background. We sat facing each other at her desk, and P1 cleared the space in front of me so I would have a place for my papers and note taking materials. Before the interview

began, even though the P1 had read the informed consent and I had explained the study to her, she wanted to know how her answers would be used in the study. Also, P1 asked if she might copy the interview questions, which I agreed to. I tried to allay any concerns by saying that she would be able to review my notes of her interview and would receive the dissertation when it was completed. During the interview, P1 answered with short sentences, which led my probing for additional information. The content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

C1 Team Teacher 1 (TT1). TT1 worked with T1 at C1. Before the beginning of the academic year, they organized lessons and at the end of each unit, they met to accommodate or adjust the upcoming lessons (Team Teacher 1, personal communication, April 27, 2015; Principal 1, personal communication, April 27, 2015). The teachers also met together at the end of each day to discuss their students' progress and how they need to adjust their lessons for the following day, but they also discussed quick updates between classes (Teacher 1, personal communication, April 27, 2015; Team Teacher 1, personal communication, April 27, 2015). TT1 attended a school in D1 and graduated in 2008. In 2012, she graduated with a bachelor's degree in elementary education. She loves camping, watching sports, and going to the movies with her family. She is a big fan of Dr. Seuss' books (Team Teacher 1, personal communication, April 27, 2015).

The interview with TT1 occurred in her class. TT1 was expecting me, and so she had arranged for the students to read silently during the interview (Team Teacher 1, personal communication, April 27, 2015). We sat side-by-side at a semi-circular table facing the students with the door on our left. The interview was interrupted only once by

a student who wanted to have permission to go to the restroom. TT1 seemed very willing to share information and her answers were elaborate. The content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

Classroom. As I walked down the third grade hallway, two classes were on the left and two classes were on the right. The half-wall window made it easy to see the students work while walking in the hallway. T1's classroom was the last class on the left in the third grade hall.

Figure 4.1 depicts the physical arrangement of the classroom (Farah, 2015b, April 27). As I entered the classroom, to my left was a semi-circular table with one adult chair, and four student chairs. Behind the semi-circular table, I saw a double-sided bookshelf forming a rectangular area with a circular rug. On the right, shelves and a sink covered the entire wall. Three clusters of six student desks surrounded by student chairs were in the middle. The space between the students' desks and the white board was covered by a colorful rug. From the ceiling, a projection screen could unfold in front of the white board. Five computers were in a line on a long rectangular table next to the wall beside the student desks. Next to the computers, I noted the teacher's area, which included a desk chair, a rectangular desk, a computer, an overhead projector, a phone, and shelves.

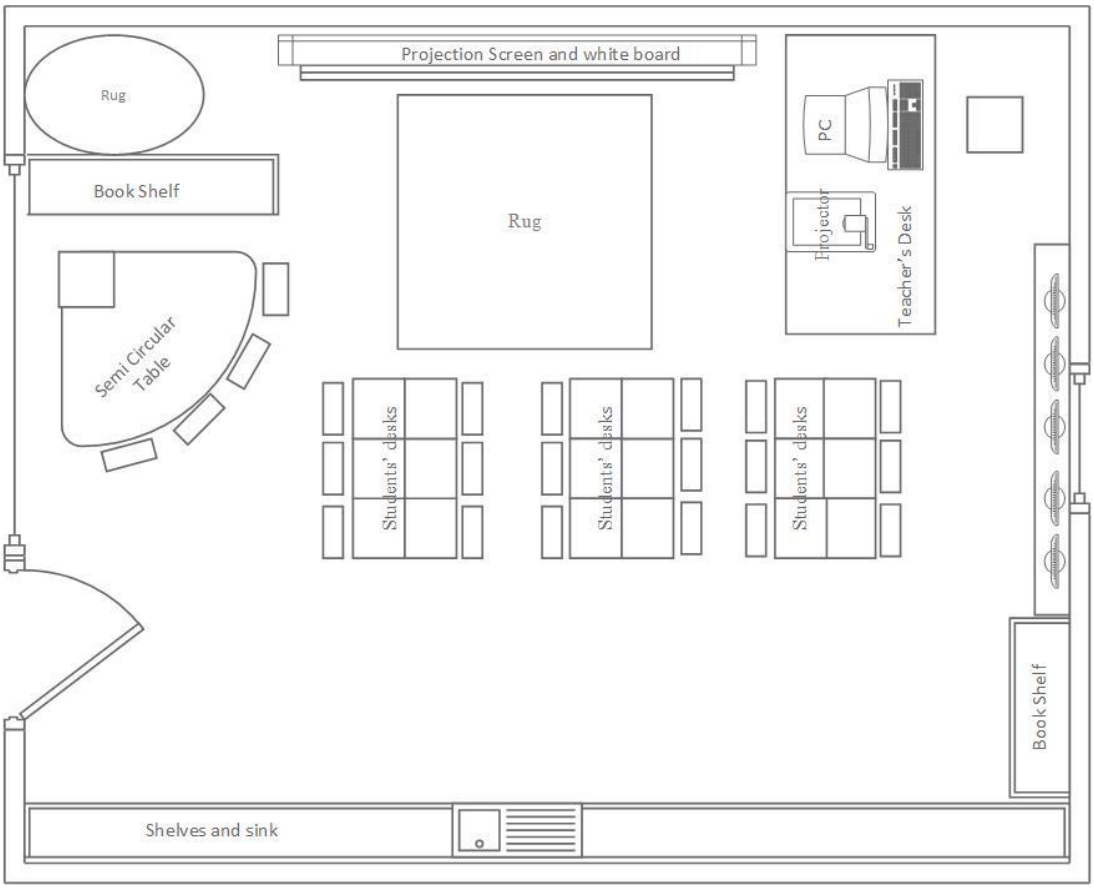

Figure 4.1. Physical room arrangement-T1 *(Farah, 2015c, April 27).*

According to T1, her class has 18 students who are considered to be the high-level performing students among all 2nd grade students (Teacher 1, personal communication, April 27, 2015). The school principal said since T1 had a certificate to work in gifted and talented education, she had the high performing students in her class (Principal 1, personal communication, April 27, 2015). T1's team teacher also mentioned requesting for higher level thinking activities from T1 since she worked with the group of students who were high performers (Team Teacher 1, personal communication, April 27, 2015). During the interview, T1 also said 17 of the students had received commended on benchmark tests for second grade level, eight students had been identified as gifted, and nine students were high achievers (Teacher 1, personal communication, April 27, 2015).

Demographics and Background

T1 is a white female who attended school in D1 and graduated in 2010. She then attended a private university in Texas and graduated in 2014 with a bachelor's degree in elementary education. While at the university, she obtained two certificates: early childhood through 6th grade and gifted and talented education. This was her first year teaching at C1. She said, "I am thankful for the opportunity to start my teaching career in an outstanding community that I am fortunate enough to call home" (Teacher 1, personal communication, April 27, 2015). She taught 2nd grade.

The interview with T1 occurred during independent silent reading time in her classroom. We sat facing each other at the semi-circular table, with my back to the students (see Figure 4.1). T1 had jazz music playing at a very low volume. T1 was willing to share information with me. For each question I asked, she would give detailed answers, which led me to have minimal follow-up questions. She had brought the "bundle" organized by the district and showed it to me during the interview. Again, the content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

Observed Differentiation Practices

Math lesson. The math lesson observed focused on: TEK 2.6B *The student is expected to model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets* (Teacher 1, personal communication, April 27, 2015). The lesson was guided by the following statement, "Division is used in different situations in everyday life" and the following process question, "How can you

create equal sets in everyday life?" (Teacher 1, personal communication, April 27, 2015). The guiding statement and question were written on the left corner of the white board at the front of the classroom (Farah, 2015d, April 27).

The lesson began with all students gathered on the rectangular rug in rows facing the teacher (Farah, 2015d, April 27). T1 read *One Hungry Cat,* a story about a greedy cat learning to do division by baking goodies and sharing them with friends. While reading, 70% of T1's questions were single answer questions focusing on factual and procedural knowledge (Farah, 2015f, April 27). For example, she asked, "How many people are there [invited to the cat's house]?" "Is that enough [cookies]?" or "How many pieces are there now [after the cat gave the guests cookies]?" (Farah, 2015f, April 27). Following the reading, T1 read the guiding statement and questions and had the students say them aloud together. Then, T1 taught them a song with hand signals defining division: "division is when you split objects into equal groups" (Farah, 2015d, April 27). Next, students turned to a partner and took turns singing the phrase to one another.

A few minutes later, T1 told the students to grab the materials they would want to use to solve division problems and sit at their individual desks (Farah, 2015d, April 27). Some students grabbed a white board, others got base-ten blocks, and others got sandwich bags with beans. Once the class was settled, T1 used the projector to work on five examples as a whole class before students began working in their groups. During the example work, T1 would show the problem, read it, and ask students to solve it individually, while she set the timer for 2 minutes. When the timer went off, T1 would read again the problem, underline the key words in the problem (e.g., share them equally), and then ask a student to share his/her work. The teacher asked the students for

solutions. She allowed two different students to share different strategies for each of the following five problems:

1. 8 toys. 4 dogs share them equally.

2. 4 toys shared by two friends.

3. 10 markers shared by two friends.

4. 16 pencils shared by eight friends.

5. 20 erasers shared by four friends.

Following the examples, T1 divided the class into five groups: two groups of four and three groups of three (Farah, 2015d, April 27). The groups were pre-determined according to their performance on the previous math lesson (Teacher 1, personal communication, April 27, 2015). Three different worksheets were distributed among the five groups: (a) open-ended word problems (e.g., "Find different ways to show equal groups of glue, if the teacher has 12 glue sticks."), (b) closed-ended word problems (e.g., "Sara has 18 jars of paint. She puts them in 3 rows with equal number of jars. How many jars are in each row?"), and (c) closed-ended procedural directions in sentences (e.g., "Write the number for 18 balloons shared by 2 friends.") (Farah, 2015d, April 27). Once the groups were given the worksheets, they were given the option to work in an area of their choice. One group sat on the circular rug next to the two-sided bookshelf, two groups sat on the rectangular rug, one group sat in the area behind the desks, and one group sat on the desks. T1 informed the class that they will have 20 minutes to work, and to write their final answers in complete sentences (see Figure 4.1).

While students were working in groups, T1 would stop at each group for few minutes and ask students some questions (Farah, 2015d, April 27). For students who were

working on the closed-ended procedural directions in sentences, T1 would mainly ask procedural questions (e.g., how would you use the counters to divide 8 by 4?). For students who were working on open-ended word problems, T1 challenged them by asking questions that required connecting the task to real world situations and their life experiences, and evaluating the process they used (e.g., "When I say share the white board marker with your partner, do I mean cut into halves?" "Is this the best way to go about solving this problem; would you do it differently?") (Farah, 2015f, April 27). Across all groups, student engagement was 97% (Farah, 2015b, April 27).

Once group work was done, T1 instructed the students to return to their seats. As a whole, the students shared what they had learned and related it to their guiding statement and question (Farah, 2015d, April 27).

ELA lesson. The ELA lesson observed focused on: TEK 2.2.G *Identify and read at least 300 high frequency words from a commonly used list*; 2.23C *Spell high frequency words from a commonly used list* (Teacher 1, personal communication, April 27, 2015). The lesson was guided by the following statement, "Sight words are common in our everyday readings" and the following question, "How can sight words help my reading?" (Teacher 1, personal communication, April 27, 2015). The guiding statement and question were written on the left corner of the white board (Farah, 2015c, April 27).

The lesson began with all students gathered on the rectangular rug in rows facing the teacher (Farah, 2015c, April 27). T1 had a thick pack of flashcards with one high-frequency word written in large letters on each card. She held up one card at a time and as a whole, the class read the word. T1 was going quickly from one card to another and would only stop if she heard a student read the word incorrectly (Farah, 2015c, April 27).

During the two-minute review activity, students were engaged 91% of the time (Farah, 2015a, April 27).

Next, T1 wrote on the white board the following words: “anything, behind, much, good, able” (Farah, 2015c, April 27). These words were the high-frequency words of the week (Teacher 1, personal communication, April 27, 2015). T1 read one word at a time, with the students saying the word after her. Then, students were asked to identify words within the sight words (e.g., “any” in “anything”, or “go” in “good”), and determine if the pronunciation differed from the smaller word.

Then, T1 divided the class into three groups of four and one group of five students, and gave each group the same book (Farah, 2015c, April 27). The groups were pre-determined according to their performance on the previous ELA lesson (Teacher 1, personal communication, April 27, 2015). T1 varied the content of the task and types of responses for each group: one group of students was asked to predict the story by looking at the cover page and write their response in bullet points, two groups were asked to predict the story by looking at the cover page and write full paragraphs; and one group of students was asked to predict the story by looking at the cover page and the summary on the back of the book and write full paragraphs (Farah, 2015c, April 27). All groups were asked to use at least two of the new high frequency words and spell correctly any of the high frequency words previously taught (Farah, 2015c, April 27; Teacher 1, personal communication, April 27, 2015). Group work was allocated 20 minutes (Farah, 2015c, April 27) and students were engaged 96% of the time during a 10-minute sample (Farah, 2015b, April 27).

Once the timer went off, each group put their work on the overhead projector and shared their predictions with the class. The class was expected to make sure the high frequency words were spelled correctly (Farah, 2015c, April 27). Twenty-three questions were asked from the teacher during this whole class discussion: 47% were single answer questions, 17% were cognitive connections, and 36% were evaluation questions (Farah, 2015e, April 27).

Rating of Classroom Differentiated Practices in Math

Content. Although T1 used the same TEK for all the students in her class, the lesson was guided by a statement and a question (Farah, 2015d, April 27; Teacher 1, personal communication, April 27, 2015). Her math lesson started with a whole class discussion of five problems to review previous material, and then students were grouped according to their performance on the previous day's lesson and provided different worksheets. The group worksheet was matched to the student's performance level (Farah, 2015d, April 27; Teacher 1, personal communication, April 27, 2015). Open-ended problems were given to students who successfully completed the previous day's lesson. Although the lessons were divided into math and ELA, T1 integrated ELA into the math lesson (Farah, 2015d, April 27). For their answers, the students were expected to write full sentences to justify their process and final answer. In addition, the lesson ended with connecting the work done during the day with the guiding statement and question (Farah, 2015d, April 27).

According to P1, the teachers used the district curriculum in math, the "bundle," which is not a "cookie-cutter but an aid" (Principal 1, personal communication, April 27,

2015). During walk-throughs, P1 evaluated if the class was being led by a guiding question, if students were engaged within their group work, and whether the class was student- or teacher-centered (Principal 1, personal communication, April 27, 2015). When visiting T1's class, she noted a "high level of engagement from students, and the tasks were more student-centered and above grade level" (Principal 1, personal communication, April 27, 2015). P1 explained that she placed the high level performing students in T1's classroom because of her knowledge of incorporating creative and higher level thinking into her lesson.

TT1 also suggested that T1 used creative and critical thinking skills by saying,

> [T1] can talk me through on how to make a math activity more challenging. I have also been in her class several times to see how she works with her students. She is very good at making students think critically and give them challenging problems in math. What they do in that class, I doubt my students can work on it. (Team Teacher 1, personal communication, April 27, 2015).

T1 provided her students with an above grade level worksheet (according to the district's "bundle") even though they were still working on the same TEK as other classes (Teacher 1, personal communication, April 27, 2015).

T1 used the district curriculum and focused primarily on procedural knowledge in introducing the lesson. The advanced group's worksheet focused more on process and open-ended problems, and the teacher asked more critical thinking and higher-level questions when she was with this group. She did not focus on the concept of division until the closing class discussion when students shared different examples of division in their own lives. To some degree, she integrated language arts into the lesson by asking the students to write complete sentences. On the *Classroom Instructional Practices Scale*, T1 would therefore be rated C6 because she integrated other disciplines.

Rate. At the end of each day, T1 reviewed the next lesson with TT1 (Teacher 1, personal communication, April 27, 2015; Team Teacher 1, personal communication, April 27, 2015). They looked at the students' performance during the day, and rearranged students within the groups for the following lesson, as well as determined needed adjustments to the activities. T1 said "[the objective] is the TEK obviously, but then we cater it to their performance on whatever we gathered throughout the day", and later during the interview she said, "not one student stays in the same group, we change them every day. Obviously when working on the same TEK for several days, some students stay together, but not for different subjects" (Teacher 1, personal communication, April 27, 2015). Students were grouped according to ability, and were given an activity to meet their level of performance. During the observed math lesson, students had two minutes to complete each of the problems during the whole group introduction to the lesson and all students were given the same amount of time to complete the group work, although the worksheets were varied (Farah, 2015d, April 27). In fact, T1 considered the performance of the students on each lesson to determine the different time needed for students to work on the varied task provided (Teacher 1, personal communication, April 27, 2015).

Students were grouped based on the previous lesson's performance, a post-assessment, and provided with different worksheets. The worksheets incorporated the same skill and concept but with different complexity (i.e., enrichment). Different groups had the same amount of time to complete the activity. For these reasons, on the *Classroom Instructional Practices Scale,* T1 would be rated R6.

Preference. During the math lesson, I observed that the students had the same introductory and closing lesson discussion. During group time, all of the groups solved

worksheet problems although the problems varied based on the students' previous performance (Farah, 2015d, April 27; Teacher 1, personal communication, April 27, 2015). All students were expected to write complete sentences to represent their final answer. T1 did give students an opportunity to select the materials they wanted to use in solving division problems (Farah, 2015d, April 27). T1 stated,

> I tried as much as I can to give them [students] activities they can solve using the way they want. For today, I had some using beans, and others use the white board. As long as they can give me the final answer with a reason to how they got there, then they can choose. (Teacher 1, personal communication, April 27, 2015)

TT1 said similarly,

> even though we have the same TEK, we try to cater the activities to their learning styles, and how they prefer working on the activity. After they have mastered using different ways to solve a problem, they are given the choice to use the one [manipulative] they feel more comfortable with (Team Teacher 1, personal communication, April 27, 2015)

While T1 and TT1 both talked about variations in activities, all the students were given worksheets in mathematics that were aligned to the same TEK. The only variation related to the choice of manipulatives children used in solving the problem. For these reasons on the *Classroom Instructional Practices Scale*, T1 would be rated a P3.

Environment. T1 seemed to use a lot of group work (Principal 1, personal communication, April 27, 2015; Teacher 1, personal communication, April 27, 2015). T1 believed that the interaction between students is an "important support for their learning" (Teacher 1, personal communication, April 27, 2015). P1 explained how grouping aided the teacher in differentiating the instruction. By grouping students according to their ability, the teacher could then manage "5 activities rather than 18 different ones" (Teacher 1, personal communication, April 27, 2015). .

During the math lesson, once students were grouped, they were given the option to work in an area of their choice, as well as determine the materials they wanted to use to solve division problems (Farah, 2015d, April 27). T1 said, "I have already told them my expectations, so I give them the choice to work the way they want. They know where the materials are, how to use them, and put them back" (Teacher 1, personal communication, April 27, 2015). The environment allowed for student interaction, and students had access to preferred items to aid their learning. No learning centers were present so on the *Classroom Instructional Practices Scale,* T1 would be rated E4.

Rating of Classroom Differentiated Practices in ELA

Content. T1 used the same TEK, guiding statement and question for all of the students in her class (Farah, 2015c, April 27; Teacher 1, personal communication, April 27, 2015). Her ELA lesson started with a whole class discussion to review high frequency words and present five new high frequency words for the week. Next students were grouped according to their performance on the previous lesson and were given the same book and the same assignment but different responses based on their level of performance. The lesson ended with a whole class discussion of their predictions and sharing of their written products (Farah, 2015c, April 27; Teacher 1, personal communication, April 27, 2015). The task given during group work required higher-level thinking and was authentic to the discipline, since readers used context clues to predict the events of a story. Twenty-three questions were asked from the teacher during this whole class discussion: 47% were single answer questions, 17% were cognitive connections, and 36% were evaluation questions (Farah, 2015e, April 27).

P1 explained that during their monthly meeting, T1 always surprised her with how she could use a second grade book to develop activities that are above grade level (Principal 1, personal communication, April 27, 2015). P1 said, "You know how simple the reading books are in second grade. Well [T1] takes it forward. She creates activities so students can progress and go higher than their grade level" (Principal 1, personal communication, April 27, 2015). T1 was capable of providing her students with ELA activities above grade level even though they were still working on the same TEK and same books as other classes (Team Teacher 1, personal communication, April 27, 2015).

While T1 used the same book with all of the students, she taught the TEK in a more authentic way by having the students use high frequency words in their writing. The majority of her questions was at a high level of thinking and focused on the concept of "prediction." Therefore, on the *Classroom Instructional Practices Scale*, T1 would be rated C5.

Rate. During in introductory activity, rate differences did not seem to be taken into consideration. All students were expected to read the high-frequency words at the same pace (Farah, 2015c, April 27). Once, the class was divided into groups, the complexity of the response varied from group to group based on the students' previous performance, but all students were given 20 minutes to complete the task (Farah, 2015c, April 27). No groups finished the assignment before 20 minutes and engagement for all groups was 96% (Farah, 2015a, April 27). During the interview, T1 mentioned that she considered the previous performance of the students on each lesson to determine the different time needed for students to work on the varied tasks (Teacher 1, personal communication, April 27, 2015). While I did not observe any variation in time allotments

for different groups, I did observe variations in the complexity of the tasks. For these reasons, T1 would be rated R6 on the *Classroom Instructional Practices Scale*.

Preference. During the ELA lesson, student choice was less than during the math lesson (Farah, 2015d, c, April 27). The introductory activity was the same for all students, the group work included the same response format with modification in complexity depending on the student's current level of performance, and the lesson ended with the presentation of their written products (Farah, 2015c, April 27; Teacher 1, personal communication, April 27, 2015). TT1 explained how all second grade students read the same book but usually the questions or tasks vary according to student's abilities (Team Teacher 1, personal communication, April 27, 2015). P1 also stated "the reading books are the same for all students at each grade level but it is the teacher's job to change it into easier or harder" (Principal 1, personal communication, April 27, 2015). Since the tasks did not vary the format or response dimensions but were correlated to the concept of "prediction," T1 would be rated P3 on the *Classroom Instructional Practices Scale.*

Environment. Students were allowed to interact in small groups to complete the task. They interacted with one another while one student acted as the recorder. (Farah, 2015c, April 27). Accordingly, T1 is rated E3 on the *Classroom Instructional Practices Scale.*

Summary of Current Classroom Differentiation Practices

Math. T1 used the curriculum provided by the district to develop the math lesson. Although she focused primarily on procedural knowledge in introducing the lesson, later,

the group work focused more on process and open-ended problems. Students were grouped based on a post-assessment, which was their performance on the previous lesson. The groups were provided with different worksheets that incorporate the same skills and concept but with different complexity. All students were working on worksheets in mathematics that were aligned to the same TEK. The only variation students were provided was in the choice of manipulatives to solve the problem. During the closing class discussion, students were given the opportunity to share examples of division in their own lives. The lesson allowed for student interaction, and included students preferred item to aid learning. On the *Classroom Instructional Practices Scale*, T1 would be rated C6, R6, P3, and E4 (Table 4.6)

ELA. Although T1 focused primarily on recognition of the same high-frequency words for all students, the group work focused on higher-level thinking. T1 used the same book with all students, but she taught the TEK in a more authentic way by having the students use high frequency words in their writing. While no variation in time allotted to complete the task for different groups, variation was present in the complexity of the task, which required predicting the story from context clues. The tasks given were correlated to the concept of "prediction". In addition, the majority of her questions was at a high level of thinking and focused as well on the concept of "prediction". The lesson allowed students to interact in small groups to complete the given task. On the *Classroom Instructional Practices Scale,* T1 would be rated C5, R6, P3, and E3 (Table 4.6).

Table 4.6

Rating on the Classroom Instructional Practices Scale for T1.

Area	Math	ELA
Content	C6	5
Rate	R6	6
Preference	P3	3
Environment	E4	3

Note. ELA= English Language Arts.

Classroom Differentiation Practices During Intern Year

Content. The content of the various lessons T1 taught during her intern year focused, at first, on procedural knowledge, and then, on concept learning. The lessons included critical thinking skills and higher-level thinking. In a lesson she taught during the spring semester, students were learning how to use money, and then at the conclusion of the lesson, the discussion focused on the concept of buying and the using money. Her supervisor noted,

> Students were directed to show how they would use money models to make $20. They were encouraged to show multiple ways to use their model money. [T1] asked for a spokesperson from each table to share how their table had combined their money model to show $20. Students were asked to explain their models representing $20. (Faculty 1, 2014, March 3rd)

At the conclusion of the lesson, [T1] reviewed when students have/will use money and stated that the classroom teacher and she need money to buy things (Faculty 1, 2014, March 3rd).

In another lesson she taught during the spring semester, students worked on developing their skills of using a ruler and comparing measurement. Again, at the end of the lesson, students were to use higher-level thinking to conceptualize their learning and relate it to real word situations. The supervisor wrote,

> [T1] reviewed with students what they had been learning this week: Using standard units of measurement to find length. Students could identify they had been using the ruler as their measurement tool, that each ruler is a foot long or 12 inches long. She reminded students that they needed to state the unit of measure when they state the number of units in a measurement tool. (Faculty 1, 2014, April 3rd)

Students were given an opportunity to discuss with their tablemates when they might use comparison of measurement in the 'real word'. Students were called on to offer answers: stop sign and speed limit sign, small tree to larger tree, height of a ladder to the height of a tree house (Faculty 1, 2014, April 3rd).

In one lesson, T1 explained in her Electronic Portfolio (Efolio) how she organized the content of the lesson in terms of the knowledge students will be learning. She focused the lesson on different types of knowledge, initially, teaching the students how to use an array, and then concluded the lesson with applications to real world situation.

> At the beginning of the lesson, I describe to the students the three types of knowledge. I describe what I am teaching, how they are going to learn the content that I am teaching, and when and where they will use the information that is being taught in the real world. (Evidence 4 and 7) I want the students to make a connection with the real world so that they understand that they will need to know the information in the future. When teaching the students about arrays, I explained to the students what an array is, how they will learn about arrays during the lesson, and explained to them when and where they will use arrays. (Evidence 5) When closing a lesson, I revisit the three types of knowledge so the students will understand what they learned, how they did it, and when and where they will use the information. By revisiting the three types of knowledge, you are cementing the information for the students. (*Efolio-T1*, 2014, April 8)

T1's lesson focused on concept learning and critical thinking, but also included a variety of activities that were authentic to the discipline and problem-based. In several of her lessons, she also integrated some ELA in her math lessons. In the lesson on money, students worked using money models, word problems, and T-charts to compare amounts. They also read a poem related to coins. Her supervisor wrote,

> [T1] used a power point presentation to review how students could use the idea of "Hairy coins" to count coins. Students then recited the coin poem. [T1] then used the document camera to project comparison problem involving money. (Faculty 1, 2014, March 3rd)
> Student then were given 3 money amounts to order from greatest to least ($40.35, $40.80, $44.55). Students were to use their T-chart to compare and then order the money amounts. (Faculty 1, 2014, March 3rd)

In her ELA lesson, T1's lesson was guided by a question, which was discussed by the whole class, and then students watched a video and related the content to themselves. Her supervisor wrote,

> [T1] began the lesson by reviewing the question of the day: What does it mean to be a responsible pet owner? Students described what it meant to be responsible, what people must do to take care of animals, and when they might use that information. Students suggested if they had a pet or visited someone who had a pet, they would need to know this information.
> Students watched a short video to learn what it meant to be responsible animal owners. Students were then given 30 seconds to think, turn, and talk about how they can be responsible animal owners. They then switched roles in sharing their thoughts. 2 students were given the opportunity to share what they and their partners had shared.

T1 has also developed an interdisciplinary broad-based thematic unit on "Forms of Energy" and implemented it during her intern year. The lesson focused on the theme, included broad problems and issues, and had opportunities for interdisciplinary studies. Her professor noted that her lesson

> has applications that have long-term relevance to the learner, related to standards, and differences in student characteristics and their development.
> The theme, problem, or issue is broad, challenging, and allows for the integration of a variety of disciplines and student interests.
> Statements are significant in giving meaning to different disciplines, may be proved or disproved and include the theme as well as opportunities for interdisciplinary studies.
> The outline relates to the generalizations and addresses subject matter of the disciplines that will be addressed in the unit and includes main topics, subtopics, and independent study options. The subject matter provides for the full range of differences and incorporates advanced, conceptually challenging, in-depth, distinctive, and complex content. (Faculty 2, [2013])

In addition, her unit included higher-level questioning and conceptual learning through example and non-examples. Her professor noted that her lesson

> Is organized beginning with what is to be learned and closing with a summary of what was learned. Is sequenced inductively or deductively and uses authentic methods that allow for independent research. Includes many higher-level questions and examples/non-examples to teach new knowledge. (Faculty 2, [2013])

By looking at the different lessons T1 implemented during her intern year, it is clear that her lessons focused on different types of knowledge and concept learning. The activities used required critical and higher-level thinking, and were authentic to the discipline. T1 integrated ELA in her math lesson, but also developed an interdisciplinary broad-based thematic unit. On the *Classroom Instructional Practices Scale*, she is rated C7.

Rate. During her intern year, T1 used pre- and post-assessment to determine the amount of time students might need to learn new content. In her ELA lesson, she began her lesson using pre-assessment and determining student's prior knowledge. Her supervisor noted, "throughout the vocabulary review, [T1] used informal questioning strategies to determine students' understanding of each of the words and determine their prior knowledge of new words that were being introduced" (Faculty 1, 2014, February 10). In addition, T1 also had students self-assess their work. In one lesson, her supervisor noted "after students completed the spelling activity involving clapping, segmenting, and spelling their words, they self-assessed their work for accuracy, highlighting any errors they made" (Faculty 1, 2014, March 3rd). In another lesson, her supervisor again noted, "students were reviewing what unit of measure (foot or inch) they would use to measure an object. The questions were self-checking so students were given immediate feedback.

If students answered correctly, they would mark the game mat with a colored link" (Faculty 1, 2014, April 3rd).

Furthermore, T1 gave feedback to students and used the data in determining students' activities. On the evaluation form, her supervisor commented "[T1] meets with students after reviewing assessment to show exactly where they made errors. She also provides feedback to students when performing well on assessments. She consistently uses the data from these assessments to drive future instruction" (Faculty 1, 2014, February 25). T1's mentor also noted the use of pre-assessment to drive the lesson. She wrote,

> When [T1] is assessing students in the classroom, she selects curriculum-based assessments that match knowledge and characteristics of all students. She created and taught a unit over forms of energy. Before teaching the unit, she created a pre-assessment that enabled her to see what the students already knew about the content. She designed the assessment with the TEKS in mind and made sure it matched the objective as well. After administering the pre-assessment, [T1] modified the lessons that she had already planned accordingly to meet the needs of the students. (*Efolio-T1*, 2014, April 8)

According to T1, she used assessments to match their knowledge with the content of the lesson. She wrote,

> When planning out assessments, I design different assessment methods that will allow me to determine what the students know. (Evidence 5) When using pre-assessments, I am able to design an assessment that matches the TEKS and the objective set for the content. (Evidence 6) When planning ongoing assessments, I use assessments at the door when they enter the classroom. It helps me understand what the students know and how I can help them further with the content. (Evidence 7) I design exit tickets for the students so that they can show what they learned during that lesson. (Evidence 8) I also design summative assessments where I am able to see what the students learned throughout the time that I taught the content. (*Efolio-T1*, 2014, April 8)

Later in her Efolio, she further explained how she uses both pre- and post-assessment to drive her lesson. She wrote,

> When planning what to teach for a particular content, I administer a pre-assessment to the students that allows me to see what the students already know. (Evidence 1) Once I receive the data from the pre-assessment, I transfer them to the student progress records where I see what each student made and write down specifically what the student needs help on and where to start instruction. (Evidence 2) I base my teaching off of the data and help meet each student's needs. (Evidence 3) When I am finished teaching the concept, I administer a summative assessment to see what the students learned. (Evidence 3) Once I receive the data from the summative assessment, I transfer them to the student progress records where I am able to compare the pre-assessment to the summative assessment. (Evidence 4) When comparing the two, I see that the students learned new information while teaching the content. (*Efolio - T1*, 2014, April 8)

The use of pre-assessment to drive the lesson was also noted by her professor. On the evaluation of the interdisciplinary unit, her professor marked that the lesson "is linked to prior assessment with some students accelerating and exploring content in greater depth and other students acquiring the knowledge. Variation also occurs in materials used with different students and/or groups" (Faculty 2, [2013]).

During her intern year, T1 used pre- and post-assessments at set times in her lesson to determine the time needed by students in learning new content. In her lesson, the data from the assessment identified students who needed greater depth. For these reasons, on the *Classroom Instructional Practices Scale*, she is rated R8, the use of pre-assessments.

Preference. In her lessons, T1 provided students with a wide range of activities that were aligned to the objective. In one of her ELA lessons, students watched a video, reviewed vocabulary words using facial and body gestures, wrote story vocabulary, and read stories (Faculty 1, 2014, February 10). In her math lesson on measurement students used rulers to measure, played a review game, and use linking cubes to mark their

progress (Faculty 1, 2014, April 3rd). Students also worked on worksheets at the end of the lesson during independent practice.

In her Efolio, T1 explained how she used an interest survey to determine the learning preferences of each student, which guided her instructional planning. She wrote,

> In order to meet the students' needs, I provide the students a student interest survey to fill out. This asks the students how they prefer to learn and what works best for them along with their favorite things. (Evidence 1) I take this information and use it when planning instruction to help them better learn the information. (Evidence 2) For example, I work with a small group in the back of the classroom while they work on an assignment that was given to them. (Evidence 3) I provide students who work better with technology either time on the computer or IPads that they can travel around the classroom with. (Evidence 4) I provide students with a master copy of what is being taught at their desk if they feel rushed so they are able to look at what was written down and write it in their notes. (Evidence 5) In order to meet the students' needs you have to know how they learn information best. (*Efolio-T1*, 2014, April 8)

Her mentor confirmed T1's statement by saying:

> [T1] provided each student an interest survey for him or her to fill out. The questions that were asked included how the students prefer to learn, what works best for them, and some their favorite things. This is a way for [T1] to get to know her students and help meet their needs when teaching. (EPortfolio- T1, 2014, April 8)

In one of her lessons, T1 had students work on an independent research, which provided students with options in the product format and content to demonstrate their understanding students. In her Efolio she said:

> When implementing a unit in science, the students completed an independent research over the types of energy that we discussed in the classroom. They were presented a proposal from the principal asking them for her help. Ms. Pritchard wanted to know what type of energy the students could use more of throughout the school. The students were presented with certain criteria that they had to follow and different ways that they could present the information to Ms. Pritchard. (*Efolio-T1*, 2014, April 8)

Her mentor also noted the variation in the content of the product for this independent research. She wrote,

> [T1] facilitated independent research by assigning the student a project. The project consisted of picking an area in the school and explaining why we should use the energies that we have discussed in class. These include light, sound, heart, and electronic energy. (*Efolio-T1*, 2014, April 8)

Throughout her lessons, T1 provided a range of activities and aligned them to the objective. Her interest survey helped her determine how students prefer learning the content; however, the choice was given more in the product or demonstration of knowledge. In one of her lessons, students were able to choose in the product format and content to demonstrate their understanding. Accordingly, T1 would be rated mainly a P4, the use of varied activities, with some student choice related to products (e.g., P5) on the *Classroom Instructional Practices Scale.*

Environment. The majority of the lessons for T1 during her intern year included hands-on activities and small group work. In her measurement math lesson, her supervisor noted, "students were paired with another student for the game", and then "students were seated in table groups of 2-4 students per table" (Faculty 1, 2014, March 3rd). In addition, T1 provided students with varied materials that were readily available for them. In her math lesson, her supervisor noted "[T1] and students' materials were readily available. White boards, markers, erasers, pencils and scissors were located at the students' tables" (Faculty 1, 2014, March 3rd).

During her ELA lesson, students were also provided with a variety of materials that were accessible and the class was arranged for student interaction. Her supervisor wrote, "[T1] used the document camera for both the spelling and math activities. Students had access to their materials (journals, pencils, highlighters, money models) to complete

activities. The classroom was arranged so that students could easily move between table groups" (Faculty 1, 2014, April 3rd).

T1's mentor also commented on T1 having the materials available for students. She wrote "[T1] has materials ready for instruction when she is teaching a lesson. She organizes her materials on the table next to the white board and is able to grab the copies that she needs and use them for instruction" (*Efolio- T1*, 2014, April 8). For another lesson, her mentor also wrote:

> [T1] efficiently manages materials for whole group instruction and small group instruction. She will have the materials ready on their desk to use during whole group instruction. For small groups, she will have all the materials that the students need in a container, hand them the container and they will begin working on what is assigned to them with [T1]'s guidance. (*Efolio - T1*, 2014, April 8)

In the majority of her lessons, T1 arranged the environment for student interaction (small group or whole group) with the materials available for students. There was also evidence of the use of interest centers in one of her lesson. After using an interest survey, T1 determined how students would like to learn the content and used interest centers. She wrote,

> In my TA year at [C3] with [the teacher's] second grade classroom, I provide varied learning opportunities. In order to do this, I provide different activities in centers and provide technology. Instead of giving paper pencil worksheets for the students to practice multiplication facts, I provided the students with an IPad for them to practice. They really enjoyed it and tried harder to understand and know the facts as well.

Her mentor also said, "[T1] manages technology for whole group instruction by presenting videos that related to the content that is being taught to grab the students' attention. She also uses IPads for the students to work with during stations and guides them" (*Efolio-T1*, 2014, April 8).

In addition, in one of her lessons, T1 gave the students an independent research project that required the use of the school and the home environment. Students not only worked on the project at home with their families but also presented their products to the school principal. T1 wrote in her Efolio:

> When implementing a unit in science, the students completed an independent research over the types of energy that we discussed in the classroom. They were presented a proposal from the principal asking them for her help. [The principal] wanted to know what type of energy the students could use more of throughout the school. The students were presented with certain criteria that they had to follow and different ways that they could present the information to [the principal] (Evidence 6). After working on the project for a couple of days, they were able to present the information to [the principal] and she was able to pick which student's project she would use. (*Efolio-T1,* 2014, April 8).

For that lesson, her mentor wrote: "The project was a take home project where they only worked on it at home. [T1] informed the students and parents of the projects and gave them a week to complete it. When the due date arrived, [T1] allowed the students to present their project to the class" (*Efolio - T1*, 2014, April 8).

By looking across her lessons and observations during T1's intern year, she used a variety of activities the majority of the time and arranged the classroom for student interaction. In one of her lessons, learning centers were also available. For an independent research project, students had the use the community (home and school) as a learning center. For these reasons, T1 would be rated an E6 (use of learning centers within and outside the classroom).

Summary of Classroom Differentiation Practices During Intern Year

By looking at the different lessons T1 implemented during her intern year, it is clear that her lessons focused on different types of knowledge and concept learning. The activities required critical and high-level thinking, and were authentic to the discipline.

T1 integrated ELA in her math lesson, but also developed an interdisciplinary broad-based thematic unit. To determine the time needed by students to learn new content, she used pre- and post-assessment. The data collected from students guided in organizing activities to match students. The majority of her lessons included a range of activities aligning with the objective and was arranged for student interaction. In one of her lessons, she used an interest inventory to determine the way student prefer learning and provided them with learning center. In another lesson, she provided students with choice of product format and content to demonstrate their knowledge, as well as having the community as a learning center. Accordingly, on the *Classroom Instructional Practices Scale,* T1 is rated C7, R8, P4-P5, and E6 (Table 4.7).

Table 4.7

Rating on the Classroom Instructional Practices Scale for T1 During Intern Teaching.

Area	Intern Teaching
Content	C7
Rate	R8
Preference	P4/P5
Environment	E6

Comparison of Current and Intern Differentiation Practices

Content. During her intern year, T1's lessons included activities that focused primarily on different types of knowledge and concept learning. Student tasks incorporated critical and higher-level thinking. The lessons were authentic to the discipline she taught, and she integrated some ELA into her math lesson. T1 also developed and implemented an interdisciplinary thematic unit during her intern year (C7).

Currently, T1's math lesson focused on procedural knowledge but also included some process and open-ended problems. During the lesson, students were asked critical and higher-level thinking questions. The lesson integrated ELA to some degree and the closure activity focused on conceptual learning. Her ELA lesson taught students the TEK in a more authentic way to the discipline. Students were also asked higher-level thinking questions and the lesson ended with a focus on concept learning.

From the observations and review of archival data, T1 continues to include critical and creative thinking skills in her lessons; however, in math she uses less authentic approaches (C4) than she does in ELA (C5). While she does integrate some ELA in her math lessons (C6), no interdisciplinary thematic units were observed or mentioned in the interviews. On the *Classroom Instructional Practices Scale,* T1 would be rated C7 during her intern year, C6 for current math teaching, and C5 for current ELA teaching (Table 4.8).

Rate. During her intern year, T1 used pre- and post-assessments at set times in her lesson to determine students' strengths and needs. In her lessons, she described how she used the data from her assessments to identify students who needed more complex content. The pre- and post-assessment drove her lessons, and students were provided varied activities according to their performance on the pre-assessment.

In her current teaching of math, students were grouped based on the previous lesson's performance, a post-assessment, and provided with different worksheets. The worksheets incorporated the same skill and concept but with different complexity (i.e., enrichment). Different groups had the same amount of time to complete the activity. For

her ELA lesson, no variation in time allotted to complete the task for different groups was observed. However, variation was present in the complexity of the task.

In summary, T1 continues to use assessment to identify students' strengths and needs in her current teaching. However, during the intern year, she used both pre- and post-assessments. Currently T1 only uses post-assessments to guide the activities given to students. During both her intern year and her first year of teaching, she used data from the assessment to identify students who needed enrichment or acceleration. Currently, her students are allotted the same amount of time to complete their learning activities. On the *Classroom Instructional Practices Scale,* T1 would be rated R8 during her intern year and R6 for current teaching (Table 4.8).

Preference. During her intern year, T1's lessons provided a range of activities to her students and aligned them to the objective. In one of her lessons, she used an interest survey to determine how students prefer learning the content. In another, she gave students the opportunity to choose in the product format and content to demonstrate their understanding.

In her current teaching of math, T1 provided her students with worksheets that were aligned to the same TEK. The only variation observed was related to the choice of manipulatives children used in solving the problem. In her ELA lesson, the tasks did not vary the format or response dimensions, but were correlated to the concept she was teaching. Students were only given variation in the complexity of their response.

Some commonality can be seen in the way T1 aligned the activities with the content and provides for individual student choice during her intern year and her current teaching. During both her intern and current teaching, T1 provided her students with

activities aligned to the objective of the lesson. Although, no variation in task was observed during her current teaching in either math or ELA, students were given choices in the manipulatives they used during the math lesson. In her intern year, T1 gave students the same task but varied both the product formats and content (i.e., demonstration of their knowledge). On the *Classroom Instructional Practices Scale,* T1 would be rated P4/P5 during her intern year, and P3 for current teaching (Table 4.8).

Environment. The lessons during T1's intern year allowed for student interaction and for accessing a variety of learning experiences. In one of her lessons, learning centers were available. While in another lesson, students used the community (home and school) in conducting an independent research project.

During her current teaching of math, once students were grouped, they were given the option to work in an area of their choice and select the materials they wanted to use in solving division problems. The environment allowed for student interaction, and students had access to preferred items to aid their learning, but no learning centers were present. For her ELA lesson, students were allowed to interact in small groups to complete the task but no learning centers were observed.

Although during her intern year, T1 had one lesson that used learning centers and another that used the home for learning, the majority of her archived lessons and observations included a variety of activities with student interaction only but not separate learning areas. T1's current way of arranging the physical environment facilitates interaction and access to math manipulatives. In both of her observed lessons, no learning centers were observed. On the *Classroom Instructional Practices Scale,* T1 would be

rated E6 during her intern year, E4 for her current math teaching, E3 for her current ELA teaching (Table 4.8).

Table. 4.8

Rating on the Classroom Instructional Practices Scale for T1 for Intern and Current Teaching

Area	Intern Teaching	Current Teaching –Math	Current Teaching -ELA
Content	C7	C6	C5
Rate	R8	R6	R6
Preference	P4/P5	P3	P3
Environment	E6	E4	E3

Note. ELA=English Language Arts.

Influences on Differentiation

State level. According to T1, TT1, and P1 every teacher should use the state standards when preparing for a lesson (Principal 1, personal communication, April 27, 2015; Teacher 1, personal communication, April 27, 2015; Team Teacher 1, personal communication, April 27, 2015). In fact, both observed lessons for T1 focused on a state standard (Farah, 2015 d, April 27).

District level. On their websites, the curriculum philosophy stated, "[D1] embraces brain based-teaching and learning philosophies that encourage hands-on learning, small group work, and extensive questioning strategies. Vocabulary acquisition strategies and writing across all areas of the curriculum are cornerstones of our instructional planning." D1's department of instruction developed curriculum documents for each grade level and each subject area (Principal 1, personal communication, April 27, 2015; Teacher 1, personal communication, April 27, 2015; Team Teacher 1, personal

communication, April 27, 2015). The bundles were organized to include, for each TEK, essential questions and statements, assessments and record keeping, several activities and vocabulary, and the lesson's sequence (Principal 1, personal communication, April 27, 2015; Teacher 1, personal communication, April 27, 2015). In addition, the activities were labeled as above, on, or below grade level (Teacher 1, personal communication, April 27, 2015). The essential questions and statements within the bundle seemed to orient the lesson towards concept learning, and the teachers were provided with flexibility in selecting activities for students. However, the bundle did not have any interdisciplinary thematic units.

According to T1 "a big part of my preparation relies on this [the bundle]". Since T1's class included the highest performing students among all of the second grades (Teacher 1, personal communication, April 27, 2015), she had not only the second but also the third grade bundles. Both observed lesson were pulled from the bundles in terms of essential questions, statements, and activities (Teacher 1, personal communication, April 27, 2015). In addition, T1 has adopted the district's curriculum philosophy in her classroom. During the interview she said that brain-based teaching had become the foundation of her classroom, which she used to increase student interaction, and incorporate body movement into activities when students were learn new content.

The district also provided professional development for beginning teachers called "First Year Academy" (Principal 1, personal communication, April 27, 2015; Teacher 1, personal communication, April 27, 2015). According to the school principal, the First Year Academy focuses on "classroom management, grading, strategies, team work, differentiation, using the bundles, and data collection" (personal communication, April

27, 2015). She also explained how this professional development "helps teachers in knowing how to take the same TEK and adapt it to different students" (Principal 1, personal communication, April 27, 2015). Even though T1 felt like her university program prepared her for being a first-year teacher, she commented that the First Year Academy has been beneficial to her. She said

> I haven't drowned as a beginning teacher because the first year academy is there for us. We can contact them at any time for questions and support. But also, being in there I felt so comfortable. Like 'I got this'. I never realized how much [my university] was helpful. I would recommend [my university] for any person who want to become a teacher. (Teacher 1, personal communication, April 27, 2015)

The district also provided professional development, which is open for all teachers to attend (Teacher 1, personal communication, April 27, 2015). During the interview, T1 shared how she has been busy this year and was only able to attend the workshops from the First Year Academy. However, for next year, she is interested in attending some of the workshops that align with her needs. She said,

> the district also had other workshops that I haven't attended this year. I was really busy and didn't get the chance but hopefully next year. See next year, I don't attend the first year academy, so I will have time for the other ones. I want to try the classroom management one so I can add to the whole brain teaching. There is also some workshops on math that I want to go to, and the ones specifically for research-related topics. These workshops are good and other teachers are telling me to go to them. (Teacher 1, personal communication, April 27, 2015)

As previously mentioned, the district also seemed to have stability in their administration and hired from within the school district, even hiring their graduates who know the culture. In fact, the district has been open for more than 80 years and the new incoming superintendent will be only the fifth superintendent of D1. In fact, he will be the fourth one to actually be a graduate from a school at D1. He has also been working

with D1 since he graduated from college. In addition, for the 2013-14 academic year, D1 met state standards as a district, as well as all six elementary schools.

In summary, the district provided bundles to the teachers that provide choices of activities above, on, or below grade level for each TEK. The availability of different activities for the same objective might influence the preference area within the differentiation practices; however, it depends upon the variation in the activities within the bundle. The use of the essential question and statement guided the lesson to be more concept-based oriented. Teachers were provided with less opportunity to integrate multiple disciplines or teach interdisciplinary thematic units because the bundles were developed for each subject area. In addition, the school district had stability of leadership in its superintendent and appeared to select individuals with a background and history with the district.

Campus level principal. According to the interview with the principal, she viewed the school as having a heterogeneous group of students. She said "the school is more heterogeneous. Students come from different backgrounds, cultures, and experience" (Principal 1, personal communication, April 27, 2015). However, she explained how the classes are more homogenous since students are clustered by abilities based on research (Principal 1, personal communication, April 27, 2015). P1 informed me during the interview that T1 has been given the class with the cluster of gifted and high achieving students because she has the certificate (Principal 1, personal communication, April 27, 2015). Because T1 had advanced students, P1 has provided time for T1 to meet with the third grade team once a week. Also, P1 said "[T1] knows

how to differentiate," and she is a teacher who is willing to help others as well as seek help if needed (Principal 1, personal communication, April 27, 2015).

In addition, during walk-throughs, P1 was interested in seeing if the class was being led by a guiding question, students were engaged within their group work, and whether the class was student- or teacher-centered (Principal 1, personal communication, April 27, 2015). She believed that differentiation is every teacher's job since "students come in different shapes and forms" (Principal 1, personal communication, April 27, 2015). She also explained how grouping aids the teacher in differentiating instruction (Principal 1, personal communication, April 27, 2015). By grouping students according to their ability, the classroom was less diverse and the teacher did not need to develop as many activities. She said "for example T1 can develop 5 activities instead of 18 different ones" (Principal 1, personal communication, April 27, 2015). She hoped that teachers were moving each student forward. In fact, during their monthly meetings, she was interested in looking at students' products and performance to see progress (Principal 1, personal communication, April 27, 2015).

Furthermore, T1's campus had a specific process where three benchmark assessments were given every academic year: at the beginning of the year, at the end of the first semester, and at the end of the academic year (Principal 1, personal communication, April 27, 2015; Teacher 1, personal communication, April 27, 2015). According to the principal, these assessments are similar to the STAAR test because students need to develop the skills needed for testing (Principal 1, personal communication, April 27, 2015). Over the past 7 years, the campus was rated 'exemplary'. According to T1, "even though in 2nd grade we don't have the STAAR test,

the students are ready to take one" (Teacher 1, personal communication, April 27, 2015). In fact, out of 18 students in T1's class, 17 received commended on the benchmark test for the second grade level (Teacher 1, personal communication, April 27, 2015).

T1 and TT1 described the principal as being very supportive and met with the 2nd grade team once a month (Team Teacher 1, personal communication, April 27, 2015; Teacher 1, personal communication, April 27, 2015). T1 said P1 had experience as a teacher and for that reason she was very understanding and supportive (Teacher 1, personal communication, April 27, 2015). According to T1, P1 encouraged differentiation, and during their monthly meeting, the discussion focused on how to use the students' data and develop activities to meet their needs (Teacher 1, personal communication, April 27, 2015). T1 also said P1 wanted students to be accelerated only one grade level above, and when they had mastered the above-level skills, the teacher needed to add depth and complexity to the content. T1 said:

> She [P1] just says she wants more level 3 kids, so she wants my class to be third grade. She doesn't want me to stop at second grade, she wants me to keep going. Once they get to third grade, I need to add depth and complexity. This is what she [P1] looks for. More depth and complex work. She [P1] wants to see their work and their progress. She tells me to pull from the third grade bundle. (Teacher 1, personal communication, April 27, 2015)

During the interview, she also explained how P1 had provided her with 3rd grade level materials (i.e., bundle) and had set a specific time for T1 to meet with the 3rd grade team (Teacher 1, personal communication, April 27, 2015). She said "[P1] set a time for me to meet with third grade teachers and I like that meeting. They are helpful" (Teacher 1, personal communication, April 27, 2015). Also, T1 has been given a leadership role to help other teachers in adapting activities for gifted and high-achievers. She said "when it comes to gifted students, it is always on me. Even teachers from other grades come to me

for gifted. I help them expand the activities" (Teacher 1, personal communication, April 27, 2015).

In summary, the principal had been supportive for T1. At the campus, students were clustered by abilities, which had aided T1 in developing fewer lessons due to the reduced diversity in her classroom. In addition, teachers were placed in classes based on certificates and strengths. Since T1 has a certificate to teach gifted students, her class included the high-level performing students among all 2nd grade students. Also, P1 has recognized T1's strengths and has given her a leadership role. Hence T1 is given the opportunity to reinforce her skills.

Furthermore, P1 looked for the guiding questions, group work, and student-centered teaching during her walk-throughs, and differentiated products during her meetings with the grade level teams. P1, however, did not want students to be accelerated beyond one-grade level. When students have mastered the TEKS at the next grade level, the teacher should add more depth and complexity to the content. P1's influence on the differentiation practices of T1 is apparent. T1 incorporated concept teaching, encouraged student interaction, and used post-assessment to guide instruction and her activities. She may not use pre-assessments because of the rate of advancement allowed by the principal (e.g., one grade level above). The use of pre-assessments, particularly at varied times, might conceivably accelerate students at a faster pace.

Campus level team teacher. During the interview, P1 explained how the school organized the teachers' schedules to provide the team teachers with a specific time slot to meet and discuss their lessons (Principal 1, personal communication, April 27, 2015). T1 met with the 2nd grade teachers every day after school, and once a week with the 3rd grade

teachers (Teacher 1, personal communication, April 27, 2015). According to T1, she enjoyed how the 2nd grade team works because they were supportive, opened their doors for each other, and were honest (Teacher 1, personal communication, April 27, 2015). T1 made it clear how her input during 2nd grade team meeting had a strong weight (Teacher 1, personal communication, April 27, 2015). In fact, she helped in differentiating activities for gifted students. She said

> I started making those [commended questions] for the team, so they ask for my opinion and stuff a lot. It is nice, I am just a first year teacher and they ask me. The teachers in second grade are very supportive. We have our doors open as you see and we look at each other's teachings and we are honest. Very honest during the meeting. (Teacher 1, personal communication, April 27, 2015)

TT1 also described the 2nd grade team as being supportive and honest (Team Teacher 1, personal communication, April 27, 2015). She explained how she relied on T1 in the area of gifted and talented since she got her training a week ago (Team Teacher 1, personal communication, April 27, 2015). She said:

> [T1] has helped me with activities when my students meet the standards for 2nd grade of course. She helps in making it for gifted and no second grade. You know how she knows how to do it. She also helps other teacher if they need it. So [T1] with her certification and knowledge can be supportive. (Team Teacher 1, personal communication, April 27, 2015)

The meeting with the 3rd grade teachers was more beneficial to T1 (Teacher 1, personal communication, April 27, 2015). In fact, since T1's class included the high-level performing students among all 2nd grade students (Teacher 1, personal communication, April 27, 2015), her lessons were developed using the 3rd grade bundle. For that reason, during the meeting with 3rd grade teachers, T1 shared the activities she decided to use (Teacher 1, personal communication, April 27, 2015). She said,

> I meet with the 3rd grade teachers on Friday and they help me a lot with the activities. So I share with them what I have about students, and how I decided on the different activities, and they tell me or give me advice on how to change

> activities for a specific student. I think the meeting with 3rd grade teachers is very very helpful because I teach a lot of 3rd grade to second grade students. So I still meet with the 2nd grade teachers, but I rely more on 3rd grade teachers. They know the 3rd grade material best. (Teacher 1, personal communication, April 27, 2015)

In summary, the team teachers seemed to have a collaborative relationship, where they helped one another. The second grade teachers viewed T1 as a leader and asked her to help differentiate the curriculum, which reinforced the knowledge and skills she had learned in her undergraduate program. The third grade teachers were beneficial, providing T1 with activities for the third grade knowledge and skills since her class included the advanced students.

Campus level parents. According to the principal, the school encouraged parent involvement; however, she noted that parents did not understand the concept of differentiation (Principal 1, personal communication, April 27, 2015). She said parents were looking for good grades from their kids (Principal 1, personal communication, April 27, 2015).

T1 explained how parents were very much involved in their children's learning, especially since she had the high performing students (Teacher 1, personal communication, April 27, 2015). In fact, parents constantly asked how they might challenge their kids and for her to give them more work. It is in those situations where she needed to explain how their child might be performing above grade level in one topic and not in another (Teacher 1, personal communication, April 27, 2015). She said:

> I have parents who always ask me how they can work with their kids, and what can they do to push their kids, and then I help them understand that sometimes their kids haven't mastered the concept. I had to explain for a parents last week 'well, it is only math that is easy, but still math is sometimes easy and sometimes not'. So for this group of kids, yes parents are very very very involved and they

> want to give their kids a lot of hard work. (Teacher 1, personal communication, April 27, 2015)

In summary, parents appeared to be interested in having their children perform well and are supportive of their children's academics. While they were very involved, T1 did not appear to collaborate with the parents but tended to try to inform them about individual differences and differentiation, which is similar to the principal's conception.

Classroom level. According to T1, the students in her classroom could be viewed as more homogenous (Teacher 1, personal communication, April 27, 2015). She explained how the school followed a specific system where students with similar abilities were in the same class. Her class had 18 students who were considered high level performing students (Teacher 1, personal communication, April 27, 2015). Seventeen of the students received commended on benchmarks tests for second grade level, eight students had been identified as gifted, and nine were high achievers (Teacher 1, personal communication, April 27, 2015).

According to T1, even though her class might be viewed as homogenous, she still saw them as heterogeneous (Teacher 1, personal communication, April 27, 2015). She explained how the students learned in different ways. She said "two students might be at the same level, but want to do their work differently. They learn in different ways and show their work in different ways" (Teacher 1, personal communication, April 27, 2015).

T1 also explained how the high performance of the students encouraged her to differentiate (Teacher 1, personal communication, April 27, 2015). Once she was aware of their growth and capability of performing challenging tasks, she felt rewarded and inspired to differentiate. She said:

> Differentiation is very draining and very hard, because you are constantly pulling things from different places and seeing where each child is at. It is like you are running around but it is great once you see what students did. You feel good. Once you are done, you are like great, this worked. That kid did *all* that and this kids has *grown.* It is a great feeling. They inspire you, encourage you and help you keep on going. (Teacher 1, personal communication, April 27, 2015).

In addition, during the observation, students were engaged with the lesson. During the math lesson students were engaged 97% of the time (Farah, 2015b, April 27), and 96% during the ELA (Farah, 2015a, April 27).

In summary, T1's class included the gifted and advanced learners, which most of her students performing at the commended level on benchmark tests. This level of performance provided her with more freedom to differentiate and not focus on high-stakes testing. In addition, T1 was able to develop fewer lessons due to the reduced diversity. Her focus on the student's success tended to encourage her to continue to differentiate to some degree and most likely influenced the high student engagement; however, she viewed differentiation as time consuming and "draining", which may account for the lower differentiation ratings in the areas of preference and environment, which require more variety in resources and learning materials.

Individual level. During her intern year, T1 used pre- and post-assessments, developed multi-level activities, and implemented interdisciplinary lessons. She also used student interest in developing learning centers and used the school as a learning center. However, she did not differentiate at the same level during the observed lessons as during her intern year. She only used post-assessments, did not vary her learning activities, did not use broad-based themes, and learning centers.

She indicated one of the reasons that she doesn't differentiate as much as she did during her intern year was because of the time and energy needed (Teacher 1, personal communication, April 27, 2015). She said "differentiation is very draining and very hard, because you are constantly pulling things from different place and seeing where each child is at" (Teacher 1, personal communication, April 27, 2015). She explained that even though the preparation phase is exhausting, she almost forgets about it once she is working with the students and consequently feels great at the end of the lesson (Teacher 1, personal communication, April 27, 2015). She also believed that differentiation would not work if the teacher is not organized. In fact, in her class she had set routines, expectations, and access to resources (Teacher 1, personal communication, April 27, 2015).

Although differentiation requires much preparation, T1 felt prepared from her school program (Teacher 1, personal communication, April 27, 2015). T1 was a student in the dual-certificate program during her undergraduate studies. In addition to classes focusing on differentiated instruction, development, and exceptionalities, T1 had field experiences in both gifted and general education settings. She said the classes and the pre-service teaching prepared her as a beginning teacher (Teacher 1, personal communication, April 27, 2015). Coming to the school, she felt "calm, comfortable, and confident" especially after noticing the differences in her knowledge compared to other beginning teachers (Teacher 1, personal communication, April 27, 2015). She also shared her happiness to be able to share with her team teachers some ideas she learned during her university years (Teacher 1, personal communication, April 27, 2015). T1 explained that her knowledge in differentiation continues to grow through experience, and through

her attendance of professional development sessions provided by the school district (Teacher 1, personal communication, April 27, 2015). During those sessions, she felt more knowledgeable than others, and said, "I would recommend [my university] for any person who wants to become a teacher" (Teacher 1, personal communication, April 27, 2015). Both TT1 and P1 explained how T1's background knowledge has helped the 2nd grade team with differentiation (Team Teacher 1, personal communication, April 27, 2015; Principal 1, personal communication, April 27, 2015). They explained how she was able to take an activity and modify it, creating a higher-level task. On several occasions, teachers from different grade levels would come to T1 to help expand an activity (Team Teacher 1, personal communication, April 27, 2015; Principal 1, personal communication, April 27, 2015). P1 even stated that she now looks for teachers who graduate from the same university as T1 (Principal 1, personal communication, April 27, 2015).

In summary, T1 felt well prepared to differentiate and was viewed as a leader among the teachers in this area. T1's students' success encouraged her to continue to differentiate, as well as the principal and her team teachers' support. In addition, T1 appeared to enjoy learning and be interested in the district's professional development activities. While T1 felt she knew how to provide for individual differences, she commented that differentiation required extensive preparation time. For this reason, she differentiated in her classroom in the content areas where she had the most resources from the district curriculum.

Summary of Influences on Differentiation

At the state level, the influence on T1's differentiation practices was not apparent. She did not seem to be concerned about the STAAR test since the majority of her students were at commended level.

At the district level, T1's lessons were influenced by the bundle. The availability of varied activities within the bundle for the same objective appeared to influence the preference area within her differentiation practices. The use of essential questions and statements affected the lesson's focus on concepts. However, teachers were not provided with curriculum that integrated multiple disciplines or were organized around interdisciplinary themes because the bundles were developed for each subject area. While the district's focus (e.g., brain-based teaching and learning) was not a part of the curriculum in her undergraduate program, it was compatible with differentiation and did not interfere with her practices.

At the campus level, the principal was supportive of T1. Since T1 had a certificate to teach gifted students, her class included the high-level performing students among all 2nd grade students. Also, P1 recognized T1's strengths and gave her a leadership role. Hence T1 was given the opportunity to reinforce the skills she learned in her undergraduate program. Furthermore, P1 reinforced differentiation by looking for guiding questions, interactive group work, and student-centered teaching during her walk-throughs. P1's influences on T1's differentiation practices of could be seen in how she organized the lesson for students' interaction, taught at a conceptual level. Because P1 limited acceleration to one grade level above the student's current grade, T1 used only post-assessment. The team teachers were also supportive of T1. In fact, the team teachers

seemed to have a collaborative relationship, where they helped one another. The second grade teachers viewed T1 as a leader and asked her to help differentiate the curriculum. The third grade teachers were beneficial in helping her with advanced curriculum. Parents at her campus were also interested in the learning of their children.

At the classroom level, T1's class included gifted and advanced learners with most receiving commended performance on the benchmark tests. This level of performance enabled T1 to reduce the time needed for developing lessons for struggling learners and also provided her with the freedom she might need for differentiating.

At the individual level, T1 felt prepared and was viewed as a leader among her peers in knowing how to differentiate. Although T1 believed that differentiation required extensive preparation time, she still differentiated in her classroom because of her focus on student success. She did not differentiate in the areas that required the most time—variation in activities (preference) within learning centers (environment) and development of interdisciplinary curricular units—most likely because of curricular resources. She continued to be interested in learning and was eager to participate in the district's professional development activities. Table 4.9 summarizes the influences and effects on T1's instructional practices.

Table 4. 9

Influences and Effects on T1's Instructional Practices

Level	Areas of Influence	Influences	Effects on T1
State	High-Stakes Testing	No STAAR testing occurs for 2nd grade.	No discernable effect on the teacher.
	State Standards	STAAR is aligned to TEKS.	Aligned lessons to TEKS.
	Accountability Ratings	District and campuses were rated on four indicators.	Campus met standards so T1 appeared to have more freedom to differentiate and not focus on high-stakes testing
District	Curriculum	'Bundle' with choices of activities above, on, or below grade level for each TEK were available.	Used different activities for the same objective (preference) at different grade levels (rate).
		'Bundle' with essential questions and statements were integrated.	Used concept teaching.
		'Bundle' for each subject area was available.	Used less integration of multiple disciplines or teaching interdisciplinary thematic units.
	Administration	Superintendent came from inside district and was same for 11 years.	Knew expectations.

(continued)

Level	Areas of Influence	Influences	Effects on T1
	Accountability	District met state standards.	Had more freedom to differentiate and not focus on STAAR Testing.
		All schools met state standards.	Had more freedom to differentiate and less focus on STAAR testing.
	Professional Development	Provided first year academy and options for professional development.	Understood knowledge of district expectations from attending Academy; looked forward to future professional development based on teacher's needs.
Campus	Principal	Clustered students by abilities.	Developed fewer lessons due to the reduced diversity in her classroom, which made differentiation easier.
		Based classes on certificates.	Class had gifted and high-level performing students because of T1's certificate.
		Used each teacher's talents.	Provided assistance to other teachers in differentiation.
		Provided time to meet with 3rd grade team teachers and 3rd grade materials	Provided resources at third grade level.
		Walk-throughs included observations of guiding questions, student engagement, and student-centered activities.	Increased concept teaching and student interaction.

(continued)

Level	Areas of Influence	Influences	Effects on T1
		Believed students were heterogeneous.	Increased attention to differentiation.
		Believed students should be grouped by ability.	Reduced diversity made differentiation easier.
		Used student data.	Used post-assessments in lesson planning.
		Believed students should be accelerated by only one grade level.	Used post-assessments only since pre-assessments would have increased rate of acceleration.
		Was previously a teacher.	Had time and support needed for differentiation.
	Team Teachers	Scheduled meeting with 2nd grade team teachers.	Was leader in team, reinforcing knowledge of differentiation.
		Scheduled meeting with 3rd grade team teachers.	Provided with ideas for above level learning activities.
	Parents	Interested in their children's performance.	Communicated with parents about individual differences and differentiation.
Classroom	Classroom Composition	Majority were commended level on benchmark tests.	Had more freedom to differentiate and not focus on testing; developed fewer lessons due to reduced diversity.

(continued)

Level	Areas of Influence	Influences	Effects on T1
		Contained gifted and advanced learners.	Used above level content and critical and creative thinking.
	Student characteristics	Contained high performing students.	Used above level content and critical and creative thinking.
		Were highly engaged with tasks.	Encouraged differentiation and had few behavior management issues.
Individual	Knowledge	Teacher preparation program focused on differentiation.	Had knowledge to differentiate for advanced students.
		Classroom experience in field-based courses.	Increased growth in knowledge of differentiation.
		District provided professional development.	Increased growth in knowledge of differentiation.
	Beliefs	Believed she had knowledge to differentiate.	Had confidence in differentiating.
		Believed she had more knowledge than other teachers.	Provided leadership in the area of differentiation.

(continued)

Level	Areas of Influence	Influences	Effects on T1
		Believed differentiation was time and energy consuming.	Differentiated when she had the most resources from the district curriculum; had lower differentiation ratings when she had fewer resources.
		Believed differentiation needed organization and strong classroom management skills.	Set routines, expectations, and access to resources during differentiation.
		Believed student's success encouraged her to differentiate.	Differentiated based on her student-orientation.
		Believed that learning more about differentiation was enjoyable.	Wanted to attend professional development on differentiation—a learner.

Case Study: Teacher 2 (T2)

Context

Campus 2 (C2). C2 is part of D2. According to the campus's website, the school was re-built in 1999 to provide classes for prekindergarten through 5th grade students. The current principal, whose demographics are described below, has been in this position for the past three academic years.

Over the past five years, the campus rating has fluctuated. For the 2007-08 academic year, the campus was rated 'Academically Unacceptable'. For the next three years, the campus was rated 'Recognized'. In 2012-13 academic year, C2 was rated as 'Improvement Required", and last year C2 was rated as 'Met Standard'. In fact, C2 showed tremendous improvement in scores with an increase of 10 percentage points on student progress (2014, August 8). In the 2014 state ranking, C2 was ranked better than 5% of elementary school in Texas, as well as 11th among the 15 ranked elementary schools in D2.

At the beginning of this academic year, C2 was selected among three other campuses at D2 to receive a grant. According to the news, "the school will received IPads for every student and teacher to use as key learning tools in their classrooms. They'll also receive Apple computers and software for computer labs and classrooms" (2014, October 29).

Currently, C2 has more than 440 students and more than 25 teachers. The class sizes ranged from 16 to 22 students, with an average of 17 students per teacher. In terms of experience, 7.6% of teachers (n=2) were in their first year teaching, 37.6% of teachers

(n=10) had up to 5 years of experience with an average of 10 years of experience for all of the school faculty.

According to the TEA Division of Performance Reporting (2015), C1 has 22.5% African American, 0.7% American Indian, 0.0% Asian, 70.4% Hispanic, 0.0 % Pacific islander, 1.4 % two or more races, and 5.1% White. In addition, the student population is comprised of 86.3% at risk, 96.3% economically disadvantaged, and 40.3% English Language Leaner (see Table 4.10)

Table 4.10

Student Demographics at D2-C2 (TEA Division of Performance Reporting, 2015).

2013-2014 Enrollment profile		D2-C2 percent (N=442)
Ethnicity	African American	22.5%
	American Indian	0.7%
	Asian	0.0%
	Hispanic	70.4%
	Pacific islander	0.0%
	Two or more races	1.4%
	White	5.1%
Student Population	At-Risk	86.3%
	Economically disadvantaged	96.3%
	English Language Learner	40.3%

Note. C= Campus.

According to the website, the campus' mission and values are "to enhance student success through site-based decision-making and student-centered learning instruction. [C2] is committed to providing each student with a quality environment that is conducive to high standards of academic excellence while encouraging the growth of thinking minds and caring hearts."

The C2 leadership team included one principal, one assistant principal, one instructional specialist, and one counselor. The campus provided the following special programs for diverse student populations: gifted and talented cluster classes, bilingual education classes, English language learner classes, special education, dyslexia, choir, and afterschool program.

The campus is comprised of one two-story building with the schoolyard in the back. The rectangular schoolyard had a cemented basketball court on one of the corners, a big green field in the middle, an outdoor learning center called "Green Classroom," and one colorful playground slide. The school parking lot could hold 40 visitor cars and 17 saved spots for school staff.

As I entered the building, I noticed that the administration offices were located on the right side with the principal's door frequently open to welcome visitors. The assistant principal, instructional specialist, and counselor also had their doors open during non-meeting times.

As I walked towards the classes, I observed the display of students' products on both sides of the hallway. The work of students was grouped on bulletin boards by grade next to each classroom. I could also see assigned coat hangers under the bulletin boards where students hung their coats and lunch bags.

C2 Principal 2 (P2). P2 earned her Bachelor of Science degree in education in 1981 and her Master of Education in 1985. Before becoming the assistant principal for one year at C2, she was a teacher and then an instructor coordinator at C2. Following these roles, she became the school principal at two different campuses that were both closed at the end of 2011-2012 academic year within the same district D2. Since the

2012-2013 academic year, P2 has been the school principal at C2 (Principal 2, personal communication, May 11, 2015).

The interview with P2 occurred in her office with the door closed. She welcomed me with a smile, and we sat facing each other at her desk. P2 seemed very willing to share information and her answers were elaborate. The content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

Team Teacher 2 (TT2). TT2 is the 3rd grade ELA and social studies teacher at C2. She earned her Bachelors of Science in elementary education in 1992. She currently holds two certificates: English as Second Language and generalist K-8. She has been the ELA and social studies teacher for third grade at C2 since 1993 (Team Teacher 2, personal communication, May 11, 2015).

The interview with TT2 occurred in her classroom during conference time. Her classroom faced T2's classroom. We sat facing each other at her desk. TT2 was willing to share information with me. For each question I asked, she would give detailed answers, which led me to have minimal follow-up questions. Again, the content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

Classroom. In the two-story building, the library, student's lunch area, the administration offices, and classrooms for grades Pre-K to first grade were located on the first floor (Farah, 2015 b, April 28). Classrooms for second to fifth grade were on the

second floor. As I went up the stairs (an elevator was present), T1's classroom was the first class located on the left side of the hallway (Farah, 2015 b, April 28).

Figure 4.2 depicts the physical arrangement of the classroom (Farah, 2015b, April 28). As I entered the classroom, to my right was a circular table with four student chairs. Behind the circular table, an area labeled as 'library area' included a rectangular rug, with two bookshelves covering the walls. On my left, shelves and a sink covered the entire wall. In the middle, student's desks formed a u-shape facing a semi-circular table and the white board on the wall. Six computers were lined up on a long rectangular table facing the wall. On the right next to the computers, I noted the teacher's area, which included a desk chair, a rectangular table, a phone, and shelves.

According to T2, her class has 15 students, 8 girls and 7 boys, none identified for special education, and three identified as gifted and talented (Teacher 2, personal communication, May 11, 2015). The school principal explained that in all grades, students who have English as Second Language (ESL) are clustered in one class at each grade with a teacher who is ESL certified, but T2 recently received her ESL certificate and therefore did not have ESL students (Principal 2, personal communication, May 11, 2015).

T2 is a Hispanic female who received her Bachelors of Science in elementary education in 2013. While at the university, she obtained two certificates: early childhood through 6th grade and gifted and talented education. The following year she pursued her certificate in English as a Second Language. T2 has been the 3rd grade math teacher for two years (Teacher 2, personal communication, May 11, 2015).

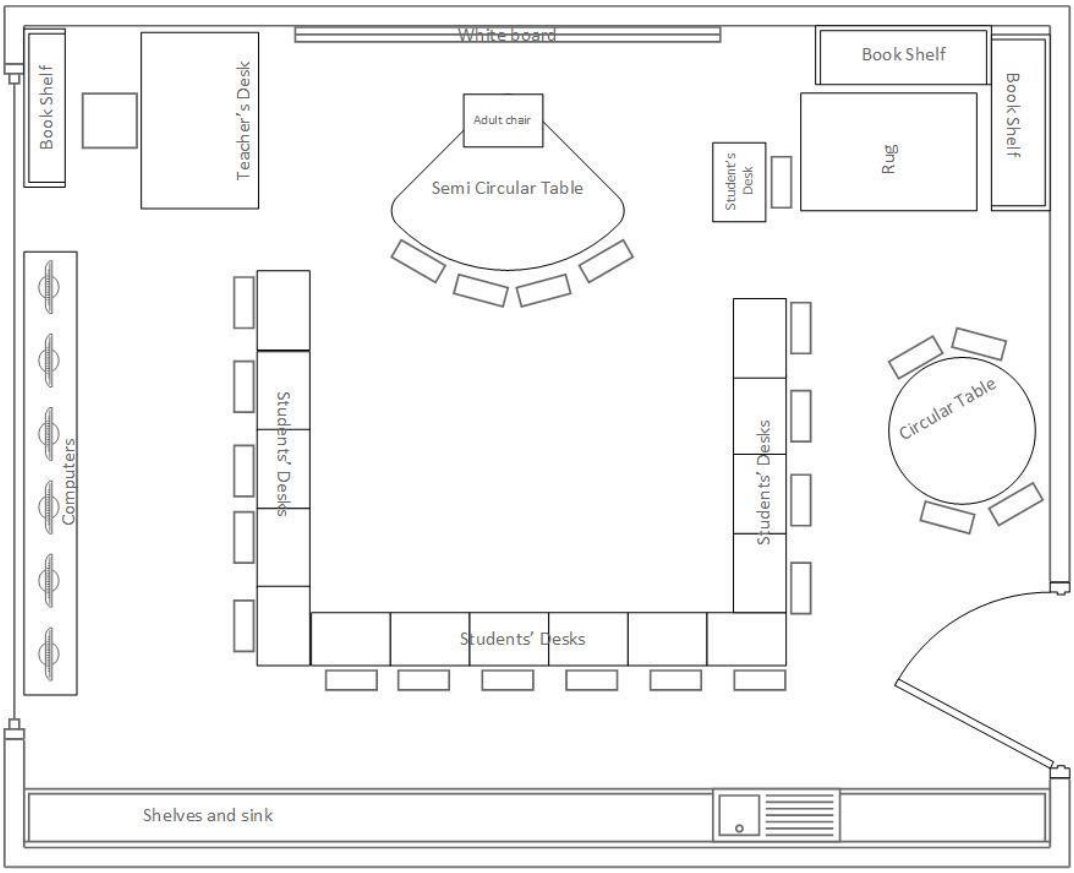

Figure 4.2. Physical room arrangement-T2 (Farah, 2015 b, April 28).

Demographics and Background

The interview with T2 occurred in her classroom during her conference hour. We sat facing each other at the semi-circular table (see Figure 4.2). T1 expected me, and so she had with her the math book used during the lesson I observed (i.e., *Motivation Math).* She seemed willing to share information with me, and the interview went smoothly without interruptions. The content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

Observed Differentiation Practices

Math lesson. The math lesson observed focused on two objectives, which were written on the white board:

1. We will multiply 2 digits by 1 digit numbers.
2. I will multiply 2 digits by 1 digit numbers (Farah, 2015 b, April 28; Teacher 2, Personal Communication, May 11, 2015).

According to T2, since high-stakes testing was over, the current lesson focused on reviewing 3rd grade materials (Teacher 2, Personal Communication, May 11, 2015). In fact, a large number of the students were struggling with multiplication and were working on these two objectives for 30 minutes with the teacher (below described as Activity 2; Teacher 2, Personal Communication, May 11, 2015).

The lesson began by students being divided into three groups of five students (Farah, 2015 b, April 28). According to T2, the students were grouped according to their math abilities (low, medium, or high), as well as who they work well with (Teacher 2, Personal Communication, May 11, 2015). T2 instructed the students to each get their folders, sit in their groups, and work on the assigned activity for 30 minutes, which was set on the timer, and then the groups switched to the next activity (Farah, 2015 b, April 28). Each of the groups was working on a different activity. One group worked on the computers; another was with the teacher; and a third chose activities from the math menu.

During Activity 1, students worked individually on the computers. Each student had the choice to work on a math task from any of the following programs: *Illuminations*, *AAAMath, Skill Builders*, or *Wicked Math Games* (Farah, 2015 b, April 28; Teacher 2, Personal Communication, May 11, 2015). According to T2, each student has an account, which saves their scores on each task and their progress within a topic (e.g., shapes,

counting, addition, subtraction, integers, money, time, etc.; Teacher 2, Personal Communication, May 11, 2015).

During Activity 2, students sat at the semi-circular table with the teacher (see Figure 4.2) and worked individually on the assigned math tasks in their book, *Motivation Math* (Farah, 2015 b, April 28). Every 10 minutes, T2 asked the students to stop working and to check their answers as she read the correct solutions for three tasks. The students used a pen to put a smiley face next to correct answers or wrote the correct answer if they had it wrong (Farah, 2015 b, April 28). If a student finished all the assigned tasks before the end of the 30 minutes, he or she was given the option to either work on a computer along with the group in Activity 1 or read a book of their choice.

For one of the groups working on Activity 1, which consisted of the students who were struggling with multiplication (Teacher 2, Personal Communication, May 11, 2015), T2 worked closely with three students by asking them questions as they worked through the tasks. Within a 10-minute sample of data collection, T2 asked 40 questions: 65% were single answer questions, 30% were process questions, and 5% were cognitive connection questions (Farah, 2015 c, April 28). During that time, student engagement was 78.3% (Farah, 2015 a, April 28).

During Activity 3, the students sat at any location they chose in the classroom. As a group, the students had to complete enough tasks that would add up to at least 100 points (pts.) from a list of task on a sheet called "math menu" (Farah, 2015 b, April 28). The sheet was in a table format with three tasks in each row that increased in difficulty as well as points (e.g., 15 pts., 20 pts., and 25 pts.) for each of the following topics: (a) place value, (b) addition and subtraction, (c) multiplication and division, (d) geometry, and (e)

graphs/personal financial literacy (Farah, 2015 b, April 28). During this activity, across all groups, student engagement was 85% (Farah, 2015 a, April 28).

At the end of lesson, students were instructed to put away their folders and line up to go to another class (Farah, 2015 b, April 28).

Rating of Classroom Differentiated Practices in Math.

Content. Both T2 and TT2 said that their lessons are organized around the state TEKS, and they did not have a specific curriculum. In fact, the school gave them the option to pull resources from different sources. TT2 said "we go by the state TEKS, and then, really what is wonderful about our school is that we can pull whatever resources we need from different places. For social studies I pull different resources that I find." (Personal Communication, May 11, 2015). According to the school principal,

> [teachers] use the district scope and sequence, because that is our curriculum. And it tells them every six weeks what the kids needs to know, and then they break it down by weeks. And then, we have certain goals, like for reading, they let them know at which level they need to be on. (Principal 2, Personal Communication, May 11, 2015),

T2 explained that her class is always divided into three activities: (a) "math menu", (b) *Motivation Math,* and (c) computer programs (Teacher 2, Personal Communication, May 11, 2015). She further explained that she creates the "math menu" by grouping different activities she finds that relates to the TEKS. The menu included activities at various levels within a topic of study from which students can choose. *Motivation Math* is a resource that helps her teach for the STAAR test (Teacher 2, Personal Communication, May 11, 2015). According to the publishing company, *Motivation Math* "was developed specifically around the Mathematics Standards for

Texas and serves as a resource to support teachers in implementation of mathematics education" (Mentoring Minds, 2015, p1). According to T2, the computer programs have activities that will keep the students interested but at the same time practice their skills (Teacher 2, Personal Communication, May 11, 2015). She explained how for each student their performance within a topic is tracked and for some of the activities students need to master the skill before being able to go to the next level. Students were given the choice to choose activities from the following programs: *Illuminations, AAAMath, Skill Builders*, or *Wicked Math Games* (Farah, 2015 b, April 28; Teacher 2, Personal Communication, May 11, 2015).

During the math lesson observed, students were working on procedural knowledge. The objective of the lesson was to multiply 2 digits by 2 digit numbers (Farah, 2015 b, April 28; Teacher 2, Personal Communication, May 11, 2015). In addition, the teacher's questions were more single answer or focusing on the process of multiplication. In fact, T2 asked 40 questions: 65% were single answer questions, 30% were process questions, and 5% were cognitive connection questions (Farah, 2015 c, April 28).

While T2 provided a menu to students with varying levels of activities, the activities were not aligned to specific students' ability levels. She taught the TEK focusing on procedural knowledge. The majority of her questions were single answer questions and did not include conceptual learning or authenticity to the discipline. Therefore, on the *Classroom Instructional Practices Scale,* T2 would be rated C2.

Rate. According to T2, all the students work on the same task when using *Motivation Math*; however, the task varied during the other two activities (i.e., math menu or computer program; Teacher 2, Personal Communication, May 11, 2015). None of the activities were aligned to one another. She wanted the students to work on same tasks within their *Motivation Math* book because this prepares them for the STAAR test. Within the other activities, students could choose among varied levels of tasks. When asked specifically on how she provided for rate differences, T2 said that students who learn the material faster will finish earlier and go on to the next activity (Teacher 2, Personal Communication, May 11, 2015). During the lesson observed, if a student finished all the assigned tasks before the end of the 30 minutes, he or she was given the option to either work on a computer or read a book of his or her choice (Farah, 2015 b, April 28).

During the interview, when TT2 was asked on how she determined which activities to use with different students she responded,

> some of the students are on individual learning plans, so either shortened assignment …ummmm. There have been on several occasions … I might use different organizers. Like I might use, for higher level if we are doing sequencing they might have 6 boxes, while the lower level might use four. This comes back again to shorten it but you know different graphic organizers are used to meet the needs of different groups. (Team Teacher 2, Personal Communication, May 11, 2015).

From the interview, it appeared that TT2 shortened tasks for students who have individual learning plans.

Students in T2's class were allotted the same amount of time to work on the assigned tasks, and students who finished early work on tasks unrelated to the lesson's

objectives. For these reason, T2 would be rated R2 on the *Classroom Instructional Practices Scale.*

Preference. During the lesson observed, student choice was provided during two of the three activities (Farah, 2015 b, April 28). The tasks within the *Motivation Math* book were the same for all students. During the menu activity, students were given the option to choose the tasks they wanted to complete but had the condition of having the total points summing to at least 100 points (Farah, 2015 b, April 28; Teacher 2, Personal Communication, May 11, 2015). In addition, students got to choose the tasks within the program during their computer activity. However, the variation in the tasks was not correlated to the lesson's objective. For these reasons, T2 would be rated P2 on the *Classroom Instructional Practices Scale.*

Environment. During two of the three activities given, students worked individually. They completed the assigned task individually in their *Motivation Math* book, and individually completed the tasks on the computer in a separate part of the room—an interest center area (Farah, 2015 b, April 28). During the menu activity, students were allowed to interact within their groups to complete the assignment. Accordingly, T2 is rated E4 on the *Classroom Instructional Practices Scale.*

Summary of Current Classroom Differentiation Practices

Math. The lesson observed included three types of activities for which students were allotted 30 minutes to complete each. While T2 used the menu to provide students with varying level of activity, she taught the TEK focusing on procedural knowledge.

The majority of her questions was single answer questions and did not include conceptual learning or authenticity to the discipline. All students were given the same amount of time to complete their work and for students who were early finisher they worked on tasks unrelated to the lesson's objectives. Students were given the choice of tasks when working on the math menu or the computer; however the variation in the tasks was not correlated to the lesson's objective. In addition, during two of the three activities given, students worked individually. During the menu activity, students were allowed to interact within their groups to complete the assignment. On the *Classroom Instructional Practices Scale,* T2 would be rated C2, R2, P2, and E4 (Table 4.11).

Table 4.11

Rating on the Classroom Instructional Practices Scale for T2.

Area	Math
Content	C2
Rate	R2
Preference	P2
Environment	E4

Classroom Differentiation Practices During Intern Year

Content. The various lessons T1 taught during her intern year showed how she organized a lesson around an objective that she shared with her students on the white board. On one of the lessons, her supervisor noted, "the objective was posted on the white board including the content, process, and product" (Faculty 1, 2013, March 19), and on another lesson she wrote, "the learner objective was listed on the board" (Faculty 1, 2013, April 10). In her Efolio, T2 had a photo of the white board, and under the title 'learner's

objective' it was written, "In their study of motion, the students will be able to classify items that are attracted (Motion) to magnets and will show what they know by creating a hypothesis and test their hypothesis by classifying the items into two separate groups on a chart" (*Efolio - T2*, 2013, April 19).

By looking at the lesson plans in her Efolio, T2 developed her objectives to align with the TEKS. In her lesson on contractions, she wrote this TEK: "TEK 2.2F-Identify and read contractions" and included the following objective: "In their study of contractions the student will be able to read and match contractions, they will show what they know by matching the words with the contraction that they form on a contractions cut and paste" (*Efolio - T2*, 2013, April 19). In another lesson plan, she listed the following TEK: "2.6: Force Motion and Energy. The student knows that forces causes change and energy exists in many forms. B: Observe and identify how magnets are used in everyday life" (*Efolio - T2*, 2013, April 19), and wrote the following two objectives:

1. In their study of motion, the students will be able to classify items that are attracted (Motion) to magnets and will show what they know by creating a hypothesis and test their hypothesis by classifying the items into two separate groups on a chart.
2. In their study of motion, students will investigate how magnet strength relates to the motion (speed) of magnetic objects. They will show what they know by ordering the magnets from strongest to weakest and write about their observations in their science journal. (*Efolio-T2*, 2013, April 19)

In her Efolio, T2 wrote:

> During my time in Mrs. Isbell's class, I matched all of my lessons to the state standards. I would include the TEKS for every lesson or station that my students worked on. Including the TEKS helped me to ensure that all of my lessons supported my students' learning. I also matched the TEKS to the C-Scope curriculum in order to stay on the same topics as the other second grade teachers. (*Efolio - T2*, 2013, April 19)

The lessons included procedural knowledge, as well as concept learning, and were taught in a way authentic to the discipline. For a world culture unit, in groups of three, students were to create six flip-book pages using various resources. She shared her expectations with the students and gave them a rubric. During one lesson, her supervisor noted,

> Prior to showing the video, [T2] focused the students' attention on the new knowledge to be learned in this week's unit: the history of the USSR and the fall of the Soviet Union, how they would gain new knowledge (a video and independent research), how this new knowledge could be used (understanding how the geography of the area changed and why it changed to understanding current conditions in the area). (Faculty 1, 2013, February 11)
>
> [T2] provided examples and non-examples of what reliable digit resources include. (Faculty 1, 2013, February 11)

During another lesson, within the same unit, her supervisor wrote,

> As students were working in their assigned research group, [T2] monitored students, providing support to those who needed assistance. She answered questions about the content, gave suggestions about useful websites the students could use to locate information, and provided encouragement as they worked on designing their products. (Faculty 1, 2013, March 19)

In this lesson, T2 facilitated the research process and the students used authentic resources to collect information. However, the directions and rubric, which illustrated the expectation of the teacher, did not emphasize high-level and critical thinking (see Appendix C; *Efolio - T2*, 2013, April 19). The rubric's characteristics did not describe the depth and complexity of the content but rather accuracy of information, illustrations, sources and neatness.

In her science lesson on magnetic attraction, the lesson began with a KWL chart that the whole class completed, and then, in small groups, students tested the hypothesis (i.e., the kind of items attracted to magnets) they developed as a whole group (Electronic Portfolio- T2, 2013, April 19). Students were expected to explore the items using

magnets, record their observations, and report their findings. Again, the lesson was organized to learn new content in a more authentic way. T2 wrote in her lesson plan under objective for assessment and evaluation:

> To assess the student's use of the scientific method, the students will have used the scientific method sheet. They should have filled out each step of the process and followed each step in order. To assess the students' understanding of objects that are attracted to magnets, the students will classify pictures of the items into two separate groups on a chart. (*Efolio - T2,* 2013, April 19).

Again, her assessment questions could be answered with a yes or no and did not describe the qualities of the concept characteristics. Her questions were:

> 1. Did the student place the correct items in the attracted side?
> 2. Did the students place the correct items in the not attracted side?
> 3. Did the students name the characteristic that all of the attracted items had in common?
> 4. Could the students name the characteristic that made items attract to magnets? (*Efolio - T2,* 2013, April 19)

During her intern year, T2 also developed an interdisciplinary board-based thematic unit and implemented it. The lesson focused on a theme, included broad problems and issues, and had opportunities for interdisciplinary studies. Her professor noted:

> The theme, problem or issue is broad, challenging, and allows for the integration of a variety of disciplines and student interests.
> The outline relates to the generalizations and addresses subject matter of the disciplines that will be addressed in the unit and includes main topics, subtopics, and independent study options. The subject matter provides for the full range of differences and incorporates advanced, conceptually challenging, in-depth, distinctive, and complex content.
> Includes a logical sequence of lessons that relate to the content outline and generalizations. (Faculty 2, [2013])

By looking at the different lessons T2 developed and implemented during her intern year, her lessons were aligned to the TEK and taught in way authentic to the discipline. However, this content may not have been assessed by the rubrics that were created since

they were checklists and focused more on procedures not qualities of the content. T2 developed an interdisciplinary broad-based thematic unit during her intern year. Therefore, on the *Classroom Instructional Practices Scale*, she is rated C7.

Rate. During her intern year, T2 used pre- and post-assessment. In her world cultures unit, T2 used her pre-assessment to group students. Her supervisor noted:

> [T2] used qualitative notes from previous project work to group students. She had noted that some students distracted other students or were easily distracted. She grouped students to maximize the potential for quality engagement on the part of the students. (Faculty 1, 2013, February 11)

For the same lesson, T2 used a rubric as a post-assessment. Her supervisor wrote, "the students' products were evaluated using the rubric and students will be given feedback using the rubrics" (Faculty 1, 2013, February 11).

In addition, T2 gave feedback to students and monitored their self-assessment. On the evaluation form, her supervisor wrote:

> [T2] shared progress records with students, identifying any missing work, and providing opportunities for students to make up work that was missing. Students were self-paced in completing their work. While [T2] monitored them, the students were responsible for completing their work independently. (Faculty 1, 2013, April 10)

Her supervisor also wrote in her comments, "assessment is an area of strength for [T2]" (Faculty 1, 2013, April 24). The use of pre- and post-assessments to group students was also evident in her Efolio. T2 wrote,

> in order to decide how to group the students, I conducted a spelling and reading pre-assessment for each student. I then compared the scores to the other students in the class and grouped the students based on similar characteristics. I then later assessed the work that the students completed in their groups. (*Efolio -T2*, 2013, April 19)

T2 also varied the types of assessment, and matched it to students' needs. To determine the level of performance of her students in math, she used a game rather than a timed worksheet. She wrote:

> Another assessment tool that I have used is games. I have played a geometry review of "Who Wants to be a Millionaire?" and also Multiplication fact bingo. In the geometry review I was able to see if my students took away the important parts of the weeks' lessons and it was done in a fun way that was not just a paper test. In the students learning of multiplication facts, they take tests weekly to track which facts they know. I feel as if some students may have a hard time with a timed test so for me to see if they knew their facts I played a bingo game with them. I would call out an answer to a multiplication fact and they would have to cover up the equation that matched. I could quickly go around and scan the student's bingo cards to see if they were covering the correct equation.

Although T2 used pre- and post-assessments throughout her lessons and varied the types of assessments, the assessments focused on procedural learning, rather than higher-level thinking. The "multiplication fact bingo game" assessed the recognition of equations. In addition, the rubric used for the world culture unit assessed student's accuracy of information, the use of illustration, the presence of sources, and the neatness of the product, not the content of the lessons (see Appendix C; *Efolio - T2*, 2013, April 19).

Furthermore, as previously mentioned, her science lesson plan included a post-assessment that could be answered with a yes or no and did not describe the qualities of the concept characteristics.

The assessments being used in T2's lessons were varied and helped in grouping students but did not provide information to assess the students' content knowledge and skills. Students worked as a group and were allowed to progress at their own rate. For these reasons, on the *Classroom Instructional Practices Scale*, she is rated R3.

Preference. In her lesson, T2 used a wide range of activities that were aligned to the objective. In her world culture unit, students watched a video and were given the option to take notes. Her supervisor noted "Students were encouraged, although not required, to take notes while watching the video" (Faculty 1, 2013, February 11). Then students worked on a research product. Students were given options in the content of the product, but all students had to create a '6 flip book pages'. Her supervisor wrote:

> Students within the groups had to choose topics they would research as part of the larger product. Student partners had to agree on who was responsible for which topics. After research is complete, each student will be responsible for creating 6 flipbook pages that will address the topics they have researched. (Faculty 1, 2013, February 11).

In her science lesson on magnetic attraction, T2 also provided students with choices in content within the required report. In her lesson she wrote, "I will have the students create a hypothesis as to what kinds of items are attracted to magnets", and after testing their hypothesis, all students will use the same report. She wrote under the heading 'report' the following:

> Give the students the classification assessment. The students will organize the pictures onto a chart. They will be able to distinguish which items were magnetic and which were not. This is how they will report their findings to me. (*Efolio - T2*, 2013, April 19)

The majority of the lesson during T2's intern year provided students with varied activities and students had the opportunity to choose the content of their product. In one of her lessons within the world cultures unit, students who mastered the research skills were given choice in determining their role within their group, and the design and content of their product. T2's supervisor wrote:

> [T2] gave the students freedom to decide what their roles in each group would be, how they wanted to design their products, and how they would present the information. These students have demonstrated mastery over researching skills.

> Giving them the opportunity to determine their roles, products, and presentation styles matches their individual characteristic (Faculty 1, 2013, March 19)

Throughout her lesson, T2 provided a range of activities and aligned them to the objective. Mainly, students were given the choice in content of their products. In one of her lesson, students were able to choose in the product format and content to demonstrate their understanding. Accordingly, T2 would be rated mainly a P4, the use of varied activities, with some student choice related to products (e.g., P5) on the *Classroom Instructional Practices Scale.*

Environment. The majority of the lessons for T2 during her intern year included hands-on activities and small group work. In her world culture unit, her supervisor noted, "students were seated in groups of 4 to 6. They were given access to laptops and books as they were working on research". (Faculty 1, 2013, March 19). In addition, students were given access to various and authentic resources to complete their world culture product. The supervisor wrote, "students began researching their topics using digital media, textbooks, and print media" (Faculty 1, 2013, February 11). During another world culture lesson, her supervisor again noted the access to varied and authentic resources. She wrote, "Materials students might need to use were located at their tables. They had access to atlases, textbooks, map pencils, markers, scissors, and pencil sharpeners. Additionally, students had access to laptop computers to use in completing their work as well" (Faculty 1, 2013, April 10).

In the majority of her lesson, T1 arranged the environment for student interaction (small group or whole group) and access to available materials. The room was arranged

to maximize the time spent on instruction, rather than on access to resources. In her Efolio, T2 wrote:

> During my intern semester in Mrs. Isbell's second grade class, I prepared my materials in order to have the most efficient management of the materials. For whole group instruction, I would always have my manipulatives portioned out so that I would quickly hand each table a box or bag and it would have all necessary materials. I made sure to tell the students to not open or touch the materials until it was time in order to keep them focused on instructions. For small groups, I would have the papers organized in folders. Each small group station would have all of the necessary materials and sometimes the folders were leveled. If the folders were leveled then I would tell the students which color folder they were to pick from or the folder would have their names on it. As a result, I did not have to hand out materials every time a group changed activities. This also helped to keep all of the student's engaged because they did not have to wait for me to come around and give them new materials. (*Efolio - T2*, 2013, April 19)

Her mentor wrote "the learning environment was well set up for student engagement so students could see and hear. Students were assigned jobs to make the group routines run smoothly. All materials for the lesson were ready with high student engagement" (*Efolio - T2*, 2013, April 19).

By looking across her lessons and evaluations during T2's intern year, she used a variety of activities the majority of the time and arranged the classroom in learning centers for student interaction. Students had access to multi-level materials while working on products. For these reasons, T2 would be rated an E5.

Summary of Classroom Differentiation Practices During Intern Year

By looking at the different lessons T2 developed and implemented during her intern year, it is clear that her lessons were organized using the TEKS, and the TEKS were taught in way authentic to the discipline. The lessons focused on procedural and concept learning and T2 developed an interdisciplinary board-based thematic unit. However, students were only being assessed on their procedural knowledge. The

assessment being used in T2's lessons were varied and helped in grouping students but would not provide information to vary the amount of time needed by students in learning new content nor identify students who need depth study, enrichment, or acceleration. Throughout her lessons, T2 provided a range of activities and aligned them to the objective. Mainly, students were given the choice in content of their products. She used a variety of activities the majority of the time and arranged the classroom for student interaction. The lessons were arranged so students have access to preferred item while working on products. In one of her lesson, students were able to choose in the product format and content to demonstrate their understanding. Accordingly, on the *Classroom Instructional Practices Scale,* T2 is rated C7, R3, P4-P5, and E5 (Table 4.12).

Table 4.12

Rating on the Classroom Instructional Practices Scale for T2 During Intern Teaching

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Area	Intern Teaching
Content	C7
Rate	R3
Preference	P4/P5
Environment	E5

Comparison of Current and Intern Differentiation Practices

Content. During her intern year, T2's lessons were organized using the TEK, and taught in a way authentic to the discipline. However, even though she focused on procedural and concept learning, students were only being assessed on their procedural knowledge. T2 also developed an interdisciplinary broad-based thematic unit during her intern year (C7).

Currently, T2's math lesson was organized using the TEK and was taught focusing on procedural knowledge. While T2 provided a menu to students with varying levels of activities, the activities were not aligned to specific students' ability levels. The majority of her questions was single answer questions, did not include conceptual learning, and was not authentic to the discipline.

From the observation and review of archival data, T2 continued to organize her lesson using the TEK (C1). She previously organized the lesson to be taught in a way more authentic to the discipline (C4), but focused mainly on procedural knowledge (C2). Currently, she provided students with various types of activities, but still focused on procedural knowledge (C2). No interdisciplinary thematic units were observed or mentioned in the interview. On the *Classroom Instructional Practices Scale,* T2 would be rated C7 during her intern year and C2 for current teaching (Table 4.13)

Rate. During her intern year, T2 used both pre- and post-assessments. Although, the assessment being used in T2's lessons were varied and helped in grouping students, they did not provide information regarding the content that was being learned.

In her current teaching, no assessment was being used to vary the amount of time students needed to learn new content. In fact, students in T2's class were allotted the same amount of time to work on the assigned tasks, and for students who finished early, they worked on tasks unrelated to the lesson's objectives.

In summary, on the *Classroom Instructional Practices Scale,* T1 would be rated R3 during her intern year and R2 for her current teaching (Table 4.13).

Preference. During her intern year, T2 provided a range of activities and aligned them to the objective. Mainly, students were given the choice in content of their products. In one of her lessons, students were able to choose the product format and content to demonstrate their understanding.

In her current teaching, student choice was provided during two of the three activities. During the paper and pencil activity, the tasks were the same for all students. During the menu activity, students were given the option to choose the tasks they wanted to complete but had the condition of having the total points summing to at least 100 points. During the computer activity, students got to choose the tasks within the program. However, the tasks were not correlated to the lesson's objective.

Few commonalities can be seen in the preference area during T2's intern year and her current teaching. During her intern year, she provided a range of activities aligned to the objective of the lesson. While she still provided students with varied activities, they were not aligned with the lesson's objective. In addition, during her intern year, the majority of her lessons gave students choices in the content of their products, and on one lesson, students chose the product's format and content. Currently, student choices were minimal. On the *Classroom Instructional Practices Scale*, T2 would be rated P4/P5 during her intern year and P2 for her current teaching (Table 4.13).

Environment. During her intern year, T2 arranged the classroom in small groups and centers for student interaction. Students had access to preferred item while working on their products in groups.

During her current teaching, students worked individually on two of the three activities given. For one of the activities, students were allowed to interact within their groups to complete the assignment.

Some commonality can be seen in the way T2 arranged the physical environment to facilitate interaction and learning among students. During both her intern year and her current teaching, T2's lesson provided for student interaction. However, during her intern year she used multi-level materials in centers whereas during her current teaching, she included interest centers only. On the *Classroom Instructional Practices Scale*, T2 would be rated E5 during her intern year and E4 for current teaching (Table 4.13).

Table. 4.13

Rating on the Classroom Instructional Practices Scale for T2 for Intern and Current Teaching

Area	Intern Teaching	Current Teaching –Math
Content	C7	C2
Rate	R3	R2
Preference	P4/P5	P2
Environment	E5	E4

Influences on Differentiation

State level. T2 is currently teaching at the 3rd grade level. Towards the end of the academic year, students in 3rd grade are required to take the STAAR test. According to T2 and her team teacher (i.e., TT2), the high-stakes testing has a negative influence on differentiation practices (Team Teacher 2, Personal Communication, May 11, 2015; Teacher 2, Personal Communication, May 11, 2015). During the interview, T2 explained

how the STAAR test doesn't consider individual differences (Teacher 2, Personal Communication, May 11, 2015). She said:

> STAAR has a negative influence on differentiation. The test sees them [the students] all the same. Like I said, I have to teach them the same things to be prepared for the STAAR. It is the same questions for all the students. Even if I have students who know it, I have to teach them the 3rd grade scope and sequence. (Teacher 2, Personal Communication, May 11, 2015).

TT2 also explained the negative influence of high-stakes testing on differentiation. She described the test as having a spectrum of performance ranging from 60 to 100, but at the end, all students had to master the same grade level content (Team Teacher 2, Personal Communication, May 11, 2015). In fact, she needed to differentiate and work with students who were struggling, but all students had to be working on the same objective. She said:

> well I say it [STAAR testing] kind of influences it [differentiation] in a negative way because it is not differentiated. I mean, I guess, you know from a passing grade to the highest grade you can make, or there is a big space in there is where they could perform differently, like anywhere between 60 to a 100. But you know then we have struggling students. I mean, I have out of two reading classes, 12 students at 1st grade level and the STAAR test is a far reach for them. I see it as, you know, an opportunity to differentiate, work on their level, and I see their progress, but in the long run, they still have to do 3rd grade work and no progress is seen. (Team Teacher 2, Personal Communication, May 11, 2015)

Both teachers described the influence of the high-stakes testing on the way they organized their lessons. T2 explained when she was teaching an objective related to the STAAR test, she viewed the students as more homogenous and gave them the same activities, while after state testing is over, then she grouped students according to ability (Teacher 2, Personal Communication, May 11, 2015). She said,

> the class can be homogenous or heterogeneous. It depends on the lesson. When I am working on a STAAR objective, like something they need to know… they have to know it, then the class is more homogenous because everyone gets the same activity. They need to know to do it. But other times, I group them to level.

> Like now after the test, they are in groups and work on menu. (Teacher 2, Personal Communication, May 11, 2015)

The team teacher explained how her lessons included more student choice when the high-stakes testing time was over (Team Teacher 2, Personal Communication, May 11, 2015). She said,

> they are now working on menus. So that's really nice since STAAR testing is over, we have the freedom to try a little more individualized assignments. Before the focus was on the STAAR, and how students will do. Now we can use menus. They can choose what they want to work on. They [students] like having the choice. Usually everyone does the same. (Team Teacher 2, Personal Communication, May 11, 2015)

In summary, at the state level, T2 and her team teacher were being influenced by high-stakes testing. They considered the high-stakes testing as a negative influence on differentiation. Their lessons were developed with the STAAR test in mind. T2 believed that she needed to view her class as more homogenous since the students would be taking the same test towards the end of the academic year. Only after the STAAR test was over did T2 allowed students choices of activities (i.e., menus).

District level. According to T2, the district influenced her differentiation practices (Teacher 2, Personal Communication, May 11, 2015). In fact, the district provided her with curriculum and resources, evaluated her once a month, and required the submission of lesson plans which included a section for differentiation (Teacher 2, Personal Communication, May 11, 2015).

T2, TT2, and P2 said the district provided the curriculum (Principal 2, Personal Communication, May 11, 2015; Team Teacher 2, Personal Communication, May 11, 2015; Teacher 2, Personal Communication, May 11, 2015). For T2, the district provided the students with *Motivation Math* to prepare them for the STAAR (Teacher 2, Personal

Communication, May 11, 2015). She also used *Math In Focus*, which is an electronic resource that helps keep track of student progress (Teacher 2, Personal Communication, May 11, 2015). TT2 also explained how teachers were provided with electronic programs to input student progress, but also included activities for students to use. In fact, these programs helped monitor student progress and provided the students with appropriate activities at their level of performance (Team Teacher 2, Personal Communication, May 11, 2015). She said,

> well, the district gives us the curriculum. Sometimes I can pull things from here and there to do an activity, but they gave us these resources. They are online. We can use them to put students' progress and students can also use them. They are good because students can work on some of the games…the program itself will tell the student what level they are at and it saves their work. This way, all their work…their progress can be seen. (Team Teacher 2, Personal Communication, May 11, 2015)

According to the principal, the district's scope and sequence helps in determining the lessons (Principal 2, Personal Communication, May 11, 2015). She said,

> it [scope and sequence] tells them every six weeks what the kids need to know and even then they break it down by weeks. And then we have certain goals that like for reading they let them know like what level they need to be on at the end of each grade level and so we have that measurement also. (Principal 2, Personal Communication, May 11, 2015)

The principal also explained how the district expects teachers to differentiate (Principal 2, Personal Communication, May 11, 2015). In fact, the lesson plans should officially include the modifications made for students who have been identified for services, and other modifications should be written as interventions (Principal 2, Personal Communication, May 11, 2015). In addition, teachers are required to report students' progress through the use of an electronic software representing the Tiers from Response to Intervention. She said:

> They [the district] expect teachers to differentiate; they [the district] even want them to write it on their lesson plans. It has to be officially done if they are ESL students or resource students or a 504. You have to incorporate that in your lesson plan so we can make sure that we are monitoring that teachers are doing that. And then for other kids, you still have to do it and you put it in your intervention plans. Then all is put in RTI, which is Response to Intervention; so that's put in the computer to show what we are doing for these students. So it's there electronically, and then we have to progress monitor the students. So like if they're Tier 2 there had to be progress monitoring every three weeks, and the same for Tier 3. So that's another way of following kids and they [the district] can see how we are going to help them [the students]. (Principal 2, Personal Communication, May 11, 2015)

T2 also mentioned how the curriculum department from the district is constantly looking for differentiation (Teacher 2, Personal Communication, May 11, 2015). She explained how the lesson plans included a section for differentiation for identified students, but she only filled it out when she differentiated (Teacher 2, Personal Communication, May 11, 2015). She said,

> the curriculum department provides a lot of help and resources. They want us [teachers] to send the lesson plans with … you see at the end we have to write our differentiation, especially for the students who are ESL or pulled for resource time… I don't have any students like that, so I can write in that section when I differentiate for others. (Teacher 2, Personal Communication, May 11, 2015)

T2 also explained how she is observed and evaluated once a month but doesn't get feedback. She said, "see they [the district] come once a month to evaluate. They come and observe the class, and then they send me some resources. I don't know how I do, but the resources they send are very helpful" (Teacher 2, Personal Communication, May 11, 2015).

As previously mentioned, district's superintendent has been in her position for the few years, however, the department leaders have changing over the past couple of years. This instability in departments' leadership influenced T1's instructional practices because of the change in expectation. In addition, for the 2013-14 academic year, D1 met state

standards as a district, but nine campuses failed to meet the state standards. In fact, principals and teachers had to sign a document stating their students will progress this year. For T2, there was pressure to focus on STAAR testing to meet standards again this year.

In summary, D2 influenced T2's differentiated practices. In fact, T2 was provided with the curriculum. The curriculum materials given to T2 focused on procedural knowledge needed for the high-stakes testing. This curriculum might be an influence on the differentiation practices within the content area. In addition, students' progress was also monitored by the district through the electronic software provided along with the curriculum. This might hindered the use of pre-and post-assessment by T2, since student progress is already being assessed through the program. Furthermore, the district required the inclusion of differentiated practices in teacher's lesson plan for identified ESL and special education students, but not necessarily for others. This might influenced the overall practice of differentiation for T2. In fact, since T2's class did not have any identified special education or ESL students, then she was not held accountable to differentiate for her students. In addition, the district's instability in departments' leadership led to change in the expectation required from T2. T2 also felt the pressure to focus on STAAR testing to meet standards again this year.

Campus level principal. When asked about her beliefs in regard to differentiation, the principal (i.e., P2) explained how differentiation was an important component of teaching, even though all students needed to be exposed to grade-level material (Principal 2, Personal Communication, May 11, 2015). She said,

> you can't really teach without differentiating because you have to take a kid where they are and raise them up. You have to expose them to grade level but then there is a time within that day which you have to come back to where they are. (Principal 2, Personal Communication, May 11, 2015)

She also believed data was the major influence on the decision to differentiate within the classroom (Principal 2, Personal Communication, May 11, 2015). She explained how the teacher should look at the results from assessments to determine what needed to be done next in terms of help (Principal 2, Personal Communication, May 11, 2015). She said,

> data determines what you have to do. So if you teach and you give some type of assessment, whether it is formal or informal while you are walking around, and the students don't have it, then you have to look at that data and determine so what am I going to do about it? You cannot just keep going down the pathway if you don't look at your data. So the data determines how you're going to differentiate for kids: who needs further help? Who doesn't? (Principal 2, Personal Communication, May 11, 2015)

She also described how the school had an "intervention time" built-into the schedule for teachers to work with students who needed further instruction (Principal 2, Personal Communication, May 11, 2015). She said "we have a built-in intervention time in the day so during that block they work on needed math or reading. It is built-in to give the teacher the effort, the extra differentiation" (Principal 2, Personal Communication, May 11, 2015).

During her walk through, the principal was interested in seeing projects, as well as student engagement with tasks (Principal 2, Personal Communication, May 11, 2015). She said, "I look for projects like some science projects, history projects, novel projects. With projects, there are a lot of things that can be done" and then she said, "we look for the number of students engaged, you know, on task and then how many are successful in that engagement" (Principal 2, Personal Communication, May 11, 2015). She also said that she hoped to see varied products because students have different abilities. She said,

"they [products] should be varied even within a classroom just because of the ability of the students" (Principal 2, Personal Communication, May 11, 2015).

T2 considered the principal a strong influence on differentiation (Teacher 2, Personal Communication, May 11, 2015). She explained how the principal organized their schedule to include an intervention time (Teacher 2, Personal Communication, May 11, 2015). Although, the students in her class were not identified for services, she used that time to help those who were struggling with the content (Teacher 2, Personal Communication, May 11, 2015). T2 said

> she is an influence… I say a strong one… she wants us to do it the way she sees it. She gave us intervention time in our schedule. She organized the schedule of the day to have intervention time, and during that time I work with my students who didn't get it. You know I don't have the ESL or resource kids, but I have some who don't get it when I teach it so I work with them during the intervention time. (Teacher 2, Personal Communication, May 11, 2015)

The team teacher also explained how the principal had a major influence on differentiation (Team Teacher 2, Personal Communication, May 11, 2015). In fact, teachers developed their lesson plans in accordance with the school principal's visions (Team Teacher 2, Personal Communication, May 11, 2015). TT2 said

> I think she [P1] has an influence because she wants to do that, I mean, differentiation. You know how it is. Because once you're in the school, you're doing the plans, but you know what you're following. You follow what she says. (Team Teacher 2, Personal Communication, May 11, 2015)

In summary, P2 seemed to influence T2. P2 believed that differentiation is necessary and is conducted during a specific time once grade level materials have been taught. Even though P2 wanted the teachers to have students work on projects, which usually requires higher-level thinking, she organized the schedule so that teachers would focus more on students who were struggling. The scheduling of an intervention time,

when teachers were to focus on struggling students, influenced T2's differentiation practices during times when she was teaching the required grade level content.

Campus level team teacher. According to the school principal, T2 and her team worked well together because one is specialized in mathematics and science, the other in language arts and social studies, and the third is an instructional coach (Principal 2, Personal Communication, May 11, 2015). They planned together and discussed any needed interventions (Principal 2, Personal Communication, May 11, 2015). However, T2 explained how her team teachers are not an influence on her differentiated practices (Teacher 2, Personal Communication, May 11, 2015). She explained how, since she is the math and science teacher for all 3rd grade classes, she develops the lessons without consulting her team teachers (Teacher 2, Personal Communication, May 11, 2015). TT2 also said that she develops the ELA and social studies lessons for all 3rd grade students (Team Teacher 2, Personal Communication, May 11, 2015). The teachers therefore tended to develop lessons in designated subject areas that were then distributed to the other teachers. They did not collaborate with one another and did not differentiate the lessons for individual students.

Campus level parents. T2 said parents were not an influence since they were not involved in their children's learning (Teacher 2, Personal Communication, May 11, 2015). She said, "I don't think they [parents] influence it [differentiation] at all. There is no parental involvement here" (Teacher 2, Personal Communication, May 11, 2015). TT2 agreed regarding parents' involvement in their children's learning (Team Teacher 2,

Personal Communication, May 11, 2015). She explained how parents of children at C2 do not have time, and for that reason they are not involved in their children's learning (Team Teacher 2, Personal Communication, May 11, 2015). She said "parents… I haven't seen them influence… you know how it is, they are busy and so they are not involved. We ask to meet with them, but they don't have a lot of time" (2, Personal Communication, May 11, 2015). The school principal also thought that parents do not influence differentiation (Principal 2, Personal Communication, May 11, 2015). She said, "I think parents send their kids to school and it's up to us to determine how to teach them" (Principal 2, Personal Communication, May 11, 2015).

Classroom level. According to T2, her class has 15 students, 8 girls and 7 boys, none identified for special education, and three identified as gifted and talented (Teacher 2, personal communication, May 11, 2015). The school principal explained that in all grades, students who have English as Second Language (ESL) are clustered in one class at each grade with a teacher who is ESL certified, but since T2 recently received her ESL certificate, she did not have ESL students (Principal 2, personal communication, May 11, 2015).

T2 explained that when she is teaching an objective related to the STAAR test, she sees the students as more homogenous and gives them the same activities, while after the testing is over, then she groups students according to ability (Teacher 2, Personal Communication, May 11, 2015). She said,

> the class can be homogenous or heterogeneous. It depends on the lesson. When I am working on a STAAR objective, like something they need to know… they have to know it, then the class is more homogenous because everyone gets the same activity. They need to know how to do it. But other times, I group them at

> level. Like now, after the test, they are in groups and work on menus. (Teacher 2, Personal Communication, May 11, 2015)

When her students knew 3rd grade materials, she still focused on grade level content, which suggests that high-stakes testing may have a greater influence than individual differences (Teacher 2, Personal Communication, May 11, 2015). In summary, the classroom composition did not seem to influence T2's instructional practices until after the STAAR test when she used menus.

Individual level. During her intern year, T2 developed multi-level activities and implemented interdisciplinary lessons. She also developed learning centers and provided students with choices of varied tasks. However, during her current teaching, she did not differentiate at the same level as her intern year. She did vary her learning activities, but they were not related to any objectives (P2 and E4). Because she taught the same third grade content to all the students, she did not differentiate for rate differences and focused primarily on procedural knowledge (C2).

During the interview, T2 said she felt prepared from her university program (Teacher 2, Personal Communication, May 11, 2015). In addition to classes focusing on differentiated instruction, development, and exceptionalities, T2 had field experiences in both gifted and general education settings. According to T2, even though she received good training for differentiation when she was at the university, she rarely used differentiation (Teacher 2, Personal Communication, May 11, 2015). Even though she believed that her students need differentiation, she differentiated mostly after the high-stakes testing was over (Teacher 2, Personal Communication, May 11, 2015). She

thought that the high-stakes pressured her to teach grade level curriculum (Teacher 2, Personal Communication, May 11, 2015). T2 said she enjoyed the lesson more when she used differentiated instruction and thought that her students enjoyed it too (Teacher 2, Personal Communication, May 11, 2015). She said,

> The training I got was amazing. I learned a lot at [my university], and I know I can do it…. But I don't do it [differentiation] till after STAAR. No more pressure at that point. When I use differentiation, it is more interesting. I enjoy seeing the students do what they want, and they enjoy it too. (Teacher 2, Personal Communication, May 11, 2015)

According to principal, T2 was well prepared for differentiation when she came to work at C2 (Principal 2, Personal Communication, May 11, 2015). She also described T2 as being self-motivated by saying, "she has that self-motivation that I want to do what's right and the best I can" (Principal 2, Personal Communication, May 11, 2015). During the interview, the principal also explained how sad she feels because T2 is resigning. She said, "we are losing her and she is one of the good ones. She is resigning; she will leave us" (Principal 2, Personal Communication, May 11, 2015).

In summary, although T2 believed that she was prepared to differentiate and her students needed differentiation, she still did not differentiate her instructional practices throughout the academic year. T2 believed that high-stakes testing created pressure to teach grade level curriculum. Even when the STAAR testing was over, she only varied her activities by providing students with menus. T2 appeared to view student choice as differentiation.

Summary of Influences on Differentiation

At the state level, T2 was being influenced by high-stakes testing. She considered high-stakes testing as a negative influence on differentiation. Her lessons were developed with the STAAR test in mind. She viewed her classroom as needing the same curriculum since the students would be taking the same test towards the end of the academic year. The high-stakes testing appeared to particularly influence T2's activities since she added more variation after the STAAR test was over.

At the district level, T2's lessons were influenced by the curriculum provided by D2. The curriculum materials (i.e., *Math in Focus* and *Motivation Math)* focused on procedural knowledge needed for the high-stakes testing. These materials had an influence on the differentiation practices within the content area. In addition, the district monitored students' progress using an electronic software package so T2 did not have her own pre- and post-assessments nor did she use these data. Furthermore, the district required the inclusion of differentiated practices in teacher's lesson plan for specific identified students, but not necessarily others. Since T2 did not have any ESL or special education students in her classroom, she was not required to indicate differentiation on her lesson plans. In addition, the district's instability in departments' leadership led to change in the expectation required from T2. T2 also felt the pressure to focus on STAAR testing to meet standards again this year.

At the campus level, the principal (i.e., P2) seemed to be an influence. P2 believed that differentiation was necessary after grade level content was taught to everyone, and scheduled an intervention time for struggling students. Even though P2 wanted the teachers to have students work on projects, which might have required higher-

level thinking, she organized a schedule that all teachers needed to follow, focusing primarily on the students who were struggling and needed further practice. The schedule, the focus on struggling students only at a specific time, and the requirement to teach everyone grade level content influenced T2's differentiated practices. Neither the team teachers nor the parents appeared to have any influence on the differentiation practices of T2.

At the classroom level, the classroom composition did not seem to have an influence on T2's differentiated instructional practices since everyone learned grade level content. The only influence on her practices was those who were struggling learners who she worked with individually during intervention time. Not until the STAAR test was over did T2 provide any variation in tasks.

At the individual level, although T2 believed that she was prepared to differentiate and her students needed differentiation, she did not differentiate her instructional practices. She felt that that the principal and high-stakes testing influenced her decision not to differentiate. Table 4.14 summarizes the influences and effects on T2's instructional practices.

Table 4.14

Influences and Effects on T2's Instructional Practices

Level	Areas of Influence	Influences	Effects on T2
State	High-Stakes Testing	STAAR testing occurs at the end of 3rd grade.	Knew students must pass STAAR test.
	State Standards	STAAR is aligned to TEKS.	Aligned lessons to TEKS.
	Accountability Ratings	District and campuses were rated on four indicators.	Campus met standards last year, after being rated as 'improvement required', so T2 used practices prescribed by campus and principal.
District	Curriculum	*Math Motivation* and *Math In Focus.*	Focused on procedural knowledge, which restricted concept teaching.
	Administration	Superintendent came from outside of district and was same for four years. Changes have occurred in mid-management leadership. Only one leader is still in the Oversight Council since her first year.	Might not be aware of district-level expectations.
		Superintendent required teacher to sign document saying their students will meet state standards.	Felt pressure to focus on STAAR testing.

(continued)

Level	Areas of Influence	Influences	Effects on T2
		Required the inclusion of differentiated practices in teacher's lesson plans for identified ESL and special education only.	Since no ESL and special education, T2 did not need to indicate differentiation on lesson plans.
		Tracked student progress through electronic software.	Data were not current and did not provide useful pre- and post-assessment information.
	Accountability	District met state standards, but nine schools did not meet standards.	T2 felt pressure to focus on grade level content because district had teachers sign papers that said their students would show progress.
Campus	Accountability	After being rated as 'Improvement Required", last year C2 was rated as 'Met Standard".	Felt pressure to focus on STAAR testing to meet standards again this year.
	Principal	Scheduled differentiation one hour per day for low performing students; all teachers were required to teach students grade level content during remainder of time.	Restricted her content differentiation and taught grade level content to all of her class.
		Focused on students who were struggling.	Differentiated for low performing students only during the one hour intervention time.
	Team Teachers	Each developed lessons in designated subject areas: no collaboration across subjects.	Had less opportunity to integrate multiple disciplines or teach interdisciplinary thematic units.

(continued)

Level	Areas of Influence	Influences	Effects on T2
	Parents	Not involved in their children's learning.	No identified effect on differentiation.
Classroom	Classroom Composition	Cluster classroom had 15 students with three identified G/T and no ESL or special education students.	No identified effects on differentiation since plans only needed to differentiate for ESL or special education students.
Individual	Knowledge	Teacher preparation program focused on differentiation.	Had knowledge about differentiation.
	Beliefs	Believed there was pressure from STAAR testing.	Taught grade level curriculum.
		Believed differentiation was more enjoyable.	Provided interest centers.

Case Study: Teacher 3 (T3)

Context

Campus 3 (C3). C3 is part of D2. According to the University's newsletter (2001, Spring) the campus opened in 1993 after two years of collaborative planning by a committee that included school district teachers, administrators, parents, community representatives and the university School of Education faculty and administrators. The school was created as a Pre-K through grade 5 magnet school with multiage classrooms and inclusive practices.

This school began as a partnership between the district and a local University. Each year, the University's undergraduates are matched with supervising classroom teachers on C3 (2001, Spring). According to studies conducted by the university, this collaboration has provided benefits for the pre-service teachers, the supervising teachers, and the classroom students.

According to the local newspaper (2014, August 8), over the past five years, the campus hasn't had stability at the administrative level. In fact, the current principal was the fourth principal within the last five years. Two of the past four principals (i.e., 2013-14 academic year) have been demoted because the school failed to meet the state-mandated accountability for student progress. After the school was rated "exemplary" for three consecutive academic years (i.e., 2008-09, 2009-10, and 2010-11), it dropped to "met-standards", and last year was rated as "improvement required" in the area of student progress. In fact, the campus did not pass because the percentage of students who individually passed the STAAR dropped by 10 percentage points. In the 2014 state

rankings, C3 was ranked better than only 26.1 % of elementary schools in Texas, and fourth among the 15 elementary schools in D2.

Also according to the local newspaper (2014, November 20), at the beginning of the 2014-2015 academic year, the current principal, whose demographics are described below, shared her plans, which were part of a larger initiative by the D2. She planned to increase the amount of science labs for gifted and talented students, as well as improve the lesson planning through alignment with the state's curriculum. She hoped these actions will raise the number of economically disadvantaged fifth grade students who pass the state science test, which will help the school meet the requirement for student progress.

Currently, the campus had more than 430 students and more than 21 teachers. The class sizes ranged from 18 to 23 students, with an average of 19 students per teacher. The campus had 8.2% of teachers (n= 2) in their first year teaching, 16.3% of teachers (n= 4) with up to five years of experience and an average of 16 years of experience.

According to the TEA Division of Performance Reporting (2015), C1 has 23.2% African American, 0.5% American Indian, 0.5% Asian, 45.5% Hispanic, 0.0 % Pacific islander, 0.7 % two or more races, and 29.7% White. In addition, the student population was comprised of 50.3% at risk, 68.5% economically disadvantaged, and 5.7% English Language Leaner (see Table 4.15).

Table 4.15

Student Demographics at D2-C3 (TEA Division of Performance Reporting, 2015).

2013-2014 Enrollment profile		D2-C3 percent(N=434)
Ethnicity	African American	23.2%
	American Indian	0.5%
	Asian	0.5%
	Hispanic	45.5%
	Pacific islander	0.0%
	Two or more races	0.7%
	White	29.7%
Student Population	At-Risk	50.3%
	Economically disadvantaged	68.5%
	English Language Learner	5.7%

Note. D= District. C= Campus.

C3 aimed at developing leaders in the areas of academics and creative arts. According to the school website, the school operated around five core beliefs: (a) student-centered learning; (b) modeling best teaching practices through the partnership with a university; (c) developing staff who are inquisitive, collaborative, and dedicated; (d) maintaining connection with community leaders; and (e) providing students with experiences in the arts.

The campus was comprised of three connected buildings, one recreational building, and two mobile buildings for classes. The schoolyard was fenced on one side and included three separate colorful playground areas, one cemented basketball court, a large green field with some benches under the trees, and an outdoor classroom between two wings of the school that includes a pond. In addition, the playground included handicap-accessible facilities. The parking lot included 38 parking spots.

As I entered the building, I noticed that students' pictures in educational settings were displayed on the left followed by a group of administration offices. While I walked

in the hallway, I observed students' products hanging on each side with classrooms located on the right side. Some learning stations were located on the left side of the hallway surrounded by movable dividers. In addition, scattered around the building's bulletin boards were teachers' pictures and frames recognizing their awards and success.

C3 Principal 3(P3). She had been in public education for 23 years. She earned her undergraduate degree in secondary education, her masters in speech pathology and audiology, and her doctoral degree in education. She also had several certifications: superintendent, education diagnostician, speech language pathology, general education, and special education. She taught in a school in D2 for four years, and this was her first year being the school principal for C3 (Principal 3, personal communication, May 28, 2015).

The interview with P3 occurred in her office with the door closed. She welcomed me with a smile and asked me about my university since she is an alumni. P3 seemed very willing to share information; in fact she said she understood how important research was for the improvement of the field of education. Her answers were elaborate and minimal probing was needed. The content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

Team Teacher 3 (TT3). TT3 was Caucasian. She earned her bachelor of science in education in 2013. She currently held two certificates: early childhood through 6th grade and English as Second Language. This was her second year being the self-

contained teacher for fourth grade at C3 (Team Teacher 3, personal communication, May 13, 2015).

The interview with TT3 occurred during the teachers' lunch time. Although TT3 wasn't told about the interview until T3 and I showed up at her classroom door, she was very welcoming and willing to answer the questions. We sat in TT3's class where she heated and ate her lunch during the interview. The content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

Classroom. T3's classroom was the third class on the right in the hallway. Figure 4.3 depicts the physical arrangement of the classroom (Farah, 2015c, May 13). As I entered the classroom, five computers were lined up on a rectangular table facing the wall on my left. Bookshelves and a sink covered the rest of the wall to the left. The center of the classroom had different types of tables and desks for students to work on: circular, semi-circular, and rectangular. The semi-circular table was in the back left corner in front of the bookshelves and sink. Rectangular desks were placed around two circular tables in the middle of the room. The desks were pushed together to form three larger rectangular tables. Only one desk was left singular at the front of the classroom. The right wall of the classroom was covered by a large bookshelf. The teacher's area was in front of the classroom. The students' desks and the teacher area were separated by a table with a projector, which faced the front wall where the projection screen and the white board were found. The teacher's desk and bookshelf were at the front left corner of the classroom.

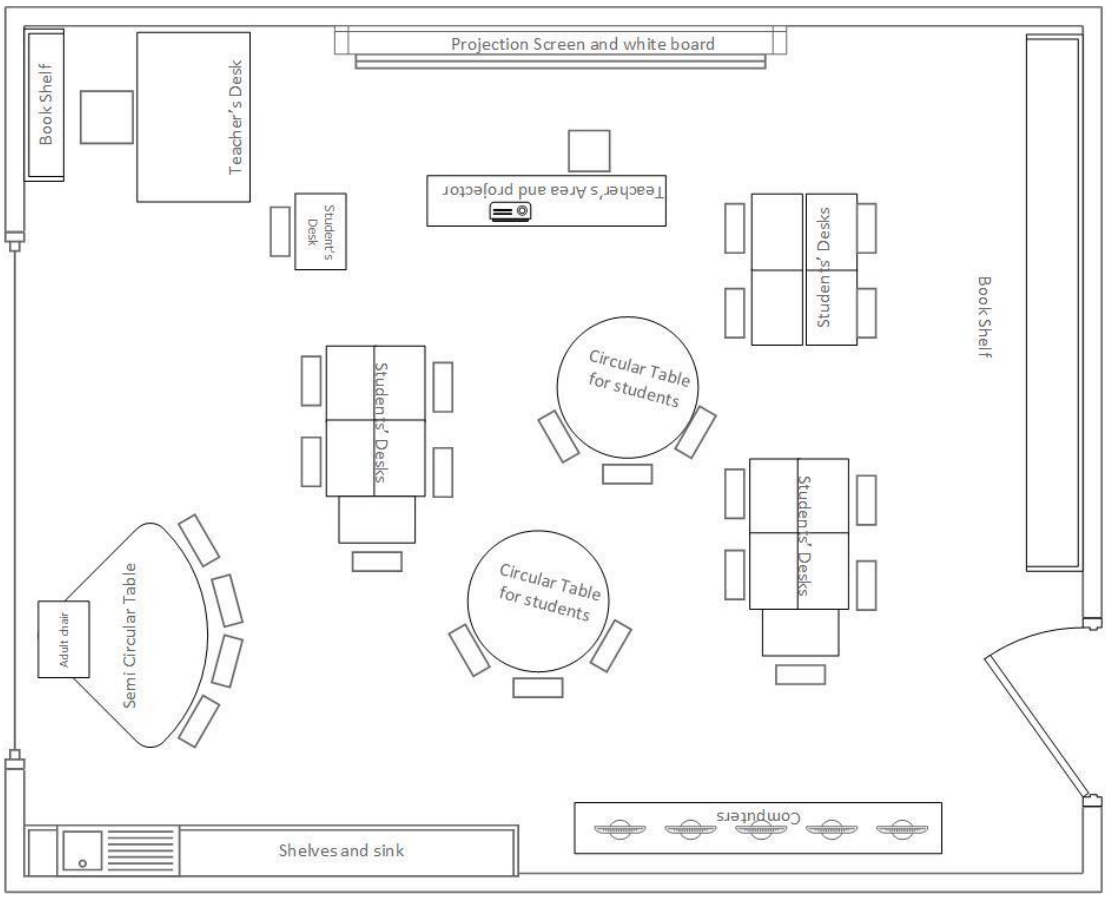

Figure 4.3. Physical room arrangement- T3 *(Farah, 2015c, May 13).*

According to T3, the class has 14 boys and 9 girls, with 7 identified students for gifted and talented, 2 students with dyslexia, and 3 high-achievers (Teacher 3, personal communication, May 13, 2015). She said the students in the class "work well together most of the time and enjoy each other" (Teacher 3, personal communication, May 13, 2015). She viewed the class as more heterogeneous even though "there are a lot of GT and high-achievers, but they are all so different in so many different ways like some of them are strong in math and some of them are strong in reading" (Teacher 3, personal communication, May 13, 2015).

Demographics and Background

T3 was Caucasian and had been teaching fourth grade for three years at C3. She earned her bachelors of science in education in 2012. She currently held three certificates: early childhood through 6th grade, gifted and talented, and English as second language. She taught math and science during her first year at C3, and has taught all of the subjects for the past two years as a self-contained teacher (Teacher 3, personal communication, May 13, 2015).

Observed Differentiation Practices

Math lesson. The lesson observed focused on reviewing fourth grade math to determine the student's level of performance for next year (Teacher 3, personal communication, May 13, 2015). For that reason, T3 explained that the lesson included activities on various topics.

The lesson began with a 10-minute warm-up activity (Farah, 2015d, May 13). The teacher distributed a clicker to the students labeled, "All in Learning". Then the teacher projected math problems on the board that required students to choose the best response from 5 choices. The following are two examples of the math problems:

Problem 1: In this photography you see six dice, labeled (a) to (f). [The photography shows the following numbers on each die: die (a) shows seven, die (b) two, die (c) three, die (d) five, die (e) one, dice (f) two] For all dice there is a rule: the total number of dots on two opposite faces of each die is always seven. What are the number of dots on the bottom face of the dice corresponding to the photography?

1. (a) 1, (b) 4, (c) 4, (d) 2, (e) 6, (f) 5
2. (a) 1, (b) 5, (c) 3, (d) 2, (e) 6, (f) 5
3. (a) 1, (b) 5, (c) 4, (d) 2, (e) 6, (f) 5
4. (a) 2, (b) 4, (c) 4, (d) 2, (e) 6, (f) 5
5. (a) 1, (b) 4, (c) 4, (d) 2, (e) 6, (f) 4"

Problem 2: [The problems shows the map of Antarctica with a scale showing 200, 400, 600, 800, and 1000 kilometers] Estimate the area of Antarctica using the map scale.

1. 14 million km^2
2. 12 million km^2
3. 13 million km^2
4. 15 million km^2
5. 10 million km^2

T2 moved from one problem to another while all students punched their answer using the clicker (Farah, 2015d, May 13). When students punched in their answer, an indicator would show the number of each of the clickers and the answer they chose (e.g., #2-b). Each student had a chance to change his or her input until the last student punched in his or her answer. After each problem, one or two students shared the strategy they used to find the solution (Farah, 2015d, May 13). T3 asked 11 questions: 9% were cognitive connection questions, 18% were affective connection questions, 27% were process questions, and 45% were single answer questions (Farah, 2015f, May 13). According to T3, the program stores the progress of students within the different topics of study (Teacher 3, personal communication, May 13, 2015).

Next, students followed a chart drawn on the board by the teacher: Fear factor→time or measurement menu→problem solving task→think through math. All students were to work on their activities in order (Farah, 2015f, May 13). They were given 40 minutes to go through the chart. When students asked about where to find the "problem solving task" or "think through math", T3 told them that if they were finished with the other two tasks before the class ended, then she would provide them to the student (Farah, 2015f, May 13). According to the interview, T3 expected the majority to be working on "fear factor", with a few getting the chance to work on the "time or measurement menu"; however the flow chart would be followed for the next few days to allow students to advance at their own pace (Teacher 3, personal communication, May 13, 2015). She was hoping that all students might finish the "time or measurement menu" by the end of the week. The "fear factor" worksheet can be found in Appendix 4. The time or measurement menu included nine open-ended problems from which each student needed to complete at least one, with their choice of working alone or in a group of up to four students (Farah, 2015d, May 13). The following is an example of the problems on the "time or measurement menu": "Make a scale drawing of the school. You can use the meter stick or yardstick to measure the length and width or the rooms. Make sure your drawing includes a legend, a scale bar, and the north arrow."

During this time, some students worked individually, some in groups, and others would work some problems alone and others with partner (Farah, 2015d, May 13). Students knew how to access the materials they needed. Some students used small white boards, others grabbed calculators, and others, some counters (Farah, 2015d, May 13). Students were engaged 95% of the time (Farah, 2015d, May 13). While the students

worked, T3 would walk around the class, and work with students as needed (Farah, 2015d, May 13). Within the 40-minute time frame, only four students completed the entire "fear factor" task sheet, and decided to work in partners to draw a map of the school (Farah, 2015d, May 13). One group chose to draw the map on a pink poster paper and used the yardstick, while the other used a yellow paper Mâché and the meter stick (Farah, 2015d, May 13). When time was over, all students organized the class by putting back the materials, stored their work in their folder, and put away the drawing maps. The teacher let them know they would be progressing through the task chart at their own pace until Friday (Farah, 2015d, May 13).

ELA lesson. According to T3, the lesson focused on the following TEK: "(6) Reading/Comprehension of Literary Text/Fiction. *Students understand, make inferences and draw conclusions about the structure and elements of fiction and provide evidence from text to support their understanding*. *Students are expected to: (A) sequence and summarize the plot's main events and explain their influence on future events; (B) describe the interaction of characters including their relationships and the changes they undergo; and (C) identify whether the narrator or speaker of a story is first or third person"* (Teacher 3, personal communication, May 13, 2015).

The lesson began with the teacher distributing a two-page story to pairs of students so that each student recorded their reading rate in words-per-minute (WPM; Farah, 2015c, May 13). Students seemed to know the routine: the teacher had the timer, she would tell the reader when to begin, a minute later would tell the reader to stop, and then the partner would count the number of words and recorded the WPM (Farah, 2015c, May 13).

Following the WPM task, as a whole group, students reviewed the work they did the previous day: write the main idea of the story (Farah, 2015c, May 13). Then, they were instructed to find three details that supported the main idea and record it in their notebook. Students worked individually, and then as a whole class shared their work (Farah, 2015c, May 13). Five students shared their ideas and T3 asked 14 questions: 81% cognitive connection questions, 29% evaluation questions, and 7% single answer questions (Farah, 2015e, May 13).

Then, each student brought his or her own copy of the book *Chasing Vermeer* (Farah, 2015c, May 13). *Chasing Vermeer* is an art mystery novel in which two friends decipher clues to solve a crime: an invaluable painting was stolen (Scholastic, 2015). At first, they quickly described what they knew so far about the story, and T3 started reading chapter 14 aloud (Farah, 2015c, May 13). From time to time, T3 would call on a student to read a paragraph out loud. Throughout the reading of chapters 14, 15 and 16, the class would stop for a while to solve the clues along with characters of the book. Different types of problem solving occurred (Farah, 2015c, May 13). One problem required students to decipher a letter written using symbols. The students had a grid explaining which symbol corresponded to which letter of the alphabet (Farah, 2015c, May 13). Another problem required the student to look at the picture of the main entrance of a building, and identify the different animal statues that related to the events of the story (Farah, 2015c, May 13). Another problem required students to determine the shortest trajectory from one building to another using the scaled map provided at the beginning of the book (Farah, 2015c, May 13). In addition, while reading, T3 asked 8 questions to the class: 50% evaluation questions, 38% were cognitive connections, and 12% were single

answer questions (Farah, 2015e, May 13). For a 10-minute sample during this activity, the students were engaged 90% of the time (Farah, 2015a, May 13).

After reading the three chapters, students worked individually on writing a paragraph describing the main idea of each chapter along with at least three supporting ideas (Farah, 2015c, May 13). T3 asked three students to write at least four supporting ideas, and two other students to write in bullet-points format. While students were working, T3 worked one-on-one with three individual students (Farah, 2015c, May 13).

Rating of Classroom Differentiated Practices in Math.

Content. T3's math lesson started with a whole class activity including critical thinking skills. The tasks were authentic to the discipline and problem-based. Students were given scenarios (e.g., area of a continent) to solve using their knowledge in math (Farah, 2015d, May 13). During the following activity, students mainly worked on a worksheet that was problem-based, included higher-level thinking, and integrated ELA (Farah, 2015d, May 13). Students were to read a story, understand the events, and answer questions that pertained to several math topics. To answer the questions students were to perform multiple steps. In addition, the lesson observed showed four students having the opportunity to move to more open-ended problem solving (i.e., drawing a school map; Farah, 2015d, May 13). This problem was also authentic to the discipline and required high-level thinking skills.

When asked about the curriculum she used when planning the lesson, T3 said, "the district gives us a pacing guide and we have a textbook that is terrible. It is not that it is not high enough, but it doesn't have the rigor required anymore. … For math we have

the go-math" (Teacher 3, personal communication, May 13, 2015) and then when asked if she used it step-by-step, she responded "No. As teachers, we come up with our own activities for math" (Teacher 3, personal communication, May 13, 2015).

The principal further explained the curriculum by saying,

> it [the curriculum] used to be called C-Scope. It is a district-adopted curriculum used in numerous districts across the state. It may be called something else. I used to work in another district that they called it something else. I still think it is the same curriculum. It was created by people across the state and districts have the opportunity to adopt it or not and [D2] has adopted it. So we have the same curriculum across the entire district. (Principal 3, personal communication, May 28, 2015)

And she hoped teachers were not following it rigidly. In fact, she said, "It's not scripted, but it gives ideas. So that prevents teachers from having to start from scratch" (Principal 3, personal communication, May 28, 2015).

Even though both T3 and the principal said that the district curriculum is supposed to guide planning the lesson, T3 created her own activities for the students. The lesson observed included activities that were problem-based, authentic to the discipline, and integrated some ELA. Therefore, on the *Classroom Instructional Practices Scale,* T3 would be rated C6.

Rate. The lesson began with a 10-minute activity where students who solved the problem get the option to review their work or wait until all their classmates answered the question (Farah, 2015d, May 13). However, the rest of the lesson included students working at their own pace through a list of activities. T3 explained,

> So they have a list of things they have to get done by Friday with certain students have a certain amount they need to finish; like some students need to finish three activities, and some need to finish all activities. (Teacher 3, personal communication, May 13, 2015)

She also said "I have a couple of students who struggle with perfectionism so I give them a little bit longer, and most of the students in here finish fast and usually it is good work so they just move on" (Teacher 3, personal communication, May 13, 2015).

The principal explained how teachers were supposed to sequence the curriculum by saying:

> So we have the same curriculum across the entire district. It also has a pacing guide, so teachers know what they are supposed to be teaching at what time of the school year. How long the lessons should last for example, say you are teaching poetry, the guide says it should last 5-8 days. So it's very structured. (Principal 3, personal communication, May 28, 2015)

According to the principal, the curriculum and guide given to teachers is supposed to determine the amount of time students are to work on a certain concept.

In T3's class, students get to work at their own pace and early finishers get to move to another related activity. Students have a certain expectation to complete all of the activities by the end of the week. For these reason, T3 would be rated R3 on the *Classroom Instructional Practices Scale.*

Preference. For the math lesson observed, all students completed the same problems during the first 10-minute activity (Farah, 2015d, May 13). In addition, all students were to follow a certain sequence of activities (i.e., "fear factor→ time or measurement menu→ problem solving task→ think through math"; Farah, 2015d, May 13). On the "fear factor" worksheet students needed to solve 11 problems before they progressed to the next activity (Farah, 2015d, May 13). On the "time or measurement menu," students needed to complete one problem from a list of nine open-ended problems. When asked about giving her students choices of activities, T3 said, "we

usually vary activities using a menu system. But we are not in this system currently" (Teacher 3, personal communication, May 13, 2015).

Even though students had to complete the same tasks, students were given the opportunity to work individually or in groups of their choice (Farah, 2015d, May 13). As observed, some students worked individually or in groups the entire lesson, while others varied depending on the task (Farah, 2015d, May 13).

According to the lesson observed, students in T3's class were provided with varied task or response dimensions, and the activities were correlated to the lesson's objective of reviewing 4th grade math content. Students who finished were able to progress to a math project of their choice. For these reason, T3 would be rated P5 on the *Classroom Instructional Practices Scale.*

Environment. During the math lesson, students were given the opportunity to decide how they would like to work: individually or in a group (Farah, 2015d, May 13). Students even got the chance to change their choice according to the task (Farah, 2015d, May 13). In addition, students knew how to access the resources and could choose the materials they needed to complete a task (Farah, 2015d, May 13).

The environment allowed for student interaction, and students had access to preferred items to aid their learning. No learning centers were present so on the *Classroom Instructional Practices Scale,* T1 would be rated E4.

Rating of Classroom Differentiated Practices in ELA

Content. According to T3, the ELA lesson was guided by a specific TEK (Teacher 3, personal communication, May 13, 2015). First, students determined their

words per minute, then as a class worked on finding details supporting the main idea of a story (Farah, 2015c, May 13). T3 asked 14 questions: 81% cognitive connection questions, 29% evaluation questions, and 7% single answer questions (Farah, 2015e, May 13). In addition, an interactive mystery novel was being read which required the reader to use high levels of thinking and solve problems. During this reading activity, T3 asked 8 questions to the class: 50% evaluation questions, 38% were cognitive connections, and 12% were single answer questions (Farah, 2015e, May 13).

During the interview, T3 said,

> the district gives us a pacing guide, and we have a textbook that is terrible. It is not that it is not high enough, but it doesn't have the rigour required anymore. So we use 'mentoring minds' for reading and a few novels, but mostly we look at the TEKS and do as much questioning as we can. (Teacher 3, personal communication, May 13, 2015)

She also explained that "[TT3] plans all the reading. She plans it for all 4th grade teachers" (Teacher 3, personal communication, May 13, 2015). According to TT3 the planning for the reading is mainly done by looking at different resources. She said:

> I [TT3] mainly use the TEKS where I pull everything out and I look at… but mainly I pull things from different places, I look at what C-Scope has but I also look at the different things we have within the pacing guide. But mainly I pull my own things together. (Team Teacher 3, personal communication, May 13, 2015).

Even though TT3 planned the lessons for all 4th grade, T3 said,

> if they [students] are into it [the lesson], I will go for it, but if the structure of the lesson doesn't work then I am going to change it. It is what is best for them [students]. I will add more questions and interaction to make it more interesting to them. (Teacher 3, personal communication, May 13, 2015)

It seems that T3 used TT3's planning as the main source for her lesson, but was open to change according to the student's interest.

While T3 used the same book with all the students, she made the reading more interactive by having students solve the problems along with the book characters. In addition, the majority of her questions were at a high-level thinking. Therefore, on the *Classroom Instructional Practices Scale,* T3 would be rated C4.

Rate. Throughout the lesson observed, rate differences did not seem to be taken into consideration (Farah, 2015c, May 13). All students were expected to complete the same tasks within the same time frame (Farah, 2015c, May 13). As whole, students were engaged 90% of the time (Farah, 2015a, May 13). During the interview, T3 said "I have a couple of students who struggle with perfectionism so I give them a little bit longer, and most of the students in here finish fast and usually it is good work so they just move on" (Teacher 3, personal communication, May 13, 2015).

For the ELA lesson, I did not observe any variation in time allotment for students and for this reason, T3 would be rated R1 on the *Classroom Instructional Practices Scale.*

Preference. Student choice was not observed during the ELA Lesson (Farah, 2015c, May 13). The activities were the same for all students. As T3 explained, TT3 prepared the reading lesson and "the district gives us a pacing guide and we have a textbook…. So we use 'mentoring minds' for reading and few novels, but mostly we look at the TEKS and do as much questioning as we can" (Teacher 3, personal communication, May 13, 2015).

Since the tasks varied in the response dimensions, as well as the format of task, the tasks were correlated to the TEK, T1 would be rated P4 on the *Classroom Instructional Practices Scale.*

Environment. The lesson began with partner work, but the work focused mainly on recording the words read per minute (Farah, 2015c, May 13). Later, as a class, the students read, responded to teacher questions, and shared their ideas together (Farah, 2015c, May 13). The lesson was arranged for student interaction; however no interest or learning centers were used during the observed lesson. Accordingly, T3 is rated E3 on the *Classroom Instructional Practices Scale.*

Summary of Current Classroom Differentiation Practices

Math. The lesson observed included activities that were problem-based, authentic to the discipline, and integrated some ELA. In T3's class, students got to work at their own pace and early finishers got to select math projects. While students were expected to complete all of the activities by the end of the week, they could progress through each one at their own pace. Students in T3's class began with the same lesson but ultimately were allowed to select projects with varied task and/or response dimensions. In addition, the environment allowed for student interaction, and students had access to preferred items to aid their learning. On the *Classroom Instructional Practices Scale,* T3 would be rated C6, R3, P5, and E4 (Table 4.16).

ELA. While T3 used the same book with all the students, she made the reading more interactive by having students solve the problems along with the book characters. In

addition, the majority of her questions were at a higher-level of thinking. No variation in time allotment for students was observed, and the tasks did not vary the format or response dimensions but were correlated to the TEKS. Students interacted with one another during the lesson, but did not use interest or learning centers. Accordingly, on the *Classroom Instructional Practices Scale,* T3 would be rated C4, R1, P4, and E3 (Table 4.16).

Table 4.16

Rating on the Classroom Instructional Practices Scale for T3

Area	Math	ELA
Content	C6	C4
Rate	R3	R1
Preference	P5	P4
Environment	E4	E3

Note. ELA= English Language Arts

Classroom Differentiation Practices During Intern Year

Content. T3 developed her lessons by looking at the TEKS as well as the student's characteristics, especially for students who are ESL. In her Efolio, she wrote:

> Before I plan lessons, I study the TEKS to make sure my plan, activities, and assessments match. The TEKS are very specific with description and my plans and types of knowledge reflect that. All plans matched the TEKS consistently and I interpreted the TEKS to match types of knowledge. This was very helpful when it came to differentiation. I included multiple TEKS in my lesson plans (evidence 3) that related to not only content, but process as well. Students could excel and apply their knowledge better when more standards were applied to my lesson. Not only did I look at the TEKS, but I also made sure to match the knowledge to the ELPS. I had many ESL students in my fall internship so I looked up ELPS each week that would relate to the knowledge the students were learning. (*Efolio-T3*, 2012, April 26)

At the beginning of her lessons, she shared with the students her objective. For one of the evaluation ELA lessons, her supervisor noted, "the objective was written on the white board" (Faculty 1, 2012, February 15). For another reading lesson, her supervisor also noted, "[T3] had the objective written on the board" (Faculty 1, 2012, April 5a). In her Efolio, T3 explained the importance of sharing with the students the objective, and for that reason, she wrote it on the board. She wrote,

> Before each lesson, I knew it was important for my students to be prepared for the day and to know what they would be doing. Therefore, each morning after the announcements, I would review the objectives for the day. Objectives were posted clearly in the classroom for each subject daily. Students would see what the objective would be for that day as well as what 'product' they would be creating. (*Efolio- T3*, 2012, April 26)

The content of the lessons focused on procedural and concept learning, as well as included critical and higher level thinking skills. In one of her reading lesson, students were learning about the concept of "perspective". Students at first learned to recognize the "who, what, where, when, facts, and author's perspective through an example" (Faculty 1, 2012, February 15), and then "each group of students was to prepare a presentation that addressed the author's perspective and an illustration to represent the information they gained by reading different books" (Faculty 1, 2012, February 15). During another reading lesson, at first the focus was on procedural knowledge, then moved to more concept learning and connected to real life. As her supervisor noted, the lesson

> began by defining/discussing the terms compare/contrast. [T3] used the example of 'Beauty and the Beast' [a short video clip they watched] to introduce the concept.
> Students used Venn to demonstrate skills (guided); students then completed Venn (independently). At the end, they discussed real world examples and applied compare/contrast skills to their lives. (Faculty 1, 2012, March 30)

T3 made sure the content of the activities were at higher-level thinking. In her lesson on poems, the examples she provided students and the discussion included critical and higher level thinking. Then, T3 provided students with the opportunity to create their own poems. Her supervisor noted:

> [T3] began the discussion by reading a poem full of imagery. The discussion that followed focused on the images the poem created in the students' minds. She pointed out characteristics of a poem: repetition, use of good adjectives, development of stanza. Students learned about the diamante poem--the format and the shapes. She provided an example for students to include in their journals. They then highlighted the features of a diamante poem. Students were given 1 minute to brainstorm ideas for their poems. Students then had the opportunity to create their own.

In addition, T3's lessons included methods authentic to the discipline, related to students' lives and integrated multiple disciplines into discipline-based topics. In her Efolio, her math lessons included concept mapping, using graphic organizers, and relating the content to students' lives. She wrote:

> Methods of the discipline are crucial in a classroom because that is where students make the most connections to the real world. In my internship, I made sure to encourage the students to connect everything they learned to some type of profession. This was especially productive in math. Students created vocabulary graphic organizers each week and one of the requirements was to make connections to the real world (evidence 5). At one point a child raised his hand and said, "Wow, Miss [T3], math is everywhere!" This was a great connection for him and his math scores have improved dramatically because he now understands the purpose of what he is learning. (*Efolio-T3*, 2012, April 26)

In another math lesson, when students were learning about patterns, the lesson also included the connection between the content and its authentic use within the discipline. T3 wrote:

> This past week, I taught my students about patterns. We talked about repetitive patterns and growing patterns. After my students had established their understanding of patterns, we began looking at patterns in architecture. We talked about why there might be patterns in architecture. Not only did we look at architecture, but nature as well and what scientists might be looking at. The

> students recognized the pattern and recorded what they saw. (*Efolio-T3*, 2012, April 26)

In another lesson, T3 focused on developing note-taking skills for students. Rather than just focusing on the procedural knowledge, the lesson discussed the importance of note taking, as well as its connection to the students' lives. In her Efolio, T3 wrote:

> Another important connection I like to make with my students is how the content or learning skill the students are practicing will help them in high school and in higher education. The students were learning how to make an outline while taking notes and I made sure to explain to them how important it was to take notes. After the students and I had a discussion on the importance of note taking and why writing down crucial information in an organized way can help them in the future, they were completely engaged (evidence #6). The students put context to what they were learning and made a connection to something they can use for the rest of their lives (Evidence 7; *Efolio-T3*, 2012, April 26)

By looking at the different lessons during T3's intern year, it is clear that she focused on making connections to real-world examples, and integrated multiple disciplines into the discipline she was teaching. In her Efolio, T3 explained how, even though the objective of the lesson is developed in parallel to the TEK, she integrated other disciplines whenever possible. She wrote:

> I matched my objective exactly to what the standard said and also matched the types of knowledge to those standards. This was very evident in my math and science integration lesson plans. I had TEKS for both math and science and was able to integrate them together in my objective. In that lesson plan format, we were not required to write the three types of knowledge, but in the other format I always wrote down how the knowledge matched the standards. (*Efolio-T3*, 2012, April 26)

Her supervisor also noted the integration of multiple disciplines and connections to the real world in her ELA lesson. In her comments, she wrote "the connections you made for students made poetry relevant to them. By encouraging them to think beyond the classroom you created enthusiasm for the assigned tasks" (Faculty 1, 2012, April 5a). For

another ELA lesson, T3 explained how she used prior knowledge as well as connected multiple disciplines to the content being learned. She wrote:

> Students in my class loved to relate knew knowledge to their prior knowledge. I made sure in my lesson plans (Evidence 7) to relate what we were learning to what we had already learned. It especially became effective when I made connections across the curriculum. There were multiple times that students connected something they learned in math to something they learned in reading or social studies. It also helped them to make real world connections.
> A specific example occurred in my most recent internship. The students were participating in a novel study. The novel was *Chasing Vermeer*, a fantastic children's book that has to do with pantomimes and other math codes. In one of my lesson plans (evidence 8), I was able to relate what we were learning in math, to what they had read in a book. When the students realized this connection, they were really excited and understood the concept even better. It was a very successful lesson. (*Efolio-T3*, 2012, April 26).

In addition, her mentor noted on the observation of her science lesson that the "real-world applications appeal to their [students'] interests" and " students are making connections to science left and right" (*Efolio-T3*, 2012, April 26). T3 explained how connecting the content to real world situation engaged students, and integrating other disciplines will help her students grow. She wrote:

> When I taught a science unit to my first grade students, they already had prior knowledge on a few elements that I was teaching. I was teaching them about living and nonliving things and what the five basic needs were of living things. In order to extend my lesson, I had my students create their own habitat for any animal they liked and we made our own zoo. It was a very successful project and the students were engaged the entire time. However, I wanted to incorporate more math into our zoo project so I completely changed my instruction for the last day. I was going to do a lesson on food chains, but I knew my students would get a lot more out of the lesson if we kept going with the zoo. I wrote in my reflection of that lesson that I wanted to change it because It would have been a good experience for my students to not only focus more on their own habitat, but I could bring measurement into my lesson and have the students measure how big the zoo should be in order for all the animals to have enough space and survive. (*Efolio*, T3, 2012, April 26)

In this lesson, the integration of math within the science was based on students' performance. She explained how she changed the lesson to match the experience of her

students. In another lesson, student's performance and interest determined the activity. T3 wrote:

> There was also one girl in my class who was not a fan of math workshop. She did not really benefit from it because she had already mastered the concepts that were being reinforced. I started her on a "challenge problem project" in which she authored two or three math word problems a week for other students. These problems were differentiated by difficulty. She was in charge of the record keeping and the answer key as well as creating the problems (evidence 4). (*Efolio-T3,* 2012, April 26)

Having students guide the sequence of activities was important for T3. She explained how students who mastered the skills needed to learn new content. She wrote;

> I think it is important to pull the low students and work on the pace of their learning, but I also think it is important for the higher achievers not to have to practice skills they have already mastered, but accelerating their knowledge, they can be successful on a higher level. (*Efolio-T3,* 2012, April 26)

T3 has also developed an interdisciplinary broad-based thematic unit and implemented it during her intern year. The lesson focused on the theme, included problems and issues, and had opportunities for interdisciplinary studies. Her professor noted that her lesson,

> has applications that have long-term relevance to the learner, related to standards, and differences in student characteristics and their development, including the role of families and communities
> The theme, problem or issue is broad, challenging, and allows for the integration of a variety of disciplines and student interests.
> Statements are significant in giving meaning to different disciplines, may be proved or disproved and include the theme as well as opportunities for interdisciplinary studies.
> The outline relates to the generalizations and addresses subject matter of the disciplines that will be addressed in the unit and includes main topics, subtopics, and independent study options. The subject matter provides for the full range of differences and incorporates advanced, conceptually challenging, in-depth, distinctive, and complex content. (Faculty 2, [2011a])

In addition, her mentor commented on how the lesson was guided by student's interest. She wrote:

> [T3], the strength of the unit is how you organized it around student interest and the ways that it involved the parents! You allowed the students to select what they wanted to research—even Illinois. I also like the open-endedness of the products. All of the students learned something new. (Faculty 2, [2011a])

By looking at the different lessons T3 implemented during her intern year, it is clear that her lessons were developed in parallel to the TEK. However, she taught the TEK in a more authentic way, including critical and higher level thinking. In addition, T3 integrated multiple disciplines into the lesson. The content of her lessons were also organized around individual performance and interest. On the *Classroom Instructional Practices Scale*, she is rated C9.

Rate. During her intern year, T3 used pre- and post-assessment to determine the amount of time students might need to learn new content. In her Efolio, she explained how she was organized to collect on-going student progress and used the information to plan her lessons. She wrote:

> I have set up a way for me to keep each of my students' progress recorded, both quantitative and qualitative. I keep a grade book where I record both pre and post-assessment. I also include daily grades and tasks that are based on a grading scale. I use the √+, √, √- system. I also have been doing a lot of qualitative record keeping. By writing down anecdotal records of what my students' strengths are, I can reflect back on those and differentiate who needs help in what areas. For example, both Lara and Ani have already finished our novel so they are ready to move to the next step and do more enrichment with advanced questioning. However, both Jackie and Harper need to concentrate on their fluency and I can monitor this and reflect back on it based on my qualitative record keeping. (*Efolio-T3*, 2012, April 26)

According to T3, the data from her assessment helped place students in different instructional groups. According to their performance, the learning was varied by group. She wrote:

> I knew how important it was to establish groups prior to my lessons. In my planning, I looked at past tests or benchmarks and decided on the grouping for that subject area. Not all grouping was the same for each subject. In some cases, the reading groups looked very different from the math groups. I always did reading and math groups so the students would be able to work at their own pace in the activities and also it was easier for me to differentiate content when I had the students grouped by ability. I knew how important it would be to plan it so that time would not be wasted in my lessons (Evidence 2). (*Efolio-T3*, 2012, April 26)

Her supervisor noted in her reading lesson, T3 provided groups of students with books that matched their level of performance. She wrote, "Students were learning about author's perspective. [T3] provided each group with a specific book. [T3] used the information from the basal reading to give groups different books" (Faculty 1, 2012, February 15). For another observed lesson, her advisor noted the adjustment of the lesson depending on pre-assessment. She wrote:

> Prior to today's lesson, students had written what they knew about poetry on notes and those were placed on a KWL chart. They then initiated what they wanted to learn and what new information they have learned through the study of poetry. [T3] used the information on the KWL chart to scaffold the following lesson for students. (Faculty 1, 2012, April 5a)

In addition, T3 explained how she used assessment to adjust the lesson:

> In both of my internships, I used multiple assessment methods every day. I worked with small groups, in which I assessed their knowledge of math concepts based on the students' explanation of the process of the skill they were learning, such as multiplying 2-digit numbers. I also used entrance and exit tickets. These tickets were used as a quick way for me to assess the knowledge of each student. Normally, I asked the students 1-3 questions. I reviewed the answers and adjusted my lessons accordingly (evidence 1). (*Efolio T3*, 2012, April 26)

The data collected from pre- and-post-assessment identified students who need more time to learn new content, and hence the lesson was adjusted for them. T3 explained,

> Over the course of the week, all nine of my students improved from the pre-assessment to the post-assessment. Morgan especially improved because I taught her a strategy that really worked for you. Morgan was having trouble adding 7 + 7 and 8 + 8. I told her that sometimes it is easier to draw a picture if you don't want to count on your fingers. This also helps with word problems. Morgan was immediately successful and even used that strategy on her post-assessment. She improved quite a bit and her normal classroom teacher noticed as well. All of my students improved on their knowledge of doubles and doubles plus and minus one. They used the strategies I taught them on their Friday assessment as well.

Her supervisor noted that T3 organized the lesson in order to provide assistance for students who needed her guidance in learning new content. In the comments, her supervisor wrote, "Great job! Obviously, you thought through your lesson, the poems, and the desired outcome. You did a nice job working with the 2 students giving them guidance they needed to be successful" (Faculty 1, 2012, February 15). T3 also took the information from the assessment and identified students who needed enrichment. For an ELA lesson, she provided enrichment activity for two students

> I worked with six upper level students, three of whom are in the gifted and talented program at [C3]. A lot of my students work at different paces. This is especially evident now that we are doing a novel study and all of my students read at different paces. I always have the next step planned, especially with Lara and Ani. I do not want my students to have any time to lose focus or get distracted. One example from our novel study was when we started working on our character log. Ani and Lara finished their assigned reading very quickly so I was able to explain the character log first. Their character log consisted of them finding different traits and feeling of the main character of this book. Both Ani and Lara did a very detailed description of Opal, the main character. When I plan my lessons I think about what Lara and Ani can do and how I can meet their needs. Mostly I think about enriching the lesson to best fit everyone. (*Efolio T3*, 2012, April 26)

T3 also provided enrichment activities for one student during her math lesson. She wrote:

> There was also one girl in my class who was not a fan of math workshop. She did not really benefit from it because she had already mastered the concepts that were

> being reinforced. I started her on a "challenge problem project" in which she authored two or three math word problems a week for other students. These problems were differentiated by difficulty. She was in charge of the record keeping and the answer key as well as creating the problems (evidence 4). (*Efolio, T3*, 2012, April 26)

According to T3, pre- and post-assessments are crucial in planning a lesson and providing students with activities. She believed that the assessment identifies students who have mastered a skill, and hence the teacher can provide them with enrichment activities. She wrote,

> Pre-assessment is crucial for a classroom that has such a wide range of ability. I would pre-assess my students to see what students had mastery of the content. If students knew that content, there was no reason for them to participate in the lessons and I would accelerate their learning. It was also important, though, that the pre-assessments had a high enough ceiling that I could truly discriminate between students who demonstrated mastery and those who had some knowledge. This was hard for my gifted and talented students at first, because they were used to being confident about their knowledge. Post-assessments were beneficial because students would be happy with the growth that they showed from pre- to post assessment (Evidence 1, *Efolio-T3*, 2012, April 26)

During her intern year, T3 used pre- and post-assessments at varied times in her lesson to determine the time needed by students to learn new content. In her lesson, the data from the assessments identified students who needed more time or guidance, and those who needed greater depth or enrichment. For these reasons, on the *Classroom Instructional Practices Scales,* she is rated an R9.

Preference. In her lessons, T3 provided students with a wide range of activities that were aligned to the objective. Her supervisor noted using 'video clips', 'foldables', 'oral presentation', and 'discussion' during one of the reading lessons observed (Faculty 1, 2012, March 30). As her supervisor wrote, the lesson "began with a video clip of 'Beauty and the Beast' to compare and contrast. Then, students used foldables to

organize their thinking…. [T3] and the students discussed real world examples" (Faculty 1, 2012, March 30). In another ELA lesson, her supervisor noted, "students used a variety of sources--a biography in novel form, technology, expository text." (Faculty 1, 2012, February 15)

The variation was present in the way student demonstrated their knowledge. In her Efolio, T3 explained the use of different types of assessment so that students get the opportunity to show their understanding of the content in the way they wanted. She wrote:

> I varied my assessments between oral, paper and pencil, and alternative. I administered a variety of assessments and chose the types that my students felt most comfortable with. I wanted them to apply their knowledge well and I found many curriculum assessments and criterion-based assessments that allowed them to do that. I enjoyed using art as an assessment choice because that was the best way in which many of my students expressed themselves. I also knew that it was important to train them to be familiar with the norm-referenced test because they needed to be familiar with the format for the STAAR test. However, it was also important not to overwhelm them. (*Efolio-T3*, 2012, April 26)

> Another type of assessment I implemented in my classroom was a manipulative assessment. I wanted to assess students in a different way besides paper and pencil, so they completed multiple 'cut and paste' assessments (Evidence 2). This allowed students to show their knowledge in other ways besides on written assessments. I also made a point to do multiple art assessments. In these situations, I had the students illustrate their answers. This was especially affective in social studies and reading. My class enjoyed drawing a lot and when given the choice, the majority of them chose to demonstrate their understanding of a concept through illustrating rather than take a criterion based assessment. I made sure they understood the concept by giving very specific instructions and having them write a few short sentences explaining their illustrations to me (Evidence 3, *Efolio-T3*, 2012, April 26)

The variation was not only in the way students demonstrated their knowledge but also in the choice of task during ELA. Students were given the opportunity to select the learning

activity they wanted. In her reading, students could choose from different activities that were aligned with the objective. T3 wrote,

> Another important routine that has been established in the classroom is our choice chart during our reading/language arts time (Evidence 2). Students receive a card at the beginning of the week for reading time. On that card, there is a table with all of the things they have to accomplish for the week in reading time. It is different for every group of students. The gifted students traditionally do a small research project during that time that they present to the class, the high achieving students do a lot of different activities that can include reader's theater, or drawing representations of their spelling words, the lower students have the opportunity to read with one of the teachers (Mrs. Morgan or myself) and get some individual attention. The students know the routines and procedures for our reading/language arts lessons and they all follow the previously established routines. (*Efolio-T3*, 2012, April 26)

Her professors also noted that her interdisciplinary lesson included a wide range of activities that related to the objective. She noted

> Materials and resources for students and teachers are varied, relate to the objective, and student differences.
> Variation also occurs in materials used with different students and/or groups and considers multicultural backgrounds and needed assistive technologies. (Faculty 2, [2011])

In addition, her professor wrote the following in her comments:

> [T3], the strength of the unit is how you organized it around student interest and the ways that it involved the parents! You allowed the students to select what they wanted to research—even Illinois. I also like the open-endedness of the products. (Faculty 2, [2011])

The unit gave opportunity for student to choose the topic of research, and the product was open-ended.

Throughout her lessons, T3 provided a range of activities and aligned them to the objective. Mainly the variation was in the format and content of the product to demonstrate the learning. However, in her ELA lessons, students had choices of varied task. Accordingly, on the *Classroom Instructional Practices Scale,* T3 would be rated

mainly P4, the use of varied activities that were aligned to the objective, but also P5 since she did provide for student choice.

Environment. The majority of the lessons for T3 during her intern year included hands-on activities and student interaction. In her lesson, her supervisor noted, "each group of students was to prepare a presentation", and then "students used a variety of sources--a biography in novel form, technology, and expository text" (Faculty 1, 2012, February 15). In her Efolio, T3 explained how she organized the class for interaction in small groups, for which students needed to learn the expectations. She wrote:

> I really enjoyed small groups and my students were not as used to them as I was. It took them a while to get comfortable with small groups and know how to act both socially and academically once placed in those groups. Once that was established, students were engaged and interacting well with each other. I monitored small groups by walking around and asking them questions. I also monitored the amount of time students stayed in their small groups. Most of the time, students would meet for only 10-20 minutes and then report back to me. (*Efolio-T3*, 2012, April 26)

Furthermore, her supervisor noted that [T3] "established small and large group procedures, routines, and manages transitions" (Faculty 1, 2012, April 11). T3 also explained, how she groups students according to ability:

> I implemented a lot of group work and cooperative groups. Students were able to work together to collaborate on the knowledge that had been presented to them. Cooperative groups were affective because I grouped students by ability so they collaborated and had discussions about the content with other students at their same level (Evidence 1, Efolio- *T3*, 2012, April 26)

Her supervisor noted in her reading lesson, T3 provided groups of students with books that matched their level of performance. She wrote, "Students were learning about author's perspective. [T3] provided each group with a specific book. [T3] used the information from the basal reading to give groups different books" (Faculty 1, 2012, February 15).

The lessons during her intern year also included centers. In her Efolio, T3 explained how she organized the centers to increase instructional time, and how students shared materials if needed. She wrote:

> My students have been taught the procedures of transitioning from center to center and they have also been taught about the materials at each center. I make sure that the centers are set up how I want them to before school starts and that there is always posted instruction at that center so students can work with it independently if they need to. Students will be expected to place all materials back where they belong before they move on to the next center. I did this with mass centers during a science lesson. Students had to find out which item, out of a group of about 10, had the most mass. They were working in partners, but there were 4 sets of partners at the station. They had to manage my materials effectively so they could be successful at the center (Evidence 4, *Efolio - T3,* 2012, April 26)

For her math lesson, her supervisor noted the presence of centers and various materials. She wrote:

> Students were working in math centers. All students were actually engaged in working independently or in small groups. [T3] rotated from center to center to monitor students' work. Students were using IPads, dice, math journals, and paper/pencil activities to demonstrate knowledge (Faculty 1, 2012, February 23)

In addition, T3 used the community and the school as a learning center in her lessons. In her Efolio, she wrote:

> We have also had multiple opportunities to work outside the classroom. One example was when I was teaching my students about plot. We went outside the classroom to play a game and discuss why it is important for stories to go in order (*Efolio-T3*, 2012, April 26)

> There are lots of opportunities for my class to go outside and learn in that environment. One opportunity my class got to go outside to learn more about rural, urban, and suburban communities. There is a farm right across the street from temporary Bells Hill and there was a lot of evidence that it was a rural community. After recess, I kept my students outside and we had a very nice social studies lesson outside (evidence 4). However, I made sure before we went to recess that all of the students knew my expectations for our outside lesson. I explained to them that our lesson was not going to be an extended recess, but an opportunity to learn more about communities by experiencing them. We sketched what we saw and talked about the characteristics of the communities around us. (*Efolio-T3*, 2012, April 26)

> I made note to connect to their prior knowledge at least once a day. It was very helpful when I was teaching 2- and 3-dimensional figures. I asked them where they had seen shapes before on their way to school or to soccer practice. Then I asked them to look around the room and we walked around the school and found the shapes in an environment that was very familiar and safe for them. The next day, they told me all the shapes they had found at home, on the playground, and even in the car. (*Efolio-T3*, 2012, April 26)

In addition, her professor noted the use of the community as a learning center and wrote in her comments "[T3], the strength of the unit is how you organized it around student interest and the ways that it involved the parents!" (Faculty 2, 2011).

Her supervisor also commented on her connections of the content to outside of the classroom environment. She wrote "the connections you made for students made poetry relevant to them. By encouraging them to think beyond the classroom, you created enthusiasm for the assigned task" (Faculty 1, 2012, April 5a).

By looking at the different lessons T3 implemented during her intern year, she used a variety of activities and arranged the classroom for student interaction. In some her lessons, some centers within the classroom were present, and in other lessons, she used the community as learning centers. For these reason T3 would be rated an E6, the use of learning centers within and outside the classroom.

Summary of Classroom Differentiation Practices During Intern Year

By looking at the different lessons T3 implemented during her intern year, it is clear that her lessons were developed aligned to the TEK and integrated authentic methods, including critical and higher level thinking. In addition, T3 integrated multiple disciplines into the lessons. The content of her lessons were also organized around individual performance and interest. T3 used pre- and post-assessments at varied times in her lesson to determine the time needed by students to learn new content. In her lesson,

the data from the assessment identified students who needed more time or guidance, and those who needed greater depth or enrichment. Throughout her lessons, T3 provided a range of activities and aligned them to the objective. Mainly the variation was in the format and content of the product to demonstrate the learning. However, in her ELA lessons, students had choice of varied tasks. In addition, T3 arranged the classroom for student interaction. In some her lessons, some centers within the classroom were present, and in other lessons, she used the community as learning center. Accordingly, on the *Classroom Instructional Practices Scale,* T1 is rated C9, R9, P4-P5, and E6 (Table 4.17).

Table 4.17

Rating on the Classroom Instructional Practices Scale for T3 During Intern Teaching

Area	Intern Teaching
Content	C9
Rate	R9
Preference	P4/P5
Environment	E6

Comparison of Current and Intern Differentiation Practices

Content. By looking at the different lessons T3 implemented during her intern year, it is clear that her lessons were developed to align with the TEK and integrated authentic methods, including critical and higher level thinking. In addition, T3 integrated multiple disciplines into the lesson. The content of her lessons were also organized around individual performance and interest (C9).

Currently, for her math lesson, T3 used the district curriculum to guide the planning of her lesson and created her own activities for the students. The observed

lesson included activities that were problem-based, authentic to the discipline, and integrated some ELA (C6). In her ELA lesson, T3 used the same book with all the students, but she made the reading more interactive by having students solve the problems along with the book characters. In addition, the majority of her questions were at high level thinking (C4).

From the observations and review of archival data, T3 continued to integrate critical and creative thinking skills into her lessons. In her math lesson, she also used authentic methods, problem-based tasks, and integrated some ELA. For her current teaching, no interdisciplinary thematic units or student interests appeared to guide the content. On the *Classroom Instructional Practices Scale,* T1 would be rated C9 during her intern year, C6 for current math teaching, and C4 for current ELA teaching (Table 4.18).

Rate. During her intern year, T3 used pre- and post-assessment at varied times in her lesson to determine the time needed by students to learn new content. In her lessons, the data from the assessment identified students who needed more time or guidance, and those who needed greater depth or enrichment (R9).

In her current teaching of math, students worked at their own pace and early finishers moved to another related activity—math projects. Students had a certain expectation to complete all of the activities by the end of the week. For her ELA lesson, variation in time allotment for students to complete tasks was not observed.

In summary, during her intern year, T3 used pre- and post-assessments at varied times in her lesson to determine the time needed by students to learn new content. However, during the observed math lesson students were self-paced with early finishers

working on math projects; no variation in time allotted for students to complete tasks was observed during her ELA lesson. On the *Classroom Instructional Practices Scale,* T1 would be rated R9 during her intern year, R3 for her current math teaching, and R1 for her current ELA teaching (Table 4.18).

Preference. During her intern year, T3 provided a range of activities and aligned them to the objective (P4). Mainly the variation was in the format and content of the product to demonstrate the learning. However, in her ELA lessons, students had choice of varied tasks (P5).

In her current teaching of math, students in T3's class were provided with varied tasks or response dimensions, and the activities were correlated to the lesson's objective. She also provided choices of math projects for reviewing 4th grade math content (P5). In her ELA lesson student choice was not observed, but the tasks varied in the response dimensions, as well as the format of task. In addition, the tasks were correlated to the TEK (P4).

In summary, T3 continues to use a range of activities and aligned them to the objective (P4) and provided choice in math tasks (P5). During her intern year, her students had choice of varied tasks (P5). On the *Classroom Instructional Practices Scale*, T1 would be rated P4-P5 during her intern year, P4 for current teaching in ELA, and P5 for math (Table 4.18).

Environment. During her intern year, T3 used a variety of activities and arranged the classroom for student interaction (E3). In some her lessons, some centers within the

classroom were present (E5), and in other lessons, she used the community as learning center (E6).

For her current math lesson, students were provided the opportunity to decide how they would like to work: individually or in a group (E3). The environment allowed for student interaction, and students had access to preferred items to aid their learning (E4). For the ELA, the lesson was arranged for student interaction; however no interest or learning centers were used during the observed lesson (E3).

During her intern year, T3 used the community as learning center for some of her lessons, and had learning centers in the classroom for others. T3's current way of arranging the physical environment still facilitates interaction, but interest centers were present only in her math lesson. No learning centers were observed for both of her current lessons. On the *Classroom Instructional Practices Scale,* T1 would be rated E6 during her intern year, E4 for her current math teaching, and E3 for her ELA teaching (Table 4.18).

Table 4.18

Rating on the Classroom Instructional Practices Scale for T3 for intern and current teaching

Area	Intern Teaching	Current Teaching –Math	Current Teaching -ELA
Content	C9	C6	C4
Rate	R9	R3	R1
Preference	P4/P5	P5	P4
Environment	E6	E4	E3

Note. ELA=English Language Arts

Influences on Differentiation

State level. T3 is currently teaching at the 4th grade level. Towards the end of the academic year, students in 4th grade are required to take the STAAR. According to T3, high-stakes testing does influence her differentiated instructional practices in a negative way, especially having gifted and talented students in her class (Teacher 3, personal communication, May 13, 2015). She feels that she must give all students the same task even though they are not at the same level of performance because of the high-stakes testing. She said,

> Yes, that [STAAR testing] influence is there. Actually in a negative way because it's a standardized test so, it's like the opposite of differentiation and it's tricky. It's tricky because a lot of time, they [the district] come in expecting to see, you know, them [students] all doing the same thing. And not because that it's their level, because it isn't. But you know, at time we are expected to give the whole class a test of the whole same thing and also for higher level students they really, they couldn't care less. It's a waste of their time, they feel like they already know it and but that's very, a GT problem. (Teacher 3, personal communication, May 13, 2015)

TT3 also thinks the high-stakes testing influences differentiation in a negative way since it tests only one level (Team Teacher 3, personal communication, May 13, 2015). She said, "I think it [STAAR Testing] does [influence] in a bad way. It is very subtle at one level. Only one level" (Team Teacher 3, personal communication, May 13, 2015).

In summary, at the state level, T2 is being influenced by high-stakes testing. She considered the high-stakes testing as a negative influence on differentiation. Even though her students are at different levels of performance, she sometimes needs to give them the same task to practice for the STAAR test. This might be an influence on the preference area within T3's differentiated practices.

District level. When asked about the curriculum used, T3 and TT3 explained how the district provided them with a pacing guide and some resources (Team Teacher 3, personal communication, May 13, 2015; Teacher 3, personal communication, May 13, 2015). However, T3 believed the resources were not rigorous (Teacher 3, personal communication, May 13, 2015). For that reason, she used additional resources and focused on the TEKS through questioning (Teacher 3, personal communication, May 13, 2015). She said,

> well the district gives us a pacing guide and then we have a text book but it's terrible and it's just not high-end, like, it's not just not high-end enough but just, it's not the rigor that is required any more, so we use *Mentoring Minds* a little bit for reading and then we try and do a few novels, but mostly we look at the TEKs and just try and do as much questioning we can. And for math, the district gave *Motivation Math* but I use *Go Math* and I follow it when I want to. (Teacher 3, personal communication, May 13, 2015)

TT3 also explained how she used the district curriculum as a guide but still pulls materials herself (Team Teacher 3, personal communication, May 13, 2015). She said, "we have the pacing guide, so I'll look at the pacing guide just to see what it's trying to tell me and then kind of pull my materials together. I pull things from different places" (Team Teacher 3, personal communication, May 13, 2015). According to the principal, the district's curriculum is influencing the teachers in a positive and negative way (Principal 3, personal communication, May 28, 2015). She explained how having a curriculum helps in giving ideas to teacher, but the presence of the pacing guide actually influences the pacing of the lesson (Principal 3, personal communication, May 28, 2015). She said;

> Well I think it [district curriculum] influences differentiation both ways. Both positively and negatively. Because there is some differentiation built into the curriculum. it is not a script, but it gives ideas. So that prevents teachers from having to start from scratch. However, since it does have a pacing guide, it may

> act as a hindrance to differentiation. Because sometimes, differentiation can take longer and you don't stay with the pacing guide. (Principal 3, personal communication, May 28, 2015)

In summary, the district seemed to have some influence on the differentiated instructional practices of T3. The district provided a curriculum and a pacing guide. T3 believed the district's curriculum was not rigorous, and for that reason she found her own resources and used the TEKS to guide her lessons. This might have influenced the content area particularly in the math area, which were the lessons she developed for her grade level team. According to the university liaison, T3 also enjoyed math and had been the math teacher since she had been at C3. She therefore had more experience in designing differentiated lessons in math. It was only during the current spring semester that she had begun teaching ELA (UL communication, June 25).

Campus level. According to T3, the campus did not help her during her first year of teaching (Teacher 3, personal communication, May 13, 2015). At this time another school was merged with the campus and both the principal and teachers were involved in adjusting to new faculty and expectations (UL communications, June 25). She felt neglected and needed to make the effort to help herself. However, currently the school is providing her with the needed support (Teacher 3, personal communication, May 13, 2015). She said,

> Not my first year here. It was a way different situation. I mean, I was I mean, I got observed my first year thinking, maybe 5 times the whole year. And it was just a lot of different situations and our campus had just grown, and we just got portables, and I was in a portable, and they just kind of left me alone. I had to fend for myself so… not my first year. But now the campus is being very helpful, they provide me with the resources and agree with my ideas. (Teacher 3, personal communication, May 13, 2015)

Campus level principal. According to the principal, being a professional development campus supports differentiation is a positive way (Principal 3, personal communication, May 28, 2015). In fact, through the collaboration with the university, teachers received new ideas and encouraged differentiation (Principal 3, personal communication, May 28, 2015). She said:

> We have a unique opportunity because we work with [the University] and we are a professional development school. We have [University] students come in with great and new ideas and they are coming in and teaching. And so they meet with the grade level. So I hope that positively encourages differentiation. (Principal 3, personal communication, May 28, 2015)

P3 defined differentiation by saying:

> Differentiation is not difficult to do, it's difficult to define. Differentiation is providing instruction in the ways and means that address the child's strengths and interests while sneaking in their weaknesses. Trying to expand their strengths and expand their interests. It's a very delicate balance. You can't do differentiation unless you know your students. And you need to do some kind of, hopefully more than one inventory [such as] Learning style, and interests. Review their portfolio to see what they are good at; what they like; how they learn best; and how they don't learn best. It also requires lots of intentional observation. How do they work with one peer, how they respond with small group, how they respond to whole group? Do they like to be helpers? Because sometimes if students like to be helpers they can help instruct a younger student. And that's a great learning tool for some students, but for other students it doesn't work. Differentiation is making sure instruction is based on the child's interests and abilities. (Principal 3, personal communication, May 28, 2015)

The school principal considered herself a big supporter of differentiation and seemed to be flexible with teachers (Principal 3, personal communication, May 28, 2015). She described herself as a risk taker, since she is willing to try new things with students (Principal 3, personal communication, May 28, 2015). She said,

> I am a big supporter of differentiation and hooking kids and getting them engaged in the learning. Even if we get off the schedule a little bit. I'll try anything as long as it's not illegal. But I really am willing to try anything that it takes, because once you get that with a student, you can use that in every discipline and every subject area. You must be willing to fail in order to learn. And a lot of teachers, in

> general, don't want to take the risk. (Principal 3, personal communication, May 28, 2015)

In addition, P3 described herself as being knowledgeable about policy and understanding if teachers needed to deviate with appropriate justification (Principal 3, personal communication, May 28, 2015). She said:

> The school policy definitely influences differentiation. It is kind of like the lesson plan or curriculum. It really depends on the teacher because there is a plan that everybody has to follow because you can't do what you want when you want. There's a plan. There's structure. Some teachers are not willing to ask to go outside that structure. So they can't do what they consider is differentiation. So they are not even going to try it. Some teachers will try it and ask and get permission and push the envelope. I really think it depends on the teacher and how they understand policy and the support they get from their administrator. I understand policy, I understand the expectations. However, if you can explain to me what you are doing and you are going to try to hook the kids. I am fine with that. I will defend that deviation as long as I know about it. I think that is only fair because I cannot explain it or defend it, if I don't know about it. If it works, we all need to know about it. (Principal 3, personal communication, May 28, 2015)

According to the school principal, during her walk-throughs, she reviewed the lesson planning of teachers using a specific format (Principal 3, personal communication, May 28, 2015). She is interested in seeing student-created products (Principal 3, personal communication, May 28, 2015). In addition, she wants to see products relevant to the content being taught, as well as variation for each student (Principal 3, personal communication, May 28, 2015). She said:

> First of all, part of our walkthrough protocol that we use requires that we review their lesson plans. Their lesson plans are required to have certain elements. I don't have them memorized because there's a form that we use. One of the requirements it 'what's the product? What is the outcome of the lesson?' so it's not always a product that we hang or display since there's not enough room in the school to do that. But when I do go and look at the products in the hallway, I want to make sure they are student-created, very important. Not parent-created, not teacher-created. That they are relevant to what's being instructed at the time. So if I find out that they are working on the life-cycles in science, then I don't want to see water-cycle stuff on the wall. I want to be sure it's related to the instruction. I want to see variety in the products and I want to see products from every student

> at some time during the year. In other words, I don't look just to see if they are G/T products. I want to see a product from every student. I look for variety and originality. (Principal 3, personal communication, May 28, 2015)

When asked about the influence of the principal, T3 described her as being supportive and giving ideas (Teacher 3, personal communication, May 13, 2015). In fact, T3 described P3 as interested in seeing 'learning' and gave the teachers the flexibility to use whole group or small group (Teacher 3, personal communication, May 13, 2015). Her focus was on the students rather than what the class looked like. T3 said:

> [P3] is really good. Every time she walks in, she cares about seeing learning, whether it's whole group or small group. She wants to see the students learning. She doesn't care if there is a lot of noise, or if students are everywhere. She wants to see students learning--really learning--not just doing things. She likes to see that, and she's good about giving ideas. She's great. (Teacher 3, personal communication, May 13, 2015)

TT3 agreed with T3 that the principal was being supportive. In fact, P3 provided them with ideas and made sure the teachers were getting the needed professional development (Team Teacher 3, personal communication, May 13, 2015). She said:

> I think the principal is really helpful with this [differentiation]. She is a sweet talker. She is able to talk about what we are doing in the class, where we can improve in different ways, and gives us ideas. She also makes sure, like when they call a professional development meeting, that they are helpful. Helpful for the teacher. Like ones I can go to, to learn. (Team Teacher 3, personal communication, May 13, 2015)

In summary, P3 did appear to influence T3's instructional practices. In fact, P3 was supportive by giving teacher's new ideas. In addition, P3 seemed to be willing to back up teachers trying new methods to meet the needs of their students. P3 had an understanding of differentiation—particularly in the area of preference--and understood how policies might influence the instructional practices of teachers.

Campus level team teacher. According to T3, her team teachers were very supportive (Teacher 3, personal communication, May 13, 2015). Since the district did not provide them with rigorous materials, they had divided the tasks among themselves so each was responsible for finding resources for one subject area (Teacher 3, personal communication, May 13, 2015). While her TT3 looked for resources for ELA, T3 looks for resources for math. She said:

> My team is very supportive of it [differentiation]. We help each other. You know, like I said before, what the district gives us is not rigorous enough. At this grade level, we need more, so my team teachers are very supportive. Each one tries to find things for us. So I look for math, and mostly I develop them, but [TT3] does the reading. We change them for our students, but this way, dividing the parts makes it less work. So yes, my team teachers are very supportive. (Teacher 3, personal communication, May 13, 2015)

TT3 also considered the team teacher as being supportive (Team Teacher 3, personal communication, May 13, 2015). She explained how working as a team helped in the diversity of ideas (Team Teacher 3, personal communication, May 13, 2015). She said:

> I think it's [team teachers] a good influence because then I am getting ideas from how she is trying to plan something. Then I have ideas so it's kind of working together to come up with ideas to meet the needs of the kids. (Team Teacher 3, personal communication, May 13, 2015)

The principal also explained how team teachers supported each other, providing each other with ideas, and encouraging each other to try new things (Principal 3, personal communication, May 28, 2015). She said:

> By planning together, they share ideas: what are they doing? what are they going to try? And they may encourage each other to try something that may not be super comfortable. (Principal 3, personal communication, May 28, 2015)

In summary, having team teachers seemed to be a positive influence on T3 in the area of lesson planning. They divided tasks among themselves to find appropriate resources to meet the needs of students. In addition, the team seemed to support each

other by providing diverse ideas. Along with these positive effects, separate lesson planning did have negative effects on differentiation. In fact, having divided the planning by subject area provided the teachers with less opportunity to integrate multiple disciplines or teach interdisciplinary thematic units. In addition, the variation in tasks and response dimensions depended on the teacher who planned the lesson. Since the teachers planned one lesson for all students in the fourth grade, teachers paid less attention to pre-assessment information and were more reactive to the students' responses. It was up to the teacher to differentiate the common lesson.

Campus level parents. According to T3, parents weren't much of an influence (Teacher 3, personal communication, May 13, 2015). She was usually the one who contacted the parents about their child's performance. She said:

> Oh parents, honestly not that much, because I just do it right off the bat. Usually it's me bringing it to their attention, like 'hey, is it okay if we start this for… your child or this? If they bring it to my attention, then yes, I'll be. 'Okay, well I'll meet that need,' but usually it is me. (Teacher 3, personal communication, May 13, 2015)

In summary, parents did not seem to influence T3's differentiated instructional practices to any great extent although she did respond to their suggestions.

Classroom Level. According to T3, her class has 14 boys and 9 girls, with 7 students identified as gifted and talented, 2 students with dyslexia, and 3 high-achievers (Teacher 3, personal communication, May 13, 2015). She said the students in the class "work well together most of the time and enjoy each other" (Teacher 3, personal communication, May 13, 2015). She viewed the class as more heterogeneous even though "there are a lot of GT and high-achievers, but they are all so different in so many

different ways--like some of them are strong in math and some of them are strong in reading" (Teacher 3, personal communication, May 13, 2015).

When asked about influences on her differentiated instructional practices, T3 considered her students as a major factor, especially when the STAAR testing period was over (Teacher 3, personal communication, May 13, 2015). She was interested in having her students' interest guide the lessons to develop some projects and research. She said,

> oh the students for sure, like if, especially now that STAAR test is over, we've [fourth grade teachers] kind of been like, looking into what, what they're [students] interested in and trying to hopefully do, after I finish with this novel that you saw today, do an independent study project and they can research what they want. They [students] have had multiple like, in science and social studies, research, getting to choose from a list of things to research. Research is huge now. And if they're [students] into it then I am going to do it. I mean if the structure of a lesson doesn't work, then I am going to change it because it's what's best for them [students]. (Teacher 3, personal communication, May 13, 2015)

In summary, the classroom composition influenced T3's differentiated instructional practices to some extent. T3 said she wanted to provide students with high-level content through developing projects and research. She also wanted their interest to guide the lesson and provide them with varied activities to choose from. However, because of the common lesson plan, she tended to adjust her lesson during the implementation phase instead of using pre-assessments to determine differences.

Individual level. During her intern year, T3 developed her lessons aligned to the TEK and integrated authentic methods, including critical and higher level thinking. In addition, T3 integrated multiple disciplines into the lessons. The content of her lessons were also organized around individual performance and interest. T3 used pre- and post-assessments at varied times in her lesson to determine the time needed by students to learn new content. Throughout her lessons, T3 provided a range of activities and aligned

them to the objective. In some her lessons, some centers within the classroom were present, and in other lessons, she used the community as learning center. For her current teaching, T3 continued to integrate critical and creative thinking skills into her lessons. In her math lesson, she also used authentic methods, problem-based tasks, and integrated some ELA. She continued to align her activities to the TEKS and arranged the physical environment to facilitate interaction among students. However, she did nor seem to be using pre- and post –assessments, varying her learning activities in ELA, organizing her room in learning centers, or using interdisciplinary thematic units.

According to T3, her university program prepared her to differentiate (Teacher 3, personal communication, May 13, 2015). T3 was a student in the dual-certificate program during her undergraduate studies. In addition to classes focusing on differentiated instruction, development, and exceptionalities, T3 had field experiences in both gifted and general education settings. According to T3, even though she received good training for differentiation when she was at the university, she believed the expectations and accountability, along with feedback, was what motivated her to differentiate during her intern year (Teacher 3, personal communication, May 13, 2015). She said:

> My time at [the university] really prepared me for it [differentiation] because I took multiple classes that specifically focused on differentiation. … One thing that is helpful is just that expectation and accountability: I am expected to differentiate and then come to a comment so that motivated me to do it. (Teacher 3, personal communication, May 13, 2015)

According to the principal, T3 was well prepared for differentiation, and she had seen differentiation in her class. She said "she knows how to do it [differentiation] and I have seen it [differentiation] in her class" (Principal 3, personal communication, May 28, 2015).When T3 differentiated, she was willing to change her lesson to match student's

interest and performance. She said, “And if they’re [students] into it then I am going to do it. If the structure of a lesson doesn’t work then I am going to change it because it’s what’s best for them [students]” (Teacher 3, personal communication, May 13, 2015).

In summary, although T3 explained how the expectation and accountability, along with feedback motivated her to differentiate during her intern year, she still differentiated to some degree in her current classroom, particularly in the math area. Her knowledge helped in differentiating. T3 seemed to be student-oriented, since she was willing to modify her lessons to meet the needs of her students.

Summary of Influences on Differentiation

At the state level, T2 is influenced by high-stakes testing. She considered the STAAR test as a negative influence on differentiation. Even though her students were at different levels of performance, she believed she needed to give them the same content to practice for the STAAR test. This influenced her provision for individual differences in rate and content. The district also influenced T3’s differentiated instructional practices. Similar to T2, T3 had to sign a contract with the district that said her students would show progress. While the district provided a pacing guide, she believed the district’s curriculum was not rigorous, and found her own resources in math, using the TEKS as a guide for lesson planning.

At the campus level, the principal and team teachers seemed to be supportive of differentiation and provided resources and ideas for T3. On the other hand, parents only occasionally made recommendations for their student so they did not seem to have a strong influence on T3’s practices. P3 did appear to have some influence on T3’s differentiated instructional practices. P3 was supportive by giving teacher’s new ideas

and seemed to be willing to back up teachers trying new methods to meet the needs of their students. P3 had an understanding of differentiation—particularly in the area of preference--and understood how policies might influence the instructional practices of teachers. In addition, having team teachers seems to influence T3. They divided the lesson-planning task among themselves to find learning resources in different content areas. T3 assumed the leadership role in mathematics. Planning different lessons in different subject areas appeared to influence the degree of integration across subject areas and use of student assessments in planning lessons. Differentiation of lessons were more dependent on each of the team teacher's knowledge of strategies for differentiation and T3's ability to adapt the lesson based on students' reactions.

At the classroom level, the composition did influence T3's ideas about differentiation. T3 wanted to provide students with more project-based learning and research. She also wanted their interests to guide the lesson. In math, she did provide them with varied activities to choose from. At the individual level, T3 explained how expectations and accountability, along with feedback, motivated her to differentiate during her intern year. She continued to differentiate to some degree, particularly in math. In this domain, she had been the lead teacher for her team for three years, planning lessons and gathering more rigorous activities. She provided students with choices of projects from a menu and let them proceed at their own rate. She did not differentiate as much in ELA since she appeared to use the lessons that were provided by her grade level team. While she did not use assessments, she was willing to modify her lesson to meet the needs of her students. Table 4.19 summarizes the influences and effects on T3's instructional practices.

Table 4.19

Influences and Effects on T3's Instructional Practices

Level	Areas of Influence	Influences	Effect on T3
State	High-Stakes Testing	STAAR testing occurs at the end of 4th grade.	Sometimes gave students the same task to practice for the STAAR test.
	State Standards	STAAR is aligned to the TEKS.	Aligned lessons to TEKS.
	Accountability Rating	District and campuses are rated on four indicators.	Campus did not meet indicator for student progress last year, so T2 had pressure to focus on STAAR test.
District	Curriculum	*Math Motivation* and *Mentoring Minds.*	Focused on procedural knowledge, but T3 used it as a guide only and found other materials herself.

(continued)

Level	Areas of Influence	Influences	Effect on T3
	Administration	Superintendent came from outside of district and was same for four years. Changes have occurred in mid-management leadership. Only one leader is still in the Oversight Council since her first year (OPP Director, June 24).	Might not be aware of district-level expectations.
		Superintendent required teacher to sign document saying their students will meet state standards.	Felt pressure to focus on STAAR testing.
		Required the inclusion of differentiated practices in teacher's lesson plans for identified ESL and special education only.	Did not need to use a common lesson plan form. Different members of team planned lessons.
		Tracked student progress through electronic software.	Data were tracked by the instructional specialist who met with teams (UIL communication, June 27). This might have influenced planning of lessons although teachers did not describe this influence.
	Accountability	District met state standards, but nine schools did not meet standards.	T3 felt pressure to focus on grade level content because district had teachers sign papers that said their students would show progress.

(continued)

Level	Areas of Influence	Influences	Effect on T3
Campus	Accountability	Did not meet indicator for student progress.	Felt pressure to focus on STAAR testing to meet standards.
	Principal	Understood differentiation and policies, particularly in area of preference and environment. Provided flexibility if teachers could explain.	Felt flexibility to differentiate although did express need to address content during STAAR testing period; after STAAR, she felt she could focus on research.
	Team Teachers	Each developed lessons in designated subject areas.	Had less opportunity to integrate multiple disciplines or teach interdisciplinary thematic units. Did not use individual student assessment data to guide lesson development but rather school district guide.
		Collaborated.	Provided ideas in different subject areas.
	Parents	Interested in their children's performance.	Inform parents about individual differences and differentiation; used parent ideas when suggested.
Classroom	Classroom Composition	Cluster classroom had seven identified gifted and talented and three high-achievers.	Integrated creative and higher-level thinking.

(continued)

Level	Areas of Influence	Influences	Effect on T3
	Student characteristics	Worked well together.	Provided opportunities for interaction, choice, and independent work.
Individual	Knowledge	Teacher preparation program focused on differentiation.	Had knowledge about differentiation.
	Beliefs	Believed she needed to modify her lessons to meet the needs of her students.	Changed lessons if they did not address student's needs.
		Believed the accountability during her pre-service teaching encouraged her to differentiate.	Differentiated more in math, which was a subject she enjoyed and more experiences.

Case Study: Teacher 4 (T4)

Context

Campus 3 and its principal are described under Participant 3 who is at the same campus.

C3 Team Teacher 4 (TT4). TT4 was Caucasian. She earned her bachelor of science in interdisciplinary studies. She has three certificates: early childhood through fourth grade, gifted and talented, and English as Second Language. She has 10 years of experience teaching first grade, 8 of which were on a campus within D2, and has two years experience at C3 teaching first grade (Team Teacher 4, personal communication, May 12, 2015).

The interview with TT4 occurred during the teachers' lunch time. TT4 was expecting me and had her lunch already prepared. We sat at her desk facing each other. TT4 was very welcoming and willing to answer the questions. Since she teaches in the adjoining classroom with T4, she has had the opportunity to observe T4's teaching on many occasions. The content of the interview is incorporated within the relevant framework discussions (e.g., differentiation and influences on differentiation frameworks).

Classroom. T4's classroom was the fourth class on the right in the hallway. Figure 4.4 depicts the physical arrangement of the classroom (Farah, 2015b, May 12). As I walked in the classroom, the first thing I saw were six round tables in pairs in the center of the room. To the right of the door was a door to the restroom, which was shared with the adjoined classroom (first grade class). The back of the room, next to the bathroom

door, was an open space linking the two adjoined classroom with low shelves and a sink to separate the classrooms. On the left side of the room next to the door, a bookshelf was next to the wall. In front of this bookshelf, there was a semi-circular-table. At the front of the classroom were a rectangular rug in front of the projection screen and the white board. To the right side of the classroom, I noted the teacher's desk and six computers lined up facing the wall.

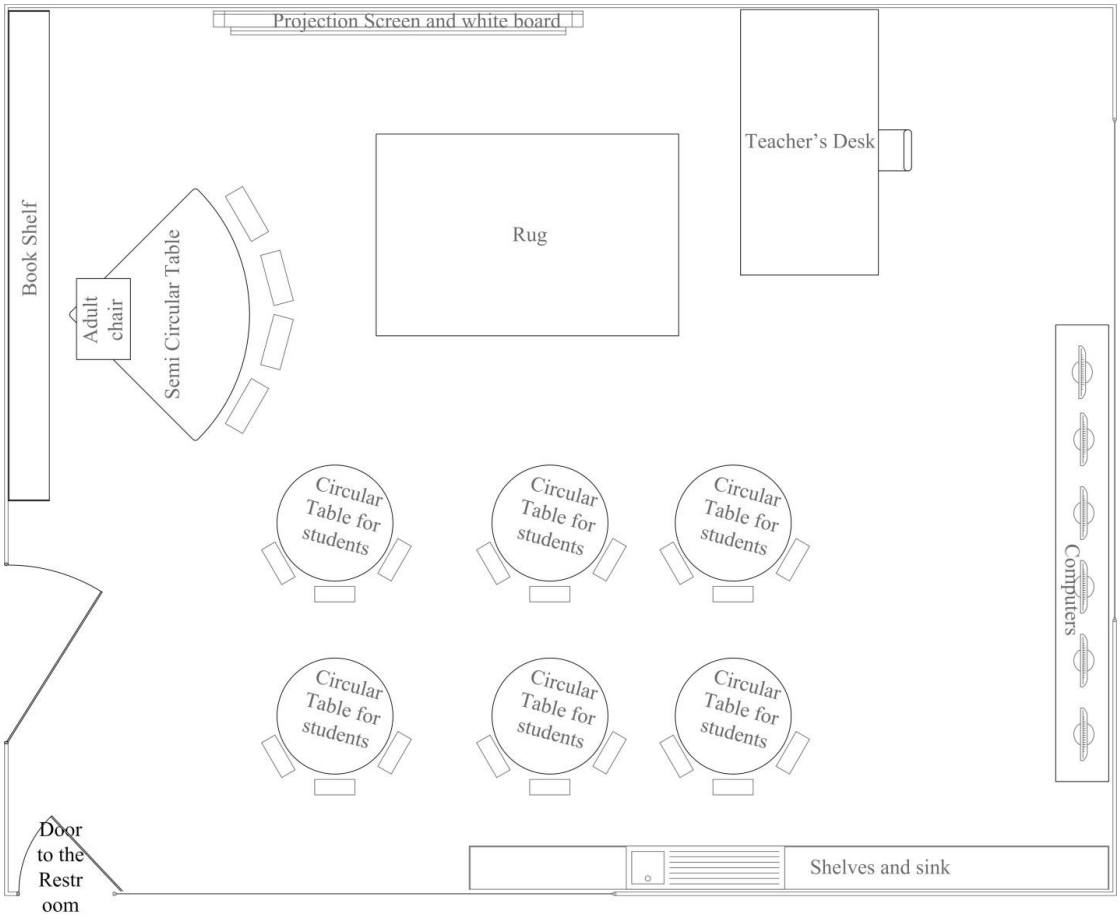

Figure 4.4. Physical room arrangement-T4 *(Farah, 2015 b, May 12).*

According to T4, the class has 22 students with one student identified for special education, one student gifted and talented, and three students identified as English language learners C3 (Teacher 4, personal communication, May 13, 2015). She described

the class as more heterogeneous, especially in reading. She said "I have everything from end-of-year instructional level 3 till the end of year instructional level 26" (Teacher 4, personal communication, May 13, 2015).

Demographics and Background

T4 is Caucasian. She earned her bachelor of science in education in 2012. She currently holds three certificates: Early childhood through sixth grade, gifted and talented, and English as a Second Language. She has three years of experience in education: one year teaching grade 3, and two years teaching kindergarten at C3 (Teacher 4, personal communication, May 13, 2015).

Observed Differentiation Practices

Math lesson. The lesson's objective was one-digit subtraction (Farah, 2015d, May 12; Teacher 4, personal communication, May 13, 2015). However, as T3 explained, the objective is expanded according to students' needs (Teacher 4, personal communication, May 13, 2015). The lesson began with the students sitting in rows on the rug with the teacher projecting on the white board a number line and one digit subtraction number sentence (Farah, 2015d, May 12). The teacher then used a teddy bear counter to demonstrate three examples of counting backwards on the number line. Then, T3 called three students, one-by-one, to the board to demonstrate subtraction examples (Farah, 2015d, May 12). During this whole class activity, T3 asked 25 questions: 8% evaluation questions, 20% process questions, 24% cognitive connection questions, and 49% single answer questions (Farah, 2015f, May 12).

Then individualized worksheets were distributed to the classroom (Farah, 2015d, May 12). Different students received different worksheets based on their abilities (Teacher 4, personal communication, May 13, 2015). Some students had one-digit subtraction number sentences, while others received multiple one-digit subtraction number sentences, and others received various numbers of tasks with two-digit subtraction problems (Farah, 2015d, May 12). The students solved the worksheet using their individual number lines and bear counters (Farah, 2015d, May 12). During this individualized worksheet work, students were engaged 93% of the time (Farah, 2015b, May 12).

As students finished their worksheets (some finished after three minutes, others took seven minutes, and some took ten minutes), they were instructed to create their own subtraction word problem (Farah, 2015d, May 12). Based on their abilities, students were instructed to create two- or one-digit subtraction problems (Teacher 4, personal communication, May 13, 2015). During this activity, students were engaged 98% of the time (Farah, 2015f, May 12). Then students were paired and solved each other's word problems (Farah, 2015d, May 12).

ELA lesson. The lesson focused on reviewing reading sight words and writing complete sentences (Teacher 4, personal communication, May 13, 2015). The tables were set up in stations (Farah, 2015c, May 12). A group of students had 10 minutes to complete a station and then they rotated to the next one (Farah, 2015c, May 12). Stations 1 and 4 were IPad stations where students had the opportunity to choose a reading game. Station 2 was called "Mix it and Fix it" where students were to write words starting with "sh", "ch", and "th". Station 3 was called "Mix up and Cut up" where students had to

glue words cutout to form a sentence. Station 5 was called “sight word” and students were required to write sentences using at least three sight words. Station 6 was called “what-now-down” where students needed to build sentences with the words “what”, “now” and “down”. During station work, students were engaged 97% of the time (Farah, 2015a, May 12). At the end of each 10-minute time period for the station, the teacher informed the students that it was rotation time; the students filed their work in their individual folders and then stood in line next to their station (Farah, 2015c, May 12). Once all the students were ready, T3 checked to ensure that the station was organized and gave a reinforcer to groups that had their station organized. Then, the students were instructed to change stations and take their folder with them (Farah, 2015c, May 12).

At the same time, the teacher was at the semi-circular table conducting final year assessment for each student individually (Farah, 2015c, May 12). The student was called over to read a passage. The teacher recorded the student’s words-per-minute reading rate and assessed their comprehension of the story (Farah, 2015c, May 12).

While all the students worked on the stations, two students were sitting on the rug (Farah, 2015c, May 12). They had their own second grade level book that they chose and had been reading for the past week (Teacher 4, personal communication, May 13, 2015). They were instructed to read a chapter and then come to the semi-circular table to discuss the story with the teacher (Farah, 2015c, May 12). During this one-on-one discussion time with one of the students, T4 asked 15 questions: 6% single answer questions, 13% process questions, 33% evaluation questions, and 47% cognitive connection questions (Farah, 2015e, May 12)

Rating of Classroom Differentiated Practices in Math.

Content. The lesson's objective was solving problems using one-digit subtraction (Farah, 2015d, May 12; Teacher 4, personal communication, May 13, 2015). After going over some examples as a whole class, the teacher distributed individualized worksheets to the students (Farah, 2015d, May 12). The content of the worksheet varied according to the student's level: one-digit subtraction or two-digit subtraction (Farah, 2015d, May 12; Teacher 4, personal communication, May 13, 2015). The worksheets focused on procedural knowledge since students were to use the number line to complete the task. However, students then were instructed to create their own subtraction word problems, which were based on their level of performance (Farah, 2015d, May 12; Teacher 4, personal communication, May 13, 2015). This task required more higher-level thinking, creativity, and understanding of the concept.

During the interview, T4 explained that "the curriculum is the same for all my students" and "for math we use the district mandated *Math In Focus* curriculum" (Teacher 4, personal communication, May 13, 2015). TT4 also said *Math In Focus* is the curriculum given by the district and "it is the same curriculum used by all the teachers on campus" (Team Teacher 4, personal communication, May 12, 2015). TT4 explained further how within the same objective the content might vary. She said,

> if the objective is to compare numbers to 120, then the overall umbrella is comparing numbers to 120 but that is where sometimes I have to call a group back if they are still having trouble comparing numbers to 60 then have to kind of work within the big picture. (Team Teacher 4, personal communication, May 12, 2015)

T4 used the district curriculum and focused primarily on procedural knowledge in introducing the lesson. Her ending activity required students to use higher-level thinking and conceptual knowledge in creating their own word problems. Therefore, on the *Classroom Instructional Practices Scale,* T4 would be rated a C4.

Rate. In the math lesson, the teacher did not explicitly set a time frame for students to complete their individualized worksheet, which for some was accelerated (i.e., 2-digit subtraction, when the objective is 1-digit subtraction; Farah, 2015d, May 12). As students completed their work, they were asked to create their own word problem (Farah, 2015d, May 12).

During the interview, when asked about providing rate differences in math, T4 said, "In math, we are not allowed. We have to do whole group all the time. It is the district mandate" (Teacher 4, personal communication, May 13, 2015). Later, she explained,

> they [students] all have the same overarching objective in what they need to accomplish but they are each doing it in a different way. Pre-and post- assessment helps me determine what to work with each student. We do them at certain times within the lesson. (Teacher 4, personal communication, May 13, 2015)

During the math lesson, students worked on individualized worksheet based on their abilities. As T4 explained, pre- and post-assessment that are given at a certain time helps her determine the task to be given to students. For these reason, T4 would be rated R8 on the *Classroom Instructional Practices Scale.*

Preference. In the math lesson, students were given individualized worksheets to complete (Farah, 2015d, May 12). According to T4, different students received different worksheets based on their abilities (Teacher 4, personal communication, May 13, 2015).

All students were to complete the subtraction problems using the number line (Farah, 2015d, May 12). T4 said, “In math there isn’t a lot of choice. But the work they are doing is open-ended” (Teacher 4, personal communication, May 13, 2015). Her ending activity, which was open-ended, gave students the opportunity to vary the content by creating a word problem; however the overall task was the same for students. For these reason, T4 would be rated P3 on the *Classroom Instructional Practices Scale.*

Environment. During the math lesson, student interaction was present throughout the introductory activity (Farah, 2015d, May 12). Examples were provided, and students shared and discussed the procedures for using a number line (Farah, 2015d, May 12). The activities were completed individually; however, at the end of the lesson, the students were able to share their problems with one another. Students did not use any interest or learning centers during the lesson. Accordingly, T4 is rated E3 on the *Classroom Instructional Practices Scale.*

Rating of Classroom Differentiated Practices in ELA.

Content. The ELA lesson focused on reviewing reading sight words and writing complete sentences (Teacher 4, personal communication, May 13, 2015). The class was organized to provide students with different stations (Farah, 2015c, May 12). The content of the station included higher-level thinking tasks such as building sentences or creating words with specific digraphs. In addition, two students worked on reading second grade level books. During one-on-one discussion time, T4 asked 15 questions: 6% single answer question, 13% process questions, 33% evaluation questions, and 47% cognitive connection questions (Farah, 2015e, May 12).

According to T4, “in reading we use scope and sequence that the district sends out” (Teacher 4, personal communication, May 13, 2015). TT4 explained, “for kindergarten, we transition to A-Z learning at the end of the year that supports our scope and sequence” (Team Teacher 4, personal communication, May 12, 2015). TT4 later added. “A-Z learning is what helps us pull all our different leveled readers. For example, I have about six different groups, and they are different depending on their ability” (Team Teacher 4, personal communication, May 12, 2015).

T4 used the district curriculum and provided students with different stations to work on their skills. The advanced group had above grade level work, and the teachers asked critical thinking and high-level questions when she was working with these students. Therefore, on the *Classroom Instructional Practices Scale,* T4 would be rated C4.

Rate. Students were in small groups and had 10 minutes to complete each of the stations before they rotated to the next one (Farah, 2015c, May 12). Students working at the stations were given the same amount of time to complete the activity (Farah, 2015c, May 12). However, two students worked individually on the rug reading a second grade level book (Farah, 2015c, May 12). They were not allotted a specific time to read the one chapter assigned.

T4 explained,

> they [students] all have the same overarching objective in what they need to accomplish but they are each doing it in a different way. Pre-and post- assessment helps me determine what to work with each student. We do them at certain times within the lesson. (Teacher 4, personal communication, May 13, 2015)

According to T4, pre- and post-assessment is used to determine what is given to students. Although the students working on the stations were given the same amount of time to complete the tasks, two students were given varied time to complete their above grade level reading. For these reason, T4 would be rated R8 on the *Classroom Instructional Practices Scale.*

Preference. The ELA lesson included stations with open-ended tasks: building sentences or creating words with specific digraphs (Farah, 2015c, May 12). Although the students working at the stations were given the same instructions, the students were given the opportunity to vary their answers (Farah, 2015c, May 12). As T4 explained,

> in ELAR, the work is more open ended. They can choose what they want to write about. Like today they create their own words with diagraph. They are working on the same skill but it is open ended with what they are going to create with it. (Teacher 4, personal communication, May 13, 2015)

In addition, the two advanced students were working on a different task: reading a second grade level book of their choice (Farah, 2015c, May 12).

The ELA lesson included stations with open-ended tasks. For the advanced students they were given the choice to choose their own reading. For these reason, T4 would be rated P4 on the *Classroom Instructional Practices Scale*- with some student choice of varied tasks P5.

Environment. The ELA lesson had 6 different stations that students needed to rotate to (Farah, 2015c, May 12). Within each station, the resources needed were present on the table, and students used their folder to file their work (Farah, 2015c, May 12). During the stations activities, students were interacting with each other and were engaged 97% of the time (Farah, 2015a, May 12).

The environment was arranged for student interaction, and the students worked at stations that were related to the learning objectives. The resources they needed were available at each station. Accordingly, T4 is rated E5 on the *Classroom Instructional Practices Scale.*

Summary of Current Classroom Differentiation Practices

Math. For the math lesson, T3 used the district curriculum and focused primarily on procedural knowledge in introducing the lesson. Her ending activity required students to use higher-level thinking and conceptual knowledge in creating their own word problems. Throughout the lesson, students worked on individualized worksheets based on their abilities. As T4 explained, pre- and post-assessments are given at a certain times to help her determine the task to be given to students. Although the worksheet was individualized, all students completed the subtraction problem using the number line. Student interaction occurred during the introductory activity and when the students shared their created problems. On the *Classroom Instructional Practices Scale,* T4 would be rated C4, R8, P3, and E3 (Table 4.20).

ELA. For the ELA lesson, T4 also used the district curriculum and provided students with different stations to work on their skills. The advanced group had above grade level work, and the teacher asked critical thinking and higher-level questions when she was working with these students. According to T4, pre- and post-assessments were used to determine student tasks. Although the students working at the stations were given the same amount of time to complete the same tasks, the tasks were open-ended and aligned to the objectives. Two students were accelerated and read a book of their choice.

Within each station, student interactions were present and the resources needed were at the stations. On the *Classroom Instructional Practices Scale,* T4 would be rated C4, R8, P5, and E5 (Table 4.20).

Table 4.20

Rating on the Classroom Instructional Practices Scale for T4.

Area	Math	ELA
Content	C4	C4
Rate	R8	R8
Preference	P3	P5
Environment	E3	E5

Note. ELA= English Language Arts

Classroom Differentiation Practices During Intern Year

Content. T4 developed her lessons by looking at the TEKS as well as the students' performance standards and characteristics to provide them with varied tasks and materials. In her Efolio, she wrote:

> For each of the lessons I prepared and taught all knowledge was based off of the Texas Essential Knowledge and Skills for the grade level my students were performing at {Evidence Two}. Every lesson was taught with the Texas Essential Knowledge and Skills as the framework and basis for the lesson. I also matched my lessons to the performance standards as well. Connally ISD used the performance indicators.
> I also matched my lessons to the characteristics of the students in my classroom. Student characteristics drove my planning while teaching in Kindergarten. My lesson plans reflected the needs of my students and the different ways they work and learn best. Throughout the semester I utilized hands-on manipulatives in order for my students to have concrete ways to explore numerals, discover fractions and graph accurately. (*Efolio - T4;* 2012, April 27)

For an ELA lesson, her supervisor noted how she developed the lesson's objective by using the curriculum as well as relating to students through the use of pre-assessment. She wrote, "Your plan focuses on the objectives established by the curriculum and related

to the pre-assessment given at the beginning of the week" (Faculty 1, 2011, November 16a). The content of some of the lessons focused on procedural knowledge, but was mainly addressed concept learning. The lessons also included critical and higher level thinking skills. For her reading lesson, she used examples the have students identify the elements of a good introductory paragraph, and then evaluated two paragraphs provided by T4. The students had to justify their decisions, and then as a class they edited the paragraph. Her supervisor wrote:

> Students were directed to look at the SMART board to look at examples of introductory paragraphs. Students had the opportunity to identify what makes a good intro paragraph by reading 2 examples and then generating a list of qualities of a good intro. Students then used the information to judge 2 paragraphs. Students moved to a side of the room based on their opinion. Students then justified their decision. Next, students made correction/addition to a paragraph (revisions) collectively as a class. (Faculty 1, 2011, October 3)

For another ELA lesson, T4 focused on the concept of 'prediction' and her mentor noted "students worked on the concept of prediction through the use of questioning" (*Texas Beginning Educator Support System- T4*, 2011, October). The lesson incorporated a fictional story three high-level questions, and examples and non-examples. Her mentor wrote:

> T3 had the lesson organized around three questions. The following three questions were asked to the whole group:
> 1. How does asking questions make us better readers?
> 2. What are the 4 strategies for figuring out words?
> 3. Why is important to know different parts of a fiction story?
>
> The students were able to answer her questions. She also had them practice with everyone what predictions look like, and then what it should not look like. T3 had students turn and share with partners. They students knew what to do because they had done it so many times before. (*Texas Beginning Educator Support System- T4*, 2011, October)

T4 explained how she sequenced the lesson to first connect to prior knowledge, and then move to concept learning. The concept learning occurred through the use of examples and non-examples as well as questioning. In her Efolio she wrote:

> I sequence my lessons in a logical order. All lessons began with an introduction to the lesson and a connection to prior knowledge. Next students were introduced to the concept or skill for the day and shown examples and non-examples. Students were asked several questions regarding the concept or skill while I monitored their comprehension. If the majority of students understood, the class would spend time in independent practice while I worked with students who were struggling with the concept. (Evidence Six; *Efolio - T4;* 2012, April 27)

T4's lesson also included methods authentic to the discipline and connections to the real world. In her geometry lesson, students were assigned to find examples of 3-D shapes in the real world and then construct 3-D shapes. Her supervisor wrote:

> Students received three dimensional shapes characteristics (cubes, spheres, rectangular prism, cylinder, cones). Students will work together to locate real world examples of one of three 3-D shapes …. After receiving what groups had located as examples, they returned to their desks. They were given plates and given directions how they would make a cone from their plates. (Faculty 1, 2012, February 16)

T4 explained how the lesson connected to real world application and students got the chance to experience being architects

> During our unit on three dimensional shapes, students learned the different traits and aspects of being an architect. Students then applied their knowledge of two and three dimensional shapes by becoming an architect themselves and completing blueprints of a structure using two dimensional shapes and then constructing their building using three dimensional building shapes. Students were able to relate their knowledge to real-world applications. (*Efolio - T4;* 2012, April 27)

During another lesson, students were given the opportunity to work as researchers by using various resources, documenting their findings, and developing products. T4 wrote:

> My class spent six weeks researching causes and effects through natural disasters. Students were placed in pairs for the unit. Each pair was responsible for

> producing three products: a brochure, a diary entry and newspaper article. In order to do so, students researched extensively using online resources, books and encyclopedias. They also watched videos detailing their natural disaster. Through all of this, students took notes and documented the sources. (Evidence 4 & 5 & 6; *Efolio - T4;* 2012, April 27)

T4 explained how she used methods of the discipline in several of her lessons. She wrote:

> Throughout the semester, I employed methods of the discipline to connect student learning to real-world professions and situations. While studying fractions, students took on the discipline of bakers using halves, thirds and fourths of different ingredients to create recipes. Students were also given the opportunity to be business owners when learning currency. They priced their own items and took part in transactions within a marketplace to practice their skills while working as a businessperson. (*Efolio - T4;* 2012, April 27)

By looking at the different lessons during T4's intern year, it is clear that student's performance and interest determined the sequence of activities. In fact, she developed an Individualized Learning Plan for each student while taking into consideration their performance, rate and interest. These plans included activities students completed throughout one week on their own. Her supervisor noted, "Students take a pre-assessment at the beginning of the week to determine what objective they have mastered. This allows you to plan individualized learning plans for each student" (Faculty 1, 2011, November 16a). In her Efolio, T4 explained the use of Individualized Learning plans. She wrote, "Throughout instructional time students worked using Individualized Learning Plans. These learning plans listed activities students would need to complete throughout the class period. Each plan was individualized to the student's academic and developmental levels" (*Efolio - T4;* 2012, April 27).

T4 even involved students in the planning of the activities. One of her students had the opportunity to be involved in determining the objectives as well as her work schedule during an independent study. In her Efolio, T4 wrote:

> In order to allow plenty of time for the separate steps involved in the Independent study I employed a calendar system. At the beginning of the semester Madeleine and I planned out our time together using a calendar for February, March and April. On each day that we would meet, we listed an objective to be met. Based off of the calendar and what we had accomplished the day before, I would plan my next lesson to meet the objective for that day as well as build upon Madeleine's knowledge. Since Madeleine already knew the area which she wanted to study and the general topic, I did not budget much time to the steps of deciding upon a topic and creating a study question. I paced my lessons based on the fact that Madeleine's level of thinking brought about an incredibly high level question to study which would require the majority of our time spent researching. Because Madeleine enjoys reading, and using concept maps to organize her information, I implemented both of these strategies in my lessons. (*Efolio - T4;* 2012, April 27)

> Madeleine enjoys reading, and creating concept maps in an effort to organize her information into smaller segments. Using this knowledge of my student I implemented both of these strategies into my lesson plans. A concept map synthesizing all of the information we had gathered and employed to construct our product was on display during Madeleine's presentation. My lessons were sequenced off of the steps provided in the independent study program and tailored to fit the type of project Madeline and I were engaged in. We began with deciding upon a topic, narrowed that topic to a question, researched in an effort to answer our question and finally ended with presenting a product we created to [school] PDS. (*Efolio - T4;* 2012, April 27)

T4 also developed an interdisciplinary broad-based thematic unit and implemented it during her intern year. The lesson focused on the theme, included problems and issues, and had opportunities for interdisciplinary studies. Her professor noted that her lesson:

> has applications that have long-term relevance to the learner, related to standards, and differences in student characteristics and their development, including the role of families and communities.
> The theme, problem or issue is broad, challenging, and allows for the integration of a variety of disciplines and student interests.
> Statements are significant in giving meaning to different disciplines, may be proved or disproved and include the theme as well as opportunities for interdisciplinary studies.
> The outline relates to the generalizations and addresses subject matter of the disciplines that will be addressed in the unit and includes main topics, subtopics, and independent study options. The subject matter provides for the full range of differences and incorporates advanced, conceptually challenging, in-depth, distinctive, and complex content. (Faculty 2, 2011b)

In addition, her professor also commented on how she connected students learning to the generalization. She wrote:

> I like the way that the students were able to choose their disaster and how you linked their learning to the major generalizations. (Faculty 2, 2011b)

By looking at the different lessons T4 implemented during her intern year, it is clear that her lessons were developed aligned to the TEKS. However, she taught the TEKS in a more authentic way, including critical and higher-level thinking. In addition, T4 connected the content of her lessons to real world applications. Her lessons included individualized learning plans developed according to student's performance and interest. On the *Classroom Instructional Practices Scale*, she is rated C9.

Rate. During her intern year, T4 used pre- and post-assessments to determine the amount of time students might need to learn new content. In her Efolio, she explained how she used pre- assessments to collect information on students' performance to develop Individualized Learning Plans, and the post-assessment was used to determine growth of students. She wrote:

> Each week students were pre-assessed to identify strengths and weaknesses of upcoming skills and concepts. These pre-assessments were then used to develop students' Individualized Learning Plans and reading groups for the week. After the content was covered, students completed a post-assessment in order to see growth, concepts that collectively needed to be re-taught for the entire class and individual weaknesses. (*Efolio - T4;* 2012, April 27)

Her supervisor noted the use of pre-assessment to developed Individualized Learning plans. She wrote "students take a pre-assessment at the beginning of the week to determine what objective they have mastered. This allows you [T4] to plan individualized learning plans for each students" (Faculty 1, 2011, November 16a).

According to T4, students worked on their Individual Learning Plans during instructional time. These plans included activities matched to varying amount of time needed by students in learning new content, which gave students the freedom to self-pace their work. In her Efolio, she wrote:

> During my intern semester at Connally Elementary in Mrs. Farris's fourth grade classroom I sequenced my activities and allocated specific amount of time for each based on my students' task competition, developmental levels and achievement abilities. Throughout instructional time students worked using Individualized Learning Plans. These learning plans listed activities students would need to complete throughout the class period. Each plan was individualized to the student's academic and developmental levels (Evidence One; Evidence Two). Because some students worked quickly through assignments, their individualized learning plan was longer and involved more difficult and complex activities and centers. Other students moved slowly and had difficultly focusing through long assignments or periods of time (Evidence Three; Evidence Four). Because of this, their learning plans were shorter and listed activities that were more developmentally and academically appropriate for the student. Students were given the freedom to pace themselves through the Individualized Learning Plans and were encouraged to work at a rate that was comfortable for them. I allotted two English/Language Arts periods for students to complete their ILPs in order for quality work to be presented. Before the ILPs were presented to students for the week, a lesson covering the skills and concepts were taught earlier in the week. Using the Individualized Learning Plans as independent work, I was able to sequence the activities so that students were given a foundation and the necessary knowledge and then able to practice at their own pace. (*Efolio - T4;* 2012, April 27)

Her mentor also noted the use of pre-assessments to individualize activities and provide students with a checklist, which helped students self-pace themselves. They used their plans while working in centers. Her mentor wrote:

> [T3] uses pre-assessment each week to organize the centers. Based on their pre-assessment score, [T3] makes an individualized check off sheet for each student so they know what they need to do in each center. She works with the students in different centers to assess their understanding and reading fluency. (*Texas Beginning Educator Support System- T4*, 2011, October)

Her supervisor also noted the used of pre-tests to individualize the centers, students self-pacing and the use of post-tests to see growth. She wrote: "[T4] gives a pre-test each week to determine what the student do in each center. Students are able to move through

centers at their own pace. She also gives a post test to see growth" (Faculty 1, 2011, November 16b).

T4 wrote that the content of activities were varied to match students' abilities. Some students were given activities to practice their skills, while others were given more high-level thinking activities. She wrote, " Certain groups participated in more discussion based learning regarding fact families while others focused on hands-on learning through practice and games" (*Efolio - T4;* 2012, April 27). Her mentor also noted the varied activities matching the level of performance of the students. She wrote:

> Students worked at their own pace/rate with activities matching their abilities. For those who mastered the skills, they were given enriched and more complex activities, for those who need longer time to learn new content, they were given activities at their level. (*Texas Beginning Educator Support System- T4*, 2011, October)

According to T4 pacing the lesson according to the individual characteristic of students is important. Students needed to work in their zone of proximal development. In her Efolio she wrote:

> Pacing lessons is one of the most integral parts of teaching. Adequate pacing keeps students engaged in the information and lesson. However, the lesson must be formatted to meet the individual student characteristics. If students are met at their developmental level working at a pace that challenges them to succeed but is still within their zone of proximal development, they will gain more from the lessons.
>
> Lessons and activities that are sequenced in a logical order and build on top of each other are more beneficial for students. By providing a solid foundation for students and then introducing more detailed and complex elements students are more likely to delve deep into the content and make greater strides toward individual academic goals. In order to be successful teachers must be aware of individual student needs, through pre-assessment as well as know student characteristics. By gauging the class engagement and continually checking students' comprehension of the material teachers are able to pace their lessons to keep students engaged. (*Efolio - T4;* 2012, April 27)

During her intern year, T4 used pre- and post-assessments at varied times in her lesson to determine the time needed by students to learn new content. In her lesson, the data from the assessments identified students who needed more time to practice and those who needed greater depth or enrichment, and accordingly individualized learning plans were developed for each student. For these reasons, on the *Classroom Instructional Practices Scales,* she is rated an R9.

Preference. In her lessons, T4 used a wide range of activities that were aligned to the objective. Her mentor noted the use of varied assignments each week as well as varied the type of activities and materials used in her lesson. She wrote

> [T4] often uses the Smart Board in her lessons. The students complete varied assignments each week. They have the opportunity to work in small groups, rotate through centers, and use the computers to complete activities and listen to their reading stories. Some of the centers are pencil and paper, but many use manipulatives. (*Texas Beginning Educator Support System- T4*, 2011, October)

In her geometry lesson, students were given the opportunity to use plates to build 3-D shapes. Her mentor wrote "they [students] were given plates and given direction how they would make a cone from their plates" (Faculty 1, 2012, February 16). In her social studies lesson, she used foldables and Google Earth. Her supervisor noted, "the students were treated to 'flying in' to different landform using Google Earth. Students made a foldable that they will use to identify 8 landforms" (Faculty 1, 2012, April 5b). In her Efolio, T4 explained the use of varied materials to match student characteristics. She wrote:

> I also matched my lessons to the characteristics of the students in my classroom. Lessons implemented time for students to use hands-on manipulatives, computers as well as paper and pencil to meet the needs of all my students and help them learn their individual way. Students worked in pairs, individually and in groups as

well. (Evidence Three; Evidence Four; Evidence Five; *Efolio - T4;* 2012, April 27).

The varied activities used in her classroom were related to the objective of the lessons. Her supervisor noted, "activities related to objectives were varied and differentiated for students based on their abilities" (Faculty 1, 2011, November 16a)

The variation was also present in the way students demonstrated their knowledge. In her Efolio, T4 explained the use of different types of assessments so that students had the opportunity to show their understanding of the content in the way they wanted. She wrote.

> I incorporated various types and forms of assessment based on my student characteristics. While assessing sight words, students manipulated play dough instead of writing the correct word (Evidence Five). Spelling tests were given individually, with students writing in shaving cream with their fingers on their desks instead of the traditional form. These words were chosen by the students from a student generated list at the beginning of the week (Evidence Six). I also gave many on-going assessments verbally since some students had difficulty accurately explaining their thinking and knowledge through print. Students would respond to questions during small group question and answer scenarios where I would take anecdotal notes and record data on checklists as well (Evidence Seven). Students were also given the choice of products during a unit on Texas heroes. After researching with a partner, pairs choose their product from a predetermined list of possible products. Students made the choice amongst themselves based on their own preference (Evidence Ten). (*Efolio - T4;* 2012, April 27)

> I used multiple assessment methods to provide information regarding students achievement level. Students were given pre-assessments through written form, oral form as well as kinesthetically showing me. Students would, at times, write the answers to different questions during an assessment. Other times, students would orally answer questions posed to them, and I would record the answers. Finally, students might be expected to show using counters or coloring a double ten-frame the correct answer to a question. (*Efolio - T4;* 2012, April 27)

The variation was not only in the way students demonstrated their knowledge but students were given the choice to learn new content. T4 wrote

> I also gave my students choice in their learning. For example, during spelling students chose ten words from a student generated list that pertained to the phonics rule of the week. This gave students preference over the content they were learning within the guidelines of the curriculum (Evidence Thirteen). (*Efolio - T4;* 2012, April 27)

Her supervisor also noted the choice of materials for students to learn new content. She wrote, "[T4] does an excellent job of varrying the centers. Students get to choose how they want to work during centers (listen to audiobook, read the book, complete charts, use computers, paper/pencil sheet, jar and pebbles)" (Faculty 1, 2012, April 12).

As previously mentioned, in her Efolio, T4 explained how one of her students was given the opportunity to choose the type of activity and product to present for an independent study. In fact, T4 used reading and concept mapping in her lesson based on the student's preference.

Throughout her lessons, T4 provided a range of activities and aligned them to the objective. The variation was not only in the way students demonstrated their knowledge but students were also given the choice to learn new content. In addition, she provided one of her students with choice of varied task and product to present for an independent study. Accordingly, on the *Classroom Instructional Practices Scale*, T4 would be rated mainly P4, the use of varied activities that were aligned to the objective, but also P5 since she did provide for student choice.

Environment. The majority of the lessons for T4 during her intern year included hands-on activity and student interactions. In her lesson, her supervisor noted student working independently, groups, and with her guidance as needed. She wrote, "students worked on some activities independently, with others in their stations, and with you as they needed guidance" (Faculty 1, 2011, November 16a). For another lesson her

supervisor wrote, "students worked together to search for real world examples of 3-D shapes. A student in each group was assigned to be the recorder" (Faculty 1, 2012, February 16). In her Efolio, T4 explained how she organized the desks in the class for students to be able to work independently or in groups as needed. In addition, the room was organized so students can have floor space to work and find quiet work areas. She wrote:

> I organized my classroom into table groups of five to promote group work. Students however also had their own desk that clearly defined their space from the tablemates. This worked incredibly well. Students were able to work together for group assignments and were given the opportunity to learn from each other; however, they also were able to complete independent work without difficulty because of their separate space. {Evidence Four} The room also gave students access to plenty of floor space for partner work or silently reading around the room. If partner work was assigned, students were able to move to various open portions of the room for a quieter work area. (*Efolio - T4;* 2012, April 27)

Her mentor noted the students using the space provided during reading. She wrote, "when students started working in small groups, they could choose to work at a table or find a place on the floor" (*Texas Beginning Educator Support System- T4*, 2011, October)

The lessons during her intern year also included centers. Her mentor noted how she organized centers for which students needed to learn the expectations. She wrote:

> [T4] also establishes expectations before each lesson or activity. Before centers each week, she goes over expectations for their behavior while at centers and movement between centers. She also establishes expectations of the noise level during centers. She has a noise-o-meter that she adjusts according to the noise level acceptable during center time. All of the students follow these expectations. (*Efolio - T4;* 2012, April 27)

For another lesson, her mentor noted again how students worked on centers and moved around the room without any problems. She wrote, "During centers, [T4] moves around the room and assists students who need help. The students are able to move between centers without any problems and without disturbing other students" (*Efolio - T4;* 2012,

April 27). T4 explained how students needed to learn group work expectations and how to access the materials to increase interaction. In her Efolio, she wrote:

> In [my supervising teacher's] third grade class at [the school] during my Teaching Associate year I established efficient routines and procedures inside the classroom. These procedures included how students would work in a group and what materials students would bring each time reading group began. To work in a group, students are expected to sit together in a way that provides them visual and auditory contact with all the group members. Students are expected to come to small group prepared with their novel, markers and pencils as well. (*Efolio - T4;* 2012, April 27)

In addition, T4 used the school as a learning center in her lesson. In her Efolio, she explained how students needed to follow expectations during a scavenger hunt around the school premises. She wrote:

> Outside the classroom students are expected to walk in a single file line down the hall in silently. Students should line up at the door and wait for directions to proceed down the hallway. At the end of end of each hall they are expected to stop and wait for directions to proceed moving forward. During a scavenger hunt through the school, my small group followed these procedures by walking in a quiet line to each destination. (*Efolio - T4;* 2012, April 27)

By looking at the different lessons T4 implemented during her intern year, she used a variety of activities and arranged the classroom for student interaction. In her lessons, centers within the classroom were present with specific routine. For a scavenger hunt, she used the school as learning centers. For these reason T4 would be mainly rated an E5, the use of learning centers within the classroom, with some centers outside the classroom – E6.

Summary of Classroom Differentiation Practices During Intern Year

By looking at the different lessons T4 implemented during her intern year, it is clear that her lessons were aligned to the TEK and integrated authentic methods, including critical and higher level thinking. In addition, her lessons also included

individualized learning plans developed according to student's performance and interest. T4 used pre- and post-assessments at varied times in her lesson to determine the time needed by students to learn new content. In her lesson, the data from the assessments identified students who needed more time to practice and those who needed greater depth or enrichment, and accordingly she developed individualized learning plans for each student. Throughout her lessons, T4 provided a range of activities and aligned them to the objective. The variation was not only in the way students demonstrated their knowledge but students were also given the choice to learn new content. In addition, she provided one of her students with a choice of varied tasks and products to present for an independent study. Furthermore, T4 arranged the classroom for student interaction. In her lessons, centers within the classroom were present with specific routine. For a scavenger hunt, she used the school as learning centers. Accordingly, on the *Classroom Instructional Practices Scale*, T1 is rated C9, R9, P4-P5, and E5-E6 (Table 4.21).

Table 4.21

Rating on the Classroom Instructional Practices Scale for T4 During Intern Teaching

Area	Intern Teaching
Content	C9
Rate	R9
Preference	P4/P5
Environment	E5/E6

Comparison of Current and Intern Differentiation Practices

Content. By looking at the different lessons T4 implemented during her intern year, it is clear that her lessons were aligned to the TEKS and integrated authentic

methods, including critical and higher level thinking. In addition, her lessons also included individualized learning plans developed according to student's performance and interest (C9).

Currently, T4 used the district curriculum in math and focused primarily on procedural knowledge in introducing the lesson. Her ending activity required students to use higher-level thinking and conceptual knowledge in creating their own word problems (C4). In her ELA lesson, T4 also used the district curriculum and provided students with different stations to work on their skills. She provided the advanced group with above-level work and asked them critical thinking and high-level questions (C4).

From the observations and the review of archival data, T4 continues to integrate crucial and creative thinking skills in her lessons. During her intern year, she developed an interdisciplinary thematic unit and student's performance and interest guided the content of her lesson. For her current teaching, no interdisciplinary thematic or student interest or performance were observed or mentioned in the interviews. On the *Classroom Instructional Practices Scale,* T1 would be rated C9 during her intern year and C4 for her current teaching. (Table 4.22).

Rate. During her intern year, T4 used pre- and post-assessments at varied times in her lesson to determine the time needed by students to learn new content. In her lesson, the data from the assessments identified students who needed more time to practice and those who needed greater depth or enrichment, and accordingly she developed individualized learning plans for each student (R9).

In her current teaching of math, students worked on individualized worksheet based on their abilities. As T4 explained, pre- and post-assessments given at a certain

times help her determine the tasks to be given to students (R8). For her ELA lesson, pre- and post-assessments were used to determine the students' tasks. Although the students working in the stations were given the same amount of time to complete their tasks, two students were given varied time to complete their above grade level reading (R8).

In summary, T4 continues to use assessments to identify students' strengths and needs in her current teaching. However, during the intern year she used assessment at varied times, while currently she uses assessment at set times. On the *Classroom Instructional Practices Scale,* T4 would be rated R9 during her intern year and R8 for current teaching (Table 4.22).

Preference. During her intern year, T4 provided a range of activities and aligned them to the objective. The variation was not only in the way students demonstrated their knowledge but students were also given the choice to learn new content (P4). In addition, she provided one of her students with choice of varied task and product to present for an independent study (P5).

In her current teaching of math, students were given individualized worksheets to complete. Her ending activity, which was open-ended, gave students the opportunity to vary the content by creating a word problem; however the overall task was the same for students (P3). Her ELA lesson included stations with open-ended tasks. For the advanced students they were given the choice to choose their own reading (P4).

Some commonality can be seen in the way T4 aligns the activities with the content and provides for individual student choice during her intern year and her current teaching. During both her intern and current teaching, T4 provided her students with activities aligned to the objective of the lesson. Although, no variation in in task was

observed during her current math teaching, her ELA lesson included student stations, and students were given choices during reading. In her intern year, T4 provided one of her students with choices of varied tasks and products to present for an independent study. On the *Classroom Instructional Practices Scale*, T4 would be rated P4/P5 during her intern year, P3 for her current math teaching, and P5 for her current ELA teaching (Table 4.22).

Environment. The lessons during T4's intern year allowed for student interactions and access to variety of learning experience. In her lessons, centers within the classroom were present with specific routines (E5). For a scavenger hunt, she used the school as learning centers (E6).

During her current teaching of math, student interactions were present during the introductory and closing activity, while students worked individually throughout the lesson (E3). Students did not use any interest or learning centers during the lesson. For her ELA lesson, the environment was arranged for student interaction, and the students worked at stations that were related to the learning objectives (E5). The resources they needed were available at each station.

During both her intern and current teaching, T4's way of arranging the physical environment facilitates interaction. For her intern year and her current teaching of ELA, stations related to the learning objectives were present. During her intern year, for a scavenger hunt, she used the school as learning centers. On the *Classroom Instructional Practices Scale*, T4 would be rated E5-E6 during her intern year, E3 for her current math teaching, and E5 for her current ELA teaching (Table 4.22).

Table 4.22

Rating on the Classroom Instructional Practices Scale for T4 for Intern and Current Teaching

Area	Intern Teaching	Current Teaching –Math	Current Teaching -ELA
Content	C9	C4	C4
Rate	R9	R8	R8
Preference	P4/P5	P3	P5
Environment	E5/E6	E3	E5

Note. ELA=English Language Arts.

Influences on Differentiation

State level. When asked about the influence of the state on her differentiated practice, T4 said there was none (Teacher 4, personal communication, May 13, 2015). Since she is teaching Kindergarten, students are not required to take any high-stakes testing.

At the state level, there were no identified influences on T4's differentiated instructional practices.

District level. T4 said she used the district curriculum and materials for her math and ELA lessons (Teacher 4, personal communication, May 13, 2015). For math, the district provided her with *Math in Focus,* and for ELA she had the scope and sequence (Teacher 4, personal communication, May 13, 2015). T4 explained how the district required whole group teaching for math at the kindergarten level, but she was able to group the students by ability in reading (Teacher 4, personal communication, May 13, 2015). When asked about providing for rate differences, she said,

> in kindergarten, in math we [teachers] are not allowed. We have to do all whole group all the time. It's a district mandate. In ELA, rate is different depending on their level, but in math it's all the same. I can group by ability in ELA. In reading

> I use it a lot since I have a wide range of reading levels. (Teacher 4, personal communication, May 13, 2015)

T4 explained how the district could do a better job in supporting differentiation, specifically in math (Teacher 4, personal communication, May 13, 2015). She described the district's curriculum as stringent without any room for accommodating differences (Teacher 4, personal communication, May 13, 2015). She said:

> I think the district could do a better job supporting differentiation. I think the curriculum, especially in math, is very stringent and that expectations is very much that everyone is doing the exact same thing at the exact same time, and there's not a lot of ways to go around that. (Teacher 4, personal communication, May 13, 2015)

At the district level, the expectations for teaching mathematics seemed to influence T4's differentiation practices, particularly within preference and environment areas. In fact, T4 had to teach math as a whole group which limited the variation in task and response dimension. In addition, this limited the presence of centers.

Campus level PDS. T4 explained how being a teacher in a professional development school influences her decision to differentiate (Teacher 4, personal communication, May 13, 2015). In fact, having interns in her class, she needed to model differentiation. She said:

> I think being a PDS school definitely influences it. Because having … I had three TAs this semester and so I had to show then what that [differentiation] looked like at a kindergarten level which really influenced what I did, I did not do, and how I went about it. (Teacher 4, personal communication, May 13, 2015)

Campus level principal. Since T3 and T4 work on the same campus, they have the same principal. As previously mentioned, P3 defined differentiation as addressing the child's strengths and interests, while making sure to develop the child's weaknesses

(Principal 3, personal communication, May 28, 2015). She seemed to be student-oriented since she believed differentiation couldn't occur without knowing the students (Principal 3, personal communication, May 28, 2015). In addition, P3 could be described as a risk-taker since she was willing to try new things with students (Principal 3, personal communication, May 28, 2015). She seemed to be supporting teacher's ideas and accepts teachers' deviation from policy if justified to help the students (Principal 3, personal communication, May 28, 2015). During her walk-throughs, she reviewed the lesson planning and was interested in seeing student-created products, which are varied and relevant to the content being taught (Principal 3, personal communication, May 28, 2015).

T4 described the school principal as being supportive and having expectations related to students' engagement with the task (Teacher 4, personal communication, May 13, 2015). She said: "I think our principal is very supportive of differentiation. Her expectation, when she walks in, is for each child to be working on what they need to be working on" (Teacher 4, personal communication, May 13, 2015). TT4 also described the school principal as being supportive (Team Teacher 4, personal communication, May 12, 2015). She explained how the principal does walk-throughs and wants teachers to move away from whole group teaching (Team Teacher 4, personal communication, May 12, 2015). In fact, she provides the teachers with ideas in regards to tasks, grouping, and classroom management. She said:

> I think she [the principal] has a positive influence. She is supportive. Have you met her yet? You will see how lovely she is. She does a lot of walk-throughs and wants us to go away from whole group. She actually gives us ideas on how we can change things to make it better for students. She once gave me an idea for an activity to do with them [students], and sometimes she tells us about how to group

> and classroom management if she sees that students are not working on what they need to. (Team Teacher 4, personal communication, May 12, 2015)

At the campus level, the school principal seemed to be supportive of differentiation practices. P4 wanted her instruction to meet the students' needs and to focus on their interests and strengths. Hence P4 might be an influence on T4's differentiation within the rate (the use of pre-assessments in both math and ELA), preference (the use of varied activities in ELA) and environment areas (the use of learning centers in ELA).

Campus level team teacher. TT4 defined differentiation as "finding the right instructional level to meet the needs of each child" (Team Teacher 4, personal communication, May 12, 2015). T4 described her team teacher as supportive by sharing ideas (Teacher 4, personal communication, May 13, 2015). She said "working with team teachers is supportive. We do a great job, I think, of helping each other decide what would work and what wouldn't work for our kids" (Teacher 4, personal communication, May 13, 2015) .The principal also explained how team teachers can support each other, provide each other with ideas, and encourage each other to try new things (Principal 3, personal communication, May 28, 2015). She said:

> By planning together, they share ideas: what are they doing? what are they going to try? And they may encourage each other to try something that may not be super comfortable. (Principal 3, personal communication, May 28, 2015)

At the campus level, the team teachers seemed to be supportive of differentiation practices. In fact, the team seemed to support each other by providing ideas.

Campus level parents. T4 explained how parents might not know the concept of differentiation; however they shared their perceptions regarding their child's growth

(Teacher 4, personal communication, May 13, 2015). She also mentioned having twins in her classroom who performed at different levels (Teacher 4, personal communication, May 13, 2015). In fact, the mother was pleased with how T4 varied her lesson to meet each one's needs (Teacher 4, personal communication, May 13, 2015). She said:

> I think my parents probably don't know what's called differentiation, but they have made several comments about how they conceive the growth of their child. Did you know I have twins in my class? They are at two completely different levels, and so mom has already said that she was happy they're not getting the exact same thing. They are both getting what they exactly need. (Teacher 4, personal communication, May 13, 2015)

At the campus level, the parents seemed to provide T4 with their perceptions of their child's growth, which might help T4 differentiate within the content and preference areas. In addition, parents are pleased with the T4's differentiated instructional practices, which might encourage T4 to continue differentiating.

Classroom level. According to T4, the class has 22 students with 1 student identified for special education, 1 student gifted and talented, and 3 students identified as English language learners (Teacher 4, personal communication, May 13, 2015). She described the class as more heterogeneous, especially in reading. She said "I have everything from end-of-year instructional level 3 till the end-of-year instructional level 26"on the A-Z reading (Teacher 4, personal communication, May 13, 2015).

According to T4, her students are a positive influence on her decision to differentiate (Teacher 4, personal communication, May 13, 2015). She explained how the identification of needs was easier for students in kindergarten (Teacher 4, personal communication, May 13, 2015). She said,

> my kids influence in a good way. I mean they show me exactly what they need at what time. And it is really easy in kindergarten to know exactly what they need,

> because it's either there or it's not. There's no real grey area. (Teacher 4, personal communication, May 13, 2015)

At the classroom level, the varied instructional levels influenced T4's differentiated instructional practices, particularly in the language arts area. Since she described kindergarten students as being easy to assess, she use pre- and post-assessments in both ELA and math.

Individual level. During her intern year, T4 aligned her lesson to the TEK, integrated authentic methods, and included critical and high-level thinking. She also used pre- and post-assessments at varied times in her lesson to determine the time needed by students to learn new content. Accordingly she developed individualized learning plans to match each student's performance and interest. Her students were provided with a range of activities aligned to the objective and used the learning centers during their learning.

Some commonalities can be seen with her current teaching. T4 continued to integrate critical and creative thinking skills in her lessons and use concept-based learning. She also continued to use assessments to identify students' strengths and needs. While she did not vary her tasks during math, her ELA lesson included student stations with students given choices during reading. No interdisciplinary thematic units or individualized learning plans were observed or mentioned in the interviews.

T4 was a student in the dual-certificate program during her undergraduate studies. In addition to classes focusing on differentiated instruction, development, and exceptionalities, T4 had field experiences in both gifted and general education settings. During the interview, T4 mentioned her background knowledge as being an influence (Teacher 4, personal communication, May 13, 2015). Although she did not differentiate

during every lesson, she believed she had the knowledge to do so (Teacher 4, personal communication, May 13, 2015). She also explained how her professors from her intern year would be disappointed if they walked into her class when she was not differentiating (Teacher 4, personal communication, May 13, 2015). However, she believed that not every lesson can be taught through differentiation, especially having the district requirements (Teacher 4, personal communication, May 13, 2015). She said

> I think my background at [my university] influenced it [differentiation]. I know how to do and I can do it for my lesson. But obviously there are seasons of the year where I don't differentiate like I should, and I know if [Faculty 2] and [Faculty 3] were to walk in, they'd be very disappointed in my teaching. But with the restrictions from the district, I can't differentiate each lesson. So I have to pick and choose. But my background knowledge helps me a lot. Way more than I expected. (Teacher 4, personal communication, May 13, 2015)

In summary, T4 was aware that she was differentiating less in her current teaching than during her intern year. One obstacle she identified for less differentiation was the district's requirements in mathematics (e.g., whole group instruction). However, she believed she was capable of differentiating, since she had strong background knowledge that she developed during her pre-service years.

Summary of Influences on Differentiation

At the state level, T4 did not identify any influences on her differentiated instructional practices because she teaches kindergarten, which is not a mandated state testing year.

At the district level, the expectation for teaching mathematics seemed to influence T4's differentiation practices within the preference and environment areas. Students were required to be learning the same material as a whole group.

At the campus level, the school principal seemed to be supportive of differentiation practices. P4 wanted instruction to meet the students' needs and focus on their interests and strengths. Hence P4 might be an influence on T4's differentiation within the rate, preference and environment areas although she has only been in the school since November. The team teachers also seemed be supportive of differentiation practices. In fact, the team seemed to support each other by providing ideas. In addition, the parents seemed to share their perceptions of their child's growth, which might help T4 differentiate within the content and preference areas. In addition, parents were pleased with the T4's differentiated instructional practices, which might encourage T4 to continue differentiating.

At the classroom level, the varied instructional levels in reading appeared to influence T4's differentiated instructional practices within the content and rate areas in both reading and math. In fact, T4 described kindergarten students as being easy to assess, which might influence her attention to individual strengths and weaknesses.

At the individual level, T4 is aware she is differentiating less in her current teaching than during her intern year. She indicated the district's requirements in mathematics as being one reason that she did not differentiate as much. However, she believed she is capable of differentiating since she had strong background knowledge that she developed during her pre-service years. Table 4.23 summarizes the influences and effects on T4's instructional practices.

Table 4.23

Influences and Effects on T4's Instructional Practices

Level	Areas of Influence	Influences	Effect on T4
State	High-Stakes Testing	No STAAR testing occurs in kindergarten.	No discernable effect on the teacher.
	State Standards	STAAR is aligned to TEKS.	Aligned lessons to TEKS.
	Accountability Ratings	District and campus are rated on four indicators.	Campus did not meet one of the indicators—student progress--but this result had no discernible effect on T4's practices.
District	Curriculum	*Math Motivation* and scope and sequence.	Focused on procedural knowledge so T4 used as guide and gathered other materials herself.
	Administration	Superintendent came from outside of district and was same for four years. Changes have occurred in mid-management leadership. Only one leader is still in the Oversight Council since her first year (OPP Director, June 24).	Might not have been aware of changes in expectations.

(continued)

Level	Areas of Influence	Influences	Effect on T4
		Required the inclusion of differentiated practices in teacher's lesson plans for identified ESL and special education only.	Did not need to use a common lesson plan form.
		Tracked student progress through electronic software.	Did not appear concerned about district benchmark tests but according to faculty UL, her students "knocked the socks" off the district benchmark tests (June 25 communication). The district therefore sent other teachers to visit her classroom.
	Accountability	District met state standards, but nine schools did not meet standards.	No discernable effect on T4.
Campus	Accountability	C3 did not meet standards last academic year.	No discernable effect on T4.
	Principal	Understood differentiation and policies, particularly in area of preference and environment. Provided flexibility if teachers could explain.	Felt flexibility to differentiate.
	Team Teachers	Collaborated with one another.	Provided diverse ideas to one another.

(continued)

Level	Areas of Influence	Influences	Effect on T4
	Parents	Provided T4 with their perceptions of their child's growth.	Helped T4 differentiate within the content and preference areas.
Classroom	Classroom Composition	Classroom was heterogeneous.	Student interest guided T4's lessons.
	Student characteristics	Varied in content, rate, and preference.	Used pre- and post-assessments.
Individual	Knowledge	Teacher preparation program focused on differentiation.	Had knowledge about differentiation.
	Beliefs	Believed she had a strong background knowledge.	Encouraged her to differentiate.
		Believed district required whole group teaching for math.	Included fewer varied activities and limited the use of centers; however, still used assessments.
		Believed it was easier to identify kindergarten children's needs.	Use pre- and post-assessments.

Cross –Case Analysis

Four teachers, each representing a case, were studied separately and in detail. This allowed for the intra-case analysis using the two models as framework: (a) the *Classroom Instructional Practices Scale* (CIPS), and (b) the Influences on Differentiation (IoD) framework (adaptation of Bronfenbrenner's theory). Then, the themes within the cases were compared to themes in the other cases for cross-case analysis (Stake, 1994). The researcher used the results that emerged for each case within each framework for the cross-case analysis.

Initially, the researcher used the classroom differentiation practices results to look for patterns regarding the level of the beginning teacher's differentiation practices with diverse students. Table 4.24 summarizes the rating on the *Classroom Instructional Practices Scale* for all participants for their intern year and current teaching of math and ELA. The researcher compared: (a) across observed and archived lessons, (b) across participants' current math teaching, (c) across participants for current ELA teaching, and (d) across participants for current teaching in both subjects.

Table 4.24

Ratings on the Classroom Instructional Practices Scale for all Participants for Intern Year and Current Teaching of Math and ELA

Lessons	Observed								Intern			
	Math				ELA							
Area	C	R	P	E	C	R	P	E	C	R	P	E
T1	6	6	3	4	5	6	3	3	7	8	4/5	6
T2	2	2	2	4					7	3	4/5	5
T3	6	3	5	4	4	1	4	3	9	9	4/5	6
T4	4	8	3	3	4	8	5	5	9	9	4/5	5/6

Note. ELA=English Language Arts. C= Content. R= Rate. P= Preference. E= Environment.

Comparisons Across Observed and Archived Lessons

Overall, all participants differentiated less during their beginning teaching years than during their intern year. For their current teaching, all participants still used the state standards to develop their lessons (C1) and focused on procedural knowledge (C2). Three participants (i.e., T1, T3, and T4) continued to use concepts in their lessons, (C3) and included creative and critical thinking skills in their teaching (C4). Two of the participants also integrated language arts into their math lessons (C6). Pre-assessment (R8) was used to adjust the curriculum by only one teacher (T4) and post-assessment (R6) was used by one other (T1). While three of the teachers provided variation in task or response dimensions in either math or ELA in the observed lessons (P3), all of them varied their tasks during the intern year. Similar to their intern year, all teachers still arranged their classroom for student interaction (E3) with most having interest centers (E4).

Content. During the intern year all four participants developed their lessons using the state standards (C1), focused their lessons on procedural (C2) and conceptual learning (C3), included creative and critical thinking (C4), and developed an interdisciplinary thematic unit (C7). Two participants (i.e., T3 and T4) differentiated the content area for students' interests (C8) and performance (C9) to guide the content of the lesson.

For their current teaching, all participants still used the state standard to develop their lessons (C1) and focused on procedural knowledge (C2). Three participants (i.e., T1, T3, and T4) continued to organize their lessons using concepts (C3) and included creative and critical thinking skills in their teaching (C4). T1 and T3 integrated multiple disciplines into discipline-based topics (C6). No interdisciplinary thematic units or

lessons based on student's interest and performance were observed or mentioned in the interviews.

Rate. During the intern year, three teachers (i.e., T1, T3 and T4) used pre- and post-assessments to identify students to adapt their lessons (R8 or R9). Only one teacher (T2) did not use assessments but did allow for early finishers to work on a related task (R3). For their current teaching, only one teacher (T4) was still using pre- and post-assessments (R8), and one teacher (T1) was using post-assessments (R6) to vary the amount of time needed for students in learning new content. For T2 and T3, pre- and post-assessments were not observed or mentioned in the interviews, although T3 tended to adjust her lessons if the students became less engaged.

Preference. During their intern year, the majority of the lessons included variation in task or response dimension and the activities were correlated to the lesson's objective (P4). All of the teachers also had at least one lesson where student choice among activities was integrated (P5).

For their current teaching, out of the 7 observed lessons, one teacher (i.e., T2) used varied tasks that were not correlated to the lesson's objective (P2) and two teachers (i.e., T3 and T4) aligned varied tasks to the TEKS and provided students with choices. With the exception of T2, all of the other teachers' lessons were aligned to the objective (P3).

Environment. During their intern year, all teachers arranged the physical room for student interaction (E3) and used learning centers (E5). In addition, three teachers (i.e., T1, T3, and T4) also used the school or community as learning centers (E6).

For their current teaching, all teachers still arranged their classroom for student interaction (E3). For the majority of the lessons, interest centers were also present (E4), and for one lesson (i.e., T4-ELA), learning centers were present (E5).

During the intern year, T4 was the only pre-service teacher who received the highest rating on all four areas of differentiation. She provided for individual differences more than others. Among all the observed lesson, T4's ELA lesson was the most differentiated (i.e., C4, R8, P5, and E5). During her intern year, T2 received the lowest rating (R3) within the rate area because her assessments were poorly designed and did not provide any information regarding the students' performance on the lesson's objectives. T2 still doesn't use pre- and post-assessments to vary the amount of time needed for students in learning new content.

Comparisons Across Participants' Current Math Teaching

For the observed math lessons, all teachers used the state standards to develop their objectives (C1) and focused on procedural knowledge (C2). The majority (i.e., T1, T3, and T4) also used concepts to organize their lessons (C3) as well as asked creative and critical thinking questions (C4) during their math lessons. Only one teacher used pre-assessments to vary the amount of time needed for students in learning new content (R8). With the exception of T1, the teachers did vary the task or response dimensions in at least one subject area, with most aligning their activities to the standards (P3). In addition, for all observed math lessons, the class was arranged for student interaction. T2 was rated the lowest across all four areas of differentiation among all participants in the math area.

Content. For the observed math lessons, all teachers used the state standards to develop their objectives (C1) and focused on procedural knowledge (C2). Three teachers (i.e., T1, T3 and T4) included organized their lessons using concepts and integrated creative and critical thinking skills into their math lessons. Two teachers (i.e., T1 and T3) integrated ELA into their math lessons by having students write their responses in sentences or incorporating mathematics within stories.

Rate. One teacher (T4) used pre- and post-assessments (R8) and one teacher (T1) used post-assessments (R6) to adjust the lessons to students' strengths and needs. For T2 and T3, pre- and post-assessments were not observed or mentioned in the interviews although T3 appeared to adjust her lessons when students became less engaged.

Preference. Three of the teachers (i.e., T2, T3 and T4) varied their tasks or response dimensions in one of the subjects, and with the exception of one teacher (i.e., T2), they aligned their activities to the objective (P3).

Environment. For all observed math lessons the class was arranged for student interaction (E3). All of the teachers also included interest centers (E4) or learning centers (E5) in at least one of their lessons.

Comparisons Across Participants' Current ELA Teaching

For all the observed ELA lessons, the teachers developed their lessons using the state standard (C1), focused their lesson on procedural (C2) and conceptual learning (C3), and included creative and critical thinking (C4). One teacher (i.e., T4) used pre- and post-assessments (R8) and one teacher (i.e., T1) used only post-assessments (R6) to vary the

amount of time needed for students in learning new content. In addition, all teachers aligned their activities to the objective (P3) and arranged the class for student interaction (E3). Among all the observed lesson, T4's ELA lesson was the most differentiated (i.e., C4, R8, P5, and E5).

Content. For all the observed ELA lessons, the teachers developed their lessons using the state standards (C1), focused their lessons on both procedural (C2) and conceptual learning (C3), and included creative and critical thinking skills (C4). One teacher (i.e., T1) used more authentic methods requiring the students to write about their ideas during ELA.

Rate. One teacher (i.e., T4) used pre- and post-assessments (R8) and one teacher (i.e., T1) used post-assessments (R6) to vary the amount of time needed for students in learning new content. For T3, pre- and post-assessment were not observed or mentioned in the interviews although she mentioned adjusting her lessons to increase student engagement.

Preference. For the ELA lesson observed, all teachers aligned their activities to the objective (P3). Two teachers (i.e., T1 and T3) did not vary the task or response dimension (P3). One teacher (T4) included varied materials in her stations (P4) and also provided choices to her advanced students during reading (P5).

Environment. For all the observed ELA lessons, the class was arranged for student interaction (E3). T1 provided students with interest centers (E4) and T4 provided students with learning centers (E5).

Comparisons Across Participants' Current Teaching in Both Subjects

For both subject area lessons, all teachers developed their lessons using the state standards (C1) and organized their lessons using procedural knowledge (C2). With the exception of one teacher, the others used conceptual learning (C3), and included creative and critical thinking (C4). Overall, teachers used the same assessment practices for their math and ELA. In addition, with the exception of T2, teachers aligned activities to the standard (P3) with three teachers varying activities in at least one subject area. All of the teachers arranged the classroom for student interaction (E3) and used interest or learning centers in at least one subject area (E4/E5).

Content. For both lessons, three teachers developed their lessons using the state standards (C1), focused their lessons on both procedural (C2) and conceptual learning (C3), and included creative and critical thinking (C4). In addition, T1 and T2 integrated some ELA in their math lesson.

Rate. Overall, teachers used the same assessment practices for both their math and ELA lessons. T1 only used post-assessments and T4 used pre-and post-assessments to adjust their lessons for individual differences in the time needed for learning. For T3 and T2, pre- and post-assessments were not observed or mentioned in the interviews.

Preference. For both subject areas, most teachers aligned activities with the content. T2 did not align her activities to the standards. T2, T3, and T4 varied their tasks or response dimensions in one of the two subjects. T3 and T4 provided students with choices of learning activities.

Environment. For both subject areas, all teachers arranged the classroom for student interaction (E3). Only T1 used interest centers in both of her lessons. T2 and T3 used interest centers only in their math lesson, and T4 used learning centers only in her ELA lesson.

Summary of Cross-Case Analysis on Differentiated Instructional Practices

By comparing observed and archived lessons, the results showed all participants differentiated less during their beginning teaching than during their intern year. However, participants seem to transfer some of their practices from their intern year to their beginning teaching year. For their current teaching, all participants still used the state standards to develop their lessons (C1) and incorporated procedural knowledge in their learning activities (C2). All teachers still arranged their classroom for student interaction (E3) with most still using either interest or learning centers in at least one subject area. Three of the four teachers also varied their activities in at least one of the subject areas. One the other hand, pre-assessments were used by only one teacher (R8) and no interdisciplinary thematic lessons that might have been a part of a larger unit were observed.

In addition, there appeared to be some parallels between the degree of differentiation during the intern year and during their beginning teacher years. For example, T4 was the only pre-service teacher who received the highest rating on all four areas of differentiation, and she was still differentiating more than others. Furthermore, T2 received the lowest rating (R3) within the rate area during her intern year and T2 still did not use pre- and post-assessments in her classroom.

Some commonalities can be seen between participants in terms of their current teaching within each subject area. By comparing within subject for current math teaching, the result showed that all teachers used the state standard to develop their objectives (C1) and included procedural knowledge in their lessons (C2). The majority (i.e., T1, T3, and T4) also used concept learning (C3) as well as creative and critical thinking (C4) during their math lessons. Only one teacher used pre-assessments to vary the amount of time needed for students in learning new content (R8). With the exception of T2, the teachers did not vary their activities. All but one of the teachers (T2) aligned their activities to the objective (P3). In addition, for all observed math lessons, the class was arranged for student interaction. T2 was rated lowest for the four areas of differentiation among all participants.

By comparing current ELA teaching lessons, observations and interviews showed that all of the teachers developed their lessons using the state standards (C1), used both procedural (C2) and conceptual learning in their lessons (C3), and included creative and critical thinking questions (C4). One teacher (T4) used pre- and post-assessments (R8) and one teacher (i.e., T1) used only post-assessments (R6) to address rate differences in learning new content. In addition, all teachers aligned their activities to the objective (P3) and arranged the class for student interaction (E3). Among all the observed lesson, differentiation was most present in the ELA lesson taught by T4 (i.e., C4, R8, P5, and E5).

Similar practices can be found among different subject areas during their beginning teacher year. By comparing across subjects for their current teaching, the results showed three teachers developed their lessons using state standards (C1),

integrated procedural (C2) and conceptual learning in their lessons (C3), and included creative and critical thinking in their questions (C4). Two of the teachers integrated other subject areas into their math lesson. Overall, teachers used similar assessment practices for their math and ELA with only two of the teachers using pre- and/or post-assessments. In addition, for both subject areas, all teachers arranged the classroom for student interaction and included interest or learning centers in one of the lessons they taught. Three of the four teachers also varied the tasks for at least one of the subject areas.

Influences on Differentiation

Using the influences on differentiation results, the researcher also looked for patterns regarding the influences on beginning teachers' implementation of differentiated practices with diverse students. These comparisons will be presented in this section.

Comparisons Across Participants at the State Level

State standards. During the interviews, all teachers mentioned using the TEKS to develop their lessons. In fact, all observed lessons had activities developed aligned to the state standards. Only T2 included unrelated activities in her interest centers.

High-stakes testing. Both teachers who have students taking the STAAR test at the end of the academic year (i.e., T2 and T4) mentioned feeling the pressure from the high-stakes testing. Along with the school's scheduling of an "intervention time", this pressure influenced T2's limited differentiation practices throughout the academic year. On the other hand, T3 mentioned that she sometimes gave her students the same task to practice for the STAAR test.

Accountability ratings. Districts and campuses are rated on four indicators: student achievement, student progress, closing performance gaps, and post-secondary readiness. For 2013-14 academic year, both districts met standards as a district, C1 and C2 met standards as a campus, but C3 did not meet standards on one of the indicators—student progress. This rating influenced the district's focus, which is discussed at the district level.

Comparisons Across Participants at the District Level

Curriculum. For all teachers, the district provided them with the curriculum. For D1, "bundles" for each subject area and grade level were provided to the teachers. These bundles were organized to include, for each TEK, essential questions and statements, assessments and record keeping, several activities and vocabulary, and the lesson's sequence. In addition, the bundle provided choices of activities above, on, or below grade level for each TEK. For D2, teachers were provided with a scope and sequence, a pacing guide, and specific books for each grade level (i.e., *Mentoring Math, Math In Focus,* and *A-Z Learning*).

Two teachers (i.e., T1 and T2) used the district curriculum as a core part of their lessons; however, the differences in the flexibility of the curriculum influenced their differentiation practice differently. For T1, the organization of the bundle provided choices of activities, which influenced the preference area, depending on whether or not the activities were varied. In addition, the essential questions and statements led to more concept-based lessons. However, the bundle provided teachers with less opportunity to integrate multiple disciplines or teach interdisciplinary thematic units because they were

developed for each subject area. The bundle did provide above- and below-level activities, which helped T1 provide for rate differences in her classroom. For T2, the curricular resources provided by the district provided a strict pacing guide and focused on procedural knowledge. If implemented as the district required, the curriculum would influence the differentiation of both rate and content.

The other two teachers (i.e., T3 and T4) used the curriculum as a guide but also explained how they supplemented the curriculum with additional materials. One of the teachers did note that the district required whole group instruction in math, which influenced her differentiation of preference and environment in that subject area.

Accountability. Even though both districts met the standards as a district for the 2013-14 academic year, individual school accountability ratings varied. For D1, all six elementary schools were rated as "Met the Standards". These positive ratings allowed the teachers within D1's district more flexibility to use differentiation and not necessarily focus the lessons on STAAR testing.

On the other hand, for D2 nine of the fifteen elementary schools were rated as "Did Not Meet Standards", with C3 being one of the schools that failed to meet one of the indicators. D2 therefore placed pressure on campuses to focus on teaching content related to STAAR test to meet the standards this academic year. In fact, all principals within D2 signed a document stating their campuses must meet state standards or they might be demoted to assistant principal positions if their campuses did not meet the state standards.

Comparisons Across Participants at the Campus Level

Principal. Two participants (i.e., T3 and T4) work on the same campus; hence the analysis included three principals (i.e., P1, P2 and P3). Across all participants, the principal played a role in influencing differentiation practices. In fact, all three principals considered differentiation as an important component of teaching. However, P1 and P2 restricted their teacher's differentiation within the rate area. According to P1, students should be accelerated only one grade level above. On the other hand, P2 believed all students should be exposed to the same grade-level materials and then the teacher could differentiate one hour during the school day.

All principals mentioned looking for things related to differentiation. In the area of content, all of the principals mentioned district curriculum and how it provided a structure to the teacher (i.e., what to teach when); however they also felt that the curriculum should be student-centered, particularly P1 and P3. P1 said, "the reading books are the same for all students at each grade level but it is the teacher's job to change it into easier or harder" and P3 mentioned, "I am a big supporter of differentiation … even if it gets off the schedule a little bit." In the area of preference and environment, all of the principals wanted to see student-centered projects, student interaction and high levels of engagement. With rate, P1 limited acceleration to one grade level above, and P2 limited differentiation to one hour per day. While P3 did look for lesson plans that showed the teachers were following the district curriculum, she stated that "differentiation is making sure instruction is based on the child's interests and abilities" and that if teachers could explain to her what they were doing, she was fine with "deviations."

Two teachers (i.e., T1 and T2) mentioned the scheduling, which is organized by the principal, as an influence on their differentiation practices. For T1, the principal (i.e., P1) organized the schedule so that T1 might meet with the higher grade team teachers once a week. According to T1, this meeting helped her in deciding which activities to use with the advanced students. P1 also reinforced T1's abilities to differentiate by having her show teachers at her grade level how to adapt lessons. On the other hand, P2 organized the teaching schedule to include an intervention time. T2 used that time to help those who were struggling with the content.

Team teachers. For three teachers (i.e., T1, T3 and T4) team teachers were viewed as collaborators. For T1 this collaboration helped in developing diverse and varied ideas during the lesson planning. For T3 and T4, team teachers divided their roles so that each developed lessons in designated subject areas. This division of labor created less opportunity to integrate multiple disciplines or teach interdisciplinary thematic units, as well as less opportunity to use student assessment data to develop lessons. For T3, she adjusted lessons as she observed less student engagement; for T4, she used her own pre-assessments to adjust the lessons.

Parents. Parents' influence on differentiation practices was not strong. For T1 and T3 parents were interested in the learning of their children, hence the teacher informed them about individual differences and differentiation and, for T3, would sometimes use the information to adjust lessons. For T4, parents provided her with their perceptions of their child's growth which helped her differentiate within the content and

preference area. For T2, parents were not involved in their children's learning, so they did not influence her differentiation practices.

Comparisons Across Participants at the Classroom Level

The classroom level appeared to have an influence on differentiated instruction, expect for T2. In fact, for her other influences (i.e., high-stakes testing and the principal) had more influence than individual differences.

Classroom composition. Three teachers had identified gifted and talented students in their classrooms. For three teachers (i.e., T1, T3, and T4), having high-level performing students influenced their differentiation practices within the content area. T1's lessons included critical and creative thinking, with the use of authentic methods. T3's math lesson was problem-based, included authentic methods, and integrated some ELA. In addition, T3's ELA lesson included higher-level questioning. For T1 and T4, the advanced students were given above-grade level work, including creative and higher-level thinking.

Student characteristics. Three teachers (i.e., T1, T3, and T4) mentioned student characteristics as influencing their instructional practices. Although different characteristics were mentioned, all three teachers suggested their students influenced their differentiation.

According to T1, she was encouraged to use challenging tasks because her students were capable of performing at a high level. Student characteristics also influenced the inclusion of creative and higher-level thinking.

According to T3, she was encouraged to differentiate because her students worked well together, which influenced the way she arranged the physical environment. In fact, both of her lessons included student interaction, group projects and research. Hence, she provided her students with more problem-based lessons.

On the other hand, T4 mentioned the ease of identifying the needs of students in kindergarten. This ease led her to use pre- and post-assessments to determine the time needed by students to learn new content as well as determine the students' tasks. Accordingly, she provided her advanced students with above-grade-level activities, including critical and higher-level thinking skills.

Comparisons Across Participants at the Individual Level

Knowledge. All participants mentioned that they developed their knowledge of differentiation by attending the same preparation program (i.e., dual certificate program). In fact, as students, they attended classes that focused on differentiated instruction, development, and exceptionalities. In addition, they had field experiences in both gifted and general education settings. During the interviews, all participants mentioned their university program prepared them to differentiate.

During their intern year, all participants developed an interdisciplinary thematic unit, provided students varied tasks or response dimensions aligned with the objective, and used learning centers. In addition, all participants, except one (i.e., T2), used pre-and post- assessments to vary the amount of time needed for students in learning new content. Overall, during their intern year, T4 received the highest rating on all four areas of

differentiation, and T2 was rated lowest on all of the areas when compared to the other teachers.

During the interview, only one teacher (i.e., T1) mentioned her interest in learning and being eager to participate in the district's professional development activities. In addition, the same teacher explained that her knowledge in differentiation continued to grow through experience.

Beliefs. In terms of beliefs and views, two teachers (i.e., T1 and T4) mentioned their background knowledge as an encouragement to differentiate. For T1, her knowledge placed her in a leadership position at her campus. In fact, she helped other teachers in developing differentiated lessons. Only one participant (i.e., T3) mentioned the expectation and accountability, along with feedback motivated her to differentiate during her intern year—apparently more so than in her current teaching.

In addition, for three teachers (i.e., T1, T3, and T4), students seemed to influence their differentiation. T1, T3, and T4 modified their lessons to meet the needs of their students. Their assessments guided their lessons. T1 also viewed students' success as an encouragement to continue differentiation.

Both teachers who were in grade levels that had end-of-year STAAR tests (i.e., T2 and T4) mentioned feeling the pressures from high-stakes testing. For T2, this pressure led her not to differentiate her instructional practice throughout the academic year until the STAAR test was over. On the other hand, T3 differentiated but sometimes gave her students the same task to practice for the STAAR test.

Summary of Cross-Case Analysis on Influences on Differentiated Instructional Practices

By comparing across participants at the state level, the results showed all teachers used the state standards, the TEKS, to develop their lessons. In addition, only the teachers (i.e. T2 and T4) who had students taking the STAAR at the end of the academic year mentioned feeling the pressure from the high-stakes testing.

Across participants, the district provided all teachers with the curriculum aligned to the standards. Two teachers (i.e., T1 and T2) used the district resources as a core part of their lessons, and the other two (i.e, T3 and T4) used the materials as guides to develop their lessons, but added additional resources. The differences in the types of resources provided by the district might have influenced the lessons and the teachers' preparation phase. For T1, the district's curriculum was organized around major questions and varied activities for above and below grade level that might have influenced content, rate, and preference areas. For the other three teachers (i.e., T2, T3 and T4), the district provided them with a pacing guide and materials focused on procedural knowledge. For T2, this influenced how she taught the content; for T3 and T4, this influenced their lesson plans but they found other materials to supplement their lessons.

Also at the district level, both districts have met the standards as a district for the 2013-14 academic year; however, individual school ratings varied. For D1, all elementary schools met standards, which provided the teachers with more flexibility to use differentiation and not necessarily focus on high-stakes testing. On the other hand, for D2, nine of the 15 elementary schools did not meet the state standards. The district pressured principals and teachers by having them sign contract saying that their students would perform well on the STAAR test.

At the campus level, across all participants, the principals considered differentiation as crucial part of teaching. However, two principals (i.e., P1 and P2) restricted their teacher's differentiation practices based on their beliefs (i.e., P1 restricted acceleration to only one grade above, and P2 restricted differentiation to an intervention period after all students were exposed to grade level materials). All of the principals looked for projects and student interactions during their walk-throughs.

Also at the campus level, three teachers (T1, T3 and T4) considered their team teachers as collaborators and supportive in some way of their differentiation practice (i.e., diverse ideas or division of labor). In regards to parents, their involvement varied across the teachers with two using suggestions, two providing information about differentiation, and one suggesting that they were not involved with their children.

At the classroom level, only one teacher (i.e., T2) reported other influences greater than the classroom. For the other three teachers (i.e., T1, T3 and T4), the inclusion of advanced students in their classroom influenced their differentiation practices. All three teachers included critical and higher-level thinking in their lessons and more challenging, problem-based lessons.

By comparing across participants at the individual level, all participants developed their knowledge of differentiation by attending the same preparation program. All teachers mentioned their preparation as an aid to differentiated, and two (i.e., T1 and T4) considered it as an encouragement to continue differentiating. During their intern year, all participants developed an interdisciplinary thematic unit, provided students varied tasks or response dimensions aligned with the object, and used learning centers. Only one participant (i.e., T2) did not use pre- and post- assessment. In addition, only one

participant mentioned her interest in furthering her knowledge in differentiation practices. In their current practices, three teachers (i.e., T1, T3 and T4) seemed students oriented in their differentiation practices.

Overall, all participants differentiated less during their beginning teaching year than during their intern year. The change in the level of differentiation might be due to the different types of influences within the school districts.

CHAPTER FIVE

Conclusions

Diversity must be considered by teachers when preparing and delivering instruction. Demographic trends in the United States show that the nation's schools are increasingly populated by students with differences in culture, language, ethnicity and race, abilities, and socioeconomic status (NCES, 2010). When teachers have a clear understanding of individual differences and implement instructional practices that address the ethnic, cultural and cognitive differences, the academic achievement of students increase (Au, 1980; Gandara, 2002; Garcia, 1993; Lee, 1995; Palinscar & Brown, 1987; Philips, 1972; Reynolds, Walberg, & Weissberg, 1999). Tomlinson and Allen (2000) define differentiation as "a teacher's reacting responsively to a learner's needs" (p. 4). In fact, "what we call differentiation is not a recipe for teaching. It is not an instructional strategy. It is not what a teacher does when he or she has time. It is a way of thinking about teaching and learning. It is a philosophy" (Tomlinson, 2000, p. 1).

Although the literature on instructional practices recommends the use of differentiated instruction, the majority of research related to teachers' use of differentiated instructional practices has shown, in general, teachers tend not to use these practices (Anderson, 2007; Latz, Speirs Neumeister, Adams, & Pierce, 2009; Tomlinson, 2003, 2008; Wormeli, 2005). It's unclear if this limited use of differentiation would exist among beginning teachers, particularly those who were trained in differentiation and who had a background in gifted education, since no research is available.

Therefore, the purpose of this study was to identify the influences on beginning teachers' differentiation within the context of a complex educational system. The primary research question focused on: what factors influence beginning teachers' instructional practices with diverse students? This guiding question led the researcher to investigate the various factors that might influence beginning teachers in their implementation of differentiation with diverse students in their classrooms. Following an extensive review of the literature, the Influences on Differentiation (IoD) framework (adaptation of Bronfenbrenner's theory) was developed to represent different levels (i.e., individual, classroom, campus, district, state) of potential factors influencing beginning teachers' differentiated instructional practices. To enhance the study and its focus on influences, the researcher selected four participants who graduated from the same program. Through this strategic selection, all participants in this study had equivalent background knowledge in differentiation acquired from the same elementary EC-6/GT dual-certificate undergraduate teacher preparation program. In an effort to closely examine variables, the researcher observed the teachers in their classrooms; conducted interviews with the teacher, her team teacher, and her principal; reviewed archival data, including e-folio entries, observation notes, candidate reflections, and conference summaries; and verified all of the information with the teacher and their faculty supervisor, instructor, and field placement director during their pre-service program. In order to analyze the data, intra- and cross-case analyses were conducted. First, the researcher used the *Classroom Instructional Practices Scale* (CIPS) to determine the teachers' current level of differentiated instructional practices and compared the ratings to the ratings of their differentiation practices during their intern year. The CIPS focused on four major areas of

adaptive classroom practices: content, rate, preference and environment. Next, the Influences on Differentiation framework (IoD) was used to identify the influences on the beginning teacher's implementation of differentiated practices with diverse students. This framework suggested five systems: (a) individual or the teacher, which included her knowledge and beliefs; (b) the microsystem or the elements at the classroom level, which consisted of the teacher's classroom composition and the students' characteristics; (c) the mesosystem or the campus level and the interactions within the campus, which encompassed school personnel such as the principal and fellow or team teachers, as well as parents; (d) the exosystem or the school district level, which included the school policies related to time, resources, and paper work; and (e) the macrosystem or the state level, which represented the culture regarding the implementation of standards and high-stakes testing. By merging the literature related to influences on teacher's instructional practices and the bio-ecological system framework developed by Bronfenbrenner, the IoD was used to identify the influences on the beginning teacher's implementation of differentiated practices with diverse students—from the macrosystem or state level to the individual or teacher—her knowledge and beliefs.

To begin the analysis, the researcher read through all the gathered information. This process provided the researcher with an overview of the entire accumulated data and an opportunity to identify any potential unexpected themes. Then, intra-case analysis was conducted, followed by cross-case analysis. The intra-case analysis concentrated on the data collected per case. The researcher read each case individually and used the two identified frameworks to code the data. For any unexpected themes that emerged the researcher reread previous data with the new theme in mind. For the cross-case analysis,

the themes identified within each case were compared and contrasted between cases, as well as related to the frameworks. All of these analyses were reviewed by individuals familiar with the cases to corroborate findings and to triangulate the data. These corroborators included individuals who were interviewed and those familiar with the teachers during their pre-service education—course instructors and their faculty supervisor.

This chapter is organized around the results comparing the four beginning teachers' practices with their previous practices in the four areas of differentiation with diverse students and the results that identified influences on the participants' implementation of differentiated instructional practices as compared to their practices in their pre-service university program. The chapter will conclude with limitations, implications for practice, and recommendations for future research.

Beginning Teachers' Differentiated Instructional Practices with Diverse Students

Children come to school with multiple and varied experiences, abilities, learning preferences, interests, and talents (Bruner, 1985; Darling-Hammond, 1995). In order to match the instructional methods to each student's needs, the teacher should consider four major areas: (a) the knowledge and skills needed as well as desired by the student, which represents the content; (b) the time needed to learn new material, which represents the rate; (c) the type of setting that enhanced the learning experience, which represents the environment; and (d) the student's choice of learning resources, which represents preference (Johnsen, Haensly, Ryser, & Ford, 2002). Using these areas, the differentiated instructional practices of beginning teachers were examined to determine the extent that

each of them differentiated instruction to meet the needs of diverse students in their classroom.

Overall, all participants differentiated less during their beginning teaching years than during their intern year. For their current teaching, all participants still used the state standards to develop their lessons (C1) and focused on procedural knowledge (C2). Three participants (i.e., T1, T3, and T4) continued to use concepts in their lessons (C3) and included creative and critical thinking skills in their teaching (C4). Two of the participants also integrated language arts into their math lessons (C6). Pre-assessment (R8) was used to adjust the curriculum by only one teacher (T4) and post-assessments (R6) were used by one other (T1). While all of them varied their tasks during the intern year, only three of the teachers provided variations in task or response dimensions in either math or ELA in the observed lessons (P3). Similar to their intern year, all teachers still arranged their classroom for student interaction (E3) with most having interest centers (E4).

Content

During the intern year all four participants developed their lessons using the state standards (C1), focused their lessons on procedural (C2) and conceptual learning (C3), included creative and critical thinking (C4), and developed an interdisciplinary thematic unit (C7). Two participants (i.e., T3 and T4) differentiated the content area for students' interests (C8) and performance (C9) to guide the content of the lesson.

For their current teaching, all participants still used the state standards to develop their lessons (C1) and focused on procedural knowledge (C2). Three participants (i.e., T1, T3, and T4) continued to organize their lessons using concepts (C3) and included

creative and critical thinking skills in their teaching (C4). T1 and T3 integrated multiple disciplines into discipline-based topics (C6). No interdisciplinary thematic units or lessons based on student's interest and performance were observed or mentioned in the interviews.

These results showing that the majority of the beginning teachers used critical and creative thinking are similar to observations of teachers in general education classrooms. For example, Archambault, Westberg, Brown, Hallmark, Emmons, and Zhang (1993) reported that the inclusion of higher-level thinking skills was the most common instructional practice used with gifted and talented students within the general education classrooms across the United States. These practices have been found to encompass several benefits. Researchers of critical thinking agree on specific abilities: critical thinkers have the skills to analyze arguments, claims, or evidence (Ennis, 1985, Facione, 1990; Halpern, 1998; Paul 1992); make inferences using inductive or deductive reasoning (Ennis, 1985, Facione, 1990; Paul 1992, Willingham, 2007); judge or evaluate (Case, 2005; Ennis, 1985, Facione, 1990; Lipman, 1988; Tindal & Notel, 1995) and make decisions or solve problems (Ennis, 1985; Halpern, 1998; Willingham, 2007). Research on creative thinking has also been associated with benefits: creative thinking has positive effects on students in the areas of motivation, alertness, curiosity, self-confidence, boldness of ideas, and enthusiasm for learning and school (Hébert, 2002); creative thinking helps learners be more effective when teachers aren't around, creates possibilities for solving future problems that cannot be anticipated, may lead to powerful consequences in lives, and can produce great satisfaction and joy (Treffinger, 1980); creative strategies are more effective in producing product inventions (Rule, Baldwin, &

Schell, 2009); and creativity is beneficial in using other thinking process, such as problem solving (Sternberg, 1997).

The majority of the beginning teachers also used concept teaching. The research and agreement on the importance of conceptual understanding is undeniable. In fact, Bransford, Brown, and Cocking (2000) summarized research supporting the importance of conceptual understanding and wrote:

> Experts' knowledge is connected and organized around important *concepts* (e.g., Newton's second law of motion) (p. 9).
>
> To develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the *context of a conceptual framework*, and (c) organize knowledge in ways that facilitate retrieval and application (p. 16).
>
> … organizing information into a *conceptual framework* allows for greater *transfer*; that is, it allows the student to apply what was learned in new situations and to learn related information more quickly (p. 17).

Beyond the research, the emphasis on conceptual teaching is also found in standards developed by professional organizations. For example, the National Council of Teachers of Mathematics (NCTM; 2009) state:

> Any national mathematics curriculum must emphasize depth over breadth and must focus on the essential ideas and processes of mathematics (p. 1).
>
> …research on the learning of complex subjects such as mathematics has solidly established the important role of *conceptual understanding* in the knowledge and activity of persons who are proficient (p. 2).

On the other hand, one of the beginning teachers did not use critical and creative thinking or concept teaching but closely adhered to the standards and district curriculum. In fact, researchers suggest that when teachers are faced with the challenges of covering the content identified by the state standards, teachers believe they do not have the time or resources to integrate critical thinking into daily instruction (Astleitner, 2000; Petri,

2011) so they concentrate on lower-order thinking skills (American Diploma Project, 2004; Darling-Hammond, 2004; Neil, 2003). Perhaps these challenges were faced by this beginning teacher.

While professionals in the field of gifted education have recommended the use of themes and multidisciplinary units because they facilitate differentiation in the content, process and product areas (Avery & Little, 2011; Davis, Rimm, & Seigle, 2011; Roberts & Roberts, 2009; VanTassel-Baska, 2003), these beginning teachers did not incorporate interdisciplinary-based units in their instruction.

Rate

Assessment is a key to serving all children and matching instructions to their needs. In fact, professional organizations emphasize their importance. For example, assessment is among the six overarching principles in *Principles and Standards for School Mathematics* (NCTM, 2000). This principle stated, "Assessment should support the learning of important mathematics and furnish useful information to both teachers and students" (p. 2). The National Association for Gifted Children also stressed the importance of assessment and stated:

> 2.2. Identification. Each student reveals his or her exceptionalities or potential through assessment evidence so that appropriate instructional accommodations and modification can be provided (NAGC, 2010, p.9)

Roberts (2012) described effective differentiation as including, among others, pre-assessment, which provides teachers with information that will allow them to match the learning experiences to what students know and are able to do. She further explained that this type of assessment aims at gathering data about students' readiness to begin a new unit of study in terms of content, process, product, and preference. She wrote:

> [A]lthough the root of the word is different, simply providing different learning experiences for children in a class does not make differentiation effective. Differentiating learning experiences without data is whimsical and cannot be defended. Data provide information to guide the teacher in planning challenging learning for all students. (Robert, 2012, p. 123)

Moon (2010) also emphasized the role of assessment in differentiating. In fact, differentiation requires decision making and hence the presence of three phases of assessment: (a) the pre-assessment phase which provided information for planning instruction; (b) the ongoing or formative assessment phase to help guiding instruction; (c) and the summative (post) assessment phase to determine the students' level of mastering of identified goals and objectives (Moon, 2010). Using the different type of assessments was only observed with T4, post-assessment was observed with T1, and no use of assessments were observed with T2 and T3.

Through the use of assessments, the teachers should be able to determine the amount of time each student needs to learn new content, and hence match the curriculum to the learner's needs (Roberts, 2010). Thus, both pacing and acceleration are options to be used (Riley, 2009). Pacing is extending or shortening the time allowed for students to interact with the content (Hayes, 2012). For students who are facing difficulties with the content, deceleration of instruction would aid them in mastering the necessary knowledge and skills (Edgecombe, 2011) and accelerating instruction aids gifted and advanced learners. Bickel and Bickel (1986) explain that decisions about the pace of instruction directly affect student learning outcomes. Acceleration is an educational intervention that is ideally suited to gifted students (Feldhusen, 1985; Gallagher & Gallagher, 1994). Acceleration has been researched, reviewed and discussed a great deal (Culross, Jolly, & Winkler, 2013). Studies on acceleration have shown higher academic achievement, with

no evidence of social or emotional difficulties, for gifted and talented students (Boazman & Sayler, 2011; Colangelo, Assouline, & Gross, 2004; Hoogeveen, Hell, & Verhoeven , 2009; Kulik & Kulik, 1984; Rogers, 1991).

Unfortunately, in this study only two of the beginning teachers continued to use pre or post-assessments (T1 and T4) to vary the rate for individual students. T1 used post-assessments to adjust the lessons for the next day and T4 used pre- and post-assessments. These practices are in sharp contrast to their intern year when three of the beginning teachers used both pre- and post-assessments. T2 did not use pre- and post-assessments that assessed content during her intern year and still did not incorporate these practices in her current teaching.

Preference

During their intern year, the majority of the lessons included variation in task or response dimension and the activities were correlated to the lesson's objective (P4). All of the teachers also had at least one lesson where student choice among activities was integrated (P5). For their current teaching, out of the 7 observed lessons, only one teacher (T2) used varied tasks that were not correlated to the lesson's objective (P2). Two teachers aligned varied tasks to the TEKS and provided students with choices (T3 and T4).

The goal in differentiating preference is to give students the opportunity to "select the learning resources that best fits their way of learning. The tasks vary in format and response dimensions. Students may choose to work in small groups, large groups, pairs, or individually" (Johnsen, Haensly, Ryser, & McIntosh, 1994, p. 56). According to Tomlinson and her colleagues (2003), "effective differentiation varies the materials used

by individuals and small groups of students in the classroom" (p. 132). Research has shown that student gains are greater when teachers use varied materials for different instructional groups, compared to the use of same material for all groups (Kulik & Kulik, 1991; Lou et al., 1996). However, as Good (2006) explains, teachers sometimes have misconceptions about differentiation, which might have been observed for T2. Teachers need to know that "differentiation is not providing a variety of different, unrelated activities for students" (p.12), but rather providing well-planned varied instructional activities based on assessment information and related to the objective of the unit of study (Good, 2006). The use of varied activities aligned to objectives were observed for T1, T3 and T4.

In addition, Griggs (1991) explained that accommodation to individual's preference for learning can result in positive attitudes towards learning, increased productivity, academic achievement, and creative production. Giving students choices and allowing them to schedule their activities encourages independence and keeps students engaged (Feldhusen, 1993). In fact, Renzulli and Smith (1984) stated, "students may become more involved in learning what has to be learned if we offer choices of how information of skills can be acquired" (p. 47). Student choice of varied tasks was only observed during T3's math lesson and T4's ELA lesson.

Environment

During their intern year, all teachers arranged the physical room for student interaction (E3) and used learning centers (E5). In addition, three teachers (T1, T3, and T4) also used the school or community as learning centers (E6). For their current teaching, all teachers still arranged their classroom for student interaction (E3), and

interest centers were present (E4) for the majority of the lessons. In one lesson (T4-ELA), learning centers were present (E5).

Differences were noted by subject. For example, T3 and T4 did not use the same differentiated practices within the environment area for both their math and ELA lessons. In T3's math lesson, she included interest centers, while in her ELA lesson, she did not include any centers. The reverse was true for T4. In her ELA lesson, the school was used as a learning center, while in her math lesson, she did not include any centers.

Researchers suggest that modifications in the environment help make the necessary changes in the other areas (i.e., content, preference and rate; Hunt & Seeley, 2009). In fact, "the way classrooms are structured reflects the teacher's thoughts and philosophies on how students learn and how the students, in turn, will perform" (Hunt & Seeley, 2009, p. 37). For example, if the goal is learning by investigation, then the learning environment should be structured for exploration by making sure students have access to many resources, are able to interact with other students in the classroom, and have the opportunity to test their investigations. The teacher should take into consideration the student's interests, learning needs and characteristics when planning (Clark, 2002).

According to Kaplan (2009), the classroom environment can provide a support system:

1. The environment serves as a constant reinforcement to focus students' attention and interest on the elements of the curriculum, and
2. The environment provides opportunities for students to engage in self-directed activities that review and enrich the elements of the curriculum. (p. 125)

Hence teachers should be aware of the different ways the classroom can be organized by thinking about the readily available resources such as bulletin boards and those that can be added such as learning centers or stations (Clark, 2002; Hunt & Seeley, 2009; Kaplan, 2009). In this study, for the majority of the lessons observed, teachers arranged the classroom to include centers.

Summary

By comparing observed and archived lessons, the results showed all participants differentiated less during their beginning teaching than during their intern year. However, participants seem to transfer some of their practices from their intern year to their beginning teaching year. For their current teaching, all participants still used the state standards to develop their lessons (C1) and incorporated procedural knowledge in their learning activities (C2). All teachers still arranged their classroom for student interaction (E3) with most still using either interest or learning centers in at least one subject area. Three of the four teachers also varied their activities in at least one of the subject areas. One the other hand, pre-assessments were used by only one teacher (R8) and no interdisciplinary thematic lessons that might have been a part of a larger unit were observed.

In addition, there appeared to be some parallels between the degree of differentiation during the intern year and during their beginning teacher years. For example, T4 was the only pre-service teacher who received the highest rating on all four areas of differentiation, and she was still differentiating more than others; T2 received the lowest rating (R3) within the rate area during her intern year and still did not use pre- and post-assessments in her classroom.

These similarities and differences in the level of differentiation might be due to the different type of influences at different levels within the system—state, district, campus, classroom composition, and individual.

State Level

In this study, the influences identified at the state level were the same for all participants and included: state standards (i.e., TEKS), accountability ratings, and STAAR testing for 3rd grade through 8th grade. In the case of these beginning teachers, the school districts' policies and procedures regarding state standards and requirements were more directly influential than the state's requirements by themselves. However, the state level requirements did influence the school district. For example, the TEKS were incorporated into the district curriculum, benchmark tests, and data accounting procedures that were used to note progress of students toward content addressed in the STAAR test. The district's accountability ratings affected the emphasis on high-stakes testing. Darling-Hammond and Wise (1985) explained the importance of these standards by suggesting, "standards directed at students are, of course, intended to influence the actions of teachers" (p. 317) and are effective to the degree that the standards are imposed.

District Level

In this study, both districts incorporated the state level requirements into three areas of influence on the beginning teachers: curriculum, administration, and accountability.

Curriculum. In this study, the district's curriculum seemed to influence the differentiated instructional practices of the beginning teachers. At D1, teachers were provided with a "bundle" organized to include for each TEK essential questions and statements, assessments and record keeping forms, several activities and vocabulary, and the lesson's sequence. In addition, the activities were labeled as above, on, or below grade level. The essential questions and statements within the bundle seemed to orient the lesson towards concept teaching, and the teachers had flexibility in selecting activities for students. The availability of different activities for the same objective might have influenced the preference area within the differentiation practices; however, it depended upon the variation of the activities within the bundle. In addition, teachers were provided with less opportunity to integrate multiple disciplines or teach interdisciplinary thematic units because the bundles were developed for each separate subject area. For example, for the observed lessons, T1 used the bundle provided by the district to develop her lessons. Her lessons included procedural knowledge, as well as concept learning and higher-level thinking. In addition, students in different groups were provided with different worksheets that incorporated the same skills and concepts, but with different complexity, which related to the above, on, and below grade-level options. The selected activities did not appear to vary the format or the response dimensions, but the students did have choices of manipulatives in interest centers.

At D2, teachers were provided a curriculum focused primarily on procedural knowledge needed for the STAAR test, a rigid pacing guide for each week, and electronic resources that helped keep track of student progress. Even though there were variations between the beginning teachers in D2 (T2, T3, and T4), the curricular resources

influenced the content and, for some, the rate areas within the differentiated instructional practices of teachers.

For example, T2's observed lesson was tightly aligned with the district curriculum. Her lesson focused on procedural knowledge, and she paced the content according to the school district's guide. In addition, T2 did not use any pre- and post-assessments in her lesson, since she believed that student progress was already being assessed through the electronic program provided by the district.

For T3, the district's resources did not seem rigorous enough, and for that reason, she found her own resources and used the TEKS to guide the lessons she developed in the math area for her team. The math lesson observed included activities that were problem-based, authentic to the discipline, and integrated some ELA. Students in T3's class began with the same lesson but ultimately were allowed to select projects with varied task and/or response dimensions. Her ELA lesson, on the other hand, was prepared by another teacher on her team and was less differentiated.

Similarly, T4 viewed the district's curriculum as stringent, especially with the requirement of teaching math as a whole group. However, she accommodated for differences within the restrictions, since she believed she had the knowledge and her students needed differentiated instructional practices. For both of her lessons, she used pre- and post-assessments and included concept learning and higher level thinking. Due to the district's requirement, her math lesson included less differentiated practices than her ELA lesson. In her ELA lesson, she included learning centers and more student choices of varied tasks.

Similar to the results in this study, previous studies have shown that teachers need to deal with the lack of appropriate resources, which influence their decisions about using a particular instructional practice over another (Hawkins, 2009). In their study, Case and Gable (2011) found that even though teachers felt prepared to differentiate, the lack of district support included limited resources and time to collaborate with other teachers. These obstacles made it difficult for teachers to deviate from traditional structures and differentiate instruction to meet the needs of the classroom. Similar findings were reported by He and Cooper (2011) who examined the concerns and struggles of student teachers as they became first-year teachers. These beginning teachers stated that a lack of resources was a factor restricting their classroom practices. Also, in their studies, Daves, Morton, and Grace (1990) and Jones and his colleagues (2006) found resources as a major influencer on beginning teacher's instructional practices (Daves, Morton, & Grace, 1990; Jones et al., 2006). According to Waters and Marzano (2006), district leadership has the responsibility to provide teachers with necessary resources to support the instructional practices defined by the district. They explain the district's role in terms of determining the instructional practices within the classroom:

> With respect to goals for classroom instruction, this responsibility *does not* mean that the district establishes a single instructional model that all teachers must employ. However, it *does* mean that the district adopts a broad but common framework for classroom instructional design and planning, common instructional language or vocabulary, and consistent use of research-based instructional strategies in each school. (Waters and Marzano, 2006, p. 12)

Administration. In this study, the administration at the district level seemed to influence teacher expectations. At D1, the administration seemed stable and hired from within the school district, even hiring their graduates who knew the culture. This stability

helped the teachers in knowing what the district expected of them and created clear communication of expectations for those working at D1. In fact, during the interviews, the researcher noted consistency in information among the participants (i.e., T1, TT1, and P1) working at D1.

At D2, on the other hand, the administration had made a variety of changes within the last few years. Although the superintendent had been in her position since 2011, the department directors had changed significantly within the past two years. In fact, the director of field placements at the university said that only one administrator from the superintendent's council (e.g., budget director, directors of elementary and secondary education) had remained for longer than three years. These changes most likely influenced the communication of required expectations to principals and teachers. During the interviews, the researcher noted some inconsistencies in information among the participants (i.e., T2, TT2, P2, T3, TT3, T4, TT4 and P3) working at D2. For example, while T4 mentioned that the district restricted the math lesson to whole group, T2 and P3 explained that the district was interested in seeing differentiation and grouping. Because of these inconsistencies, once the data were analyzed, the researcher conducted two external audit meetings with the university director of the office of professional practice and the university liaison to verify these findings.

Previous studies have shown that the stability at the district level leadership matters on what occurs within the classroom and students' achievement (Firestone, 1989; Kronley & Handley, 2003; MacLaughlin & Talbert, 2003; Massell & Geortz, 2002; Togneri & Andreson, 2003). Case studies have shown that teachers valued consistency at the administration level (Massell & Geortz, 2002). Stability in expectations gave them

multiple opportunities to learn and practice any changes they were expected to make (Massell & Geortz, 2002). Elmore and Burney (1997) asserted it is important for districts "to focus centrally on instructional improvement and to sustain that commitment long enough for people within the district to internalize it and to engage in problem solving consistent with that commitment" (p. 3). They stated, "Instructional change is a long multi-stage process … [that] involves at least four distinct stages—awareness, planning, implementation, and reflection." At any point teachers and principals may be at "different stages of development" (p. 1).

Accountability. In this study, depending on the accountability rating, the district determined the focus and flexibility of instructional practices required by teachers. For the 2013-14 academic year, D1 had met state standards as a district, as well as all of its six elementary schools. For the 2014-15 academic year, the teachers at D1 were provided a bundle that gave them the flexibility to choose the activities for their lessons that matched students' needs. As previously mentioned, for T1 the bundle provided some flexibility to differentiate, particularly in the content and rate areas.

For 2013-14 academic year, D2 met the state standards as a district, but nine campuses failed to meet the state standards. For the 2014-15 academic year, the district set the goal of increasing student testing performance and wanted individual campuses to be aligned with the district's curriculum and instructional goals. In fact, the principals could be demoted to assistant principal positions if their campuses did not meet state standards. In addition, the Board of Trustees at D2 decided to award merit bonuses, varying between hundreds to thousands of dollars, to teachers whose students from low socioeconomic backgrounds passed the test; teachers whose students performed poorly

could lose their jobs. In addition, teachers were provided with curriculum materials that focused more on the procedural knowledge needed to take the STAAR test and electronic resources that helped keep track of student progress. As previously explained, for T2 the curriculum restricted her differentiated instructional practices For T3 and T4, they viewed the curriculum as not providing rigorous content, so they looked for additional resources and tried to meet the needs of their students within the curricular restrictions.

These results are similar to those reported in the literature. In their review of a total of 81 peer articles, books, book chapters, and reports, Rorrer, Skrla, and Scheurich (2008) found that, among other actions, the district reorients the organization when trying to improve student achievement. In fact, the district refines the organizational structure and process to align the district work with the goals of improving student achievement. In one study, Peterson (1999) identified the following organizational structure changes: (a) district leadership exerting more control over and involvement in decision making and reform implementation, (b) increasing attention and resources (time and money) to the curriculum and instruction, (c) hiring or replacing persons to support the mission, and (d) monitoring the technical core. These structural changes were also found in other studies looking at districts trying to increase student achievement (Cawelti, 2001; Corcoran, Fuhrman & Belcher, 2001; Desimone, Porter, Birman, Garet, & Yoon, 2002; Honig, 2003; McLaughlin & Talbert, 2003). However, studies have also shown that structural changes at the district level causes, at first, confusion and disorder for teachers (Daly & Finingan, 2010; Coburn & Russel, 2008; Spillane, 2002) and only with stability for a period of time do regularities start shaping teachers' behavior, beliefs, and role

expectations (Daly & Finingan, 2010; Coburn & Russel, 2008; Eilers & Camacho, 2007; Hanushek, Kain, & Rickin, 2004).

In addition, researchers who have studied teacher incentives show how these incentives influence teachers in shifting their instructional practices to align with the district's goals and curriculum (Booher-Jennings, 2006; Heilig & Darling-Hammond, 2008; Korets, 2005). Offering teachers bonuses for improving their students' test scores is common in the United States (Hout, Frueh, & Elliott, 2012) and has shown to shift the teachers' instructional practices toward students who are struggling (Bettingger, 2012; Hout, Frueh, & Elliott, 2012; Kane, Staiger, Frissmer, & Ladd, 2002). However, according to Baker and his colleagues (2010), "although standardized test scores of students are one piece of information for school leaders to use to make judgments about teacher effectiveness, such scores should be only a part of an overall comprehensive evaluation" (p12). They also explain, "excessive focus on standardized testing can lead to narrowing and over-simplifying the curriculum to only the subjects and formats that are tested" (Baker et. al, 2010, p.4). In fact, King-Shaver (2008) explained that teachers do not implement differentiation because they fear moving away from the authorized curriculum may result in lower standardized test scores. This research certainly explains the pressures that T2 felt within D2.

Campus Level

The campus represents the interactions taking place between school personnel; accordingly, if the belief system supports differentiation as a successful pedagogical method that uses student differences of readiness, interest, and learning preference to improve achievement, then teachers will adopt differentiation practices in the classroom

(Hawkins, 2009). In this study, at the campus level, four areas of influences were examined: the principal, the team teacher, the parents, and the type of school campus.

Principal. In this study, across all participants, the principal played a role in influencing differentiation practices. In fact, all three principals considered differentiation as an important component of teaching. Overall, P1 and P3 were more flexible than P2 and felt that the curriculum should be student-centered. P1 said, "the reading books are the same for all students at each grade level, but it is the teacher's job to change it into easier or harder" and P3 mentioned, "I am a big supporter of differentiation … even if it gets off the schedule a little bit." P3 looked at lesson plans to make sure the teachers were following the district curriculum, but she stated that "differentiation is making sure instruction is based on the child's interests and abilities" and that if teachers could explain to her what they were doing, she was fine with "deviations." Teachers on both of these campuses (i.e., T1, T3 and T4) differentiated in the content area. On the other hand, P2 wanted the teachers in her school to follow D2's curriculum pacing guide and limited differentiation to one hour per day. For this reason T2's lesson was whole group and focused on procedural content.

Both P1 and P2 restricted their teacher's differentiation within the rate area. According to P1, students should be accelerated only one grade level above so T1 met with the third grade teachers but did not gather resources for any other grade levels except her own. As mentioned before, P2 wanted all of the students to be exposed to the same curriculum, which was paced according to the district's curriculum guide.

All principals mentioned looking for classroom practices related to differentiation. In the area of content, all of the principals mentioned the district curriculum and how it

provided a structure to the teacher (i.e., what to teach when) and in the areas of preference and environment, they wanted to see student-centered projects and high levels of engagement.

These principals influence on their teachers was clearly observed in the lessons. P1's influence on the differentiation practices of T1 was apparent. She used T1 as a model and resource to other teachers. Therefore, T1 incorporated concept teaching, encouraged student interactions, and used post-assessments to guide instruction and her activities. She might have not used pre-assessments because of the rate of advancement allowed by the principal (e.g., one grade level above). The use of pre-assessments, particularly at varied times, might conceivably have accelerated her students at a faster pace. P2 also influenced T2. The rigid schedule, the focus on struggling students only at a specific time, and the requirement to teach everyone grade level content influenced T2's limited differentiated practices. T2 did not use any assessment to guide her planning, her lesson focused on procedural knowledge, and she used the differentiation time to work with the students who were struggling and needed further practice. P3 influenced T3 and T4's differentiation, within the content area of differentiation, they both deviated from the district curriculum, which focused on procedural learning, and found their own resources; within preference, T3 used varied activities in math, T4 in ELA; and in the environment area, T3 used learning centers in math and T4 used learning centers in ELA.

These findings are similar to previous research results. Using a qualitative case study, Hertberg-Davis and Brighton (2006) examined the characteristics of principals that impacted the teacher's willingness and ability to differentiate instruction for all learners. The analysis showed that the level of a principal's verbal and behavioral support of

differentiation had a major influence on the teachers' implementation of differentiation. In fact, the classroom practices mirrored the principal's views and priorities towards differentiation.

Two teachers (i.e., T1 and T2) mentioned the scheduling, which was organized by the principal, as an influence on their differentiation practices either positively or negatively. For T1, the principal (i.e., P1) organized the schedule so that T1 might meet with the higher grade team teachers once a week. According to T1, this meeting helped her in deciding which activities to use with the advanced students. P1 also reinforced T1's abilities to differentiate by having her show teachers at her grade level how to adapt lessons. On the other hand, P2 organized the teaching schedule to include only one intervention time. T2 used that time to help those who were struggling with the content but did not differentiate during the rest of the school day.

Team teachers. For three teachers (i.e., T1, T3 and T4), team teachers were viewed as collaborators. According to Walther-Thomas and Brownell (2001), for differentiation to be successful, all members of the teacher team at different grade levels should "think about what is good for all children and then determine how they can work together" (p. 178). This was apparent with T1. In fact, the collaboration helped in developing diverse and varied ideas during the lesson planning.

Weinbaum et al. (2004) identified how an environment that encouraged a collaborative professional learning community as important in implementing differentiation. For T3 and T4, they were in a professional development school, which encouraged collaboration among their team and local university faculty; however, their team divided their roles so that each developed lessons independently in designated

subject areas to limit the time needed for planning (i.e., the lack of an environment which encouraged a collaborative professional learning community). This division of labor created less opportunity to integrate multiple disciplines or teach interdisciplinary thematic units, as well as less opportunity to use student assessment data to develop lessons. For T3, the lesson developed by her team member was less differentiated than the one she developed in math. She only adjusted her lessons as she observed less student engagement. On the other hand, T4 used her own pre-assessments to adjust the lessons of her team members.

Parents. In previous studies parents have been found as a major factor influencing beginning teacher's instructional practices. Even though teachers are concerned about parent's reactions towards their teaching, usually parents have been seen as a support of their teaching strategies (Deal & White, 2009). Using a case study approach, Deal and White (2009) found that teachers valued parents' contributions especially when they volunteered in helping within the classroom or preparing materials needed for the following lesson. Beginning teachers considered parents' involvement as a support for their instructional practices (Daves, Morton, & Grace, 1990; He & Cooper, 2011). Drawing from 45 survey responses, Daves, Morton and Grace (1990) found that teachers rated parents as the fourth most important support in making adjustments in instructional practices, which followed principals being ranked first, fellow teachers as second, and resources as third. In addition, He and Cooper (2011) found that beginning teachers considered the lack of parental involvement as a factor restricting their classroom practices. In fact, beginning teachers hoped for additional involvement from parents when a child's academic success and behavior were of concern. They believed

that parents could be the greatest ally or biggest enemy depending on their involvement with the teachers and their children.

For this study, parents' influences on differentiation practices were mixed. Since the parents inquired about their children's learning, T1 and T3 informed them about individual differences and differentiation; and sometimes T3 used the information to adjust lessons. For T4, parents provided her with their perceptions of their child's growth, which helped her differentiate within the content and preference area. For T2, parents were not involved in their children's learning, so they did not influence her differentiation practices. Overall, the beginning teachers did not use parents as a resource.

Type of campus. Although in previous studies the type of campus has not been identified as an area of influence on teachers' differentiated instructional practice, in this study, T3 and T4 explained how being a teacher in a professional development school influenced their decision to differentiate. In fact, through the collaboration with the university, teachers received new ideas and encouraged differentiation. Having pre-service teachers in their classroom, both beginning teachers mentioned they needed to model differentiation. According to studies conducted by the university, this collaboration provided benefits for the pre-service teachers, the supervising teachers, and the classroom students.

Classroom Level

At the classroom level, two areas of influence were identified by this study: classroom composition and student characteristics. The classroom level appeared to have an influence on differentiated instruction, except for T2. In fact, for her, other influences

(i.e., high-stakes testing and the principal) had more influence than individual differences.

Classroom composition. In this study, all teachers had identified gifted and talented students in their classrooms. For three teachers (i.e., T1, T3, and T4), having high-level performing students influenced their differentiation practices within the content area. T1's lessons included critical and creative thinking and the use of authentic methods. T3's math lesson was problem-based, included authentic methods, and integrated some ELA. In addition, T3's ELA lesson included higher-level questioning. For T1 and T4, the advanced students were given above-grade level work, including creative and higher-level thinking.

Similar to this study, the inclusion of higher level thinking skills was found to be the most common instructional practices used with gifted and talented students within the general education classroom across the United States (Archmabault, Westberg, Brown, Hallmark, Emmons, & Zhang, 1993). As previously mentioned, these practices have been found to encompass several benefits. (Case, 2005; Ennis, 1985, Facione, 1990; Halpern, 1998; Hébert, 2002; Lipman, 1988; Paul, 1992; Rule, Baldwin, & Schell, 2009; Sternberg, 1997; Tindal & Notel, 1995; Treffinger; 1980; Willingham, 2007).

Student characteristics. In this study, three teachers (i.e., T1, T3, and T4) mentioned student characteristics as influencing their instructional practices. Although different characteristics were mentioned, all three teachers suggested their students influenced their differentiation. T1 specifically mentioned the use of challenging tasks because her students were capable of performing at a high level. Her student

characteristics influenced her inclusion of creative and higher-level thinking. T3 was also encouraged to differentiate because her students worked well together, which influenced the way she arranged the physical environment. In fact, both of her lessons included student interaction, group projects and research. Hence, she provided her students with more problem-based lessons. Having the majority of the teachers' differentiated instructional practices being influenced by the classroom composition and student characteristics showed that these teachers understood that an effective use of instructional practices takes into account individual differences. Researchers also emphasize the importance of students in determining differentiation practices. Tomlinson and Allen (2000) defined differentiation as "a teacher's reacting responsively to a learner's needs" (p. 4). Children come to school with multiple and varied experiences, abilities, learning preferences, interests, and talents (Bruner, 1985; Darling-Hammond, 1995). Teachers should shift their thinking from completing the curriculum to being compelled by the individual students (Tomlinson, 2000).

In addition, T4 mentioned the ease of identifying the needs of students in kindergarten. This ease led her to use pre- and post-assessments to determine the time needed by students to learn new content as well as determine the students' tasks. Accordingly, she provided her advanced students with above-grade-level activities, including critical and higher-level thinking skills. These findings were unexpected since previous research has shown that second and third year beginning prekindergarten and kindergarten teachers considered the class composition as a barrier (Jones et. al, 2006).

Individual Level

In this study, at the individual level, two areas of influences were identified: knowledge and beliefs.

Knowledge. In this study, all participants mentioned that they developed their knowledge of differentiation by attending the same preparation program (i.e., dual certificate program). As students, they attended classes that focused on differentiated instruction, development, and exceptionalities; they had field experiences in both gifted and general education settings. During their intern year, all participants developed interdisciplinary thematic units, provided students varied tasks or response dimensions aligned with the objectives, and used learning centers. In addition, all participants, except one (i.e., T2), used pre-and post- assessments to vary the amount of time needed for students in learning new content. During the interviews, all participants mentioned their university program prepared them to differentiate.

Similar to the information shared by these beginning teachers, Deal and White (2009) found across participants that teacher preparation programs are considered a support for their instructional practices. In fact, participants stated using the teaching strategies they learned during their coursework and field experiences. Supervisor support had positive influences on classroom practices. In addition, their courses related to special education provided them with justification and strategies to implement modification for meeting the needs of individual students. Jones and her colleagues (2006) also found that teachers considered their teacher preparation program to be a source of support for their teaching practices. The nine teachers in the study reported

previous experiences during pre-service teaching as the major positive contribution to their current practices.

In this study, during the interview, one teacher (i.e., T1) mentioned her interest in learning and being eager to participate in the district's professional development activities. In addition, the same teacher explained that her knowledge of differentiation continued to grow through her experience. This teacher's enthusiasm corroborates Jones and his colleagues' (2006) research that found that teachers considered continuing education through college, workshops and professional organizations as being a source of support for their teaching practices.

Beliefs. Previous studies have found that beginning teachers' believed that differences in the classroom was a weakness. Through open-ended questions, Paine (1999) realized that the majority of beginning teachers believed that minimizing differences or treating different learners the same was best. Differences were described as problems and barriers. Very few held the view that diversity might be a positive resource. The negative perception of diversity was supported in a more current study (Caspersen, 2013). Caspersen found that beginning teachers had a negative attitude towards inclusion and this attitude was similar to more experienced teachers within their school. The fact that beginning teachers perceived diversity negatively (Paine, 1999) and had a preference for homogenous classrooms (Caspersen, 2013) might be due to their perceived lack of ability to meet the needs students with different needs. In fact, using a mixed method approach, Casey and Gable (2011) studied the degree to which beginning teachers felt prepared by the education program to differentiate instruction. The results showed that beginning teachers felt least prepared in using compacting and learning contracts,

incorporating higher-level thinking tasks, and using high level cooperative strategies. On the other hand, in this study teachers believed their preparation program helped them in using differentiated instructional practiced. T1 and T4 mentioned their background knowledge as an encouragement to differentiate. For T1, her knowledge placed her in a leadership position at her campus. In fact, she helped other teachers in developing differentiated lessons. For T4, her background knowledge helped her in using differentiated instructional practice even within the barriers set by her district (i.e., D2-whole group instruction in math). In addition, the majority of the teachers (i.e., T1, T3 and T4) incorporated higher-level thinking in their lessons, and all teachers arranged the classroom for student interaction.

In addition, in this study, there appeared to be some relationship between the degree of differentiation during the intern year and during their beginning teacher years. For example, T4 was the only pre-service teacher who received the highest rating on all four areas of differentiation, and she was still differentiating more than others. Furthermore, even though differentiation within the rate area was expected of all interns, T2 received the lowest rating (R3) within the rate area during her intern year and because her pre- and post-assessments were not aligned to the content she was teaching. Similar to previous studies, in this study, the participants' knowledge acquired during their teacher preparation and beliefs influenced beginning teacher's differentiated instructional practices.

Summary

In this study, the influences identified at the state level were the same for all participants and included: state standards (i.e., TEKS), accountability rating, and STAAR

testing for 3rd grade through 8th grade. At the district level, their responses to the state influence showed three areas of influences specific to these beginning teachers' differentiated instructional practice: curriculum, administration, and accountability rating. At the campus level, four areas of influences were identified: the principal, the team teacher, the parents, and the type of school campus. In addition, the classroom level appeared to have an influence on differentiated instruction in terms of classroom composition and student characteristics. At the individual level, two areas of influences were identified: knowledge and beliefs. In this study, the analysis yielded expected, as well as unexpected findings. Accordingly, the initial model was reviewed.

Review of the Model Developed from the Literature

The framework and model used in this study to determine the influences originated from Bronfenbrenner's bio-ecological system (Bronfenbrenner, 1976, 1994, 2005). The bio-ecological system is a framework suggesting that the joint product of the variety of dimensions within the environment and the personal attributes of the specific individuals influence the individual's development. The inner most structure is the individual. Then, the most proximal and significant structure is the individual's microsystem. The following structure, the mesosystem, represents the connection between the elements of the microsystem. The next structure is the mesosystem, which refers to the environmental influences that may not directly interact with the person, but may influence the setting of the individual, which in turn affects the individual. The most removed structure from the individual is the macrosystem, which represents the societal ideology and cultural values. Hence, the relationships between the active individual and

the active multi-level ecology constitute the basic process of human development that occurs over time forming the chronosystem.

By merging the literature related to influences on teacher's instructional practices and the bio-ecological system framework developed by Bronfenbrenner, the following systems were identified:

- The individual or the teacher, included her knowledge and beliefs ;
- The microsystem or the elements at the classroom level, consisted of the classroom composition and the students' characteristics;
- The mesosystem or the campus level and the interactions within the campus, encompassed the school personnel such as the principal and the fellow or team teachers, as well as the parents;
- The exosystem or the school district level included the school policies related to time, resources, and paper work; and
- The macrosystem or the state level represented the culture regarding the implementation of standards and high-stakes testing.

Figure 5.1 provides an illustration of the model developed by reviewing the literature, showing the different levels being considered as influences on teacher's differentiation.

The IoD model developed by the researcher was intended to represent the unique influences on beginning teachers' differentiated instructional practices. By looking at the findings, the model was changed to represent, as well as highlight the patterns of unique influences on each participant. Some of the influences were greater than others depending on each individual's characteristics. These changes will be described below.

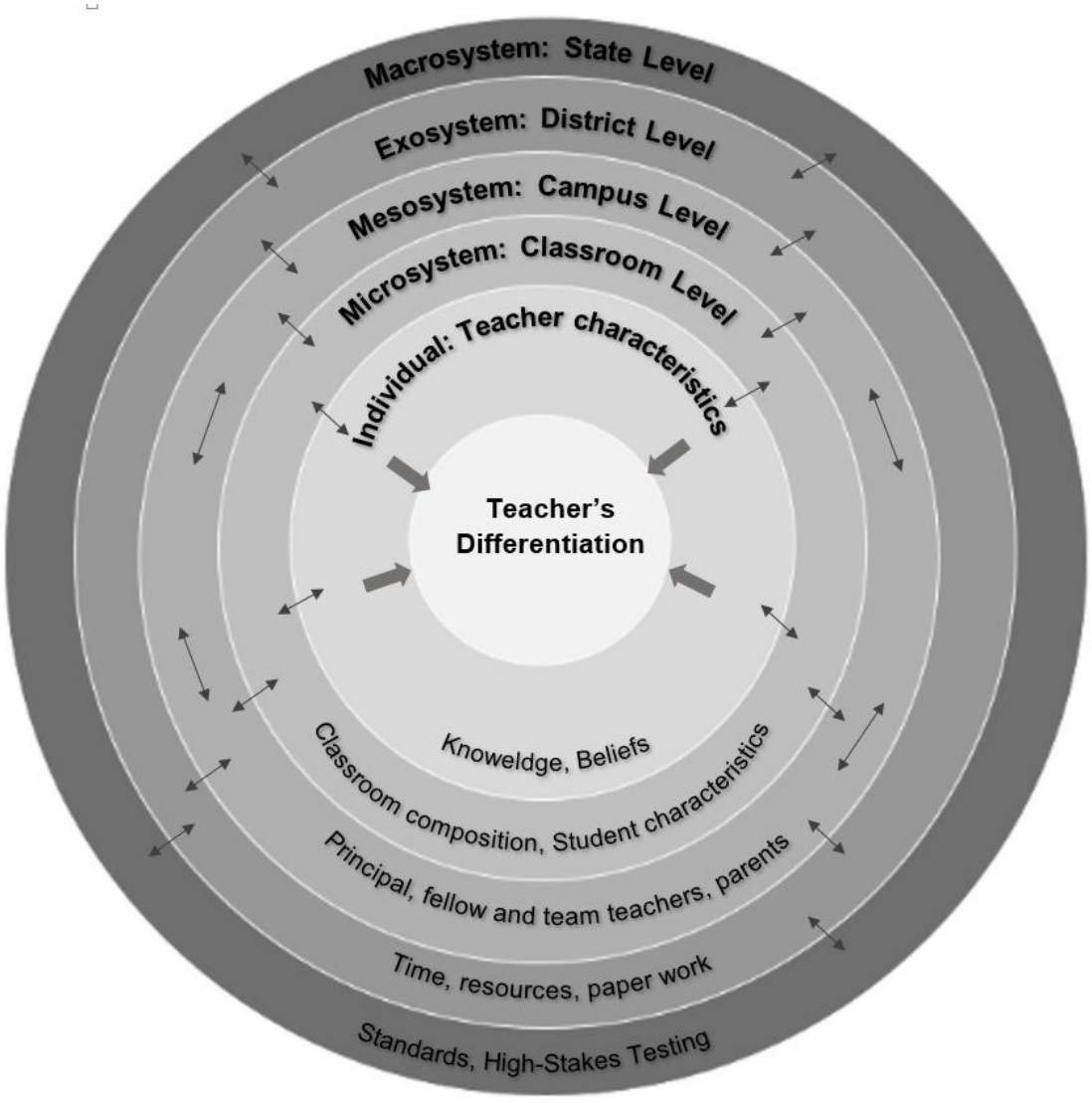

Figure 5.1. Influences on Differentiation (IoD).

Individual Level and Classroom Level

At the onset of the data collection, the individual level and the classroom level were modeled as two separate sources of influence on teachers' differentiated instructional practice. The individual level was viewed as an influence on teachers' differentiated instruction similar to the influences from other levels. Three areas of influence were identified at this level including the teacher's knowledge and beliefs. The classroom, also viewed similar to other influences, consisted of the classroom composition and the student characteristics.

In this study, the findings highlighted the importance of the individual level and identified the knowledge and beliefs as two areas of influence. When the teacher strongly believed in and had the knowledge to implement differentiated practices, then the teacher used these practices *in spite of* barriers created at the other levels. In these three cases, the classroom level became the primary source to identify the differentiated practices necessary to meet the needs of the students. Teachers' who differentiated their practices considered the classroom composition and student characteristics. There was therefore a reciprocal interaction between the teacher's beliefs and knowledge of differentiation and the diversity of the students in her classroom.

On the other hand, the findings also showed that knowledge of differentiated practices alone was not a strong enough influence for one teacher to differentiate to the same degree as the other three teachers—particularly in the area of content and rate. In this case, influences at the district and the campus levels were stronger, and the individual student characteristics didn't appear to exert the type of influence on this teacher's differentiated instructional practices. While this teacher varied her activities, she followed

the school district's pacing guide and taught her classroom as a whole group. This approach corresponded to her principal's views, "[teachers] use the district scope and sequence because that is our curriculum. And it tells them every six weeks what the kids need to know, and then they break it down by weeks." It should be noted that this teacher left the campus for another school district at the end of this school year.

Campus Level

The model from the review of the literature considered campus interactions as an influence on the teacher's differentiation practices. This level encompassed not only school personnel such as the principal and the fellow or team teachers but also the parents.

In this study, all three principals considered differentiation as an important component of teaching. However, their expectations, as well as their involvement in scheduling, supported or restricted the level of differentiation. In C1 and C3, the principal provided flexibility for teachers to meet together, to plan, and to adapt the curriculum. At C2, however, the principal relegated differentiation to an intervention period, which focused primarily on struggling students.

In regards to team teachers, all teachers viewed them as collaborators. However, the type of collaboration (i.e., planning together or dividing their work) influenced the opportunities to differentiate. For example, T3 differentiated her own developed math lesson but did not differentiate the ELA lesson that was planned by other teachers. On the other hand, T1 planned lessons together with her team, adjusting them according to the students' performance the previous day. She received more resources from other teachers

and was also reinforced by the principal as being a lead teacher in the area of differentiation.

In this study, parents had only a minimal amount of influence on beginning teachers' differentiated instructional practices. For T1 and T3, they explained their practices to the parents. In T4's case, she felt because she was a kindergarten teacher and did not have much background information regarding students that she used some of the parent information in planning instruction for her students. T2 said that the parents were not involved.

Another influence at the campus level might have been the type of school in the district. C3 was a professional development school and partnered with the local university in providing courses and field placements. Teachers in that school felt that they needed to model best practices for the pre-service teachers. C2, on the other hand, which was in the same district, was less flexible in the ways that the curriculum was differentiated.

District Level

The model developed from the literature included the district level representing the environmental influences that do not directly interact with the teacher. The identified influences at this level included the school policies related to time, resources, and paper work.

In this study, the district level was found to shape the campus, which in turn, influenced the beginning teachers' differentiated instructional practices. The district's response to the state standards, the accountability and the STAAR test created either supports or barriers for beginning teachers' differentiated instructional practice. The

findings showed three areas of influence at the district level: curriculum, administration, and accountability rating.

Both districts in this study provided the teachers with curriculum materials. For example, in D1, the teacher had flexibility in using the district's bundle although acceleration was limited to one grade level above. In D2, however, the curriculum was mandated and teachers were required to follow a strict pacing guide, which was broken down by weeks. On one campus, this guide was tightly adhered to by the principal whereas at the other campus, which was a professional development school, the guide was used more as a framework.

The stability in the administration at the district level may have influenced the teachers' expectations. In D1, the superintendent had been hired from within the district and had been in his leadership position for 11 years; whereas in D2, the superintendent had been hired from outside the district, had been in her position for four years, and made multiple changes at the mid-management and cabinet levels. The stability of leadership in D1 might have created a context where expectations were clear and teachers felt more flexibility whereas in D2, the variations in leadership might have created different communications from year to year and ultimately miscommunications about what teachers were allowed to do in their classroom settings.

Also at the district level, the findings showed how the accountability rating can vary the focus and flexibility of instructional practices required by teachers. At D1, the district and the schools met the state standards, and the teacher was provided with flexibility to differentiate. On the other hand, at D2, the district met the standards, but nine out of 15 elementary schools did not meet the standards. This result influenced the

Board of Trustees' level of pressure on the superintendent and in turn, the superintendent then placed pressure on the school principals and the teachers to focus on increasing student testing performance. She also had principals and teachers sign contracts that placed their jobs at risk if their students did not progress. There were, however, differences between the schools in D2 because of D2's partnership with a university and the differences in principals' flexibility. This partnership influenced the selection of principals and teachers who were willing to model best practices.

State Level

Initially the state level was viewed as an influence on teachers' differentiated instruction similar to the influences from other levels. This influence represented the societal ideology and cultural values.

In this study, the influences identified at the state level were the same for all participants and included: state standards (i.e., TEKS), accountability rating, and STAAR testing for 3rd grade through 8th grade. Although the state level still was represented by a testing and accountability culture, its influence on beginning teachers originated at the district level depending on their response to this culture. For that reason, in the new model, the state level is the context or background (see rectangle) and sets the stage for the district's policies and practices, which in turn, influence the campus and the teacher. If the school district has a student population that performs well on the state-mandated test and/or doesn't emphasize testing, then the influence is not as strong on the campus and individual teachers. On the other hand, if the district has low-performing schools, then the influence might be greater—depending on the campus principal and the teacher's beliefs and knowledge of differentiation.

Summary

According to the findings of this study, the IoD model was revised to represent, as well as highlight the patterns of unique influences on each participant. In this study, the findings highlighted the importance of the individual level and identified knowledge and beliefs as two areas mutually influencing differentiated instructional practices. When the teacher strongly believed in and had the knowledge to implement differentiated practices, the classroom level became the primary influence in identifying differentiated practices needed to meet the needs of the students (as represented by the solid black line). On the other hand, knowledge of differentiation practices alone was not a strong enough influence for one teacher. In this case, influences at the district and the campus level were stronger. This may mean that the model might be unique for different teachers.

Although the state level represented a testing and accountability culture, its influence on beginning teachers originated at the district level depending on their response to the culture and their district's success in meeting standards (see rectangle as representing the overall culture). The district's response to the state standards, accountability ratings, and the STAAR test provided either supports or barriers for beginning teachers' differentiated instructional practices. The findings showed three areas of influences at the district level: curriculum, administration, and accountability rating (represented by the dotted line). At the campus level, both the principal and team teachers were identified as school personnel influencing the differentiated practices of beginning teachers (represented by the dotted line). In this study, parents were not found to be as strong an influence on beginning teachers' differentiated practices. According to the findings of this study, the IoD model was reviewed and changed (see Figure 5.2)

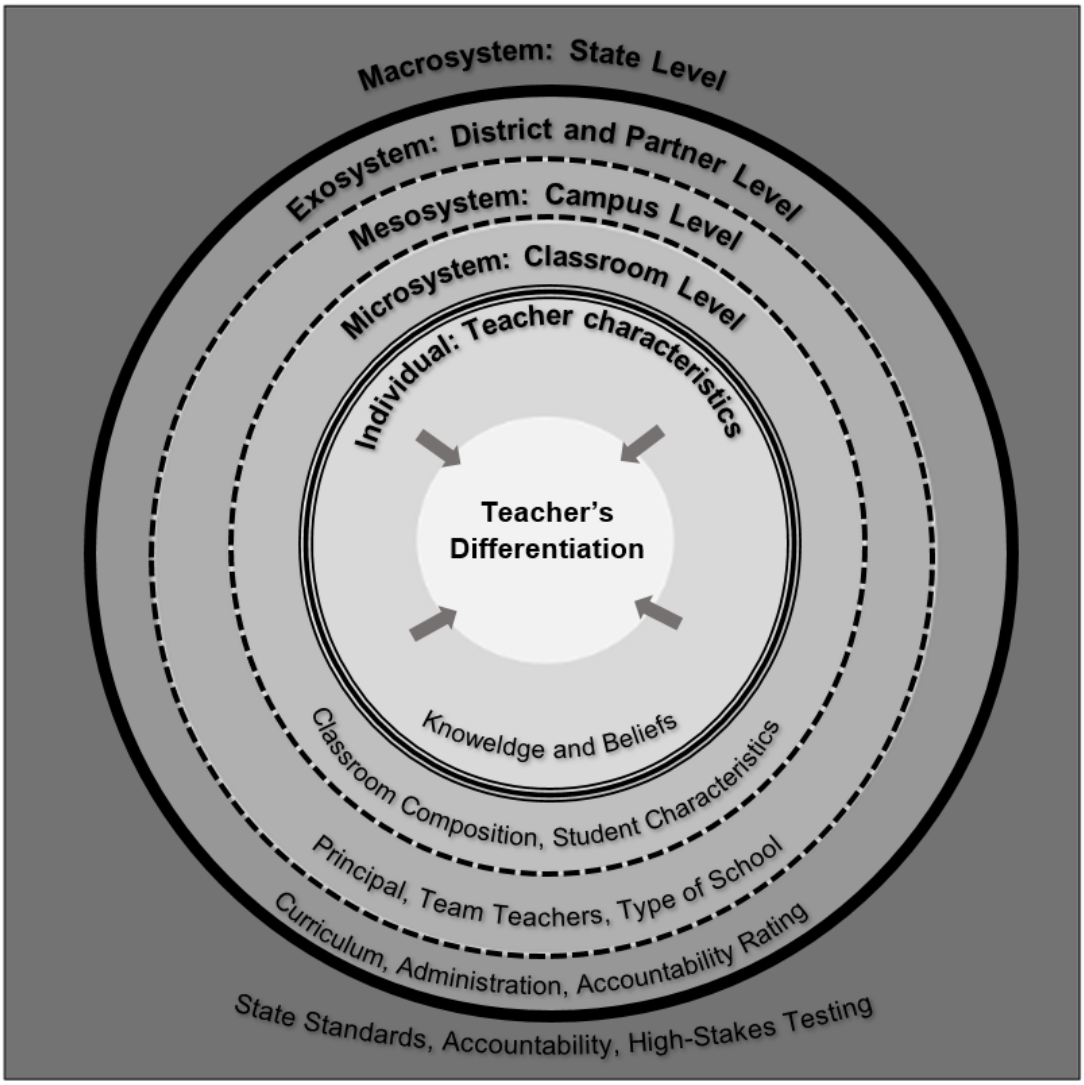

Figure 5.2. Influences on Differentiation (IoD) Revised According to the Study Findings

Limitations

Merriam (1998) stated "because of its strengths, case study is particularly appealing design for applied field of study such as education. Educational processes, problems, and programs can be examined to bring about understanding that in turn can affect and perhaps even improve practice" (p.41). However, one must not ignore the weakness of this approach and consider minimizing them.

The challenges that have been associated with a case study approach include the bias and credibility of the research; lack of clearly defined concepts or term among different field workers; difficulty of obtaining accurate information from participants; and problems of representativeness between the sample and the population (Denzin & Lunvoln, 1994; Miles & Huberman, 1994; Mykut & Morehouse, 1994; Patton, 2002). According to Yin (2013), to minimize these limitations and improve the quality of the research design, the researcher should consider (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability.

Construct Validity

Construct validity refers to "establishing correct operational measures for the concepts being studied" (Yin, 1994, p.33). In order to increase construct validity, Yin (1994, 2013) suggests steps to be taken prior and during data collection. Prior to data collection, the researcher should specify and define concepts under investigation. During data collection, the researcher should have multiple sources of evidence, in order to converge the lines of inquiry.

In this study, prior to data collection, the researcher operationally defined the concepts and terminologies being used. Specifically for data collection, an "Agreed Upon

Data Collection Procedures" section detailed the procedure and provided examples on how to use the instrument, and a glossary section defined the terminologies used in the instrument.

During data collection, multiple data sources were used as much as possible to produce a more accurate representation. To determine the differentiated instructional practices with diverse students during their intern year, the researcher used: (a) mentor observation, (b) supervisor observation, (c) intern's lessons within the Efolio, (d) intern's reflections within the Efolio, (e) intern's interdisciplinary unit, and (f) professors' evaluations and reflections.

When determining the participant's current differentiated instructional practices, the researcher observed the teacher's teaching only once for each subject area. Although several observations might have represented the construct more accurately, the researcher gave the participants the opportunity to choose the date of the observation. The researcher hoped participants would choose a lesson that would show their best ability to differentiation. In addition, the researcher conducted a semi-structured interview after the observed lesson, which provided the participants with an opportunity to explain the lesson observed and to share their reflections regarding how they differentiate. On the other hand, persistent observations over time might have provided a better picture of influences throughout the school year.

When determining the influences, the researcher collected data using semi-structured interviews with the teachers, team teachers, and principals. The data collected through the interviews provided information regarding each individual's knowledge and beliefs and their views of campus, district, and state culture. To enhance the constructs,

the researcher also collected information from the districts and schools' websites, online local newspapers, and the director of the office of professional practice. Interviews with other personnel working at the school and district such as all of the team or campus teachers, the district's superintendent, and department leaderships, might have provided greater accuracy regarding the influences on the beginning teacher's instructional practices.

Reliability

Reliability refers to "The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability" (Joppe, 2000, p. 1). In this study, measures taken to ensure reliability included clarifying the researcher's role, debriefing, data triangulation, member checking, and external audit.

The archival data came from four different sources: (a) the participants' Efolio during their intern year and (b) mentor and supervisor evaluations. Having multiple sources increased the accuracy of information. In addition, the archival data were collected on various dates throughout the intern year, which also represented a more consistent view of the intern's performance throughout the year. However, the data were analyzed primarily by the researcher. To minimize the researcher's bias, terminologies and concepts were defined before data analysis and peer debriefing was used. Once the data were analyzed, the written analysis was sent to supervisors who worked with the participants during their intern year to check for accuracy of representations. In addition, supervisors during the junior and senior year were interviewed to determine each teacher's knowledge and performance related to differentiation.

The researcher observed one math lesson for all participants and one ELA lesson for three participants (i.e., T1, T3, and T4). Although multiple observations might have provided a more accurate representation of the teacher's instructional practices, as previously mentioned the researcher gave the participants the opportunity to choose the date of the observation. The researcher hoped participants would choose a lesson that might show their best ability to differentiate. In addition, to minimize the researcher's bias, the researcher conducted the semi-structured interview after the observed lesson, which provided the participants with the opportunity to explain the lesson observed and to reflect on their differentiation practices. During the analysis, the data were reviewed not only by the researcher but also a professional in the field who was familiar with the assessment instruments.

The interviews were conducted, recorded, and transcribed by the researcher. Although the data from the interviews came from multiple sources (i.e., teacher, team teacher, and principal) to triangulate the participants' answers, all interviews may not have been conducted in a standardized and consistent manner, which might have influenced the reliability of the data. While the researcher gave the interviewee the opportunity to choose the location and time of the interviews, some participants chose to conduct their interviews in a quiet room (i.e. office) and others selected a time during lunch. In addition, two participants (i.e., P1 and T2) did not agree to be recorded during the interview so the researcher had to take detailed notes. To increase the reliability of the data collected through the interview, the transcriptions and interviewer's notes were sent to all participants for member checking. In addition, the researcher used different sources, such as the districts and schools' websites and online local newspaper, to corroborate the

answers provided by the participants. Once the data were analyzed, two external audit meetings were conducted in which the director of the office of professional practice and the university liaison checked for the accuracy of the representations. The use of an external interviewer and standardized interview procedures and locations might have helped to control for better reliability of data.

External Validity

External validity refers to "establishing the area to which a study's findings can be generalized" (Yin, 1994, p. 33). Although replication is best way of increasing external validity in case-study approach (Yin, 1994), it is not always feasible. Gerring (2006) explains that "cross-case research is always more representative of the population" (p. 43) and hence can be used to increase external validity.

In this study, measures taken to increase external validity included cross-case analysis and sharing findings, leaving the reader to determine the relevance of transferability of the findings to other situations. However, several limitations may have affected external validity.

First, four participants were included in this study, rendering a small sample size. In addition, the sample from different complex educational settings is also small. In fact, each participant taught a different grade level (i.e., T1 taught 2nd grade, T2 taught 3rd grade, T3 taught 4th grade, and T1 taught KG), as well as one participant (i.e., T1) taught at D1 in C1, and three participants taught at D2 with one (i.e., T2) at C2 and two (i.e., T3 and T4) at C3. Furthermore, all participants were graduates from the same preparation program. Consequently the current findings cannot be used to generalize to the other

teachers within these educational settings, teachers in other educational settings, and teachers who graduated from other preparation programs.

In addition, the researcher observed the participants for two lessons after the STAAR testing period to provide the teachers with more flexibility to differentiate. Hence the finding might not be representative of the teachers' differentiated practice throughout the academic year. Also, the observation data were collected by observing one math and one ELA lesson for three participants (i.e., T1, T3, and T4), and one math lesson for one participant (i.e., T2). In fact, T2 only taught math, which restricted the evaluation of her differentiated instructional practices within the other content area (i.e., less opportunity to integrate multiple disciplines, or use interdisciplinary thematic units). In addition, for cross-case analysis, comparison across participants within ELA teaching could only be done for three teachers. Hence, having all four participants with the same teaching position would have been preferable.

Furthermore, the archival data included lessons taught in various subject areas, such as social studies or geography, while the observation data focused on math and ELA lessons only. Also, the participants taught a different grade during their intern year than the grade level they are currently teaching. Hence, for the cross-case analysis, a general comparison between teaching during intern year and current teaching was conducted. Using the same grade level and subject areas would have yielded a stronger cross-case analysis, particularly when comparing the intern to current teaching practices.

Internal Validity

Internal validity refers to "establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguishes from spurious

relationships" (Yin, 1994, p.33). First, through triangulation of the data (Merriam, 1998) the researcher can make sure to obtain a wider and more accurate picture of circumstances under which the case being studied reside. Then, using pattern matching will increase the internal validity during data analysis (Yin, 1994). Pattern-matching is when the researcher compares the empirical pattern found in the study with predicted patterns formulated from review the literature.

In this study, some limitations may have affected the internal validity. The overall quality of the data from the interviews varied in terms of thoroughness. Some participants provided rich answers including examples and artifacts, while for others probing was necessary. By using member checking, the researcher provided the participants with the opportunity to review for accurate representation.

Furthermore the archival data varied in several aspects. Some of the Efolios were more thorough than others providing more examples, detailed descriptive entries and artifacts. The more thorough archival data provided a clearer picture of the differentiated instructional practices during the intern year. The archival data also included mentor evaluations completed by different teachers, each bringing to the task varying educational backgrounds, beliefs, knowledge and experiences. Some of the documents included more descriptive information than other, making the data again inconsistent cross study participants. However, consistency was present in terms of the required documents and having the same supervisor complete the evaluation. Also, using the external audit, the written analysis was sent to the supervisor who worked with the participants during their intern year to check for accuracy of representation.

In addition to the previously mentioned steps of clarifying the researcher's role, debriefing, data triangulation, member checking, and external audit, the researcher used pattern matching to increase internal validity of this study. In fact, the data were presented to parallel the framework identified from the literature.

In summary, several limitations were present in this study. To minimize these limitations and improve the quality of the research design, the researcher considered (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability.

Implications for Practice

The results highlight the important educational experiences and support that (a) teacher preparation should provide to pre-service teachers and (b) schools/districts should provide for beginning teachers.

Teacher Preparation

Research has consistently demonstrated the importance of well-prepared teachers because of their influence on student achievement (Darling-Hammond, 2004 2006; Rowan, Correnti, & Miller, 2002; Sanders & Horn, 1994). Deal and White (2009) found across participants that teacher preparation programs were considered a support for their instructional practices. In fact, participants stated using the teaching strategies they learned during their coursework, field experiences, and supervisor support made positive influences on classroom practices. In addition, the courses they took related to special education provided them with justification and strategies to implement modification for meeting the needs of individual students. Jones and her colleagues (2006) also found that teachers considered their teacher preparation program to be a source of support for their

teaching practices. The nine teachers in the study reported previous experiences during pre-service teaching as the major positive contribution to their current practices.

The results of this study also showed the importance of the teacher preparation program. The findings showed that there appeared to be some parallels between the degree of differentiation during the intern year and during their beginning teacher years. In addition, during the interviews, all participants mentioned how their university program prepared them to differentiate. However, the results showed knowledge of differentiated practices alone was not a strong enough influence for teachers to differentiate. In fact, when the teacher strongly believed in and had the knowledge to implement differentiated practices, then teachers used differentiated instructional practice, even within the barriers created at the other levels. For this reason, increasing awareness of pre-service teachers of the various influences on their differentiation practices during their beginning teaching years is crucial. Providing pre-service teachers with field-based learning activities to learn how to persist in differentiation within a complex education system is crucial. Hence, the teacher preparation program need to develop not only the knowledge needed for differentiated, but also help pre-service teachers face the various influences as they become beginning teachers.

Beginning Teachers Support

From the various influences identified in this study, the school and district should support the differentiated instructional practices of beginning teachers by making use of their school personnel and adopting a broad curriculum as a guide.

In their article, Roberson and Roberson (2008) suggested two strategies for principals that aid in meeting the needs of first-year teachers. The first strategy

recommended that principals establish regular professional development meetings with new teachers. These meetings should aim at getting to know the new teachers, getting to know their needs, sharing meaningful information related to teaching, and providing opportunities to share experiences. The second strategy recommended for principals was to provide teachers with meaningful instructive feedback. This feedback should help new teachers use their previous training and meet the school and districts goals for student achievement. As Davis (2009) noted, most teachers are expected to use differentiation in their classes but are provided with little more than a single day of training, which is not enough. Hawkins (2009) suggested providing teachers with a number of professional development topics related to the same theme such as best practices, reflection on individual leaners, and modeling strategies to help overcome inertia. In addition, Tomlinson and McTighe (2006) recommended that teachers should be exposed to classrooms in which differentiation was successfully implemented so they have a good grasp of the concept.

Schools must ensure beginning teachers are placed in a school with mentors who model best practices and support the differentiation process. Olsher and Kantor (2012) found that beginning teachers' learning and modification of their instructional practices was dependent on their interactions with mentors. Through the use of a dynamic questioning process by the mentor that focused on assessing the knowledge and understanding of students, they reported that the beginning teacher gradually shifted focus from looking at content-related topics solely to topics related to pedagogical issues. In addition, they found that the nature of the interaction was similar to two colleagues who are brainstorming together ideas related to teaching and learning. Stanulis, Little and

Wibbens (2012) also reported that mentoring aided beginning teachers. Using a quasi-experimental method, participants in the treatment group met monthly in a three-hour study group and received monthly one-on-one coaching with mentor. The follow-up survey with participants from the treatment and the control group, showed that mentors had a supportive influence on beginning teachers by helping them set up the classroom for discussion, ask questions, use evidence to support thinking, and link ideas during discussion.

Other than the school personnel, beginning teachers could be supported in their differentiated instructional practices by being provided with a broad curriculum to be used as a guide and resources. These resources might include learning activities that vary format and response requirements at different grade levels as well as assessments (pre-, ongoing, and post). In this way, teachers are able to develop their lesson objectives based on the diversity within the classroom. According to Waters and Marzano (2006),

> With respect to goals for classroom instruction, this responsibility *does not* mean that the district establishes a single instructional model that all teachers must employ. However, it *does* mean that the district adopts a broad but common framework for classroom instructional design and planning, common instructional language or vocabulary, and consistent use of research-based instructional strategies in each school. (p. 12)

Recommendations for Future Research

Research regarding classroom and systemic influences that affect the implementation of differentiation, specifically with beginning teachers who have a background in gifted education, is not present. In this study, the research conducted a cross-sectional study to identify influences on beginning teachers' differentiated instructional practice. Each teacher was observed teaching one math lesson and one ELA

lesson, and compared to their pre-service teaching. Accordingly influences within the context of a complex educational system were identified. The complexity and change of the system, as well as within individuals, provide rich opportunities for additional research studies.

Future research in this area should focus on more longitudinal research by observing several lessons throughout the school year, or follow teachers over time from their pre-service teaching to beginning years of teaching, or even from their first year through their third year of teaching. Longitudinal studies will provide insight into the changes over time in the individual (i.e., beliefs or knowledge), in the educational system (i.e., change in expectations, in administration, or in classroom characteristics) and in the different settings (i.e., going from preparation program to school context).

Second, researchers should observe teachers' differentiated instructional practices in other subject areas such as social studies, arts, physical education, and science. In this study, teachers were observed only in math and ELA. The results showed differences among the same participant in their level of differentiation for different subject areas, as well as different influences on the different subject areas. Hence observing the differentiated instructional practices of the same teacher for different subject areas could help determine how the educational context might influence the variation. Also such studies might be able to determine if teachers are in general better in differentiated for one subject are than others.

Furthermore, through comparison studies, researchers might determine the influences within the different levels (i.e., individual, campus, district, and state). At the individual level, within the area of knowledge, it might be important to examine

differences in teacher preparation programs. In this study, all participants came from the same preparation program. Comparing the differentiated instructional practices of beginning teachers who have been exposed to different preparation programs might reveal if the differences in practices is due to the differences in the program or simply differences among the participants.

At the campus level, future research might compare the differentiated instructional practices of beginning teachers as they bcome experienced teachers. In fact, the literature describing the teacher's career considers beginning teachers as learners (Fessler & Christensen, 1992; Huberman, 1989; Steffy & Wolfe, 1997). Beginning teachers are discovering how to become part of the school community and are developing their own classroom routines (Fessler & Christensen, 1992; Huberman, 1989; Steffy & Wolfe, 1997). On the other hand, experienced teachers are more confident in their teaching and focus more on students. Hence comparing teachers at different phases of their teaching careers or following teachers throughout their teaching careers can determine if the differentiated instructional practices of teacher remains the same or changes with experience.

Also at the campus level, future research is also needed regarding the role and impact of mentors assisting beginning teachers. In this study, all teachers had team teachers and considered them as collaborators. How does having a mentor influence beginning teachers' differentiated instructional practices? What characteristics of mentors have positive influences on differentiation? What kind of relationship between the mentor and beginning teacher is more beneficial? Inquiries designed to answer these questions could shed light on how the school can support beginning teachers.

In this study, two beginning teachers were working at a professional development school. This type of school was identified as influencing their differentiated instructional practice, by providing flexibility. Future studies might examine professional development schools in other districts to determine if teachers are also provided with flexibility. In addition, the beginning teachers at the professional development school believed that they needed to model best practices for their pre-service teachers. Studies should examine if this type of school is beneficial for beginning teachers who are still learners. Influences on differentiated instruction of beginning teachers who are still learners might also be examined at charter, public and private schools. Expectations vary between these schools, which in turn might influence the instructional practices of beginning teachers.

Another comparison study could look at the various districts and their influences on differentiated instructional practices. In this study, only two district were compared, with one school from one district, and three schools from the other. Looking at more than two districts along with various schools within the different districts, might identify more clearly the district's support and creation of obstacles on different campuses. Does the same district have different influences for different campuses? In addition, in this study, the stability of the administration, the curriculum, and the accountability ratings were areas of influences on beginning teachers' differentiated instructional practices. What other areas might be influential?

Finally, a comparison of different states and their influences on school districts might be examined. In this study, both districts were from the same state. The findings showed that the state represented a testing and accountability culture. However, its influence on beginning teachers originated at the district level depending on their

response to this culture. Hence looking at beginning teachers' differentiated instructional practice in various states might result in different findings.

Conclusion

With federal mandates and changing demographics in the United States, teachers need to address a wider range of individual differences in the classroom. Similar to all teachers, beginning teachers should be differentiating their instructional practices in order to meet individual student differences. In this study, the researcher examined the different influences at various levels (i.e., individual, campus, district, and state) on beginning teachers' differentiated instructional practice.

In this study, the teachers' preparation program was identified to be an influence on beginning teachers' differentiated instructional practice. All the beginning teachers mentioned their preparation program as a positive influence on their use of differentiation. In addition, this study showed the power of teacher's beliefs and student orientation. When teacher's beliefs aligned with goal of differentiation, they differentiated in spite of restrictions coming from the educational system.

Another support for differentiated instructional practice of beginning teachers was the campus culture. In fact, when principals provided flexibility and supported and encouraged differentiation for individual differences, teachers were more likely to implement differentiated instructional practices in their classroom. In addition, one principal who was a former teacher at the elementary level viewed teachers as resources. She used teachers' talents to assist others and provided opportunities for teachers to collaborate with teachers from different grade levels.

At the campus level, even though beginning teachers viewed the division of lesson planning as positive since it reduced their planning time, the results of the study identified its drawbacks on beginning teachers' differentiated instructional practices. In fact, when planning is divided, the lesson is not based on student performance and is only as differentiated as the teacher who plans it. Another drawback at the campus level was the rigidity of principal, as well as the focus on the implementation of standard curriculum, which precluded flexibility and attention to individual differences.

At the district level, barriers to beginning teachers' differentiated instructional practices was the instability of the administration. Even within the same school district, differences in the interpretation and implementation of requirements and policies were observed. Also, the constant change in expectations inhibited innovative practices.

The findings showed the state as representing the testing and accountability culture. However, its influence on beginning teachers originated at the district level depending on their response to this culture.

Overall, this study is an important contribution to the field of education, in the areas of differentiation and beginning teachers. The findings show the importance of teacher preparation programs, each individual's beliefs in serving children, and supportive environments that nurture differentiation practices. It opens new avenues for further research in regards to influences within the complex education system on the implementation of differentiation by beginning teachers.

APPENDICES

APPENDIX A

EC-4/GT Dual-Certificate Program

ELEMENTARY ED. with GIFTED and TALENTED

FRESHMAN-FALL
ENG 1302 Thinking and Writing
REL 1310 The Christian Scriptures
*Language 3-4 hours
MTH 1315 Patterns, Relationships & Number
Soc. Sci. 3 hours from:
ANT, ECO, GEOG, HIS, PHI, PSC, SOC, PSY
HED 1145 Health and Human Behavior
Chapel (CR)
Total: 16-17 s.h.

FRESHMAN-SPRING
ENG 1304 Thinking, Writing, and Research
REL 1350 The Christian Heritage
*Language 3-4 hours (if needed)
MTH 1316 Geometry & Measurement Concepts
TED 1312 Introduction to Teaching I
TED 1112 Instructional Technology Lab
LF 1134 Fitness Theory and Practice
Chapel (CR)
Total:14- 18 s.h.

SOPHOMORE-FALL
EDP 3326 The Developing Child (Bagby section)
TED 2381 American Educational Thought
PSC 2302 American Constitutional Development
Science (4) (Che, Geo, Phy, Bio)
MUS 3336 Mus/Elem Classroom Teachers

Total: 16 s.h.

SOPHOMORE-SPRING
EDP 3324 Learning and Development
EDP 2350 Introduction to the Gifted Child
TED 2112 Instructional Technology Lab II
Science (4) (Che, Geo, Phy, Bio)
HP 3346 Elem. School Phys. Education
TED 3301 Early Literacy (Fall or Spring)
Total: 17 s.h.

SUMMER: HIS 2365 History of the United States to 1877
Total: 3 s.h.

Must have minimum 2.75 gpa (cumulative & in major) to begin Teaching Associate.
** The Fall and Spring semesters may be interchangeable due to scheduling in the Associate Year.*

JUNIOR-FALL
EDP 3650 Teaching Associate GT Part I
TED 3325 Literacy Instruction in Early Grades
TED 4308 Social Studies in the Elementary School
TED 4302 Language Arts in the Elementary Grades
LS 3305 Children's Literature
Total: 18 s.h.

JUNIOR-SPRING
TED 3651 Teaching Associate GT Part II
TED 4326 Mathematics in the Early Grades
TED 4307 Science Methods
TED 4312 ESL Second Language
MTH 3318 Data and Chance
Total: 18 s.h.

SENIOR-FALL
EDP 4650 Internship Gifted and Talented Part I
EDP 4651 Internship Gifted and Talented Part II
EDP 4351 Differentiation
TED 3380 Social Issues in Education
Total: 18 s.h.

SENIOR-SPRING
TED 4652 Internship Gifted and Talented Part III
TED 4653 Internship Gifted and Talented Part IV
EDP 4352 Exceptionalities

Total: 15 s.h.

TOTAL SEMESTER HOURS: 131-133
*** Second level proficiency is required. Sign Language not allowed**

Course selection is subject to availability and fit within each semester.

For English as a Second Language (ESL) Supplementary Certification
ESL Supplemental Certification will require appropriate field placement in addition to TED 4312. This field work will be provided at student's request.

Revised May 2014

APPENDIX B

Observation of Questioning Strategies, Engagement, and Curriculum

Observation of Learning Task

Name of Teacher _____ School_____

Grade Level _____ No. of Students in Class _____

Date of Observation _____ Observer _____

Start and Ending Time of Observation _____

Task Description (obtained from lesson plan, observation, student interviews and relates to the lesson observed only)

_____ Is there explicit evidence of the use of a theme? (C7)
_____ Is there evidence of major concept/generalizations? (C7)
_____ Is the lesson problem-based? (C5)
_____ Is the method used authentic to the discipline? Process? (C5)
_____ Is there evidence of variation in activities or tasks within the unit? (P1-4)
_____ Is there evidence of student choice of tasks? (P5)
_____ Is there evidence of curriculum compacting/use of tests? (R4-R9)
_____ Is there evidence of student-generated products/performances? (C5, C7, P5)
_____ Is the content of student products/performances beyond grade level? (R6-R9)
_____ Does the lesson relate to student interest? (C9)
_____ Is there a positive environment that supports risk-taking?
_____% Total

Room Arrangement (sketch the physical arrangement below):

Brief lesson description that includes purpose, instructional resources, and major activities (on back). Do note if the task characteristics change for different groups (e.g., high group is more problem-based vs. low group):

Observation of Questioning Strategies

Name of Teacher _________________________________ School____________________

No. of Students in Group ________ (low, medium, high) Subject __________________________

Date of Observation ____________________ Observer ____________________________

Start and Ending Time of Observation ____

Teacher Questions	Code	R	Student Questions	Code
Total Number of Teacher Q			Total Number of Student Q	

Codes (insert number of questions and percent of total number of questions in front of each) :

(%)___________ Single answer # (%)____ Multiple answer #(%)__________ CConnections

(%)___ AConnections # (%) _____ Process # (%)_________Evaluation/Implications

Teacher_____ Date _____
Observer _____ Time _____
Grade level _____ Campus _____

Engagement Data: 10-minute sample

	Setting	Type of Task	St. 1	St. 2	St. 3	St. 4	St. 5	St.6
:30								
1:00								
1:30								
2:00								
2:30								
3:00								
3:30								
4:00								
4:30								
5:00								
5:30								
6:00								
6:30								
7:00								
7:30								
8:00								
8:30								
9:00								
9:30								
10:00								

Note. St.= Student. Every 30 seconds, observe each student for 5 seconds during the 30 second time period.

Codes:

%_____ + = On Task--following directions, looking at teacher
%_____ – = Off Task--not engaged
%_____ W = Waiting--raising hand
%_____ S = Small Group--smaller than whole class
%_____ G = Whole Group
%_____ I = Independent--one student working alone
%_____ H = Hands-on
%_____ P = Paper/pencil
%_____ D = Discussion
%_____ L = Lecture
%_____ O = Other

Student #1:_____% on task _____% off task
Student #2:_____% on task _____% off task
Student #3:_____% on task _____% off task
Student #4:_____% on task _____% off task
Student #5:_____% on task _____% off task
Student #6:_____% on task _____% off task Total Engagement:_____% on task_____% off task

Agreed Upon Data Collection Procedures

1. Questioning

   A. When a teacher asks a multiple answer question, place a tick under the "R" category for each student response.
   B. When a teacher asks question but doesn't pause for a student response, place a dash under the "R" category.
   C. When a teacher raises her voice after a statement, allowing for a student response, count the statement as a question (e.g., Got it?).
   D. When a teacher asks a yes/no question, count it as a single answer question.
   E. When a teacher asks a multiple answer question, classify it under another category (e.g., CC, AC, process, evaluation/implications).
   F. Even if the teacher asks the same single answer question multiple times, count it each time.
   G. Only student-initiated questions should be placed under the student questions category.

2. Engagement

   A. Observers will look at the face of a student to determine engagement. If the student is following the rules for the majority of the time (e.g., looking at the task, the teacher or the group, working independently, etc.), she will be counted on task.
   B. If the student is moving but continues to be following the rules for the majority of the time, the student will be counted as engaged.
   C. These types of behaviors count as off task: looking at hands, thumbing through papers, talking about another topic, staring off into space, etc.
   D. If the student has her hand up during 5 seconds or more of the time period, she is waiting (W) and is not counted as being on or off task.
   E. Do not infer intent or label the child, just watch the behavior.

Brief Description of Lesson using HPDS example:

The teacher had these objectives on the chalkboard: "sequence of events, write a declarative/interrogative sentence, round numbers to the nearest 10-100-1000."
The teacher began the lesson by discussing the importance of keeping a planner. She then asked if students had ever used a dictionary. Following this brief discussion, she described the tasks in each of the learning areas and groupings for the language arts period. One of the groups was going to begin by working with the teacher on dictionary skills, one was going to begin by working on a timeline with the student intern, and one was going to begin by creating a story with sequence picture cards. Those writing the story were able to resequence the picture cards as needed to create their story. The teacher described how the timeline was connected to what they were learning in social studies. During the morning the student groups rotated from one activity to the next as the teacher directed. When the students rotated, the two teacher-directed activities changed to match the characteristics of the group. (Then you would describe how the content of the activities changed).

Glossary

Affective Connections: question asks student to relate to his or her own personal experience (example: has something similar happened in your life?)

Authentic: the method is one that a professional would use in the discipline in creating knowledge (example: an historian would use primary and secondary sources)

Beyond grade level: depth or complexity of content is at a higher-grade level (example: second grade is doing third grade work)

Cognitive Connections: question asks student to relate to other disciplines/concepts, past or future learning; compare and contrast (example: how are relationships like a pizza?)

Curriculum compacting: teacher uses pretests to determine if a student already knows the objectives, and if so, the student does alternative activities (example: one student is creating a map of another country while the rest of the students are learning about cities in Texas)

Evaluation/Implication: question asks for student to evaluate or discuss implications; asks for reasons (example: why did you select that answer? what criteria did you use?)

Independent study: student is able to work alone on a topic of interest (example: student is studying favorite topic of "Black Holes")

Major concept/generalization: relates to the theme and is the major point or purpose for teaching the lesson or unit (examples: Changes have positive and negative effects)

Multiple answer: question allows for more than one correct answer (example: what are some examples of prejudice?)

Problem-based: a problem initiates or is the focus of the lesson. Students have opportunities to provide multiple answers or solve the problem in multiple ways. (Example: These are the characters and the situation, what do you believe will occur in the story?)

Process: question asks for the student to describe the method or way they derived the answer; reflect (example: how did you solve that problem?)

Risk-taking environment: the teacher supports different answers to questions and different types of methods or products/performances (example: teacher makes supportive comments such as "another good idea;" "I never thought about it that way;" and never "puts down" a student idea)

Single answer: question can be answered by a yes/no; true or false, short phrase, or one correct answer (example: Did the Little Red Hen get any help?)

Student-generated products/performances: students create the products instead of parents or teacher (example: students are working on products/performances in the classroom—stories, debates, experiments). Products/performances include anything that is NOT a worksheet or workbook page.

Theme: broad-based so that it may be used authentically in different disciplines (examples: structures, relationships, influences, change)

Variation in Tasks/Activities: students use different activities to learn the same objective or different activities are used throughout the same lesson (example: video, then discussion, then role play).

APPENDIX C

Directions and Rubric
World Cultures Unit- T2

Russia and her former USSR Republics Project

- Working in a group, you will be required to construct a flipbook project that will illustrate and describe the human geography of Russia and the Republics.

- Each student will be assigned to a group. The group will split up the topics amongst members. You will have the ability to choose the topics that you will research and the entire group will come to an agreement about who will complete which topic.

- Your pages will include a paragraph detailing the events and an illustration. Author's name and all research will be cited at the bottom of the page.

- You must use a textbook, primary or secondary source, or a website to find your information. You must have a **minimum of 2 different types of sources** for each page that you create. The information that you include on your page must be found in that source.

- You will also create two questions per page that will be included in a final study guide that each individual group member is required to complete as a test at the end of the creation of the book. The questions will require a one to two sentence response and should not be a yes/no or true/false question. The information needed to answer the question must be found on the page you create.

- The last five minutes of each class will be reserved for debriefing with group members about the research that was done that day. This is when you will help your group members learn the information that they need in order to pass your final test. You may take notes on the information that your group members share.

Vocabulary word
Baltic Republic
Czar
Russian Revolution
USSR (CCCP)
Cold War
Command Economy
Collective Farms
Red Army
Silk Road
Nomads
Yurts
Glasnost
Bloody Sunday
Iron Curtain
NATO
Warsaw Pact
European Union
Mikhail Gorbachev

Flipbook Rubric

This rubric will be used for all 6 individual pages that you create. The total of points that you receive on each page will be added and that will be your grade.

Characteristic	Proficient	Competent	Developing
Accuracy	The student has 100% accuracy in all information written. 5pts	The student has no more than one incorrect fact. 4pts	The student has two or more incorrect facts. 3pt
Illustration	The student has created an illustration that helps to enhance the understanding of the topic. 5pts	The student has created an illustration that relates to the USSR but does not necessarily relate to exact topic. 4pts	The student's illustration does not relate or does not make sense in relation to the USSR or to the topic. 3pt
Sources	The student has a minimum of two sources and they are different types of sources. The sources are reliable. The information is found in the resource used. 5pts	The students have a minimum of two resources and they the same type of resource and they are reliable. The information is found in the resource used. 4pts	The student has only one source and/ or the sources are not reliable (ex. Wikipedia). The information is not found in the source. 3pt
Neatness	The student has put much effort into their work. It is appealing and easy to read. 2pts	The student has put some effort into their work. It may be lacking creativity or be difficult to read. 1 pt	The student appears to have put minimal effort into their work. It may be very difficult to read. 0 pts

APPENDIX D

Fear Factor

The Fear Factor Forest

Chapter 3: The Fog is Defeated

As the dangerous, purple fog grew closer and closer to Chester the Unicorn's Candy cave, the animals began to panic. "We are never going to make it out of here alive!" chortled a chipmunk. "Chester, we are doomed!" billowed the bear. "Oh, pipe down!" Chester yelled at the woodland creatures, who at this point were out of control. "No one is doomed, and you will all live." Chester was quite frustrated at this point, so he stopped and counted to 13. He liked to count to 13 when he was frustrated because it was a forgotten number and he did not want to leave it out. Chester counted to thirteen 15 different times.

The fog was now 45 feet away from the candy cave and all the animals got extremely quiet. As the fog approached, Chester had an idea! "Hey, let's try to use the purple fog's own trick on it! Let's see if we can figure out what the fog is afraid of!" All together, the animals quickly came up with 63 ways that the fog might be afraid. Chester, Bear, and Chipmunk would all try the same number of ways to scare the fog. Some of the ways were, trying to scare the fog by surprising it with confetti cannons, but that didn't work. They even tried telling the purple fog a scary story, but that didn't work! "You'll never scare me! Never!" the purple fog replied. "No matter how many ways you try, I am fearless! You can continue to try for 1,942,756,093 years and you'll never scare me!"

The fog started laughing, it laughed for 20 whole minutes! The animals in the forest started to get so bored listening to the fog laugh at them. They also started to get quite hungry. "Oh! I have a chocolate bar in my burrow." Mr. Rabbit said in a hurry. He hopped to his burrow and gave 2/8 of the bar to the bear, ¼ of the bar to Chester, and 2/4 of the bar to chipmunk.

Just then, Chester had another idea he wanted to try! Chester thought that perhaps, if they were extremely kind to the purple fog, it would leave them alone and go away. He offered the purple fog a glass of water. "You know, you've been laughing at us for quite a while, and we appreciate that you are not scaring us. Would you like a glass of water?" Chester asked nicely. The fog replied, "Oh yes! Get me water. I am extremely parched, but if you are not back in 6/10 of a minute, I will scare everyone for the rest of their lives!" Chester quickly fetched the water, and when he returned and offered water to the fog, the fog shrieked in absolute terror! "WHAT ON EARTH IS THAT?!" the purple fog screamed. Chester looked so puzzled! The purple fog continued, "The water! It's the water! It's in a One Direction cup! They

TERRIFY me! Quick get me out of here!" The purple fog began to disappear rapidly. The fog moved further and further away. In fact, it was so terrified of One Direction that it moved all the way around the perimeter of the Factor Forest. The Factor forest is 45 miles by 52 miles.

Chester was in absolute shock! Who knew that boy bands could be so terrifying? The animals rejoiced all evening. They had drinks, food, and dessert. They had Sprite, Dr. Pepper, and lemonade. They could choose from 4 different kinds of food and 3 different kinds of dessert. It was a magical evening, in a magical forest, with the kindest magical unicorn. Factor Forest was once again safe, and Chester had once again saved the day.

1. If Chester counted to thirteen 15 different times, how many numbers did he say out loud?
2. How many yards away was the purple fog from the candy cave?
3. How many inches away was the purple fog from the candy cave?
4. How many ways did Bear and Chester try to scare the fog?
5. What is 1,942,756,093 written in expanded form? Word form?
6. What fraction of an hour did the purple fog laugh?
7. Who ate more chocolate, Bear or Chipmunk? Prove your answer with a picture.
8. How many seconds is 6/10 of a minute?
9. What is the perimeter of the Factor Forest?
10. What is the area of the Factor Forest?
11. How many different combinations of 1 drink, 1 food, and 1 dessert are there?

REFERENCES

Abrami, P. C., Bernard, R. M., Borokhovski, E., Wade, A., Surkes, M. A., Tamim, R., & Zhang, D. (2008). Instructional interventions affecting critical thinking skills and dispositions: A stage 1 meta-analysis. *Review of Educational Research, 78,* 1102–1134.

Aksoy, N. (2002). *Classroom management.* Ankara: Pegem Press.

American Diploma Project (2004). *Do graduation tests measure up? A closer look at state high school exit exams.* Retrieved from http://www.achieve.org/dstore.nsf

Anderson, K.M. (2007). Differentiated instruction to include all students. *Preventing School Failure,* 51(3), 49-53.

Ary, D., Jacobs, L., Sorensen, C., & Walker, D. (2013). *Introduction to research in education* (9th ed.). Boston, MA: Cengage Learning.

Astleitner, H. (2000). Designing emotionally sound instruction: The FEASP-approach. *Instructional Science, 28*(3), 169-198.

Avery, L. D., & Little, C. A. (2011). Concept development and learning. In VanTassel-Baska, J. & Little, C. A. (Eds.), *Content-based curriculum for high-ability learners* (2nd ed., pp.123-150).

Bailin, S., Case, R., Coombs, J. R., & Daniels, L. B. (1999). Conceptualizing critical thinking. *Journal of Curriculum Studies, 31,* 285–302.

Baker, E. L., Barton. P. E., Darling-Hammond, L., Haertel, E., Ladd, H. F., Linn, R. L., Ravitch, D., Rothstein, R., Shaverlson, R. J., & Shepard, L. (2010). Problems with the use of students test scores to evaluate teachers. *Economic Policy Institute, 278,* 1-27.

Baum, S. M., Renzulli, J. S., & Hébert, T. P. (1999). Reversing underachievement: creative productivity as a systematic intervention. *Gifted Child Quarterly, 39,* 224-235.

Bayer, M. (2009). *Teachers' career trajectories and work lives.* Dordrecht; New York: Springer. Retrieved from http://public.eblib.com/choice/publicfullrecord.aspx?p=450535

Betts, G. (1985). *Autonomous learner model for the gifted and talented learner.* Greeley, CO: ALPS.

Betts, G. T. (1986). The autonomous learner model for the gifted and talented. In J. S. Renzulli (Ed.), *Systems and models for developing programs for the gifted and talented* (pp. 216-166). Mansfield Center, CT: Creative Learning Press.

Betters, G. T., & Kercher, J. K. (1999). *Autonomous learner model: Optimizing ability.* Greeley, CO: ALPS.

Bettinger, E. P. (2012). Paying to learn: The effect of financial incentive on elementary school test scores. *Review of Economic and Statistics, 94*, 686-698.

Beyer, B. K., (1987). *Practical strategies for the teaching of thinking*. Boston MA: Allyn and Bacon.

Beyer, B. K. (1991). *Teaching thinking skills: A handbook for elementary school teachers.* Boston, MA: Allen and Bacon.

Bickel, W. E., & Bickel, D. D. (1986). Effective schools, classrooms, and instruction: Implications for special education. *Exceptional Children, 52,* 489-500.

Boazman, J., & Sayler, M. (2011). Personal well-being of gifted students following participation in an early college-entrance program. *Roeper Review, 33,* 76–85. doi:10.1080/02783193.2011.554153

Booher-Jennings, J. (2006). Rationing education in an era of accountability: The push for accountability was originally cast as a way to ensure that schools would leave no child behind. *Phi Delta Kappan, 87*(10), 756-766.

Branford, J., Derry, S., Berliner, P., Hammerness, K., & Beckett, K. L. (2005). Theories of learning and their roles in teaching. In L. Darling-Hammond, & J. Bransford (Eds.), *Preparing teacher for a changing world: What teachers should learn and be able to do* (pp.40-97). San Francisco, CA: Jossey-Bass.

Bransford, J. D., & Stein, B. S. (1993). *The IDEAL problem solver* (2nd ed.). New York, NY: Freeman.

Bronfenbrenner, U. (1976). The experimental ecology of education. *Educational Research, 5*(9), 5-15.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32,* 513-531.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University Press.

Bronfenbrenner, U. (1994). Ecological models of human development. *International Encyclopedia of Education, 3,* 37-43.

Bronfenbrenner, U. (1995). Developmental ecology through space and time: A future perspective. In P. Moen, G. H. Elder, & K. Luscher (Eds.), *Examining lives in context: Perspectives on the ecology of human development* (pp. 619-647). Washington, DC: American Psychological Association.

Bronfenbrenner, U. (1999). Environments in developmental perspectives: Theoretical and operational models. In S. L. Friedman & T. D. Wachs (Eds.), *Measuring environment across life span: Emerging methods and concepts* (pp. 3-28). Washington, DC: American Psychological Association.

Bronfenbrenner, U. (2005). *Making human beings human: Bioecological perspectives on human development.* Thousand Oaks, CA: Sage publications.

Brown, K. (2009). Developing research skills in gifted learners. In F. A. Karnes & S. M. Bean (Eds.), *Methods and materials for teaching the gifted* (3rd ed., pp. 381-414). Waco, TX: Prufrock Press.

Bruner, J. (1985). Models of the learner. *Educational Researcher, 16,* 5-8.

Case, R. (2005). Moving critical thinking to the main stage. *Education Canada, 45*(2), 45–49.

Casey, M. K., & Gable, R. K. (2011). Beginning teacher's perceptions of preparedness to differentiate instruction for diverse learners. *Proceedings K-12 education, Center for Research and Evaluation, 4,* 1-30.

Caspersen, J. (2013). The valuation of knowledge and normative reflection in teacher qualification: A comparison of teacher educators, novice and experience teachers. *Teaching and Teacher Education, 30,*109-119.

Cawelti, g. (2001). Six districts, one goal of excellence. *Journal of Staff Development, 22*(4), 31-35.

Clark, B. (1997). *Growing up gifted: Developing the potential of children at home and at school* (5th ed.). Upper Saddle River, NJ: Merrill/Prentice Hall.

Clark, B. (2002). *Growing up gifted: Developing the potential of children at home and at school* (7th ed.). Upper Saddle River, NJ: Merrill/Prentice Hall.

Clark, S. K., Jones, C. D., Reutzel, D. R., & Andreasen, L. (2013). An examination of the influences of teacher preparation program on beginning teachers' reading instruction. *Literacy Research and Instruction, 52*(2), 87-105. doi:10.1080/19388071.2010.754520.

Coburn, C. E. & Russel, J. L. (2008). District policy and teachers' social networks. *Educational Evaluation and Policy Analysis, 30*, 203-235.

Colangelo, N., Assouline, S. G., & Gross, M. U. M. (2004). *A nation deceived: How schools hold back America's brightest students,* Vol. 1. The Templeton National Report on Acceleration. Iowa City: University of Iowa, The Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development.

Corcoran, T., Fuhrman, S. H., & Belcher, C. L. (2001). The district role in instructional improvement. *Phi Delta Kappa, 83,* 78-84.

Council for Exceptional Children (2010). *Special education professional ethical principles and practice standards*. Retrieved from http://www.cec.sped.org/Standards

Council for Exceptional Children (2012). *Standards for professional preparation*. Retrieved from http://www.cec.sped.org/Standards

Council for Exceptional Children (2012). *Professional standards and practice: Policies and positions*. Retrieved from http://www.cec.sped.org/Standards

Council for Exceptional Children (2014). *Council for Exceptional Children standards for evidence-based practices in special education*. Retrieved from http://www.cec.sped.org/Standards

Cramond, B., Martin, C. E., & Shaw, E. L. (1990). Generalizability of creative problem solving procedures to real-life problem. *Journal for the Education of the Gifted, 13*, 141-55.

Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.) Thousand Oaks, CA: Sage.

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: SAGE.

Culross, R. R., Jolly, J. L., & Winkler, D. (2013) Facilitating Grade Acceleration: Revisiting the Wisdom of John Feldhusen, *Roeper Review, 35*, 36-46, DOI: 10.1080/02783193.2013.740601

Daly, A. J., & Finnigan, K. S. (2010). A bridge between worlds: Understanding network structure to understand change strategy. *Journal of Educational Change, 11*, 111-138. doi: 10.1007/s10833-009-9102-5

Darling-Hammond, L. (1995). *Doing what matters most: Investing in quality teaching.* New York: National Commission on Teaching and America's Future.

Darling-Hammond, L. (2004a). Inequality and the right to learn: Access to qualified teachers in California's public schools. *Teachers College Record, 106*, 1936-1966.

Darling- Hammond, L. (2004b). Standards, accountability, and school reform. *Teachers College Record, 106*(6), 1047-1085.

Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education, 57*(3), 300-314.

Darling-Hammond, L., & McLaughlin, M. (1996). Policies that support professional development in an era of reform. In W. Milbrey, W. McLaughlin, & I. Oberman (Eds.), *Teacher learning: New policies, new practices* (pp. 202-218). New York, NY: Teachers College Press.

Darling-Hammond, L., Wise, A., & Klein, S. (1999). *A license to teacher: Raising standards for teaching*. San Francisco, CA: Jossey-Bass.

Daves, K. S., Morton, J. L., & Grace, M. (1990). Novice teachers: Do they use what we teach them? *Reading Horizons, 30*(2), 25-34.

Davis, H.H. (2009). Myth 7: Differentiation in the regular classroom is equivalent to the gifted programs and is sufficient. *Gifted Child Quarterly, 53*, 251-253.

Davis, G. A., Rimm, S. B., & Siegle, D. (2011). *Education of the gifted and talented.* Upper Saddle River, NJ: Pearson Education.

Day, C. (1999). *Developing teachers: The challenges of lifelong learning*. London: Philadelphia, PA: Falmer Press.

Deal, D., & White, S. (2009). Voices from the classroom: Literacy beliefs and practices of two novice elementary teachers. *Journal of Research in Childhood Education, 20*, 313-329. doi: 10.1080/02568540609594570.

Delcourt, M. A. B. (1993). Creative productivity among secondary school students: combining energy, interest, and imagination. *Gifted Child Quarterly, 37*, 23-31.

Dellett, K., Fromm, G., Karn, S., & Cricchi, A. (1991). *Developing metacognitive behavior in third and fourth grade students*. Retrieved from http://gse.gmu.edu/research/articles/Clearview/Final%20Report.html

Desimore, L., Porter, A. C., Birman, B. F., Garet, M. S., & Yoon, K. S. (2002). How do district management and implementation strategies related to the quality of the professional development that districts provide to teachers? *Teachers College Records, 104*, 1265-1312.

Ducette J., Sewell, T. & Shapiro, J. (1996). Diversity in education: Problems and possibilities. In F. B. Murray (Ed.) *The teacher educator's handbook* (pp. 323-381). San Francisco, CA: Jossey-Bass.

Dugger, K. (2008). *Teachers' perceptions of differentiating instruction in a sixth grade science class of diverse learners in a Georgia urban school system* (Doctoral dissertation). Retrieved from ProQuest.

Edgecombe, N. (2011). *Accelerating the academic achievement of students referred to developmental education.* CRCC working paper No. 30. New York: Teachers College, Columbia University.

Eilers, A. M., & Camacho, A. (2007). School culture change in the making: Leadership factors that matter. *Urban Education, 42*, 617-637. doi: 10.1177/0042085907304906

Electronic Portfolio- T1. (2014, April 8). Copy in possession of School of Education Media Center, University

Electronic Portfolio- T2. (2013, April 19). Copy in possession of School of Education Media Center, University

Electronic Portfolio- T3. (2012, April 26). Copy in possession of School of Education Media Center, University

Electronic Portfolio- T4. (2012, April 27). Copy in possession of School of Education Media Center, University

Elmore, R.F., & Burney, D. (1997). Improving instruction through professional development in New York City's Community District #2. *Policy Bulletin. Consortium for Policy Research in Education.* Philadelphia, PA: University of Pennsylvania. Retrieved from http://www.cpre.org/Publications/pb-02.pdf

Ennis, R. H. (1985). A logical basis for measuring critical thinking skills. *Educational Leadership, 43*(2), 44–48

Ennis, R. H. (2014). *The nature of critical thinking: Outlines of general critical thinking dispositions and abilities*. Retrieved from http://www.criticalthinking.net/longdefinition.html

Erman, K. (2006). *Teacher beliefs about effective strategies for teaching students with diverse learning needs* (Doctoral dissertation). Retrieved from ProQuest.

Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction.* Millbrae, CA: The California Academic Press.

Faculty 1 (2011, September 26a). *University School of Education intern professional practice evaluation form- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2011, September 26b). *University School of Education intern professional practice evaluation form- T4.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2011, October 3a). *University School of Education intern candidate visitation report- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2011, October 3b). *University School of Education intern candidate visitation report- T4.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2011, October 28). *University School of Education intern candidate visitation report- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2011, November 2). *University School of Education intern professional practice evaluation form- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2011, November 16a). *University School of Education intern candidate visitation report- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2011, November 16b). *University School of Education intern professional practice evaluation form- T4.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, February 15). *University School of Education intern candidate visitation report- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, February 16). *University School of Education intern candidate visitation report- T4.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, February 21). *University School of Education intern professional practice evaluation form- T4.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, February 23). *University School of Education intern professional practice evaluation form- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, March 28). *University School of Education intern candidate visitation report- T4.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, March 30). *University School of Education intern candidate visitation report- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, April 5a). *University School of Education intern candidate visitation report- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, April 5b). *University School of Education intern candidate visitation report- T4.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, April 11). *University School of Education intern professional practice evaluation form- T3.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, April 12). *University School of Education intern professional practice evaluation form- T4.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, September 20). *University School of Education intern candidate visitation report- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, October 1ts). *University School of Education intern candidate visitation report- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2012, October 1). *University School of Education intern professional practice evaluation form- T2.* Copy in possession of Office of Professional Practice, School of Education, University

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Faculty 1 (2012, November 5). *University School of Education intern professional practice evaluation form- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013, February 11). *University School of Education intern candidate visitation report- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013 February 16). *University School of Education intern professional practice evaluation form- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013,March 19). *University School of Education intern candidate visitation report- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013, April 10). *University School of Education intern candidate visitation report- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013, April 24). *University School of Education intern professional practice evaluation form- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013, October 1). *University School of Education intern professional practice evaluation form- T2.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013, October 10). *University School of Education intern professional practice evaluation form- T1.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013, October 30). *University School of Education intern candidate visitation report- T1.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2013, November 20). *University School of Education intern professional practice evaluation form- T1.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2014, February 10). *University School of Education intern candidate visitation report- T1.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2014, February 25). *University School of Education intern professional practice evaluation form- T1.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2014, March 3rd). *University School of Education intern candidate visitation report- T1.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2014, April 3rd). *University School of Education intern candidate visitation report- T1.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 1 (2014, April 15). *University School of Education intern professional practice evaluation form- T1.* Copy in possession of Office of Professional Practice, School of Education, University

Faculty 2 [2011a]. *Unit Evaluation- T3.* Copy in possession of Susan K. Johnsen.

Faculty 2 [2011b]. *Unit Evaluation- T4.* Copy in possession of Susan K. Johnsen.

Faculty 2 [2012]. *Unit Evaluation- T2.* Copy in possession of Susan K. Johnsen.

Faculty 2 [2013]. *Unit Evaluation- T1.* Copy in possession of Susan K. Johnsen.

Farah, Y. N. (2015a, April 27). *Engagement Data-ELA.* Copy in possession of author.

Farah, Y. N. (2015b, April 27). *Engagement Data-Math.* Copy in possession of author.

Farah, Y. N. (2015c, April 27). *Observation of Learning Task-ELA.* Copy in possession of author.

Farah, Y. N. (2015d, April 27). *Observation of Learning Task-Math.* Copy in possession of author.

Farah, Y. N. (2015e, April 27). *Observation of Questioning Strategies-ELA.* Copy in possession of author.

Farah, Y. N. (2015f, April 27). *Observation of Questioning Strategies-Math.* Copy in possession of author.

Farah, Y. N. (2015a, April 28). *Engagement Data-Math.* Copy in possession of author.

Farah, Y. N. (2015b, April 28). *Observation of Learning Task-Math.* Copy in possession of author.

Farah, Y. N. (2015c, April 28). *Observation of Questioning Strategies-Math.* Copy in possession of author.

Farah, Y. N. (2015a, May 12). *Engagement Data-ELA.* Copy in possession of author.

Farah, Y. N. (2015b, May 12). *Engagement Data-Math.* Copy in possession of author.

Farah, Y. N. (2015c, May12). *Observation of Learning Task-ELA.* Copy in possession of author.

Farah, Y. N. (2015d, May 12). *Observation of Learning Task-Math.* Copy in possession of author.

Farah, Y. N. (2015e, May 12). *Observation of Questioning Strategies-ELA.* Copy in possession of author.

Farah, Y. N. (2015f, May 12). *Observation of Questioning Strategies-Math.* Copy in possession of author.

Farah, Y. N. (2015a, May 13). *Engagement Data-ELA.* Copy in possession of author.

Farah, Y. N. (2015b, May 13). *Engagement Data-Math.* Copy in possession of author.

Farah, Y. N. (2015c, May 13). *Observation of Learning Task-ELA.* Copy in possession of author.

Farah, Y. N. (2015d, May 13). *Observation of Learning Task-Math.* Copy in possession of author.

Farah, Y. N. (2015e, May13). *Observation of Questioning Strategies-ELA.* Copy in possession of author.

Farah, Y. N. (2015f, May 13). *Observation of Questioning Strategies-Math.* Copy in possession of author.

Feldhusen, H. J. (1985). *Toward excellence in gifted education.* Denver: Love Publishing

Fessler, R. (1985). A model for teacher professional growth and development. In P. J. Burk & R. G. Heideman (Eds.), *Career-long teacher education* (pp.181-193). Springfield, IL: Charles C. Thomas.

Fessler, R. (1992). The teacher career cycle. In R. Fessler & J. C. Christensen (Eds.), *The teacher career cycle* (pp. 21–44). Needham Heights, MA: Allyn and Bacon.

Fessler, R., & Christensen, J. C. (Eds.). (1992). *The teacher career cycle*. Needham Heights, MA: Allyn and Bacon.

Firestone, W.A. (1989). Using reform: Conceptualizing district initiative. *Educational Evaluation and Policy Analysis, 11*(2), 151-164.

Fishman, S. M., & McCarthy, L. (1998). *John Dewey and the challenge of classroom practice.* New York, NY: Teachers College Press.

Gallagher, J. J., & Gallagher, S. A. (1994). *Teaching the gifted child* (4th ed.). Boston, MA: Love.

Gamaron, A., & Weinstein, M. (1998). Differentiation and opportunity in restructured school. *American Journal of Education, 106*, 385-415.

Gay, G. & Kirkland, K. (2010). Developing cultural critical consciousness and self-reflection in preservice teacher education. *Theory Into Practice, 42*(2), 181-187. doi:10.1207/s15430421tip4203_3.

Gerring, J. (2006). *Case study research: Principles and practices.* Cambridge, England: Cambridge University Press.

Gersten, R., Ferrini-Mundy, J., Benbow, C. Clements, D. H., Loveless, T., & Williams, V. (2008). *Report 6: Report of the task group in instructional practices.* Washington, DC: U.S. Department of Education

Good, M. W. (2006). *Differentiated instruction: Principles and techniques for the elementary grade* (Master's thesis). Retrieved from ERIC.

Goree, K. K (2011). *An exploratory study of the factors that influences pre-service teachers' instructional practices with diverse students* (Doctoral dissertation). Retrieved from https://baylor-ir.tdl.org/baylor-ir/handle/2104/8262

Grecca, A. M. (1980). Can children remember to be creative? An interview study of children's thinking. *Child Development, 51*, 572-575.

George, P. S. (2005). A rationale for differentiating instruction in the regular classroom. *Theory Into Practice, 44*(3), 185-193.

Goetz, J. P., & LeCompe, M. (1981). Ethnographic research and the problem of data reduction. *Anthropology and Education Quarterly, 12,* 51-70.

Griggs, S. A. (1991). *Learning styles counseling.* Ann Arbor, MI: Eric Counseling and Personnel Services Clearinghouse, the University of Michigan.

Gunning, T. G. (2008). *Developing higher-level literacy in all students.* Boston, MA: Pearson Education.

Halpern, D. F. (1998). Teaching critical thinking for transfer across domains: Dispositions, skills, structure training, and metacognitive monitoring. *American Psychologist, 53*, 449–455.

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2002). Why public schools lose teachers? *The Journal of Human Resources, 39,* 326-354.

Hatch, A. J. (2002). *Doing qualitative research in education settings.* New York, NY: SUNY Press.

Hawkins, V. J. (2009). Barriers to implementing differentiation: Lack of confidence, efficacy, and perseverance. *New England Reading Association Journal, 44*(2), 11-16.

Hayes, N (2012). *To accommodate, to modify, and to know the difference: Determining placement of a child in special education or "504*. John Hopkins School of Education. Retrieved from http://education.jhu.edu/PD/newhorizons/Exceptional%20Learners/Law/hayes.htm

He, B. Y., & Cooper, J. (2011). Struggles and strategies in teaching: Voices of five novice secondary teachers. *Teacher Education Quarterly, 38*(2), 97-116.

Heacox, D. (2002). *Differentiating instruction in the regular classroom.* Minneapolis, MN: Free Spirit

Hébert, T. P. (2002). Gifted black males in predominantly white university: Portraits of high achievement. *Journal for the Education of the Gifted, 26,* 25-64.

Heiling, J. V., & Darling-Hammond (2008). Accountability Texas- style: The progress and learning of urban minority students in a high-stakes testing context. *Educational Evaluation and Policy Analysis, 30,* 75-110.

Hertberg-Davis, H. L., & Brighton, C. M. (2006). Support and sabotage: Principals' influence on middle school teachers' responses to differentiation. *The Journal of Secondary Gifted Education, 17,* 90-102. doi: 10.4219/jsge-2006-685.

Hoepfl, M. (1997). Choosing qualitative research: A primer for technology education researchers. *Journal of Technology Education, 9,* 59.

Honig, M. I. (2003). Building policy from practice: District central office administrator's roles and capacity for implementing collaborative education policy. *Educational Administration Quarterly, 39,* 292-338.

Hoogeveen, L., Hell, J. G. van, & Verhoeven, L. (2009). Self-concept and social status of accelerated and nonaccelerated students in the first 2 years of secondary school in the Netherlands. *Gifted Child Quarterly, 53*, 50–67. doi:10.1177/0016986208326556

Hout, M., Frueh, S., & Elliot S. (2012). Do high-stakes tests improve learning? *Issues in Science and Technology, 29*.

Huberman, A. M. (1989). The professional life cycle of teachers. *Teachers College Record*, 91, 31–58.

Huberman, A. M. (1993). *The lives of teachers*. New York, NY: Teachers College Press.

Huberman, A. M. (1995). *Professional development in education: New paradigms and practices*. New York: Teachers College Press.

Hunt, B. G., & Seney, R. W. (2009). Planning the learning environment. In Karnes, F. A. & Bean, S. M. (Eds.), *Methods and materials for teaching the gifted* (3rd ed., pp. 381-414) Waco, TX: Prufrock Press.

Ince Aka, E., Guven, E., & Aydogdu, M. (2010). Effect of problem solving method on science process skills and academic achievement. *Turkish Science Education, 7*(4), 13-25.

Isaksen, S. G., & Treffinger, D. (1985). *Creative problem solving: The basic course.* Buffalo, NY: Bearly Limited.

Johnsen, S. K., Haensly, P., Ryser, G., & Ford, R. (2002). Changing general education classroom practices to adapt for gifted students. *Gifted Child Quarterly, 46*, 45-63.

Johnsen, S. K., Haensly, P., Ryser, G. R., & McIntosh, J. (1994). *Project mustard seed: Application for continuation grant under Javits gifted and talented students education program.* Washington, DC: U. S. Office of Education.

Jones, L. D, Burts, D. C., Buchanan, T., K., & Jambunathan, S. (2006). Beginning prekindergarten and kindergarten teachers' beliefs and practices: Support and barriers to developmentally appropriate practices. *Journal of Early Childhood Teacher Education, 21*, 397-410. doi:10.1080/0163638000210310.

Kane, T. J., Douglas, T. S., Grissmer, D., & Ladd, H. F. (2002). Volatility in school test scores: Implications for test-based accountability systems. *Brooking Papers on Education Policy, 5*, 235-283.

Kang, Y., & Cheng, X. (2014). Teacher learning in the workplace: A study of the relationship between a novice EFL teacher's classroom practices and cognition development. *Language Teaching Research, 18*, 169-186. doi:10.1177/1362168813505939.

Kaplan, S. N. (2009). Layering differentiated curricula for the gifted and talented. In F. A. Karnes & S. M. Bean, *Methods and materials for teaching the gifted* (3rd. ed., pp. 107-136). Waco, TX: Prufrock Press.

Kapusnick, R. A., & Hauslein, C. M. (2008). The "Silver Cup" of differentiated instruction. *Kappa Delta Pi Record, 37*(4), 156-160.

Karnes, F. A., & Stephens, K. R. (2000). *The ultimate guide for student product development and evaluation.* Waco, TX: Prufrock Press.

Kaylayci, N. (2001). *Problem solving and application in social sciences.* Ankara: Gaci Press.

Kendall, J. S. & Marzano, R. J. (2000). Content knowledge-online education: A compendium of content standards and benchmarks for k-12 education on both searchable and browsable formats. Retrieved from http://www.mcrel.org/standards-benchmarks/docs/process-lifeskills.asp#thinking.

Kingore, B. (2004). *Differentiation: Simplified, realistic, and effective*. Austin: Professional Associates Publishing.

King-Shaver, B. (2008). Differentiated instruction: The new and not new. *California English, 13*(4), 6-8.

Koretz, D. (2005). Alignment, high stakes, and the inflation of test scores. *Yearbook of the National Society for the Study of Education, 104*(2), 99-118.

Kronley, R.A., & Handley, C. (2003). *Reforming relationships: School districts, external organizations, and systemic change.* A National Task Force on the Future of Urban Districts. New York, NY: School Communities that Work.

Kulik, J. A., & Kulik, C.-L. C. (1984). Effects of accelerated instruction on students. *Review of Educational Research, 54*, 409–426.

Kulik, J., & Kulik, C. (1991). *Research on ability grouping: Historical and contemporary perspectives.* Storrs: University of Connecticut, National Research Center on the Gifted and Talented.

Lane, A. (2007). Comparison of teacher educators' instructional methods with the constructivist ideal. *The Teacher Educator, 42*(3), 157-184.

Latz, A. O, Neumeister, K. L. Adams, C. M., & Pierce, R. L. (2009). Peer coaching to improve classroom differentiation: Perspectives from Project CLUE. *Roeper Review, 31*, 27-39.

LeCompte, M., & Preissle, J. (1993). *Ethnographic and qualitative design in educational research* (2nd ed.) Orlando, FL: Academic Press.

Lee, L. K. W., Tan, L. L. Goh, N. K., Chia, L. S., & Chin, C. (2002). Science teachers and problem solving in elementary schools in Singapore. *Research in Science & Technological Education, 18*, 113-126.

Lewis, S. G., & Batts, K. (2005). How to implement differentiated instruction. Adjust, adjust, adjust. *Journal of Staff Development, 26*(4), 26-31.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Beverley Hills, CA: Sage.

Lincoln, Y. S., & Guba, E. G. (1986). *But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation.* In D. D. Williams (Ed.), *Naturalistic evaluation, new directions for program evaluation, No. 30.* San Francisco, CA: Jossey-Bass.

Lipman, M. (1988). Critical thinking—What can it be? *Educational Leadership, 46*, 38–43.

Lofland, J., & Lofland, L. (1984). *Analyzing social settings: A guide to qualitative observation and analysis* (2nd ed.). Belmont, CA: Wadsworth.

Lou, Y., Abrami, P., Spence, J., Poulsen, C, Chambers, B., &. d'Apollonia, S. (1996). Within-class grouping: A meta-analysis. *Review of Educational Research, 66*, 423-458.

Lubart, T. I., & Mouchiroud, C. (2003). Creativity: A source of difficulty in problem solving. In J. E. Davidson, J. E. & R. J. Sternberg (Eds.), *The psychology of problem solving*. New York, NY: Cambridge University Press.

Madison, D. S., (2005). *Critical ethnography: Methods, ethics, and performance.* Thousand Oaks, CA: Sage.

Maker, J. C., & Nielson, A. B. (1996). *Curriculum development and teaching strategies for gifted learners* (2nd ed.). Austin, TX: PRO-ED.

Maker, J. C., & Nielson, A. B. (2005). *Teaching model in education of the gifted* (3rd ed.). Austin, TX: PRO-ED.

Massell, D., & Goertz, M.E. (2002). District strategies for building instructional capacity. In Hightower et al. (Eds.). *School districts and instructional renewal* (pp. 43-61). New York: Teachers College Press.

Marzano, R. J., Pickering, D. J., &Pollock, J. E. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.

Maxson, S., Wright, C. R., Houck, J. W., Lynn, P., & Fowler, L. (2000). Urban teachers' views on areas of need for k-12. *Action in Teacher Education, 22*(2), 39-53. doi:10.1080/01626620.2000.10463004.

Mayer, R. E. (1999). Fifty years of creativity research. In R. Sternberg (Ed.), *Handbook of creativity* (pp. 449-460). New York, NY: University Press.

McLaughlin M. W., & Talbert, J. E. (1993). *Contexts that matter for teaching and learning: Strategic opportunities for meeting the nation's educational goals.* Stanford, CA: Center for Research on the Context of Secondary School Teaching.

McLaughlin, M., & Talbert, J. (2003). *Reforming districts: How districts support school reform. A research report.* Center for the Study of Teaching and Policy. Seattle, WA: University of Washington. http://depts.washington.edu/ctpmail/PDFs/ReformingDistricts-09-2003.pdf

Melnick, S. & Zeichner, K. (1998). Teacher education's responsibility to address diversity issues: Enhancing institutional capacity. *Theory Into Practice, 37*(2), 88-94.

Mentoring Minds (2015). *STAAR Motivation Math*. Retrieved from https://www.mentoringminds.com/research/staar-motivation-math

Merriam, S. (1988). *Case study research in education: A qualitative approach.* San Francisco: Jossey-Bass.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: A sourcebook of new methods* (2nd ed.). Thousand Oaks, CA: Sage.

Ministry of Education. (2000). *Gifted and talented students: Meeting their needs in New Zealand Schools.* Wellington, New Zealand: Learning Media.

National Association for Gifted Children and Council for Exceptional Children (2006). *Teacher Knowledge & Skill Standards for Gifted and Talented Education*. Retrieved from http://www.nagc.org/resources-publications/resources/national-standards-gifted-and-talented-education

National Association for Gifted Children. (2010). *NAGC pre-K-grade 12 gifted programming standards: A blueprint for quality gifted education program.* Washington, DC: NAGC.

National Association for Gifted Children and Council for Exceptional Children (2013). *Teacher Preparation Standards in Gifted and Talented Education.* Retrieved from http://www.nagc.org/resources-publications/resources/national-standards-gifted-and-talented-education

National Commission on Excellence in Education (1983). *A nation at risk: The imperative for education reform*. Retrieved from http://datacenter.spps.org/uploads/sotw_a_nation_at_risk_1983.pdf

National Council of Teachers of English and International Reading Association. (1996). *Standards for the language arts*. Urbana, IL: NCTE

National Council of Teachers of Mathematics. (2014). *Principles to actions: Ensuring mathematical success for all.* Reston, VA: NCTM.

National Council of Teachers of Mathematics. (2000). *Principles and Standards for School Mathematics.* Reston, VA: NCTM

National Center on Educational Outcomes. (2003). *Accountability for assessment results in the No Child Left Behind Act: What it means for children with disabilities.* Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Neil, M. (2003). The dangers of testing. *Educational Leadership, 60*(5), 43-46.

Noble, K. D., Vaughan, R. C., Chan, C., Childers, S., Chow, B., Federow, A., & Hughes, S. (2007). Love and work: The legacy of early university entrance. *Gifted Child Quarterly*, *51*, 152–166. doi:10.1177/0016986207299472

Nunley, K. F. (2006) *Differentiating in the high school*, Thousand Oaks, CA: Corwin Press

Olenchak, F. R. (1991). Assessing program effects for gifted/learning disabled students. In R. Swassing, & A. Robinson (Eds.). *National Association for Gifted Children 1991 Research Briefs* (pp. 86-89). Washington, DC: National Association for Gifted Children.

Olenchak, F. R., & Renzulli, J. (1989). The effectiveness of the schoolwide enrichment model on selected aspects of elementary school change. *Gifted Child Quarterly, 33*, 36-46.

Olsher, G., & Kantor, I.-D. (2012). Asking questions as key strategy in guiding a novice teacher: A self-study. *Studying Teacher Education, 8*(2), 157-168.

Osborn, A. F. (1953). *Applied imagination*. New York: Scribners.

Paine, L. (1990). Orientation towards diversity: What do prospective teachers bring? *(Research Report 89-9).* East Lansing, MI: National Center for Research on Teacher Education.

Parnes, S. (1981). *The magic of your mind.* Buffalo, NY: Bearly Limited.

Patton, M. (1980). *Qualitative evaluation methods*. Beverly Hills, CA: SAGE.

Patton, M. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publishing.

Patton, M. (2002). *Qualitative evaluation and research methods* (3rd ed.). Newbury Park, CA: Sage Publishing.

Patry, J. (1996). *Critical thinking handbook.* Rohnert Park, CA: Foundation for Critical Thinking.

Paul, R. W. (1992). Critical thinking: What, why, and how? *New Directions for Community Colleges, 1992*(77), 3–24.

Paul, R. W., (1995). *Critical thinking: How to prepare students for a rapidly changing world*. Santa Rosa, CA: Foundation for Critical Thinking.

Pedersen, S. & Liu, M. (2003). Teachers' beliefs about issues in the implementation of student-centered learning environment. *Educational Technology, Research and Development, 51,* 57-76.

Pedulla, J. J., Abrams, L.M., Madaus, G. F., Russel, M. K., Ramos, M. A., & Jing, M. (2003). *Perceived effects of state-mandated testing programs on teaching and learning: Findings from a national survey of teachers*. Report from the National Board on Educational Testing and Public Policy, Chestnut Hill, MA.

Peterson, G. J. (1999). Demonstrated actions of instructional leaders: An examination of five California superintendents. *Education Policy Analysis Archives 7*(18), p 2-23.

Petri, G. (2011). *Sparking critical thinking.* Learning Station Session: Poster. Presented at the Library of Congress presentation on Digital-Age Teaching and Learning.

Petrilli, M. (2011). All together now? Educating high and low achievers in the same classroom. *Education Next, 11*, 48-55.

Polya, G. (1957). *How to solve it: A new aspect of mathematical method* (2nd ed.). Princeton, NJ: Princeton University Press.

Pressey, S. L. (1949). *Educational acceleration: Appraisals and basic problem* (Ohio State University Studies, Bureau of Educational Research Monograph No. 31) Columbus: Ohio State University Press.

Principal 1 (2015, April 27). Interview by Y. N. Farah. Principal Interview Questions.

Principal 2 (2015, May 11). Interview by Y. N. Farah. Principal Interview Questions.

Principal 3 (2015, May 28). Interview by Y. N. Farah. Principal Interview Questions.

Renzulli, J. S. (1977). *The enrichment triad model: A guide for developing defensible programs for the gifted and talented.* Mansfield, Center, CT: Creative Learning Press.

Renzulli, J. S. & Reis, S. M. (1986). The enrichment triad/revolving door model: A schoolwide plan for the development of creative productivity. In J. S. Renzulli (Ed.), *Systems and models for developing programs for the gifted and talented* (pp. 216-166). Mansfield Center, CO: Creative Learning Press.

Renzulli, J. S., & Reis, S. M. (1997). *The schoolwide enrichment model: A how-to guide for educational excellence* (2nd). Mansfield Center, CT: Creative Learning Press.

Renzulli, J. S., & Smith, L. H. (1984). Learning style preferences: A practical approach for classroom teachers. *Theory Into Practice, 18*, 44-50.

Riley, T. L. (2004). Qualitative differentiation for gifted and talented students. In D. McAlpine & R. Moltzen (Eds.), *Gifted and talented: New Zealand perspectives* (pp. 276-303). Palmerstone North, New Zealand: Massey University.

Riley, T. L. (2009). Teaching gifted and talented students in regular classroom. In F. A. Karnes & S. M. Bean, *Methods and materials for teaching the gifted* (3rd ed., pp. 631-672). Waco, TX: Prufrock Press.

Roberson, S , & Roberson R. (2008). The role and practice of the principal in developing novice first-year teachers. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 82*(3), 113-118.

Roberts, J. L., & Roberts, R. A. (2009). Writing units that remove the learning ceiling. In F. A. Karnes & S. M. Bean, *Methods and materials for teaching the gifted* (3rd ed., pp. 187-219). Waco, TX: Prufrock Press.

Roberts, J. L. (2012). Instructional strategies for differentiation within the classroom. In S. K. Johnsen (Eds.), *Gifted education programing standards* (pp. 117-140). Waco, TX: Prufrock Press.

Roehrig, G. H., & Luft, J. A. (2004). Constraints experienced by beginning secondary science teachers in implementing scientific inquiry lessons. *International Journal of Science Education, 26*, 3-24.

Roehrigh, A. D., Turner, J. E., Grove, C. M. Schneider, N. & Liu, Z. (2009). Degree of alignment between beginning teachers' practices and beliefs about effective classroom practices. *The Teacher Educator, 44*(3), 164-187. doi: 10.1080/08878730902951445.

Rogers, K. B, (1991). *Beliefs, attitudes, and values: A theory of organization and change.* San Francisco, CA: Jossey-Bass.

Rorrer, A, K., Skrla, L., & Scheurick, J. J. (2008). District as institutional actors in educational reform. *Educational Administration Quarterly, 44*, 307-358.

Rule, A. C., Baldwin, S., & Schell, R. (2009). Trick-or-treat candy-getters and hornet scare devices: Second graders make creative inventions related to animal adaptations. *Journal of Creative Behavior*, *43*(3), 149–168.

Rowan, B., Correnti, R., & Miller, R. J. (2002). What large-scale survey research tells us about teacher effects on student achievement: Insights from the prospect study of elementary schools. *Teachers College Records, 104,* 1525-1567.

Sanders, W. L., & Horn, S. P. (1994). The Tennessee Value-Added Assessment System (TVAAS): Mixed model methodology in educational assessment. *Journal of Personal Evaluation in Education, 8*, 299-311.

Scanlan, J. S. (2006). *The effects of Richard Paul's universal elements and standards of reasoning on twelfth grade composition.* ALLIANT International University, San Diego, CA.

Schack, G. D. (1986). *Creative productivity and self-efficacy in children.* Unpublished doctoral dissertation, University of Connecticut, Storrs.

Schack, G. D, & Starko, A. J. (1998). *Research comes alive: Guidebook for conducting original research with middle and high school students.* Mansfield Center, CT: Creative Learning Press.

Schiver, S. W., & Maker, C. J. (2003). New directions in enrichment and acceleration. In N. Colangelo & G. A. Davis, *Handbook of gifted education* (3rd ed., pp. 163-173). Boston, MA: Pearson Education.

Scholastic (2015). *Book 1: Chasing Vermeer.* Retrieved from http://www.scholastic.com/blueballiett/chasingvermeer.htm

Schumm, J., & Vaughn, S. (1991). Making adaptations for mainstreamed students: General education teachers' perspective. *Remedial and Special Education, 12*(4), 18-27.

Seney, R. W. (2009). Process skills and the gifted learner. F. A. In Karnes, F. A. & S. M. Bean, *Methods and materials for teaching the gifted* (3rd ed., pp. 137-156). Waco, TX: Prufrock.

Sewell, A. M., Fuller, S. Murphy, R. C., & Funnell, B. H. (2002). Creative problem solving: A means to authentic and purposeful social studies. *The Social Studies, 92*(4), 176-179.

Shapiro, J., Sewell, T., & Ducette, J. (2001). *Reframing diversity in education.* Lanham, MD: Scarecrow.

Shanon, S. G. & Bylsma, P. (2004). *Characteristics of improved school district: Themes from research.* Office of Superintendent of Public Instruction. Olumpia, WA.

Southern, T. W., & Jones, E. D. (2004). Types of acceleration: Dimensions and issues. In N. Colangelo, S. G., Assouline, & M. U. M. Gross (Eds.), *A nation deceived: How schools hold back America's brightest students,* Vol. 2. The Templeton National Report on Acceleration. Iowa City: University of Iowa, The Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development

Spillane, J. (2002). Local theories of teacher change: The pedagogy of district policies and progams. *Teachers College Record, 104*, 377-420.

Stake, R.E. (1994). Case studies. In N.K. Denzin & Y. S. Lincoln (Eds.). *Handbook of Qualitative Research* (pp. 236-247). Thousand Oaks: Sage

Stanulis, R. N., Little, S., & Wibbens, E. (2012). Intensive mentoring that contributes to change in beginning elementary teachers' learning to lead classroom discussions. *Teaching and Teacher Education, 28*, 32-43.

Starko, A. J. (1986). *The effects of the revolving door identification model and a career counseling component on the career development of vocational-technical school students.* Unpublished doctoral dissertation, University of Connecticut, Storrs.

Steffy, B. E. (1989). *Career stages of classroom teachers.* Lancaster, PA: Technomic

Steffy, B. E., &Wolfe, M. P. (1997). *The life cycle of the career teacher: Maintaining excellence for a lifetime.* West Lafayette, IN: Kappa Delta Pi.

Steffy, B. E., Wolfe, M. P., Pasch, S. H., & Enz, B. J. (2000). *Life cycle of the career teacher.* Thousand Oaks, CA: Corwin Press.

Sternberg, R. J. (1997). *Thinking styles.* Cambridge: Cambridge University Press.

Struck, J. M., & Little, C. A. (2011). Integrating higher order process skills and content. In J. VanTassel-Baska & C. A. Little, *Content-based curriculum for high-ability learners* (2nd ed., pp. 71-100) Waco, TX: Prufrock.

Taylor, L. A (1992). *The effects of secondary enrichment triad model on creative productivity and self-efficacy.* Unpublished doctoral dissertation, University of Connecticut, Storrs.

Teacher 1 (2015, April 27). Interview by Y. N. Farah. Teacher Interview Questions.

Teacher 2 (2015, May 11). Interview by Y. N. Farah. Teacher Interview Questions.

Teacher 3 (2015, May 13). Interview by Y. N. Farah. Teacher Interview Questions.

Teacher 4 (2015, May 13). Interview by Y. N. Farah. Teacher Interview Questions.

Team Teacher 1 (2015, April 27). Interview by Y. N. Farah. Team Teacher Interview Questions.

Team Teacher 2 (2015, May 11). Interview by Y. N. Farah. Team Teacher Interview Questions.

Team Teacher 3 (2015, May 13). Interview by Y. N. Farah. Team Teacher Interview Questions.

Team Teacher 4 (2015, May 12). Interview by Y. N. Farah. Team Teacher Interview Questions.

Texas Beginning Educator Support System- T1. (2013, November). Copy in possession of Office of Professional Practice, School of Education, University

Texas Beginning Educator Support System- T2. (2012, September). Copy in possession of Office of Professional Practice, School of Education, University

Texas Beginning Educator Support System- T3. (2011, October). Copy in possession of Office of Professional Practice, School of Education, University

Texas Beginning Educator Support System- T4. (2011, October). Copy in possession of Office of Professional Practice, School of Education, University

Texas Education Agency (2015a). *2014-15 school district summary. Retrieved from http://www.texaseducationinfo.org/PickList_1.aspx?Page=Education%20Summary&ReportName=education_summary.pdf&PickList=District&SubList=No&Title=Education%20Summary&Graph=N&from=Home/Topic/Education%20Summary*

Texas Education Agency (2015b). *Texas public school districts categorized by type, 2012-23.* Retrieved from http://tea.texas.gov/acctres/analyze/1213/district1213.html

Texas Education Agency (2015c). *2014-15 Texas public schools summary.* Retrieved from http://loving1.tea.state.tx.us/TEA.TpeirPortal.Web/Reports/education_summary_state.pdf

Texas Education Agency (2015d). *About TEA.* Retrieved form http://tea.texas.gov/About_TEA/Welcome_and_Overview/

Texas Education Agency Division of Performance Reporting (2015). *Texas academic performance report 2013-14 campus performance.* Retrieved from http://ritter.tea.state.tx.us/perfreport/tapr/2014/srch.html?srch=C

Texas Education Agency (2012). *Texas Education Agency strategic plan for the fiscal years 2013-2007.* Retrieved from http://tea.texas.gov/About_TEA/Welcome_and_Overview/

Tindal, G., & Nolet, V. (1995). Curriculum-based measurement in middle and high schools: Critical thinking skills in content areas. *Focus on Exceptional Children, 27*(7), 1–22.

Togneri, W. & Anderson, S.E. (2003). *Beyond islands of excellence: What districts can do to improve instruction and achievement in all schools.* Washington DC: Learning First Alliance

Tomlinson, C. (1999). *The differentiated classroom: Responding to the needs of all learners.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. (2000). Reconcilable differences? Standards-based teaching and differentiation. *Educational Leadership, 58*, 6-11.

Tomlinson, C. A. (2001). *How to differentiate instruction in mixed-ability classrooms* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C.A. (2003). *Fulfilling the promise of differentiated instruction.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A. (2005). Traveling the road to differentiation in staff development. *Journal of Staff Development*, *26*(4), 8-12.

Tomlinson, C. A. (2008). The goals of differentiation. *Educational Leadership, 66*(3), 26-30.

Tomlinson, C. A., & Allen, S. D. (2000). *Leadership for differentiating schools & classrooms.* Alexandria, VA: ASCD.

Tomlinson, C.A., Brighton, C., Hertberg, H., Callahan, C. M., Moon, T. R., Brimijoin, K., Conover, L. A., & Reynolds, T. (2003). Differentiating instruction in response to student readiness, interest, and learning profile in academically diverse classrooms: A review of literature. *Journal for the Education of the Gifted, 27*, 119-145.

Tomlinson, C.A., & McTighe, J. (2006). *Integrating differentiated instruction and understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.

Torrance, E. P. (1981). Creative teaching makes a difference. In *Creativity: Its educational implications* (2nd ed., pp. 99–108). Dubuque, IA: Kendall/ Hunt.

Torrance, E. P. (1986). Teaching creative and gifted learners. In M. G. Whitrock, *Handbook of research on teaching: A project of the American Educational Research Association* (3rd ed., pp. 630-647). New York, NY: McMillan.

Treffinger, D. J. (1980). *Encouraging creative learning for the gifted and talented.* Ventura, CA: Ventura County Superintendent of School.

Treffinger, D. J., Schoonover, P. F., & Selby, E. C. (2013). *Educating for creativity & innovation.* Waco, TX: Prufrock.

Treffinger, D. J., Selby, E. C., & Crumel, J. H. (in press). Evaluation of the future problem solving program international (FPSPI). *International Journal of Creativity and Problem Solving.*

Udall, A. J., & Daniels, J. E (1991). *Creating the thoughtful classroom: Strategies to promote student thinking.* Tucson, AZ: Zephyr Press.

Udall, A. J., & Daniels, J. E. (2005). *Creating the thoughtful classroom.* Cheltenham, VIC: Hawker Brownlon Education.

U.S. Congress. (2002). No Child Left Behind Act: One Hundred and Seventh Congress of the United States of America.

VanTassel-Baska, J (1988). Curriculum design issues in developing curriculum for the gifted. In J. VanTassel-Baska, J. Feldhusen, K. Seeley, G. Wheately, L. Silverman, & W. Foster (Eds.), *Comprehensive curriculum for gifted learners* (pp. 53-76). Needham Heights, MA: Allyn and Bacon.

VanTassel-Baska, J. (1989). Appropriate curriculum for the gifted. In J. Feldhusen, J. VanTassel-Baska, & K. Seely (Eds.), *Excellence in educating the gifted* (pp. 175-192). Denver, CO: Love.

VanTassel-Baska, J. (2003). What matters in curriculum for gifted learners: Reflections on theory, research, and practice. In N. Colangelo & G. A. Davis, *Handbook of gifted education* (3rd ed., pp. 174- 183). Boston, MA: Pearson Education.

VanTassel-Baska, J., & Feldhusen, J (1988). . In J. VanTassel-Baska, J. Feldhusen, K. Seeley, G. Wheatley, L. Silverman, & W. Foster (Eds.), *Comprehensive curriculum for gifted learners* (pp. 190-220). Needham Heights, MA: Allyn and Bacon.

VanTassel-Baska, J., Feldhusen, J., Seeley, K., Wheatley, G., Silverman, L., & Foster, W. (1988). *Comprehensive curriculum for gifted learners.* Needham Heights, MA: Allyn and Bacon.

Walther-Thomas, C., & Brownell, M. T. (2001). An interview with Nancy Waldron and James McLeskey: Helping schools include all learners. *Intervention in school and clinic, 36*(3), 175-181.

Watzke, J. L. (2007). Foreign language pedagogical knowledge: Toward a developmental theory of beginning teacher practices. *The Modern Language Journal, 91,* 6-82.

Weinbaum. A., Allen, D. Blythe, T., Simon, K., Seidel, S. & Rubin, C. (2004). *Teaching as inquiry: Asking hard questions to improve practice and student achievement.* New York, NY: Teachers College Press.

Westberg, K. L. (1999). What happens to young, creative producers? *National Association for Gifted Children: Creativity and Curriculum Division's Newsletter, 3*, 23-26.

Whittemore, R., Chase, S. K., & Mandle, C. L. (2001). Validity in qualitative research. *Qualitative Health Research, 11*, 522-537.

Willig, C. (2001). *Introducing qualitative research in psychology: Adventures in theory and method.* Buckingham, UK: Open University Press.

Wheatley, H. H. (1988). Matching instructional strategies to gifted learners. In J. VanTassel-Baska, J. Feldhusen, K. Seeley, G. Wheatley, L. Silverman, & W. Foster, (Eds.), *Comprehensive curriculum for gifted learners* (pp. 383-394). Needham Heights, MA: Allyn and Bacon.

Willingham, D. T. (2007). Critical thinking: Why is it so hard to teach*? American Educator, 109,*8–19.

Winebrenner, S. (2001). *Teaching gifted kids in the regular classroom* (2nd ed.). Minneapolis, MN: Free Spirit.

Wolcott, H. F. (1994). *Transforming qualitative data: Description, analysis, and interpretation.* Thousand Oaks, CA: Sage.

Wormeli, R. (2005). Busting myths about differentiated instruction. *Principal Leadership, 5*(7), 28-33.

Yildizlar, M. (1999). *The effect of teaching problem solving behaviours on the achievement at 1. 2. 3. Grade levels students of primary school.* Unpublished Doctoral Thesis, Hacettepe University, Ankara.

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.

Yin, R. K. (2009). *Case study research: Design and method* (4th ed.). Thousand Oaks, CA: Sage.

Yin, R. K. (2013). *Case study research: Design and method* (5th ed.). Thousand Oaks, CA: Sage.

Youngs, P. (2007). How elementary principals' beliefs and actions influence new teachers' experiences. *Educational Administration Quarterly, 43,* 101-137.

Young, P. (2011). Challenges to conceptualizing and actualizing culturally relevant pedagogy: How viable is the theory in classroom practice? *Journal of Teacher Education, 61*, 248-260.