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Transforming regular classroom instruction to differentiate for gifted and highly capable learners

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TRANSFORMING REGULAR CLASSROOM INSTRUCTION TO DIFFERENTIATE FOR GIFTED AND HIGHLY CAPABLE LEARNERS

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Dedication

This paper is dedicated to my daughter, Megan, and all of the other students who "get it" the first time. Thank you for remaining invested in your own learning and always striving to excel. The world needs leaders like you.

Acknowledgments

I extend my overwhelming gratitude to my Dissertation Chair, Dr. Corine Meredith, for guiding me through this process. Your encouragement and expert advice have provided me with very positive memories that I will cherish as part of my doctoral journey. To my committee members, Dr. McBee and Dr. Jorgensen, my heartfelt appreciation for all of your time and effort in serving on my committee. To my colleagues who participated in this action research study, thank you for your cooperation and dedication to your profession in contributing to the success of our vision in better serving the gifted and highly capable students in our district.

Abstract

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Doctorate in Educational Leadership

This qualitative action research study documented the transformation of a small suburban school district from an educational culture focused on minimal levels of achievement reflective of No Child Left Behind to one valuing the continuous progress of all levels of learners. The participant-researcher led teachers in third through seventh grades with instructional program changes in social studies and science that implemented advanced differentiation using a curriculum compacting model. The two-fold purpose of the study explored how teacher engagement in an effective professional development program impacted their practice and disposition toward meeting the needs of gifted learners, while seeking information regarding changes in school district culture to promote 21st century learning environments. After five action research cycles over an 18-month period, growth at the student, teacher, and district levels were reported to reveal a shift in learning, practice, and culture to embrace the value of differentiating for gifted and highly capable students in the regular classroom. Generalization of the findings is reflected in the development of a framework for 21st century educational reform that integrates various components of the study.

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Chapter 1

Introduction

Twenty-first century learning is embedded in a society based in the processing of knowledge. However, the inability of our current educational practices to prepare teachers and students to succeed in this society is becoming glaringly obvious (Hargreaves, 2002). Prepackaged school reform efforts of the recent past have done little to bring about sustainable change in our schools (Fullan, 2007). Given the disappointing performance ranking of the United States in global achievement, it is becoming increasingly urgent to the success of our students and to our nation's future that realistic change models emerge to guide educational reform (Rotherham & Willingham, 2009). Educational leaders need guiding frameworks to address critical areas aligned with 21st century learning in order to generate the changes necessary to increase student achievement (Riley & Roach, 2006; Westberg et al., 1998). By combining effective strategies that promote professional learning within a cyclical change process focused on our most highly capable learners, this study will investigate a framework for reform intended to assist in moving educational practice and institutional culture forward to realize 21st century learning goals.

Problem Statement

Gifted students have unique academic, cognitive, and social needs (Colangelo et al., 2010). It is the responsibility of educators to provide challenging opportunities for these students to develop their talents. However, it is unrealistically optimistic to expect local administrators and teachers to be focused on meeting the needs of highly capable

students in an educational climate where recent emphasis has almost exclusively been on struggling learners (Scot, Callahan, & Urquhart, 2009). From this focus on minimal levels of proficiency embedded in the climate of No Child Left Behind ([NCLB], 2002) have emerged concerns regarding the rebalancing of instruction to reclaim the importance of achievement growth by high level learners as well. A framework for change focused on differentiating for gifted students grounded in research-based strategies is essential to counteract the neglect that this highly capable population of learners has encountered during the era of No Child Left Behind (2002). Bill Gates warns our nation that "Unless the schools of the U.S. find the tools to bring students up to the highest level of accomplishment, it places the nation at risk in the international economy of the 21st Century" (as cited in Hanushek, Peterson, & Woessmann, 2010, p. 8). In the absence of leadership and a guiding instructional framework to reestablish the value in achievement growth for gifted students, best practice is left to chance. Redefining achievement as it relates to all learners and redesigning instructional programs and practice to align with 21st century learning skills is critical in order to advance the type of cognitive ingenuity and social capacity that is necessary for our students to succeed individually and for our nation to continue to succeed globally (Hargreaves, 2002: Rotherham & Willingham, 2009).

Gifted Learners Left Behind

Preparing our students to succeed as 21st century workers and world citizens often times seems to be contradictory to the current educational policies (Scot et al., 2009). Demands for increased accountability have gained momentum in the political arena since the early 1980s with the prominent publication *A Nation at Risk* from the National

Commission of Excellence in Education (1983). This report changed the conversation surrounding national education. Earlier reports on the state of education in the 1960s and 1970s by Coleman and Jenks had focused on social and economic influences contributing to student success, but *A Nation at Risk* placed the burden of raising student achievement solely on the schools (Rothstein, 2008). Support grew for the doomsday message in *A Nation at Risk* at the education summit of the nation's governors' National Goal's Panel in 1989, and manifested in Goals 2000: Educate America Act (1994). Emphasis on the moralistic vision of higher educational standards embodied in Goals 2000 (1994) has degenerated into a compulsive obsession with micromanaged curriculum and regulatory control (Hargreaves, 2002).

Most recently manifested as No Child Left Behind (2002), unequal regulatory funding has targeted one population at the expense of another (LeBlanc, 2007). The distorted focus of No Child Left Behind (2002) continues to insist that school accountability alone for raising test scores will be the catalyst to raise achievement to unprecedented levels, while equalizing outcomes by race and social class as well (Rothstein, 2008). As a result, gifted and talented students have inadvertently become an at-risk population (LeBlanc, 2007). These legislative consequences prompt the question, "Has the drive to ensure equity over excellence gone too far?" (Cloud, 2007, p. 2).

The Global Picture

Teaching to this basic level of proficiency has done little to improve the nation's standing as compared with achievement performance internationally (Scot et al., 2009). According to a statement in 2005 by the Committee on Prospering in the Global Economy of the 21st Century, "Although many people assume that the U.S. will always

be a world leader in science and technology, this may not continue to be the case inasmuch as great minds and ideas exist throughout the world" (as cited in Hanushek et al., 2010, p. 6). A study by Harvard University examined the performance of the U.S. in comparison to other countries using results of the Program for International Student Assessment more commonly known as PISA. PISA is recognized internationally as a standardized assessment measuring student performance in mathematics, science, and reading (Hanushek et al., 2010). Table 1.1 below summarizes the PISA results of students scoring in the advanced range comparing the U.S. performance with 56 other countries.

Table 1.1

Advanced Performance by U.S. on PISA

Math	Science	Reading
6%	3.2%	3.0%
30 countries outscored U.S.	14 countries outscored U.S.	9 countries outscored U.S.

Note. Adapted from PISA results as cited in Hanushek et al. (2010).

In overall performance on PISA, the U.S. ranked 35th, falling below most equally developed countries in Europe and Asia (Hanushek et al., 2010). In their analysis, Hanushek et al. found that several states, including New Jersey, outperformed the nation's advanced percentage average. Given our international performance ranking, the U.S. would be wise to look to what other high performing countries have done to address the progress of advanced learners.

International Gifted Education Policies

Efforts to provide an appropriate education for advanced learners are not limited to the United States. England adopted a federal policy on gifted education in 2002, the same year the U.S. adopted No Child Left Behind (2002). England's policy has been portrayed as radical in its systemic accountability and unusual in its commitment to provisions for differentiation in the regular classroom (Campbell, Eyre, Muijs, Neelands, & Robinson, 2007). According to Eyre, the model encompasses integration, systemic quality, diversity, equality of opportunity, and globalism (as cited in Campbell et al., 2007). The English model puts a great deal of emphasis on professional development through volunteer sites that act as models of reform (Campbell et al., 2007). According to PISA results, England outscores the U.S. in advanced achievement in both mathematics and science, while scoring relatively equal in reading (Hanushek et al., 2010).

The Federal Response

Although No Child Left Behind (2002) does not directly speak to gifted learners, the premise of the legislation exacerbates the historically frustrating situation surrounding policy development to better meet the needs of advanced learners by directing attention and funding exclusively to at-risk students. A report by the U.S. Department of Education in 1993 documented consequences associated with the lack of federal guidance for gifted services. Despite this report, the Bush administration, in pure No Child Left Behind (2002) fashion, attempted to cut funding to the Jacob Javits Gifted and Talented Students Education Act (1988), still the only type of federal support for gifted students. Funding for the Jacob Javits grant (1988) must be approved annually and concentrates on research of best practice, identification, and services to at-risk gifted populations and local reform

initiatives. Funding for the grant has steadily decreased in the wake of No Child Left Behind (2002) (Cloud, 2007). This unsupportive policy environment for gifted education promotes an atmosphere that devalues differentiating instruction for advanced students in the classroom. "Accordingly, Finn and Petrilli argue that we need to bring some 'honesty' into the debate about how to value high achievers relative to other students" (as cited in Loveless, Farkas, & Duffet, 2008, p. 4).

Recently introduced on April 14, 2011, Bill S-857 or the To Aid Gifted and High-Ability Learners by Empowering the Nation's Teachers Act known as the TALENT Act (2011) is attempting to fill the gap in federal policies for gifted students. Dr. Sally Reis, an expert in differentiation for gifted students, presented an explanation of the bill at a senate briefing in May 2011. The bill (S-857) has bipartisan support from senators in Iowa, Pennsylvania, and New Jersey and organizational support from both the National Association for Gifted Children and the Council for Exceptional Children. According to co-sponsoring Senator Grassley of Iowa,

> America can no longer afford to ignore the needs of our brightest students and, by doing so, squander their potential. Our legislation would make the modifications needed to federal education policy to develop and encourage the high achievement that's possible for so many talented and gifted students and, in turn, enhance the future prosperity of our nation. (TALENT Act Charts New Course, 2011, p. 1)

While waiting for federal policy, some states have adopted their own gifted education policies that address the needs of these students to varying degrees.

State Variability

According to Landrum, Katsiyannis, and DeWard, consequences of the No Child Left Behind era has been the elimination of many programs for the gifted in states without mandates and a decline of services even within mandated programs (as cited in

Brown, Avery, VanTassel-Baska, Worley II, & Stambaugh, 2006). In the year No Child Left Behind (2002) was enacted, "Illinois cut $16 million from gifted education; Michigan cut funding from $5 million to $500,000" (Cloud, 2007, p. 1). Fourteen states still have no requirement for districts to provide differentiated instruction for highly capable students. Among the states that do have gifted policies, only seven have both individualized learning plans and due process hearing requirements as part of their mandates, which encompass the substantial criteria "that put teeth in laws that may only otherwise provide lip service" (Zirkel, 1995, p. 7). There is almost an even split between states that fund gifted programs and those that do not. Only five states that mandate gifted programming do not provide funds to support those services, and New Jersey is one of them. South Carolina is a leader in establishing policy on accelerating the achievement of gifted students. South Carolina budgets over $25 million for gifted programs and expects teachers to take advanced students beyond the level of state standards (Swanson, 2007). Table 1.2 depicts statistics reported by the Davidson Institute (2011), comparing states in terms of mandated programs and levels of funding.

Table 1.2

Gifted Education Policy Comparison by State

Mandated Program Fully Funded	Mandated Program Partially Funded	Mandated Program Not Funded	No Mandated Program Funding Available	No Mandated Program No Funding Available
6	20	5 (including NJ)	5	14

Note. Adapted from "Gifted Education Policies" (Davidson Institute, 2011).

The idiosyncrasies of state policies addressing gifted learners was further explored by Brown et al. in a 2006 study of five states that each met the study's criteria of having a full time director for gifted and talented at the state level, a legislative mandate addressing gifted students, and a funding threshold of at least $5 million. Even among what could be considered the most conscientious states, there were inconsistencies in "definition of the population, specific parameters for identification, and the nature of the approach" (Brown et al., 2006, p. 19). The states included in the study did clearly articulate the importance of curriculum differentiation, but failed to address the specific programs and services that would directly impact students at the instructional level (Brown et al., 2006). The study also found very disappointing recognition in the policy language of the importance of staff development to improving teachers' abilities to differentiate curriculum to meet the needs of high ability learners (Brown et al., 2006). While most states in the study required the submission of some type of gifted education program plan, the accountability, monitoring, and technical assistance that would promote the value that the state placed on these plans were neglected or absent (Brown et al., 2006).

New Jersey Policy for Gifted Learners

New Jersey did not meet the criteria to be included in the Brown et al. (2006) study, due to the absence of state funding for gifted education. However, New Jersey Administrative Code § 6A:8 subchapter 3 includes provisions for gifted education at all eight policy levels investigated by Zirkel (1995). At the level of technical assistance, the state has developed curriculum frameworks that include differentiation strategies for gifted students (Zirkel, 1995). New Jersey has defined gifted and talented students and

requires districts to make provisions for ongoing identification of students who meet these exceptionally able criteria and review the process annually (Zirkel, 1995). Programming guidelines support what Tomlinson (1995) suggests are general focus areas to differentiate instruction for advanced learners: content, process, and product (Zirkel, 1995). New Jersey also provides for due process hearings before an administrative law judge and vaguely references individualized plans by expecting instruction to be adapted appropriately and services be provided for identified students by the district (Zirkel, 1995). By addressing all these categories, even vaguely, suggests that despite the lack of funding support, New Jersey has a greater interest in supporting the achievement of gifted students than most other states (Zirkel, 1995).

New Jersey's interest was reflected in the creation of the Commission on Programs for Gifted Students by the New Jersey legislature in 2002. The commission was charged with investigating the most effective means to address the needs of advanced learners in the state. The report by the commission made recommendations based on nine categories to improve services to gifted students, which included: a state level advisory committee, a full time state level gifted coordinator dedicated to policy development, state and local policy revisions, programs and services, teaching and professional development, funding, and data collection (New Jersey Commission, 2005). One of the main findings of the commission highlighted the fact that local control in New Jersey has discouraged consistency in services that compromises equity and access to programs between districts (New Jersey Commission, 2005). Recommendations from the commission were drafted into a revised version of the New Jersey Academically Gifted and Talented Student Education Act (2000-2001) by Senator Martin, who was a

legislative representative on the commission. This same act was first introduced in the 1998-99 session and last introduced in the 2008-2009 session. It has since died after being referred to the education committee. There has been no new policy activity in the 2010-2011 session of the New Jersey legislature with regard to gifted services. Such indecisiveness leaves districts open to litigation.

Challenges in Court

Given the vague or inconsistent policy language surrounding gifted education at both the state and federal level, many parents have challenged school districts in court. Rulings have generally not been in favor of the parents. A decision from *Board of Education v. Rowley* (1982) that was brought before the Supreme Court to resolve an issue with services to a deaf student actually may have had more impact on precedent for cases involving gifted services. The court found that schools did not have to provide a level of educational services that would guarantee a student the opportunity to reach their maximum potential (Stephens, 2000). According to Ford, Russo, and Harris this ruling placed the education of gifted students as a low priority (as cited in Stephens, 2000). Primarily claims by gifted education advocates are grounded in negligence or an implied warranty of services (Zirkel, 1995). Time and time again court decisions have found that differentiated instruction for advanced learners is not a right for students (Zirkel, 1995). A ruling by Connecticut's highest court rejected the argument made by parents that gifted students require exceptional services equal to that of special education in order to make proportionate academic gains (Zirkel, 1995).

Given this pattern of court rulings denying services, parents who focus their energy toward advocating for policy change have a much better record of success. A

study by Delcourt (2003) examined two sites where policies to increase services for gifted and talented students had been adopted based on advocacy efforts by grassroots organizations. Delcourt (2003) identified five key ingredients that supported the success of these advocacy groups, none of which included suing the district for services. As Delcourt's (2003) study suggests, a partnership among administrators, teachers, and parents is the most productive approach to bring about reform in classroom instruction to reflect best practice for gifted learners.

In the Classroom

Much dissatisfaction on the part of parents resulting in the aforementioned litigation could be easily overcome if all teachers subscribed to the premise that differentiating for advanced learners was nonnegotiable in their daily practice. However, according to a study by Geake and Gross (2008), teachers may have a subconscious predisposed bias to gifted students that is socially generated and not contained to one country or culture. Exposing teachers to a concentrated series of professional development on gifted education significantly changed the feelings of study participants toward gifted learners to a more positive light (Geake & Gross, 2008). Yet, in times where local school budgets have been drastically cut, without policy expectations or guiding frameworks that value the implementation of training in this area, initiatives in this regard are unlikely.

Differentiating Instruction for Gifted Learners

As academic diversity increasingly becomes the norm in the American classroom, differentiation of instruction clearly stands out as one avenue for 21st century reform (Tomlinson et al., 2003). Teachers are confronted with learners from broadly diverse

cultural, economic, and linguistic backgrounds possessing various academic abilities. Simultaneously, educational budgets are experiencing unprecedented reductions, leaving schools and teachers with fewer resources to meet the needs of their significantly heterogeneous classes (Chivvis, 2010; Mooney, 2010; Teicher-Khadaroo & Paulson, 2010). Furthermore, gifted and talented programs, which have traditionally received less budgetary consideration than other academic programs (Plucker, Burroughs, & Song, 2010), will be at an even greater disadvantage in securing allocations to continue serving gifted and talented students in traditional supplemental pull-out programs (Alexander, 2010; Bichao, 2010; Hyde, 2008; Sharp, 2010; Welch, 2010). Educational leaders must take proactive measures to ensure that the needs of highly capable students are able to be met in the course of regular classroom instruction, as the expense of maintaining extraneous program services increasingly jeopardizes their continuation. Even if some programs and resources that traditionally serve gifted populations are salvaged, it is likely that the continued trend will be for the regular classroom teacher to address the bulk of diverse student needs (Tomlinson et al., 2003). Therefore, the choice for teachers no longer seems to be whether they will respond to the diverse needs of the students in their classroom, but rather how they will respond (Stradling & Saunder, 1993).

Integrating differentiated instructional strategies is a familiar concept for classroom teachers. However, most educators are comfortable with differentiating instruction for struggling learners under the premise of No Child Left Behind (2002), but typically feel less compelled to do the same for highly capable students (Winebrenner, 1997). With the current pressures of performance on state assessments, teachers constantly defer more challenging extension activities that would extract instructional

time away from lessons focusing on acquisition of skills and concepts that students will be accountable for on the standardized test (Plucker et al., 2010). Even the most advanced students are routinely subject to the same direct instruction as their less able peers (Tomlinson et al., 2003). With the support of a visionary leader, school culture can be reformed to challenge and support all students within a regular education heterogeneously mixed classroom by focusing on differentiated instructional strategies that increases student achievement—even for the most capable learners.

Professional Development

With the transformational expectations associated with 21st century learning, educators can no longer choose professional development initiatives on a whim. School and district professional development programs must be reexamined to ensure alignment with broader educational reform efforts (Bassett, 2006). To bring about such transformational reform that impacts underlying assumptions in school culture, professional development programs need to encompass effective elements based in research that support changes in teaching philosophy and organizational paradigm shifts (Schein, 2004). Even the most motivated educator will admit that differentiating instruction is challenging work and requires more than training in particular behaviors or skills, but requires rethinking practice (Richardson & Anders as cited in Tomlinson et al., 2003). In order to gain an optimal advantage in transferring professional learning to changes in classroom practice, Garet, Porter, Desimone, Birman, and Yoon (2001) recommend addressing both structural and core features of professional development when designing session schedules and activities. Additionally, professional development planning should include the foresight to address the initiative in various ways that will

ensure sustainability at all institutional levels (Killion, 2008). It is through this sustainability that transformational reform will occur.

Rationale for Study

As districts who have gifted and talented programs in place find themselves having to make difficult choices in program and staffing reductions, the general education teacher will eventually be expected to be well-versed in routinely accommodating the unique needs of these advanced learners as part of differentiated classroom instructional planning and practice (Tomlinson et al., 2003). Why is differentiation for gifted students so important? Ask Christopher…

> When Christopher was five, he could add and subtract multi-digit numbers with ease. He could tell time without pause. He could make change with precision. It was May before his kindergarten teacher introduced the notion that numbers are read from left to right on the page. In first grade, Christopher was hungry to read real books, but he spent the first year "learning" vowels, consonants, and how to make words. In second grade, he wanted to know about black holes. His teacher gave him a book on the subject, but it left Christopher with many unanswered questions, so he asked for other books. His teacher told him there were none. In third grade, his standardized math scores in the spring were so high, that his teacher suggested that he might enjoy going to fourth grade math class for the last month of school—but noted that even if he could do the fourth grade math, he'd have to repeat it next year. There were no provisions for acceleration, in or out of the grade level. (Tomlinson, 1997, p. 3)

The profile that Christopher's school describes supports the argument set forth by Finn and Petrilli suggesting that "we need to bring some 'honesty' into the debate about how to value high achievers relative to other students" (as cited in Loveless et al., 2008, p. 4).

The primary avenue to realize instructional reform in our classrooms is to embed professional development within a change process to transform practice. As Gosfield (2002) points out,

> It is not enough for administrators and teachers to give lip service to the notion of curriculum differentiation. Teachers must be trained to develop the skills to provide the depth and complexity as well as accelerated pacing and novelty required by gifted learners. (p. 16)

Unfortunately, research by Borko, Joyce, and Showers and Rowell has shown that professional development used as a vehicle for educational reform is often found to produce disappointing results (as cited in Scot et al., 2009). This study will address the obstacles found in context, systemic practice, delivery, and support that may have contributed to the ineffectiveness of previous professional development based reform efforts (Scot et al., 2009). The methods used to overcome such obstacles will be expanded upon in the upcoming sections that discuss both the theoretical and conceptual frameworks for the study.

Purpose of the Study

The intent of this action research study was to effect change in teacher practice and district culture to improve differentiated instruction for gifted and highly capable learners aligned with 21st century learning goals. The change initiative was embedded in a collaborative professional development process structured to reflect effective research-based and recommended theoretical strategies and activities to promote transformative professional growth. Teachers were expected to subsequently gain knowledge and expertise in differentiating the curriculum for gifted and highly capable students by integrating 21st century skills through alternative instructional approaches that compliment the unique qualities of gifted and talented students (Christopher, 1999; Cramond, 1993; Parke, 1992; Schneider, 2009; Tomlinson, 1997; Winebrenner, 1997). Consequently, a sustainable classroom model of differentiating for advanced learners was expected to be developed as a standard of practice in the district culture.

Evaluation of the change initiative was examined at three institutional levels in order to explore the effectiveness of the study on transforming teacher practice and district culture while exploring how the change benefitted student achievement (Killion, 2008). The research questions below serve to evaluate change at each of these three levels.

Research Questions

By combining an action research approach and qualitative methods, the success of instituting a reform effort through a research-based professional growth model will be more apparent. Changes in teacher practice and student achievement were the foremost focus of program success, while the perceived impact of the program on differentiating for advanced learners within the district culture was also assessed. Through the collection and interpretation of data, the researcher planned to address the following three points of inquiry:

1. How does participation in effectively designed professional development alter the capacity of teachers to differentiate for advanced learners in the regular classroom?
    a. Is there a transfer of differentiation strategies throughout the curriculum?
2. How has the integration of 21st century learning skills promoted student learning?
    a. How has curriculum compacting shaped student learning in the content area?

3. How does the implementation of a classroom instructional model focusing on gifted and highly capable learners shape the district culture regarding differentiation?
    a. Are espoused and implicit beliefs aligned regarding differentiating for advanced learners?
    b. What are parents' perceptions of district changes to meet the needs of advanced learners?

The researcher hopes to provide a comprehensive picture of the changes that the initiative had at each organizational level, and report significant findings to add to the existing body of research. The role of research in establishing the framework for the study is discussed below.

Definition of Terms

Several key terms are referred to throughout this study and are defined for the purposes of clarity in the following section. For purposes of this paper, terms such as gifted, highly capable, and advanced learners are used interchangeably to refer to top ranking students who have been formally identified as gifted and talented through a district adopted matrix system, or students informally identified as high achievers using classroom based assessments and/or the subjective professional judgment of the teacher.

- Curriculum Compacting:

> Curriculum compacting is one of the most common forms of curriculum modification for academically advanced students. It is also the basic procedure upon which many other types of modification are founded. Compacting is based on the premise that students who demonstrate they have mastered course content, or can master course content more quickly, can buy time to study material that they find more challenging and interesting (Siegle, 1999, para. 2).

- Differentiated Instruction:

  To differentiate instruction is to recognize students' varying background knowledge, readiness, language, preferences in learning and interests; and to react responsively. Differentiated instruction is a process to teaching and learning for students of differing abilities in the same class. The intent of differentiating instruction is to maximize each student's growth and individual success by meeting each student where he or she is and assisting in the learning process. (Hall, Strangman, & Meyer, 2009, p. 1)

- Highly Capable Students and Advanced Learners: Students whose ability level is consistently within the upper tier of learners in the class. Upper tier learners would be identified by the teacher as those who score in a traditional "A" range on curriculum based tests and quizzes, demonstrate the ability to work productively as independent learners, and are also able to meaningfully collaborate during cooperative tasks.

- Gifted and Talented (G&T):

  Gifted behavior occurs when there is an interaction among three basic clusters of human traits: above-average general and/or specific abilities, high levels of task commitment (motivation), and high levels of creativity. Gifted and talented children are those who possess or are capable of developing this composite of traits and applying them to any potentially valuable area of human performance. (Renzulli as cited in National Association for Gifted Children, 2010, p. 1)

- Professional Development (PD): "Those processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students" (Guskey, 2000, p. 16).

- Standardized Test:

  A test constructed of items that are appropriate in level of difficulty and discriminating power for the intended examinees, and that fit the pre-planned table of content specifications. The test is administered in accordance with explicit directions for uniform administration and is interpreted using a manual that contains reliable norms for the defined reference groups. (CTB/McGraw-Hill, 2011, p. 1)

- 21st Century Learning Skills: Skills that students need to be successful as part of a 21st century global workforce, typically defined as "critical thinking and problem solving, communication, collaboration, and creativity and innovation" (Partnership for 21st Century Skills, 2004, p.1)

A Framework for Reform

This study aims to develop a framework to guide educational reform toward achieving the vision and standards of a 21st century learning environment based in a structure of effective professional development, see Figure 1.1 below.

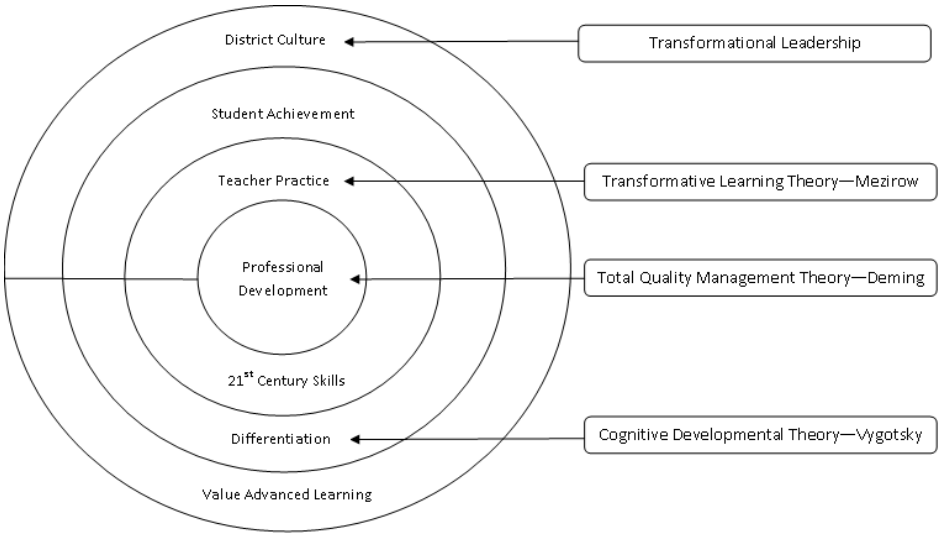


Figure 1.1. Guiding Framework for the Study

A study by Wertheimer and Zinga (1998) identified a function of systemic behavior that accounts for personal and cultural variables to define four elements to gauge successful school reform (Wertheimer & Zinga, 1998). The educational reform effort in this study embraces a broad vision for 21st century learning at a district level while targeting the unique needs of gifted learners. Personal variables in this study are

related to teacher practice and disposition in changing their capacity to differentiate for highly capable students in the regular education classroom. Cultural variables include addressing the value of expending energy and resources on the continued learning of those students already exceeding proficiency expectations. The following sections discuss how the study incorporated research recommendations, theory, and leadership style to formulate the design of the study as a framework for 21st century educational reform.

Conceptual Framework

The design of the action research project was constructed to reflect recommendations from research at three organizational levels in order to promote reform. The structure of the professional development, parental involvement aspect, focus on student learning, and application of cyclical change are designed to impact change at various levels to collectively contribute to transformational reform. The construct of the conceptual framework within a process of action research is meant to be transferrable to other contexts as a framework to guide 21st century educational reform efforts.

The strategies infused at each level within the study were derived from a range of research recommending best practices to address the unique learning styles of gifted students, structure effective professional development, and lead transformational change. The structure and features of the professional development program driving the initiative for implementation of the differentiation model were based on recommendations from studies conducted by Guskey (1991), Garet et al. (2001), and Quick, Holtzman, and Chaney (2009). The format and skills used for developing the student learning activities and assessment rubrics were developed from recommendations of the Partnership for 21st

Century Skills (2008) embedded within developmentally appropriate activities for the content area.

Challenges in shifting the existing cultural assumptions regarding gifted education were addressed through a sustained communication campaign with parents and cyclical progress benchmarks that kept the urgency surrounding the change initiative in the district spotlight. Benchmarks were determined by aligning research cycles with a model for change developed by Heifetz (1993). The change framework embedded within the action research project is further discussed as part of the study's methodology in Chapter 3 and illustrated in Figure 3.2.

Theoretical Framework

Meeting the needs of gifted and highly capable learners requires an understanding of how learning takes place. One of the strongest theories in this regard stems from the work of Lev Vygotsky, called the zone of proximal growth (as cited in Lefrancois, 1988). According to Vygotsky, new learning takes place when one is challenged to perform at a level slightly higher than one's present developmental level (as cited in Lefrancois, 1988). Vygotsky's social-cognitive developmental theory highlights the need to challenge gifted and highly capable students in the regular classroom curriculum. If teachers neglect to differentiate for a gifted child, based on their level of cognitive superiority, that child could potentially go for an entire school year or more without acquiring any new skills or concepts. This scenario may be more common in our schools than traditional minded educators would prefer to admit.

Additionally, current brain research,

> Suggests that when tasks are too hard for a learner, the brain 'downshifts' to the limbic area of the brain that does not 'think,' but rather is designed to protect an

> individual from harm. Also, when tasks are too easy for learners, those learners do not show thoughtful brain activity, but rather display patterns that look more like the early stages of sleep. Only when tasks are moderately challenging for an individual does the brain "think" in a way that prompts learning. (Differentiated instruction workshop, 2007, para. 6)

In two dissertation studies by Brimijoin (2001) and Tieso (2002), students demonstrated increased achievement as measured by pre and post test results when differentiation techniques were effectively implemented in the classroom (as cited in Tomlinson et al., 2003). It is critical for educators to acknowledge such substantial theory and research and proactively plan for a culture of differentiation in their school and classroom.

Moving away from industrial-age educational practice to differentiated instruction is one aspect of educational reform embedded in the philosophy for 21st century learning. Such transformational reform requires changing institutional culture (Shafritz, Ott, & Jang, 2005). In a review of cultural reform movements that began in the 1980s, Shafritz et al. found that staff participation on decision-making teams was an important aspect of ensuring a change in culture. This vested interest by staff members in change has more potential for sustainability than a top-down mandate for compliance (Shafritz et al., 2005). Additional characteristics to promote change in underlying cultural assumptions can be derived from the work of Deming's theory of total quality management and are applicable to education as well. Interpretation of the general components of Deming's total quality management theory to cultural change in an educational environment suggests strong leadership, a focus on student achievement, continuous improvement, teacher empowerment, and data-driven decision making as key target areas to ensure sustained cultural reform (as cited in Shafritz et al., 2005). The cyclical benchmarks

embedded in this action research study, along with the focus of the professional development design, support the total quality management theory.

Additionally, changing institutional culture by embedding expectations and experiences that challenge beliefs and shift assumptions is critical for changing the contextual understanding of individuals. Transformative learning theory, developed by Mezirow, suggests that our perceptions are based on our experiences ("Core Principles," 2011). Therefore, in order to change one's perceptions, one must be engaged in experiences that challenge one's current point of view or, as Mezirow terms this, habits of mind ("Core Principles," 2011).

> Therefore, professional development must go far beyond learning to use a new piece of software or a new trick for increasing student participation. It must involve educators as whole persons—their values, beliefs, and assumptions about teaching and their ways of seeing the world. (Cranton & King, 2003, p. 33)

One strategy recommended by Cranton and King (2003) in linking professional development to transformative learning theory is to integrate curriculum development as the foundation for educators to acquire new teaching styles. According to Mezirow, it is through the critical reflection and assessment of new information that would occur through opportunities for collaborative discourse during professional development sessions from which a new frame of reference would be developed and habits of mind would be changed resulting in transformative learning ("Core Principles," 2011).

Adult learning theories also offer insight to assist with planning professional development for teachers in order to support transformative learning. Cognitive development theory describes how individuals progress from seeking external validation to internal satisfaction (Trotter, 2006). Functional theorists such as Brundage and Mackeracker contend that adults learn through experience, and motivation to learn is

directly linked to relevance of the topic (Trotter, 2006). Application of these theories is useful when constructing effective professional development in order to guide in the planning of more "meaningful and transferable" learning experiences (Trotter, 2006, p. 10).

This study encompasses these key theories described above through an effectively designed professional development program to produce a change in instructional philosophy toward differentiating for advanced learners anchored in a transformation of school culture to reflect 21st century learning goals. Effective leadership is essential to guide the type of paradigm shift embedded in this action research study. The following discussion describes the framework upon which my role as participant-researcher will be based to lead the study's change initiative.

Leadership Framework

Developing a solid understanding of my own values and beliefs through reflective practice will enable me to be true to a personal educational philosophy reflected in daily practice. The following dynamic outline of personal ideals guides my decisions and activities as an educational leader and is reflected in the premise of this action research study.

Core Values.

- I value parents as partners in the education of their children.
- I value the perspective of each stakeholder as it relates to policy and practice.
- I value change as a means to ensure continual organizational, professional, and student growth.
- I value the educational achievement of each child.

- I value rigor and relevance in curriculum and assessment.

Core Beliefs.

- I believe that through a concerted effort between home and school each child will reach their full potential.
- I believe that the avenue to increasing student achievement is derived through collaborative planning and shared accountability.
- I believe that risk-taking through collective inquiry is an essential means to improve current practices.
- I believe that with interventions to support individual learning needs each child can meet mastery levels according to curriculum standards.
- I believe that the development and administration of common formative and summative assessments are critical to ensuring horizontal and vertical instructional integrity.

A reflection of my personal educational philosophy has allowed me to develop a style that assumes the responsibility of a transformational leader supported by my values and beliefs that incorporate visionary, shared, instructional, and emotionally intelligent leadership.

Transformational leadership. I subscribe to transformational leadership as my overarching philosophy. According to Bass and Avolio (as cited in Bolden, Gosling, Marturano & Dennison, 2003), "transformational leadership is closer to the prototype of leadership that people have in mind when they describe their ideal leader, and it is more likely to provide a role model with which subordinates want to identify" (p. 15). Covey (as cited in Bolden et al., 2003) states,

> The goal of transformational leadership is to transform people and organizations in a literal sense—to change them in mind and heart; enlarge vision, insight, and understanding; clarify purposes; make behavior congruent with beliefs, principles, or values; and bring about changes that are permanent, self-perpetuating, and momentum building. (p. 16)

As a transformational leader, my mission is to establish relationships and foster a culture of continuous improvement to support student learning in the 21st century. In order to continue to optimize development of the environment in which I lead, I believe a constant assessment of the four frames of an organization (Bolman & Deal, 2003) – structural, human resource, political, and symbolic – is critical to determine what particular reaction, or application of style, is necessary to realize success. From a human resource frame, nurturing relationships with various constituents of stakeholders may require a style that applies emotionally intelligent and shared leadership strategies; while guiding continuous improvement, from a political or structural frame, may require more strategies associated with visionary and instructional leadership. These secondary leadership styles, which support transformational leadership, are further discussed in the following sections.

Visionary leadership. I believe that there are steps toward evolving an organization to realize a shared vision, as Sergiovanni (1990) describes. At the initial onset of a change initiative, it is important to connect that change to a broader institutional vision. During this initial phase, it is important for a leader to exude an energizing charismatic style since this style tends to persuade individuals to reexamine values, goals, needs, or aspirations (Nadler & Tushman, 1990). I believe it is important to motivate staff to commit to an organizational vision, and then rely on establishing relationships with staff to maintain that enthusiasm and commitment in order to achieve

the vision. By creating a supportive emotional environment, staff feel they are part of a team and are more inclined to stay focused even in times of uncertainty and change (Goleman, Boyatzis, & McKee, 2002). A leader cannot expect others to commit to her vision if she is not willing to commit to issues that are important to them. Staff concerns expressed privately or during team dialogue must be addressed with empathy and action. Furthermore, individual personalities must be considered when responding to people's needs, which may differ from what my initial reaction may be given my own personality characteristics. Only as a unified force will transformation in practice and culture be realized.

Additionally, it is imperative that, as the leader, I model the behaviors that reflect the vision for change. If I expect teachers to work in collaborative learning teams and students to explore problems reflective of 21st century learning goals, then I must also work collaboratively with other administrators and school leaders and engage in the same challenging dialogue that promotes professional growth and contributes to achieving the shared vision for reform.

Shared leadership. Opportunities for staff to participate in shared-decision making will remain at the core in leading the study's organizational transformation. Through a participatory approach to decision-making, the study embeds collaborative articulations for staff to contribute to the strategies necessary to achieve our vision. Strategies that result from this collaborative discussion will serve to clarify required behaviors, builds benchmarks to gauge progress, and establishes rewards. Moving from charismatic to instrumental leadership (Nadler & Tushman, 1990) during the change process, helps to set agendas for leadership team discussions in order to plan for evolving

responsibilities and changes in the instructional program. Therefore, initially the gifted and talented teachers will be encouraged to adopt leadership roles and provided many opportunities to share their expertise that contribute to the study's success. As the research cycles evolve, other staff were encouraged to accept leadership roles by exercising their own strengths in areas that are personally meaningful and relevant to the shared vision. This support and expectation of staff leadership helps tie personal dreams and organizational vision together to promote a lasting cultural transformation (Goleman et al., 2002).

Instructional leadership. Modeling professional learning, collaboration, and leadership among all members, is essential for students to realize the connection between their current studies and future endeavors. As an educational leader, real world connections are what I value the most. I believe the classroom needs to be a model for life. Knowledge, investigation, and cooperation as practiced in school will create a child's image of how the world functions. In order to foster such intrinsic qualities in our students, I feel it is important to incorporate routines that promote such qualities among the staff. The structure of the study allows for creation of new knowledge pertaining to the importance of fostering a 21st century learning environment, investigation of advanced differentiation strategies, and a forum for collaborative professional development in order to support the transfer of professional learning to classroom practice. Assisting staff in realizing connections from their own learning to routine classroom application will nurture a school culture that values authentic learning experiences associated with expectations for 21st century schools.

Emotionally-intelligent leadership. Self-awareness is the first domain for emotional intelligence, according to Goleman et al. (2002), and is critical in establishing an understanding of one's own emotional assets. An accurate self-assessment is a key point in this domain and provides the basis for knowing one's strengths and limits (Goleman et al., 2002). As a transformational leader, I frequently practice such self-reflection in the workplace. I am open to candid feedback, new perspectives, and continuous learning. Dialogue with colleagues allows me to make decisions based on a greater repertoire of scenarios, and compare my perspectives with others. Upon reflection, I will be able to recognize my strengths and discover ways to continue to refine my practice to increase resonance in my organization.

As a leader, I believe that it is my responsibility to give consideration to external expectations and how they align with the vision we have already established. Although input from all stakeholders is critical, too often in education we are inundated with political mandates or personal agendas, which may throw us off course. Careful check of my own emotional reactions to situations will set the standard for interpretation of unforeseen requests (Goleman et al., 2002) and maintain focus on our collaborative purpose. Through celebration of benchmark accomplishments, a motivational environment is established as staff is recognized for progress toward the goals of the study and recognized for their commitment to the transformational vision.

Continuous reflection as an educator is a powerful way to stay effective and connected to one's work. In the demanding educational climate of today, it is no longer practical or acceptable to move through the course of a career without focusing on the improvement of one's own practice or on the improvement of student and staff learning

in the school. Ghere, Montie, Sommers, and York-Barr (2006) suggest that the degree of school improvement is related to the degree of staff commitment to their own professional learning. It is the responsibility of the school leader to provide opportunities for staff to reflect on their own teaching in order to foster a climate for continuous learning. By prioritizing collective reflection as part of the articulation sessions embedded in the study's professional development design, the shared purpose for sustained improvement becomes part of the cultural values of the school. Leading a school that is built on a culture of learning and growing is the key to systemic improvement in education.

It is no longer appropriate or realistic for educational leaders or the staff and community they serve to assume that they alone have all the answers to impact sustained reform (Lambert, 2002). Solutions for addressing the complex challenges of 21st century education will evolve from tapping into the substantial talents and innovative ideas gathered from all members of the educational community. By fostering a culture that supports experimentation and innovation through action research, slow and steady progress will be made toward professional growth and increased student achievement. The following discussion describes the context of the study in which I will apply my leadership framework to effect 21st century educational reform.

Context of Study

The school district serving as the site of this study, like other NJ districts, faces state and federal aid reductions and budget cap provisions, which are impacting every aspect of district operations. In a letter to the governor, the district superintendent reported that the unprecedented funding loss has impacted most program services in the

district (personal communication, March 30, 2010). Despite the reduction in staff and services due to budgetary constraints, parents' expectations about individualized attention to student learning have remained at the same high level. Whereas basic skills students have been receiving differentiated instruction in the regular classroom for the past several years, gifted and talented students were still participating in a traditional pull-out program involving additional staffing expenses. Predictions of worsening fiscal circumstances for the district will likely prompt the eventual elimination of this gifted and talented pull-out program, escalating the urgency for the site district's general classroom teachers to develop the expertise to serve the unique learning needs of these highly capable students by adjusting regular classroom instructional practice.

Consistent with trends associated with NCLB described earlier, and as a result of cultural expectations and previous differentiation training, teachers have become comfortable with providing differentiated support to struggling students in their classroom. However, in recent years, there is growing concern among stakeholders that the needs of advanced learners are not given the same amount of teacher time and attention as the needs of struggling learners. It is apparent that communicating the vision of differentiation for all levels of learners has been neglected in previously held district professional development sessions on this topic, resulting in a sustained focus primarily on struggling learners. As awareness of the importance of assisting gifted students through a differentiated curriculum becomes more prevalent, so will the demand that regular classroom teachers be accountable for the increased achievement of advanced students as well as struggling learners.

Eligibility Criteria for Gifted Services

Currently, the district adheres to a typically standard process of identifying students for enrichment and gifted program services. Students are eligible for enrichment in grades 1, 2, and 3 and are recommended for testing by their classroom teacher. The children who are recommended for testing take the Terra Nova, a nationally recognized standardized test published by McGraw-Hill/CTB, administered by the enrichment teacher. If the child scores above 90, then they are eligible for enrichment. Children do not retake the enrichment test from year to year if they have already qualified. However, new children may be introduced into the enrichment program in the following years. For instance, if a student was not recommended for testing in first grade, but is recommended for testing in second grade and scores above 90 in second, she would be eligible for enrichment in second and third grade.

As children move up into fourth and fifth grade, the broader enrichment program is replaced by the more selective gifted and talented program. With this eligibility shift, there are more standards and identification practices put into place. A gifted and talented identification matrix is used with upcoming fourth graders. This matrix includes a Terra Nova score, teacher recommendation, and a score from the Screening Assessment for Gifted Elementary and Middle School Students (SAGES). Students who are already participating in enrichment will qualify to take the Terra Nova for gifted and talented. Other students may be recommended to take the Terra Nova to qualify for Gifted and Talented by their classroom teacher. Students' Terra Nova scores are then calculated and charted on an eligibility matrix. If a child scores between 90 and 99 on the math and reading sections of the Terra Nova, she is assigned a point value according to the matrix.

Along with the Terra Nova, a teacher recommendation is also taken into consideration as part of the gifted and talented eligibility matrix. The four page teacher recommendation has 12 questions that help to develop a profile for the student related to her learning characteristics, leadership abilities, creativity, academic commitment, and motivation. Based on the teacher's responses in the recommendation, a point value on the matrix is assigned to that student profile.

The last criterion for the matrix involves the SAGES test. The SAGES was developed by Johnsen and Corn and is published by Prufrock Press Inc. The SAGES provides a measure of aptitude and achievement to assist with screening of gifted students and is similar to the Terra Nova in that it is also a standardized norm-referenced test. If a child scores a 90 or above in Terra Nova math or reading, she would then be invited to take the SAGES. The SAGES test is administered by the school psychologist in a small group setting. The test includes a math and science section, a language arts section, and a reasoning section. The student's score from the SAGES is then assigned a point value according to the gifted and talented identification matrix.

Once the criteria measures are recorded, column totals in the matrix are calculated and a total score is entered. Students qualify for gifted and talented by meeting a minimum number of total points. The district does allow for flexibility in decision making based on the number of students entering the program in a given year. Once a student is identified as eligible for gifted and talented in fourth grade, there is no retest in fifth grade. The process identifies a student for two years of eligibility in the gifted and talented program. The process does allow new students to enter in fifth grade. For instance, if a student was not recommended in fourth grade or did not meet the minimum

points on the matrix in fourth grade, the student may be recommended the following year by her fifth grade teacher.

The gifted and talented program evolves into an accelerated language arts and mathematics program in the middle grades. Where lower grade level services were provided as a weekly pull-out program for enrichment and a tri-weekly pull-out for gifted and talented, supplemental service support does not extend to the sixth, seventh, and eighth grades. Students identified as gifted and talented in fifth grade automatically are enrolled in accelerated language arts in sixth grade. Enrollment in accelerated mathematics is based on a certain score on the Terra Nova, which is administered to all gifted and talented students in the spring of their fifth grade year. The Terra Nova score is then incorporated into an accelerated math eligibility matrix developed and calculated by the middle school math department. The math accelerated course criteria follows the same principle as the gifted and talented identification matrix, where the criteria for entering an accelerated course follows a point value system based on the Terra Nova test, a teacher recommendation, and a final average in mathematics for the previous year.

Scope of the Study

Through my position as the district's curriculum coordinator, I facilitated the action research study as researcher and participant by creating a process that allowed for collaborative inquiry to realize reform. Using a research design that incorporated the cyclical action model of Calhoun (1994) and change process model developed by Heifetz (1993), a task force, including a core team of select task force members, was established to collaboratively develop, execute, and assess the initiative at each stage of implementation. The task force consisted of teachers from two schools and the district

curriculum coordinator as participatory researcher. Teachers on the task force were from grades 3 through 7, as well as the two gifted and talented program teachers in the district. The core team included the researcher, both gifted and talented teachers, and the director of student support services whose role was to analyze the formative data collected during each cycle in order to make any adjustments in the process that would be necessary to fully realize the goals of change effort.

The study initially focused on students identified as gifted and talented or who were eligible for third grade enrichment services, with a plan of expanding to include other capable learners as the cycles for the study evolved. Parents of identified enrichment and gifted and talented students were targeted for input and feedback to help assess apparent shifts in district philosophy toward meeting the needs of gifted learners and cultural expectations for differentiating instruction. The study implemented the reform initiative in each of the two schools in the district spanning grades 3 to 7. Social studies and science were targeted for differentiating instruction, one sixth grade teacher concentrating in math. A professional development program was established to promote teacher expertise in differentiating instruction in those content areas using a curriculum compacting model, which included designing extension projects that address 21st century learning expectations while complementing the unique qualities of gifted and talented students (Christopher, 1999; Cramond, 1993; Parke, 1992; Schneider, 2009; Tomlinson, 1997; Winebrenner, 1997). Effective research-based approaches to teacher training (Garet et al., 2001) and strategies for including parents in shared decision-making were included as part of the cyclical pattern toward change in this action research study.

Explanations of the three levels of change addressed in the scope of the study are discussed in the following sections.

Teacher Level

Changes in teacher practice through strategies that support transformative professional learning was the focus for investigation at the teacher level. The professional development program was embedded in the district's professional development meeting schedule and the format was organized to align with the core features (content, active learning, and coherence) and structural dimensions (collective participation, form, and duration) of effective professional development, according to Garet, et al. (2001). An explanation of the consideration of each element in the study's design is included in the following discussion.

Duration. The participant-researcher scheduled a series of sessions within the regular district professional development calendar throughout the course of the study in order to provide sufficient time for teachers to gain the necessary competencies to differentiate for gifted and talented students successfully in their classroom. This professional learning time abided by the district's negotiated agreement outlining contractually allotted meetings for all teaching staff.

Content and form. In order for teachers to celebrate the learning style of gifted and talented students, an appreciation of the characteristics that typically define the profile of these learners was necessary. The researcher gathered relevant content-related articles to facilitate discussion among teachers during the professional development program. A study of current research that identified the various instructional strategies

and tools, which gifted and talented students find intrinsically motivating, were reviewed and discussed.

Additional resources that expanded on the urgency of the deficits in our current practice versus the needs of 21st century learners were also included for training purposes. Teachers were introduced to standards associated with 21st century learning skills and were offered guidance in the creation and use of project-based rubrics. This aspect of the professional development was intended to instill a better understanding of the rationale for the differentiated instructional design and activity format.

Collective participation and active learning. The participant-researcher paired collaborative task-oriented work with collegial discussion to foster collective participation and active learning. The participant-researcher assisted the task force with adoption of norms that emphasized responsibility and risk-taking. Task force members, which included all teachers involved in the study, were encouraged to develop a clear concept of the differentiation model in order to offer suggestions to improve elements of the design to ensure success in practice. Research suggests that by allowing teachers to be the authors of the new differentiated activities, they acquire a deeper understanding of the concept and purpose of the redesign (Wlodkoski, 2003).

Planning sessions. During planning sessions, teachers were expected to actively engage in developing unit plans with accompanying assessments, rubrics, and projects. Additionally, planning sessions allowed teachers time to review and analyze student work in order to adjust and improve the design throughout the action research process. Preteaching and project activities and accompanying materials were also developed during these planning sessions.

Articulation sessions. According to Heifetz (1993), in order for people to make permanent changes in their behaviors and attitudes, they must be given the opportunity to discuss concerns as they continue to experience the nuances of the change. The articulation sessions provided teachers with a discussion forum to work through the change process. The principal of each building acted as facilitator for each articulation session. This provided an opportunity for the administrators to show support for the initiative and to remedy any operational conflicts or perceptions that may have undermined the goals of the change initiative. Unlike the task force meetings, which grouped teachers by grade level, these sessions offered a vertical articulation opportunity for teachers to share and get ideas from members of the task force across grade levels. An articulation session was scheduled at the beginning of each cycle.

Coherence. The initiative built upon several areas in existing practice within the district. First, teachers were well aware of the importance for differentiating according to a student's abilities. This model extended that idea to put a greater emphasis on differentiating higher ability learners, rather than those of lower ability, which was the norm in the district. Second, teachers were familiar with managing small groups of learners in a guided reading model during language arts. This study extended the familiarity with that design to bring guided reading into the content area, in order to assist teachers with making the connection in conceptualizing how to manage differentiated groups during social studies or science. Finally, the participant-researcher built on the teachers' understanding of how to develop mastery assessments and the in-district process of response-to-intervention (RtI). Using the RtI model, which addresses instructing, testing, reteaching, and reassessing for mastery as a foundation for

explanation regarding the preteaching, pretest, compacting, and retest phases in the design, was helpful in providing a reference point to gain clarity in the steps involved in the differentiation model.

District Level

An exploration of shifts in the cultural values of gifted education was the focus of inquiry at the district level. Collaborative planning was scheduled with building principals to discuss motivational techniques that would be appropriate to incorporate into this change process to promote sustainability. The researcher proposed the use of walk-throughs to recognize success in transfer of practice and commend efforts that they observed based on expectations of the program redesign (Riley & Roach, 2006). A walk-through criteria was discussed to reflect expectations of change related to each cycle in the process.

In order to foster positive parent involvement as a means to promoting the district's increased emphasis on valuing gifted education, the researcher collaborated with the district's director of student support services to design a series of focus group meetings for gifted and talented parents. These focus groups allowed parents to also review literature that supports the rationale for the study's initiative. Parents were kept abreast of progress being made by teachers as they grew in their abilities to meet the needs of gifted students in the regular classroom (Fouse & Beidelman, 1995). Parent input to the program design was noted, considered by the core team as formative data during each benchmark, and shared with teachers during task force meetings.

Student Level

Specific elements that support the unique characteristics of gifted learners were considered by the task force in the differentiated program design. The inherent need to seek answers to open-ended questions became the basis for the extension activities (Cramond, 1993), while the undeniable importance of creating fluency with technology as a 21st century learning skill made its incorporation within the design a non-negotiable component (Kara-Soteriou, 2009; Strot, 1997). Using the computer as a research tool was one aspect of integrating technology with differentiation activities (Schneider, 2009). Then, synthesizing that research in a written essay and/or multimedia presentation assisted students with demonstrating their learning and sharing that learning with their classmates (Cramond, 1993). Investigating the ramifications of curriculum compacting and the integration of 21st century learning skills on the motivation and achievement of gifted students was the focus of data evaluation at this level of inquiry.

Content area integration. For purposes of this study, it was necessary to discover ways to incorporate 21st century learning skills within content area curriculum. Social studies became the main area of focus, with teachers eventually incorporating science units within the model as the study progressed. One conventional method of inquiry used in social studies is the document-based question (DBQ). This activity format provides students with a variety of primary sources and guides students in an analysis, synthesis, and evaluation of the sources toward a final essay (Stovel, 2000). A document-based question expects students to discuss the sources in the context of all the other documents while considering personal or contextual bias (Stovel, 2000). The format of a document-based question supports the level of inquiry suggested in meeting 21st century

learning goals in that students "must be able to find and analyze information, often coming from multiple sources, and use this information to make decisions and create new ideas" (Silva, 2009, p. 631). The traditional document-based question format can be easily modified to encompass the full range of 21st century skills included in the social studies map developed by The Partnership for 21st Century Skills in collaboration with the National Council for Social Studies.

Introducing 21st century skills within the differentiation model went beyond document-based questions. Rubrics were designed by the participant-researcher that incorporated various combinations of 21st century skill standards that naturally yielded a focus for an extension project. The skills described in the social studies map developed by the Partnership for 21st Century Skills (2008) were combined with skills identified by the Partnership for 21st Century Skills (2008) as Life and Career Skills. These rubrics were entitled: leadership and responsibility, initiative and self-direction, creativity and innovation, critical thinking and problem solving, and information literacy. The task force used these rubrics to brainstorm ideas for projects within the content areas. Once project ideas were established, an additional row was added to the performance criteria for the rubric that addressed the content knowledge relevant to the project. These rubrics assisted the teachers with envisioning a rigorous project for these advanced learners worthy of pursuing in lieu of the teacher's regular course of instruction for that unit.

Study Limitations

The participant-researcher acknowledges that my role as a district-level staff member may have influenced the design of the study. The tendency for colleagues to defer decisions related to curriculum and professional development to my expertise as the

district curriculum coordinator is a common occurrence. So given the task force members' knowledge that I had conducted a comprehensive review of literature surrounding best practice, they may have been inclined to easily accept my recommendations for program design once they had a thorough understanding of the urgency surrounding the change. Therefore, the strategies and activities incorporated within the differentiation model design may have been limited due to bias based on the participant-researcher's own interpretation of the recommendations from the literature.

The time to meet to develop the differentiation model for the study was bound by the parameters of the district's negotiated agreement. Work by the collaborative task force, which drove the study's planning, implementation, and assessment was limited to Monday afternoons and in-service days. The researcher gave great attention to purposefully planning meeting agendas as cyclical patterns to reflect aspects of effective professional development for the days available within each anticipated research cycle. Although the researcher hoped that growing enthusiasm for the study would motivate teachers to work beyond the requirements of the contract, the district's calendar of available opportunities for professional development dictated the task force meeting schedule.

The researcher was also limited in the ability to maintain membership on the task force. Due to reassignments, attrition, and other leaves among the faculty, task force membership changed between the two school years that the study spanned. The data analysis attempted to address this dynamic membership by creating cohort comparisons in the analysis of data.

Significance of the Study

Beyond participating in compliance with an instructional program design, differentiation presents a concept that fundamentally changes teachers' instructional philosophy. In order to realize such a paradigm shift, the district culture needs to whole-heartedly reflect a differentiated philosophy as well. Models for implementing strategies to bring about reform at each level of the district culture and then measuring the success of the reform effort are critical for 21st century education. This study encompassed a framework for implementing a reform initiative by challenging the traditional beliefs held by teachers to redefine the district's underlying cultural assumptions in order to realize 21st century learning goals (Schein, 2004). Findings of this study can be generalized to offer information for policy development to dictate effective strategies to implement transformational change initiatives in schools.

This study may serve to substantiate policies that challenge traditional beliefs that services for gifted students are defined as a pull-out program. Policy reform for gifted learners may include the notion that responsibility for differentiating for gifted learners is inherently that of the classroom teacher, and not exclusively of a specially assigned program teacher. Points in such policy reform may also include a recommended program design for certain content areas that integrate 21st century learning skills and guidelines on professional development for district staff in order to realize successful implementation of such a reform effort.

Aligned with the broader educational goal that expects differentiation of learning, especially for those students who are most capable, this study promotes the opportunity for critical thinking among gifted students that maximizes their individual growth and

ultimately their contributions to the continuous growth of our nation. At the local level, the growth in teachers' professional learning as it relates to transfer in classroom practice provides information as to the most effective professional development framework for reform initiatives. Finally, the impact that the structure and focus of the reform initiative had on the district's culture in terms of perceptions and expectations in meeting the needs of advanced learners is weighed as plans for reforms that require similar significant paradigm shifts are explored.

Instructional program planners will be interested in the study's results in regard to student learning and differentiation of the curriculum. The growth of gifted and highly capable students participating in the differentiation design is analyzed and any consequential benefit that the study may have had on other students are also discussed. The success of the program design itself is evaluated through teacher surveys and task force member interviews and parent comments. By examining the action research initiative through each of these lenses, the study reveals the differentiation design's value as a worthwhile endeavor for curriculum reform.

Conclusion

Through the discussion, findings, and conclusion, this study acts as a catalyst for other educators to initiate similar program changes. As studies offering best practice frameworks for reform efforts continue to emerge, educators will continue to move closer to an educational environment conducive to 21st century learning. In the following chapters, I provide insight regarding supporting literature, methodology, findings, recommendations, and leadership associated with my action research study.

Chapter 2

Literature Review

In order to contribute to a reform effort aligned with the challenges of 21st century education, the literature review presented in this chapter addresses the urgency of reforming instructional programs and philosophy to meet the diverse needs of all learners in the classroom. This literature review primarily focuses on the body of research regarding professional development and gifted and talented learners. An examination of existing studies regarding the characteristics of effective professional development, and the extent to which these characteristics relate to positive outcomes for teachers and students, was conducted in order to ascertain best practices for developing a successful training model that increases the value that teachers place on modifying curriculum for gifted learners and provides them with the skills necessary to provide those instructional accommodations. A literature analysis focusing on the learning profiles of gifted and talented students exposed effective curriculum strategies and instructional activities for differentiating to address the needs of advanced learners in the regular classroom as part of routine teacher planning. Finally, strategies to manage the changes in traditional gifted and talented services were investigated through a comparison of examples in the research at the school and parent level. The evaluation tools used in the study were developed according to research-based methods uncovered in the analysis that follows as well. The findings from the review were summarized in order to support the use of an action research process to investigate if effective professional development focused on successfully challenging advanced learners as part of a regular instructional program

could influence transformational change in district culture and teacher practice that aligns with 21st century learning goals.

Background for the Study

As students in the average American classroom become increasingly more diverse, common teaching methods that focus on middle-of-the-road, grade-level instruction are becoming gradually more ineffective in addressing the variety of readiness levels, motivational interests, and learning profiles of students in the classroom (Tomlinson, 1997). Among those teachers who are well-versed in differentiating instruction to meet learners at their level, the prevailing tendency is to readily adapt instruction for lower achieving students, while typically failing to see the urgency of doing the same for high achievers (Winebrenner, 1997). As educational funding continues to diminish, supplemental staff and programs that have traditionally supported general classroom teachers in efforts to differentiate instruction for their gifted students will also diminish (Alexander, 2010; Bichao, 2010; Hyde, 2008; Sharp, 2010; Welch, 2010). Professional learning experiences that assist teachers in adjusting their beliefs and practices to mirror the importance of differentiating for all levels of learners, including routinely challenging advanced students to reach their full potential, is essential for reforming education in the 21st century.

The importance of differentiating instruction becomes evident when we examine the current state of education in our country. In May of 2009, the U.S. House Education and Labor Committee heard testimony reporting that our educational crisis has cost the country billions of dollars annually in lost tax revenues, with the cumulative economic impact of the dropout rate over five years exceeding even the cost of the 2010

government bailouts to the auto, financial, and insurance industries combined. Surprisingly, statistics have revealed that about 5% of gifted students drop out of school (Cloud, 2007). More surprising may be the ability of 20% of dropouts to test in the gifted range as adults (Cloud, 2007). Witnesses to the committee called for reforms to make schools and teachers more accountable to the students they serve (U.S. Committee on Education & Labor, 2009).

In December 2009, The National Association for Gifted Children released its State of the Nation in Gifted Education report, which offered "a frustrating picture of this nation's commitment to providing a quality education to our most talented students" (McIntosh, 2009, p. 1). The report calls for educational leaders to work together to design professional development to ensure that the needs of our most advanced learners are served by teachers who are well-trained in differentiating curriculum to challenge these students (NAGC, 2009). The National Association for Gifted Children (2009) also emphasized that there is little will at the national level to invest in educating our top students. Statistics have shown that the nation spends 10 times more on special education than gifted education (Cloud, 2007). The report concluded that wide disparities in our country's approaches to gifted education programs produce a loss, not only to our brightest students, but also to the nation as a whole (NAGC, 2009). Margaret Gosfield, a past president of the California Association for the Gifted, encourages us to embrace our gifted children and recognize the potential of these students "both in terms of their possible personal accomplishments, but also in the potential to contributions they may make to society through future problem solving and leadership" (Gosfield, 2002, p. 18).

In March of 2010, the Obama administration introduced A Blueprint for Reform, which was meant to overhaul the controversial No Child Left Behind (2002) legislation of the Bush era. Among the changes was the emphasis on rewarding high performing districts in ways that go beyond bragging rights (U.S. Department of Education, 2010). Obama's revamped plan also placed greater accountability on individual student achievement and teacher success in the classroom (Garrett, 2010). The importance of professional development was emphasized in the reform package as a means to that end. By extension, 21st century education will be defined as simultaneous learning for both the educator and the student with accountability for that learning being more personalized than ever before. Most national organizations, including the Association for Supervision and Curriculum Development, recognize that preparing teachers to meet the challenges of 21st century education is a massive undertaking (Rotherham & Willingham, 2009). As schools and districts move to improve their professional learning systems, effort should be concentrated in planning for effectiveness, evaluation, and support to assist teachers and students in meeting these challenges (Killion, 2008).

Several educational organizations, such as the North Central Regional Educational Laboratory and Partnership for 21st Century Skills, have consistently identified the skills necessary for 21st century learning (Scot et al., 2009). This new direction in learning includes: "multiple literacies in the digital age across genres and disciplines, inventiveness and critical thinking skills, productivity and effectiveness at interpersonal communication and cooperation, and the ability to apply learning to real-world applications and problems" (Scot et al., 2009, p. 40). Ken Kay (2010), the president and co-founder of the Partnership for 21st Century Skills, urges educators to

focus on fusing the traditional three Rs of education with the four Cs: communication, collaboration, critical thinking, and creativity, reflective of 21st century readiness. Instructional programs must be revised by focusing professional learning initiatives on incorporating these new 21st century skills in order to support teacher growth and student achievement for our nation's global success.

A Focus of Reform

Educational accountability for the continued achievement of gifted and talented learners has been overlooked in an era that has focused overwhelming attention and funding on failing students (Leblanc, 2008; Scot et al., 2009). In times when educational budgets are decreasing to historic lows, the philosophy of No Child Left Behind has perpetuated the attitude that programs to support the progress of advanced learners is more of a wish-list item than a critical need (Alexander, 2010; Bichao, 2010; Hyde, 2008; Sharp, 2010; Welch, 2010). The imminent elimination of traditional pull-out programs for gifted and talented students has driven my research to respond to this funding deficit and crisis in educational philosophy.

Fostering the advanced learning of America's highly capable students will need to be a primary focus of reform for 21st century education if our country is going to continue its role as a top political and economic leader. Recent international comparisons of student performance levels have shaken the nation's long-held assumption that American schools and students are among the best in the world (Darling-Hammond, 2007; Scot et al., 2009). This current predicament may be attributed to years of federal grants that focus on funding programs for struggling learners, while neglecting allocations to support the growth of our most capable students (Plucker et al., 2010). In a national assessment of

smaller school districts, programming for gifted and talented students was found to be one of the top five fundamental areas of need (Beckner, 1985). Growing national concern regarding the ability of our schools to prepare students to successfully compete in a global market will continue to amplify political pressure to hold general classroom teachers increasingly accountable for student achievement (Darling-Hammond, 2007; U.S. Committee on Education & Labor, 2009). Effective professional development programs are the key to supporting regular classroom teachers in employing specific curricular modification and differentiated instructional practices for gifted students that go beyond superficial encouragement and recognition of their academic success (Guskey, 1991; Hong, Greene, & Higgins, 2006; International Reading Association, 2008).

In an era of reform, professional development extends beyond the basic acquisition of new skills to opportunities to critically reflect on practice and develop new knowledge and beliefs about content, pedagogy, and learners (Darling-Hammond & McLaughlin, 1995). The traditional premise of teacher professional development has been that any training activity has some inherent value, even if the benefits are difficult to decipher (Bassett, 2006). While these trainings may be beneficial in their own regard, according to Bassett (2006), professional learning for the 21st century needs to carefully and deliberately focus on connecting the training goal with broader educational goals.

Moving forward in the 21st century, the focus when planning professional training opportunities must be on efforts to reform the fundamental discrepancies in our current instructional approaches and educational philosophy (National Association for Gifted Children, 2009). In a study by Guskey (2003) that analyzed 13 of the most recognized lists put forward to define the characteristics of professional development, he found that

the majority of the lists recognized "the need for professional development activities to be aligned with other reform initiatives and to model high quality instruction" (p. 12). It is the responsibility of school leaders to recognize that one area of reform must redefine student achievement, both in the standard proficiency expectations that do not account for individual ability, and in the learning goals that continue to force teachers to function in an antiquated mindset. By challenging the current beliefs and assumptions about education and establishing a heightened expectation for our gifted and talented students to reach their full potential, we will be better able to ensure the health of our schools and our country in the 21st century (Gosfield, 2002; National Association for Gifted Children, 2009; Sharp, 2010).

Professional development programs that focus on broader educational reform issues will support teachers in meeting the challenges of 21st century learners. Unfortunately, the criticism of one-size-fits-all instruction may be reinforced in the teacher training programs typically planned by districts (Westberg et al., 1998). In a national survey of 1,231 school districts across the country, most reported spending only 4% of their total professional development budget on trainings related to gifted learners (Westberg et al., 1998). Among those districts, only a handful included regular classroom teachers in the trainings. Focusing resources to raise awareness of the need to differentiate for our most highly capable students using strategies that support their acquisition of 21st century learning skills through an inclusive professional development program will highlight the importance of gifted education and serve to shift the existing paradigm of educational culture to better prepare our best and brightest students as our future generation of leaders (Hong et al., 2006).

Transforming Professional Disposition and Practice

Differentiating instruction typically requires teachers to "unlearn the practices and beliefs about students and instruction that have dominated their professional lives to date" (Darling-Hammond & McLaughlin, 1995, p. 597). Therefore, training teachers to differentiate instruction goes beyond the acquisition of an instructional strategy or the ability to use a new program. In order for teachers to truly incorporate differentiation routinely within their daily practice, they must transform their practice by adopting a new attitude about teaching and reconceived aspirations regarding student achievement (Killion, 2008). This renewed philosophy by the teaching staff, will consequently impact school and district culture regarding student performance and 21st century learning.

Both Janssen (as cited in Dezieck, n.d.) and Killion (2008) suggest that for transformational change to occur, there must be evidence of changes in a range of dispositions. Killion (2008) proposes these dispositions in an educational context as: attitude, beliefs, aspiration, knowledge, and skills; whereas, Janssen (as cited in Deziek, n.d.) identifies them in broader, yet similar, terms of perceptions, emotions, knowledge, aspirations, and actions. Janssen's Four Room Apartment Model of Change (as cited in Deziek, n.d.), offers a continuum to track changes in individual disposition toward a sustainable transformation. As individuals move through the stages of change associated with the contentment, denial, confusion, and renewal rooms in the apartment, certain strategies may be applied to assist with continuous progress through the continuum. As the implicit beliefs of individuals are transformed, the external evidence of that change will become obvious.

Transforming Instruction for the 21st Century

It is easy to dismiss the urgency for transforming instruction by subscribing to the notion that 21st century practice will inevitably penetrate classroom practice as a result of retirements and a new generation of teachers. Thus, if we wait long enough for the veteran teachers to retire, new teachers who are more aligned with the philosophy of 21st century learning will change the culture of education with little other effort necessary for reform. However in a study by Megay-Nespoli (2001), most preservice teachers reported being discouraged from differentiating for advanced students by both their cooperating teachers and college supervisors (Megay-Nespoli, 2001). Despite the enthusiasm regarding differentiation that the preservice teachers brought to the classroom, the indoctrination period in the schools served to undermine the beliefs and attitudes promoted during their teacher preparation work (Megay-Nespoli, 2001). The professional disposition of veteran teachers and college faculty toward differentiating for highly capable students is reflective of a one-size-fits-all industrialized teaching mentality (Westberg et al., 1998). Little has been put forth to challenge this mindset, as the State of States in Gifted and Talented Education report found that only 3 of 43 states responded that classroom teachers had more than 3 hours of training in gifted education, and almost half the states did not require any training in addressing the needs of gifted learners (Sisk, 2009). Therefore, attention needs to be paid to the needs of both highly experienced and novice teachers. We risk the quality of future teachers if we do not instill the importance of continuous reflection and professional growth with current teachers who act as role models for institutional culture (Steyn, 2005).

Change agents need to assess participating teachers regarding their current levels of understanding and skill in differentiating instruction, and plan professional development activities that the teachers feel will be beneficial in contributing to their growth in this area. This is exemplified in studies by Ruthven (2005) and Onchwari and Keengwe (2008), who found that some teachers did not benefit from professional development activities due to their prerequisite knowledge of the topic. If veteran teachers perceive training efforts as condescending or repetitive, they will quickly become disheartened and disengaged because, as Riley and Roach (2006) emphasize, every professional needs to feel the excitement of new possibilities in order to grow. As Gravani and John (2005) suggest, by valuing teachers' input in directing their own professional growth, teachers will feel invested in the process, and be more engaged and less resentful when asked to readjust their instructional practice to meet the needs of advanced learners in their classroom.

Professional Learning to Support Gifted Learners

According to the National Association for Gifted Children (NAGC, Competencies, 1994a), it is necessary for teachers to possess certain competencies, in addition to those generally required for good teaching, in order for them to appropriately instruct gifted students. Research has revealed three essential skills for working with gifted students:

> Including the knowledge and effective use of a variety of teaching techniques including differentiation and questioning skills, strong communication skills, and the ability to understand and to address students' needs. These skills point to the need for the regular classroom teacher to have professional development to address appropriate teaching techniques and the psychology of the gifted student. (Sisk, 2009, p. 270)

A complete understanding of content standard expectations and assessment criteria is necessary as well for teachers to determine a level of challenge matched to the student's current achievements and learning potential (Scot et al., 2009). Additionally, teachers must be sensitive to the interpersonal and intrapersonal competencies of gifted students that contribute to the extent to which they can fully exercise their cognitive abilities (Hong et al., 2006). Teachers who are helped to understand the benefits of differentiating their instruction for gifted learners through effective professional development will be more likely to risk changing their practice to promote student learning as well as their own professional growth (Tomlinson, 1997).

The National Association for Gifted Children ("Differentiated Instruction," 1994; NAGC, 1994b) offers a comprehensive definition of differentiation for gifted students, which supports their belief that using this instructional strategy is critical in addressing the learning needs of highly capable students. According to the National Association for Gifted Children, differentiation for gifted students involves advancing curricular experiences for students by offering substantive enrichment opportunities that include greater degrees of complexity, diversity, and flexibility ("Differentiated Instruction," 1994). The association asserts that proactively planning for extension opportunities that include strategies and materials will increase the likelihood that teachers will effectively incorporate differentiation in the classroom ("Differentiated Instruction," 1994).

Tomlinson (1997) and Gentry and Keilty (2004) provide characteristics and strategies to support differentiation for gifted and talented students in regular education classrooms. These positive learning environments can be characterized by a teacher's approach to meeting the needs of these learners through planning and assessment

methods, which are considered a part of the routine function of class instruction by the teacher and the students. A critical concept when differentiating for advanced learners is for teachers to understand that once mastery is evident, students need to be provided with more challenging work, not more of the same (Gilson, 2009). Examples of gifted and talented differentiation strategies from Tomlinson (1997) and Gentry and Keilty (2004) include: multiple learning options, variable pacing and curriculum compacting, providing choice, using open-ended questioning, curricular extensions and enrichment experiences, as well as use of assessment data in modifying instruction. Shore, Cornell, Robinson, and Ward (as cited in Sisk, 2009), reported that expecting teachers to address the needs of advanced learners in the regular classroom without providing effective professional development resulted in a range of teacher responses to gifted learners from apathy to hostility. Therefore, planning effective professional development is essential for teacher growth in this regard.

Structuring Effective Professional Development

There is consensus among the research on qualities of structural design and substance that contribute to an effective professional development program for teachers regardless of the topic being explored. In 1991, Guskey proposed five guidelines for effective professional development programs. The first suggests that to promote change through professional development the focus must be on individual needs and concerns. Secondly, Guskey (1991) suggests gradual implementation of professional development initiatives that are connected to a larger vision is most successful in their long-term sustainability. Regular opportunities to work in teams are also important to garner diverse perspectives and share responsibility for improvement (Guskey, 1991). Benchmark

measures to evaluate success should be incorporated into the course of the professional development, in order for teachers to assess the success of their efforts (Guskey, 1991). Finally, Guskey (1991) explains that ongoing support by administrators, consultants, or colleagues is an essential factor to assist with embedding the new learning naturally with existing practice.

In a continuing endeavor to identify the factors that contribute to effective professional development, 10 years later, Garet et al. (2001) studied the efforts of the Eisenhower Professional Development Program, and developed categories and characteristics of effective professional development. With an appropriation of approximately $335 million in 1999, the Eisenhower program was one of the largest undertakings by the federal government to develop the knowledge and skills of classroom teachers (Garet et al., 2001). Based on their survey of Eisenhower program participants, Garet et al. (2001) were able to categorize the activities that participants engaged in by structural and core features of effective professional development. The structural design consisted of the form of the activity, the duration of the activity, and the degree of collective participation; while the core features targeted content focus, active learning, and coherence (Garet et al., 2001). The study found that all three core features have a positive impact on teachers' knowledge and skills, while the duration of the activity and the opportunity for collective participation had a greater influence than the form of the activity on teachers' knowledge and skills. In 2009, Quick et al. sought to extend the findings of Garet et al. (2001) with their study of district-wide reform efforts in San Diego, which found a relationship between changes in classroom instruction and

professional learning when allowed opportunities for collaborative participation focusing on content over a significant period of time.

A study by Joyce and Showers substantiated the importance of what Guskey (1991), Garet et al. (2001) and Quick et al. (2009) all suggest, when they found that traditional presenter-style training workshops, with no planned follow-up, waste 90% of the staff development budget and do not address the types of behavior changes necessary for teachers to positively impact student achievement (as cited in Scot et al., 2009). Together with standards from the National Staff Development Council (2001), and additional research from Blamey, Meyer, and Walpole (2008) stressing the importance of offering teachers sustained opportunities to share ideas, trends for professional development have moved to a more collaborative format over a series of consecutively scheduled sessions.

Most recently, a research synthesis by Guskey and Yoon (2009) examined studies regarding professional development that met the standards of credible evidence according to the U.S. Department of Education's What Works Clearinghouse. Findings in this study gave some merit back to traditional training methods by revealing that workshops and summer institutes played a critical role in supporting effective professional development when embedded within a sustained series (Guskey & Yoon, 2009). Guskey and Yoon were very specific in concluding that initiatives showed a positive effect when 30 or more contact hours on the topic were allowed. Analysis of the research also confirmed the vital importance of administrative follow-up after the main professional development activities in order to produce positive student outcomes (Guskey & Yoon, 2009). Guskey and Yoon also found that student achievement was most positively impacted when the professional

development design was focused on increasing teachers' knowledge of content and pedagogy.

Research previously conducted on a reform initiative based in professional growth by Nielsen, Barry, and Staab (2008) found several key elements that contributed to its success, which include limiting the number of learning goals, availability of time and resources, a direct link to the classroom context, and instructional role models to assist with clarification of new skills and methods. Results of the study revealed success with its roll-out process design that introduced elements of the change in phases with scaffolded expectations, as "teachers' reflections about the changes they experienced indicated a foundational shift in their instructional focus and their beliefs" (Nielsen et al., 2008, p. 1298). By building a professional development program that includes scheduled articulations to discuss concerns surrounding the curriculum and instructional changes and active planning time to create authentic student learning activities, teachers will be afforded the opportunities during the course of this study to develop new skills and a deeper understanding of the importance of meeting the needs of their gifted students through their own instructional planning and practice (Wlodkoski, 2003). Such foundation shifts in beliefs equate to the type of transformative learning necessary to realize success in differentiating for gifted students.

Professional Development for Gifted and Talented Program Initiatives

When focusing on differentiating instruction for advanced learners, the emphasis is reforming beliefs and practice rather than just on acquiring a particular behavior or skill (Richardson & Anders as cited in Tomlinson et al., 2003). In order to effectively integrate differentiation within their classrooms, teachers must first embrace the

philosophy (Latz, Speirs Neumeister, Adams, & Pierce, 2009). In a series by The Roeper Institute that offered insight to support educators' attempts to serve the gifted, several areas of trepidation were revealed, which included: straying from the mandated curriculum for fear of lowering test scores, lack of administrative support, classroom management problems, permanent changes in teaching style, and the planning time involved for differentiation (Latz et al., 2009). By allowing teachers latitude in choosing the direction for change, teachers will feel empowered and less resistant to implementing new practices (Klecker & Loadman, 1998). Allowing teachers to exercise professional judgment in the methods and strategies involved in differentiating for advanced learners will build trusting relationships between change agents and teachers, and according to Fullan (2001) improving relationships is the single common factor to every successful change initiative.

Another stumbling block to fully implementing any reform initiative is expecting teachers to blindly comply with program changes, even if the initiative is not proven to have a positive impact on student achievement or is impractical to implement due to the complexity or time expectations (Knight, 2009). Therefore, as part of an instructional change process, teachers should be given the opportunity to review model projects that have reported success. The Ohio State Department of Education reported on over 60 initiatives that school districts could use to improve delivery of services to gifted students (Ohio State DOE, 1996). One gifted and talented program design that has been proven successful and practical since 1989 is the Cleveland Public Schools model that pairs experienced teachers of gifted classes with teachers of regular education classes to address the needs of gifted learners (Chambers, 1991). This model includes the

scheduling of periodic discussions, which addresses the recommendations of Hall and Scott (2007) who found allowing teachers to articulate their needs and perceptions of how specialists could assist in meeting those needs generates a much different, more productive outcome. Scheduled time for team members to collaborate and assess progress of their efforts is also recommended by Tomlinson (1997) as an effective structure for developing alternative ways of challenging gifted and talented learners.

In addition to formal professional development programs, successful changes in gifted and talented programs can be realized through informal interventions as well, according to one study by Gentry and Keilty (2004). By encouraging teachers to value certain group norms, such as agreeing to constructively problem solve to overcome unforeseen obstacles, educational leaders will informally help in overcoming barriers and move the change initiative forward (Gentry & Keilty, 2004). Continuing to share and revisit needs and goals at key points throughout the course of training will assist in modifying professional development programs for maximum effectiveness, as Hanley, Maringe, and Ratcliffe (2008) found in their study involving a change transition model. The degree to which variables associated with collective participation are successfully implemented will contribute to the extent to which teachers are able to improve their knowledge, skills, and practices associated with differentiating for their gifted students (Graham, 2007).

In order to avoid the perception that differentiating for gifted students is just another fad in a series of imposed initiatives, planning for changes for this targeted population should be as inclusive as possible (Elder, 2005). The study by Gentry and Keilty (2004) also found that professional development practices intended to target the

gifted and talented students also had a positive effect on the achievement of general education students. Therefore, an effort should be made to include all teachers in the grade levels involved in the implementation of a differentiated program design focused on advanced learners, regardless of whether they currently have gifted and talented students on their class roster.

Moving toward differentiation for advanced learners in the classroom requires the guidance of educational leaders who recognize that instituting differentiation of practice "is not a superficial change; it is a deep cultural change" (Mehlinger as cited in Tomlinson et al., 2003). According to Mehlinger (as cited in Tomlinson et al, 2003) a series of traditional workshops will not result in the deep cultural change necessary to customize schooling for individual learners. Educational leaders must be fully committed to employing various support strategies to address these areas of concern as teachers move from an educational philosophy of mass production to customization (Tomlinson et al., 2003). A study by Abell (2000) found that as a consequence of planning a professional development series focused on identifying and differentiating instruction for gifted students in the regular classroom for a cadre of teachers, the majority of teachers in those schools were convinced that integrating such practices is "the 'right' thing to do" (p. 19). Abell (2000) further estimates that it is "the degree to which other teachers in the building turn to those teachers as mentors that then becomes the defining factor in how much systemic change actually takes place" (p. 19). Sustaining the initial change effort and continuing the momentum for further professional growth is paramount to an educational leader's role in establishing a culture of change (Abell, 2000).

Establishing a Culture of Change

"Teachers individually cannot reconceive their practice and the culture of their workplace" (Darling-Hammond & McLaughlin, 1995, p. 604). School districts need to be aware of conflicting issues that surround what teachers truly need in order to make the changes necessary to improve student achievement (Day & Qing, 2007). It is the educational leader's responsibility to establish a supportive community of practice to challenge existing norms as they align with the external priorities. As Fullan (2001) reminds us:

> Leading in a culture of change means creating a culture [not just a structure] of change… It… mean[s] producing the capacity to seek, critically assess, and selectively incorporate new ideas and practices—all the time, inside the organization as well as outside it. (p. 44)

Some researchers suggest that a culture of change encourages, and even expects, teachers to experiment with changing their practice (Short, Miller-Wood, & Johnson, 1991). A study by Short et al. (1991) found that teacher perceptions of their level of input and involvement in collaborative decision making contributed to a change-oriented culture. Another study by Bruno (2000) found schools that rely on common budgetary strategies such as stipends for after-hours or summer work as cultural norms to promote a change initiative unknowingly create a climate of resistance by alienating veteran teachers who value personal time over money. Attitudes of veteran teachers toward change as opposed to teachers who are earlier in their career have been investigated by Hargreaves (2005) in two separate studies. These studies revealed that teachers in the later part of their career who are more vested in the current status quo, draw on nostalgia associated with the educational ideal to resist change when confronted with imposed changes they feel devalue their sense of status, worth, and value (Goodson, Moore, &

Hargreaves, 2006; Hargreaves, 2005). Therefore, educational leaders must build a culture of change by considering both the emotional and professional needs of teachers as well as their years of service.

As Maurer points out, before assuming that a professional development initiative failed due to resistant teachers, change agents should consider if the reasons for dissonance are valid (as cited in Fullan, 2001). An integral part of the sense of professionalism felt by teachers includes a commitment to professional values and moral purpose (Day & Qing, 2007). For a dedicated, professional teacher, commitment to challenging gifted learners is not an option, and it requires an enormous amount of energy to stay true to one's conviction (Cashion & Sullenger, 1996; Day & Qing, 2007). In a study by Cashion and Sullenger (1996) that investigated the impact of a summer course on teaching gifted and talented students, teachers overwhelmingly expressed a need for administrative and peer support in implementing what they had learned. In order to support the ideal aspirations of these educators, change agents must recognize the external and internal demands of an accountability-frenzied environment that may undermine initiatives focused on learners who already demonstrate mastery (Sisk, 2009).

Complimentary to the idea of professional satisfaction, is the idea of recognition or reward for improvement of practice. According to Chard (2004), one way to ensure participation and motivate teachers to use knowledge gained form professional development sessions is to provide incentives to teachers. In cases of professional growth, extrinsic rewards, such as additional stipends, are not always effective (Hall, Fisher, Musanti, & Halquist, 2006). Recognizing professional growth through intrinsic rewards in terms of elevated professional status may be a viable alternative (Duttweiler,

1988). Teachers, who reach a level of mastery in gifted education according to a qualification standard embedded in the professional development program, could be recognized as a teacher leader or mentor (Schacter & Yeow Meng, 2005). Another form of recognition that educational leaders may choose to encourage teachers to use is reflection on practice through the use of a personal education plan (Elder, 2005). However, educational leaders do not need to create specific programs to provide rewards. In a study that used the emergent curriculum model as a method to reinforce teacher practice, catching people doing the right thing was found to be surprisingly effective (Riley & Roach, 2006). As the study revealed, simply verbally recognizing and praising observations of demonstrated professional growth can be just as motivating for adults as it is for children when we praise them for their progress (Riley & Roach, 2006). Consideration of adult learning theories, as discussed previously, will assist educational leaders in determining the most appropriate techniques to motivate and recognize professional growth resulting from collaborative experimentation and personal risk-taking supported in a culture of change.

Evaluating Effective Professional Development

In her article, "From Professional Development to Professional Learning," Easton (2008) argues that we must reconceptualize our evaluation of professional learning and measure its impact on several levels. Easton (2008) describes the first level of evaluation as how teacher behavior changes as a result of their involvement in a professional development experience. Student behavior and achievement should be addressed as the second evaluation level (Easton, 2008). The consequential influence that the professional development had on the school or district as a system should be considered as a third

level for evaluating professional development (Easton, 2008). Questions about how organizational structures or administrative expectations have changed can be investigated at this final level to assess cultural transformation (Easton, 2008).

The guiding questions that Easton (2008) offers for evaluation purposes can also be used as a backmapping tool to ensure that professional development programs are designed to incorporate aspects that will address each level of change. Patrick (2009) emphasizes that confidence in knowledge and efficacy of practice are crucial to having change occur in the classroom. Therefore, in order for the district level to support changes for instructing gifted students on the teacher level, educational leaders should evaluate each organizational level and consider reframing policies, practices, or other interactions throughout the organization that may undermine the change (Bolman & Deal, 2003). If the trend in 21st century learning is for teacher training to have a direct impact on increasing student achievement, schools and districts must be willing to change traditional operations to support that effort and methods of evaluating success in regard to the teachers and the students must also be predetermined.

Killion (2008) recommends using a framework for evaluating changes in teachers' disposition as a result of professional development initiatives that goes beyond evaluating changes in knowledge and skills used in previously referenced studies by Garet et al. (2001) and Quick et al. (2009). Killion's (2008) framework includes the three additional dimensions of attitude, aspiration, and behavior that teachers experience in order to assess the full impact of professional development on classroom instruction. Consideration must be given to how each change dimension of professional disposition suggested by Killion (2008) relates to transforming instructional practice to meet the

needs of gifted learners in the regular education classroom. Hong et al. (2006) developed the Instructional Practices Survey to measure differentiation for gifted students in the regular classroom based on learning opportunities offered in the cognitive as well as interpersonal and intrapersonal domains. According to recommendations by Hong et al. (2006), this instrument is helpful for use in evaluating the transfer of knowledge from professional development to classroom application.

Just as planning for certain features tends to strengthen the quality of professional development focused on differentiating for advanced learners, including certain characteristics in a gifted and talented program design will better meet the unique needs of this student population.

Planning for Gifted and Talented Instruction

The National Association for Gifted Children (2010) has adopted gifted programming standards for grades pre-K through 12. These six standards include: learning and development, assessment, curriculum planning and instruction, learning environments, programming, and professional development. Within standard 3, which addresses curriculum planning and instruction, the NAGC calls for educators to:

> Apply the theory and research-based models of curriculum and instruction related to students with gifts and talents and respond to their needs by planning, selecting, adapting, and creating culturally relevant curriculum and by using a repertoire of evidence-based instructional strategies to ensure specific student outcomes. (NAGC, 2010, p. 4)

However in her evaluation of 20 gifted and talented programs, VanTassell-Baska (2006) found that there has been an "underutilization of effective curriculum practices for gifted learners" (p. 207). This issue is not due to a lack of curriculum models for this population. In a separate study, VanTassell-Baska and Brown (2007) explored 11 well-

known models to provide a set of key principles to guide curriculum planning for gifted learners.

Several best practices for planning curriculum and instruction for gifted and talented students were developed by VanTassell-Baska and Brown (2007) as a result of their review of existing models. Grouping gifted students flexibly based on their demonstrated knowledge in a subject area was revealed as a best practice in program planning. Another best practice was found to be developing units of study that embedded higher level thinking skills to extend students' learning of the given content area, and the use of inquiry as a central strategy for students when investigating answers to complex problems that students are motivated to pursue due to personal relevance (VanTassell-Baska & Brown, 2007).

Gifted and talented students share similar qualities related to their learning styles. Characteristically, gifted students differ from their classmates in key ways that include: how quickly they learn and retain information; their desire to refine abstract thought; their need to think creatively; a heightened desire to seek to cultivate their varied interests through research; and, a strong vocabulary and broad knowledge base (Cramond, 1993). Certain instructional strategies and tools can be employed to compliment the unique styles of gifted and talented learners.

The need to explore topics in depth through research is a fundamental characteristic of gifted learners. The use of technology can facilitate such exploration. According to Christopher (1999), "gifted students should be given the opportunities to use technology to solve real-world problems and to produce top-quality products within core content areas" (p. 24). Use of technology allows students to perceive their work as

more authentic, which is important for increasing student motivation and self-esteem (Prager & Alderman, 2003). With the ability of gifted students to process a great deal of information quickly, the internet is a significant tool to consider when developing a gifted and talented program (Schneider, 2009). Schneider (2009) advocates for the use of child-safe search engines as a way to satisfy the curiosity of advanced learners while building valuable technology literacy skills.

According to Brookhart and DeVoge (1999), gifted and talented students who typically perceive themselves as capable of grade-level work often expend a limited amount of effort on average classroom assignments. This aspect is of great importance when attempting to motivate advanced learners to reach their full potential. Allowing gifted and talented students a choice in their research is also an important aspect to promote an open-ended opportunity for individual growth. According to the research by Arlin and Whitley (as cited in Eccles, Midgley, & Adler, 1984), when offered a choice in their academic activities students have a more positive attitude toward their learning. Additionally, Epstein (as cited in Eccles et al., 1984) found that students' perceived control over their learning environment was a strong predictor of satisfaction with school. A study by Zimmerman, Bandura, and Martinez-Pons (1992) confirmed Epstein's assertion, and found that if learners perceive themselves as capable of regulating their own activities, their confidence and their academic performance increases. If we are to keep gifted learners invested in their own learning, we must design integrated gifted and talented programs that incorporate motivational aspects aligned with their exceptional cognitive needs.

Differentiation Design

Recent trends in gifted and talented education recognize that gifted students are gifted every day, not just on Tuesday afternoon (Gosfield, 2002). Therefore, spurred by economic conditions, current trends in program planning for gifted and talented students are moving toward models that are integrated with the regular classroom schedule and "include modification and extensions of core curriculum appropriate for gifted learners" (Gosfield, 2002, p.16). A combination of components from several well-known research-based models along with suggestions for best practice found by VanTassel-Baska and Brown (2007) can be used to develop an embedded classroom model. This trend will help to address the issue of gifted students being required to complete assignments based on skills they have long since mastered and help to establish guidelines for effective gifted and talented program plans that allow for proficiency in core curriculum standards to serve as a prerequisite to extension activities (Hyde, 2008). As one advocate for gifted education states, "'Educators must hold strong in what they know to be effective strategies in working with gifted children!'… 'Perhaps if enough teachers and parents question the validity of teaching to the state test, positive changes will occur'" (Scot et al., 2009, p. 50).

The notion of differentiating based on mastery is related to the instructional strategy of curriculum compacting. "Curriculum compacting means eliminating, accommodating, and enriching/accelerating learning for a student in a particular subject" (Troxclair, 2000, p. 195). This 30-year-old technique has proven to be an effective approach in differentiating instruction for gifted students (Stamps, 2004). Renzulli's school-wide enrichment triad model encompasses the use of curriculum compacting and

is one of the 11 gifted and talented curriculum models identified by VanTassel-Baska and Brown (2007) as a model that has shown an increase in achievement with general education learners as well as gifted students. Once students are able to demonstrate mastery on a unit of work, more challenging activities can then be introduced (Andrew, 2009; Troxclair, 2000; Winebrenner, 1997). Acceleration and enrichment options that are derived from the curriculum compacting model may include self-directed learning activities or small group projects (Andrew, 2010). In a study by Stamps (2004), high ability first grade students participated in a curriculum compacting initiative. As a result of the curriculum compacting strategy, these students experienced a maximum level of interest in school and increased their learning (Stamps, 2004). Teachers and parents, who participated in Stamps' (2004) study, also reported positive feedback on the program. Teachers found that the strategy eventually saved them time and they became eager to learn more about how to serve the needs of gifted students in their classes (Stamps, 2004). Parents were most impressed with their child's level of interest in their learning as evident through the increased discussion about their day (Stamps, 2004).

Establishing a measure for mastery may be a challenge to program planners. As part of a study by Clymer and William (2006), examining the impact of various assessment strategies on the achievement of eighth graders in science, a three-tiered mastery scale was developed. For purposes of their study, Clymer and William (2006) defined mastery as meeting or exceeding the content standard expectations with relative ease or demonstrating the ability to consistently apply and extend key concepts or related skills. By clearly defining the parameters of mastery and using evidence of mastery on formative standards-based assessments as a prerequisite to differentiation, hesitant

teachers and parents can be assured that gifted and talented students are already proficient in grade-level curriculum, and justifiably offer another course of study that better meets their needs during the timeframe of the regular curriculum unit (Kirschenbaum, as cited in Stamps, 2004).

When curriculum compacting is used as a differentiation technique, gifted students will routinely engage in activities apart from the current activities of the majority of their peers. It is important that integrated gifted and talented programs are designed so that gifted learners are not subjected to ridicule based on the accommodations they are offered (Tomlinson, 1997). Teachers need to be aware that sending subtle messages to students that the preference is to be the same as everyone else "can create underachievement patterns in highly capable learners" (Winebrenner, 1997, p. 1). Therefore, "the goal for program planners dealing with the challenges of meeting instructional needs of gifted and talented students in regular classroom settings is to create a learning environment in which these students can fully develop their abilities and interests without losing their sense of membership as part of the class" (Parke, 1992, p. 1). In order to address such concerns, activities should include partner or small group work and provide an avenue to involve general education students as well. Since content rigor is not limited to advanced students, planning for lessons of similar design that other students can engage in throughout the year will help to diminish the stigma associated with consistently excusing a certain group of students from the work of their peers (Andrew, 2009).

21st Century Learning

The unique characteristics and learning style of gifted students, as discussed in the previous sections, strongly reflect the essence of 21st century skills. Problem-based learning, cooperative learning, using real-world contexts, educational technologies, and interdisciplinary topics are the five instructional strategies outlined by the Partnership for 21st Century Skills (2007) to incorporate when planning for curriculum and instruction. These instructional strategies very strongly align with research recommendations for planning instruction for gifted learners discussed in the previous section. In a study intended to develop grounded theory for 21st century skills in an instructional design, Olsen (2010) found that an inquiry-based approach was central to integrating 21st century skills within the curriculum. As an attempt to integrate 21st century learning within the constraints of an NCLB mentality, Schoen and Fusarelli (2008) offer assessments as a means to minimize the paradigm conflict. Schoen and Fusarelli (2008) contend that holding schools accountable for achievement when interpreted as learning standards based on 21st century skills, has the potential to motivate educators toward 21st century reform while addressing the expectations of a political climate of accountability.

Parent Involvement

Motivating students to continue to challenge themselves outside of the classroom is a natural extension of gifted education. Planning a partnership with parents in order to support the aspirations of gifted learners at home is also an important element to include when implementing a new gifted and talented program (Fulkerson & Horvich, 1998). In order to foster a positive relationship with the parents of gifted and talented students, educators must realize that the parents of gifted learners generally possess the same

endearing and frustrating characteristics of their gifted children (Fouse & Beidelman, 1995). As Gosfield (2002) points out, parents of gifted and talented learners are generally very articulate and choose to be well informed, some to the extent of having earned the reputation of being "pushy" (p. 18). "In fact, a study of gifted children and their parents found that in many instances, both parents exhibited an unusual interest in their children and showed an almost aggressive quest for information" (Fouse & Beidelman, 1995, p. 39). This behavior is documented in articles during 2004 and 2005 when *The New York Times* reported parent outrage over lack of notice and information regarding changes to gifted and talented eligibility requirements in New York City schools (Gootman, 2004; Saulney, 2005). In addition to alarm over eligibility changes, Fouse and Beidelman (1995) also found that conflict generally occurs when responsibility for differentiation is placed on the heterogeneous classroom teacher, as gifted and talented parents may view this teacher as less of an expert in meeting their child's learning needs than a teacher specifically assigned to a gifted homogeneous class. By maintaining communication with gifted and talented parents, through parent forums and informal updates, a positive partnership was developed minimizing skepticism and criticism of the rationale for changes in curriculum and programming (Fulkerson & Horvich, 1998).

The needs of advanced learners will only be met through a unified effort among teachers, parents, and administrators to collaborate in the interest of effectively educating our exceptionally bright students. This is illustrated through a study in which parents who participated on an advisory council and in a series of parent workshops incorporated with a Kentucky school district's gifted and talented program initiative, reported an increase in their understanding of giftedness, an increased awareness of how to nurture giftedness in

their own child, and an increase in communication with their child's teacher (Luvisi & Ohio Educational Cooperative, 1995). Inviting parents to participate in a focus group discussion during a change process is one way to appease overzealous parents. By engaging parents in discussions specifically designed to raise expectations, define aspirations, and increase student achievement, parents will move beyond the role of committee member to true partners in their child's education. A superintendent in the Lake Oswego school district in Portland, Oregon, began a parent outreach program that included the aforementioned elements simultaneously with a district professional development initiative (Garrett, 2008). The program concluded by forming a home-school partnership through the creation of complementary classroom plans and family plans focused on promoting individual student growth. If teachers and parents are going to be successful in increasing motivation and achievement with 21st century learners, educational leaders need to embrace the type of innovative partnerships modeled by the Lake Oswego superintendent (Garrett, 2008). By fostering cooperation between parents and teachers, the needs of our gifted learners will become a shared priority supporting them toward realizing optimal levels of achievement (Hyde, 2008).

There is little research that has been found to examine how parent input in gifted and talented program change has influenced perceptions on services or the program design itself. Facilitating a partnership with parents to assist in the development of the differentiated design is one area that my study will address in extending the current research. Other ways this study will serve to add to the body of existing research on gifted and highly capable learners is discussed below.

Extensions of the Research

Previous research has provided a foundation for educators to explore change initiatives for 21st century learning through reform efforts, such as gifted and talented education. Using a report card to represent the state of research as it pertains to gifted and talented education, Coleman (2006) gave an overall grade of C+ to the over 100 years of research he examined on the topic. Most notable to the relevance of this study, Coleman (2006) gave a C- to gifted and talented research related to curriculum and differentiation. Coleman (2006) also states that "relatively few folks are publishing research in the field, and we need more" (p. 348). This study attempts to address Coleman's call to pursue research in the area of gifted education.

The inquiry of this study extends the research of two closely related studies. The first study, named Project Phoenix by Little, Feng, VanTassel-Baska, Rogers, and Avery (2007), used an integrated curriculum model. Project Phoenix focused on developing instructional units in social studies that incorporated conceptual and critical thinking elements proven to be effective in addressing the needs of gifted learners. Whereas Project Phoenix implemented the units as the core of the social studies instruction for all learners, this study develops compacted curriculum units that are offered as a means to differentiate instruction for highly capable learners who meet a prerequisite for mastery of the general curriculum. Additionally, Project Phoenix was conducted in rural or urban districts with a 40%-50% economically disadvantaged population; in contrast, the context of this study is a suburban district with less than a 10% free and reduced lunch population. The second study, called the Mustard Seed Project, was designed to "train teachers to differentiate curricula for gifted students in the general education classroom"

(Johnson, Haensly, Ryser, & Ford, 2002, p. 46). Unlike the Mustard Seed Project, which resulted in only 6% of the participants differentiating within social studies and 4% in science, my study focuses almost exclusively on these content areas. Additionally, neither Project Phoenix nor the Mustard Seed Project included 21st century skills as an aspect in their instructional units or study focus. Finally, the teacher training structure embedded in this study is purposefully designed to align with research on effective professional development in order to prepare teachers for differentiated instruction, which was not considered by either of these studies.

Although the research supporting educators' attempts to serve gifted students in new ways offers studies of models that have a measure of success, there is little evidence of research that explores teacher training for gifted and talented learners within the structural framework for effective professional development, and the impact that training has on teacher professional growth and student learning, as described by Killion (2008). Additionally, there is little research that explores the association between gifted and talented program changes and the impact of those changes on general school operations and parent perceptions of classroom instruction. This action research study attempts to rectify some of these gaps in previous research and provide a comprehensive plan to reform gifted and talented instruction at the elementary level.

Although Guskey (1991) concedes that the guidelines he recommends for professional development do not hold any ideas that would be unfamiliar to those having experience with the process, he does state that it is rare to find a program that is designed to fulfill each component. My study designs a professional development program for gifted education reform that integrates all of the components for effective professional

development design as recommended by the research. Although Quick et al. (2009) did confirm and expand on the earlier findings of Garet et al. (2001), their study was limited to measuring the impact of professional development based on one particular instructional indicator in one content area. My study will expand on the context for measuring the effectiveness of the professional development framework developed by Garet et al. (2001) by broadening its application to a curriculum program rather than a curriculum content area, which limited the previous research by Garet et al. (2001) as well as Quick et al. (2009).

While Garet et al. (2001) established a similar framework to Guskey (1991) to guide effective professional development, the study only measured effectiveness in terms of changes in teachers' knowledge and skills. Recommendations from the Garet et al. (2001) study suggest that future research is necessary to further study the relationships among teacher learning and change and ultimately student learning. My study will extend the previous areas of evaluation to include three dimensions of teacher professional growth according to Killion (2008), in addition to the two used in the previous studies. Finally, "while research from previous studies reveals the significant difference that curriculum compacting can have on students' learning and self-esteem, many teachers have not yet begun practicing this modification technique" (Stamps, 2004, p. 36). The premise for the professional development program included in this study will better prepare teachers to utilize this technique in their classroom and reveal the changes in the full scope of professional disposition that accompany a successful transformation in practice.

Conclusion

Changes in educational philosophy and programs will go hand-in-hand as we move farther into the 21st century. With Westberg, Archambault, Dobyns, and Salvin (as cited in Latz et al., 2009) reporting gifted students receive no differentiated instruction in 84% of classroom activities, educational leaders need to emphasize the urgency to reevaluate equity in instructional practice. Higher-level students can no longer be overlooked when planning for accommodating the diverse needs of students. "Gifted students, like all students, deserve opportunities to excel and achieve to their fullest potential" (Stamps, 2004, p. 33). Educators must advocate for appropriate classroom accommodations that prepare to meet the exceptional level of gifted students with alternate learning experiences, so gifted learners do not become disengaged in their academic endeavors (Hyde, 2008). Research has shown that our most capable students can flourish from minimal changes in curriculum assessment and instructional design, "unfortunately many regular classroom teachers lack differentiation training and are unfamiliar with the traits of gifted student" (Hyde, 2008, p.1). It is the responsibility of educators to implement research-based strategies that will challenge our brightest students and support their growth as future leaders.

Consideration of how to best promote growth in teacher professional learning is critical to impact changes to support high achievement among all students. Changes in traditional professional development programs that limited teacher interaction and time to acquire new skills are being challenged by effective practices in teacher training derived from designs based in current research. Accountability for the value of professional development as related to the positive outcome for students is the predominant

correlation shift that teachers and change agents need to recognize in order to meet the needs of future generations of learners.

The following chapters will examine how my action research study contributes to a framework of strategies to move forward in reform efforts to address the characteristics of 21st century education.

Chapter 3

Methodology

"In much of the discourse about public education, it is now considered self-evident that the nation's place in the global economy depends on the quality of its educational system" (Cochran-Smith & Lytle, 2009, p. 8). This realization has brought education to the forefront of political debate (Cochran-Smith & Lytle, 2009). However, politicians are not necessarily well-versed in the nuances of educating children, and their top-down directive tactics do little to bring about substantial transformation in the schools. Such transformation will only be realized if practitioners become recognized as researchers in their own field (Cochran-Smith & Lytle, 2009). Inquiry by practitioner researchers focused on the fundamental goals of teaching, learning, and schooling is beginning to be recognized as the only force to drive changes in practice, programs, and culture that will eventually elevate student achievement (Cochran-Smith & Lytle, 2009).

Action research is a typical method used for practitioner inquiry (Dana, 2009). This approach to educational research is described by Elliot "as a continual set of spirals consisting of reflection and action" (as cited in Dana, 2009, p. 5). As the participant researcher progresses, data are collected to inform decisions through the cycles of action research. The concept of participant-researcher has become the basis for building credibility for school teams to problem solve and bring about reform at a local level (Cochran-Smith & Lytle, 2009). This research role empowers educators in their own ability to transform education through a collaborative change process (Cochran-Smith & Lytle, 2009). Beyond influencing local action, through the role of researcher-practitioner, the researcher intends to develop an interpretative framework that will also prove

valuable in other contexts (Cochran-Smith & Lytle, 2009). The goal of choosing this critical inquiry approach for this study is to open a discussion, which challenges the beliefs and assumptions regarding gifted education, in order to ultimately transform teacher practice and district culture. Accomplishing this goal will serve to ensure that advanced learners have the opportunity to reach their full potential both in and beyond the classroom.

Study Context

The study was conducted in a small suburban PreK-8 school district in a one square-mile borough that serves approximately 800 students between its two schools. There are no buses, so students walk to school, or are driven by their parents. Most students live in single-family homes and have extended family in town. The majority of homes have computers with internet access. Students generally perform in the top 5% compared with neighboring districts in the county on state standardized assessments. There is very little staff turnover or student transience. The majority of teachers are also residents in the town, and most teachers began their professional career with the district.

Advanced learners in the school district have traditionally been served through a hierarchal model aligned with grade progression. Advanced learners, identified through criteria based on standardized test scores, class rankings, and teacher recommendations in grades K-3 are offered enrichment lessons through a weekly pull-out program. The activities are approved as part of the district's gifted and talented curriculum guide. Students in grades 4-5 who are identified as gifted and talented based on performance using the SAGES, a nationally recognized assessment for determining gifted and talented eligibility, along with class rankings, and teacher recommendations, also receive

enrichment lessons through a weekly pull-out program. Enrichment activities typically involve logic and critical thinking projects. As students move into grades 6-8, advanced learners are included in accelerated language arts and math courses. Accelerated courses are not offered in social studies or science. These accelerated courses use a more challenging textbook and, as a differentiated instructional strategy, include expectations of mastery in certain core curriculum standards that students in the general education courses are not expected to master. Students typically continue in an honors track through high school.

Research Questions

In response to a concern at the district level to provide appropriately challenging instruction for gifted and talented students without incurring any additional staffing expense or extra scheduling time, this qualitative action research project examined the most effective way to institute a redesign of instructional programming for gifted and talented students at the elementary and middle school level. Findings of the study generated recommendations based on the areas of inquiry below.

1. How does participation in effectively designed professional development alter the capacity of teachers to differentiate for advanced learners in the regular classroom?
    a. Is there a transfer of differentiation strategies throughout the curriculum?
2. How has the integration of 21st century learning skills promoted student learning?
    a. How has curriculum compacting shaped student learning?

3. How does the implementation of a classroom instructional model focusing on gifted and highly capable learners shape the district culture regarding differentiation?
    a. Are staff espoused and implicit beliefs aligned regarding differentiating for advanced learners?
    b. What are parents' perceptions of district changes to meet the needs of advanced learners?

As a result of the data analysis associated with the research questions above, findings revealed support for the following presuppositions. First, the way that professional development programs are designed influences the degree of professional learning. By planning professional development programs that include certain research-based core features and components of structure, a high level of transfer from professional development to professional learning as evident through classroom practice was realized. Second, by designing differentiated activities that met the unique needs of advanced learners in the regular classroom, gifted and talented students were more intrinsically motivated to exercise their full potential. Third, other highly capable students also benefited from professional learning in differentiation through the teacher's increased offerings of broader opportunities for students to demonstrate mastery of concepts and skills aligned with a curriculum compacting model. Fourth, building administrators acquired a heightened sense of the importance surrounding differentiating for advanced learners in the classroom, which shifted informal and formal observational expectations and supported transformation in teacher practice. Lastly, administrators, teachers, and parents of gifted and talented students perceived an increased dedication by

the district to gifted education based on their involvement in the study's change initiative. Other trends in the data were uncovered as part of formative and summative evaluation to assist in leading this educational change process.

Study Design

This researcher worked collaboratively with a task force of teachers to lead the change effort. Through the implementation of this project, the task force reviewed current literature and became well versed in the instructional techniques that complement the unique learning styles of gifted students, as well as the role that parent involvement plays in meeting the needs of advanced learners. The study's differentiated program design followed a curriculum compacting model popularized by Renzulli and Reis (as cited in Siegle, 1999). According to Renzulli and Reis, curriculum compacting allows gifted learners the opportunity to engage in challenging extension activities based on their demonstration of mastery on grade level unit assessments (as cited in Siegle, 1999). Teachers acquired an understanding of the importance of allowing for differentiation of advanced learners as part of regular instructional planning and developed the skills to implement appropriate extension activities to challenge their gifted students. The project also provided an avenue to emphasize the importance of a home-school partnership with the parents of gifted and talented students through parent focus group sessions.

Participants

The researcher, in collaboration with the director of student support services, invited staff members to participate on a district task force charged with creating a differentiated curriculum design for gifted and talented students. Task force membership included the researcher as practioner, the director of special services, teachers

representing grades 3 to 7, and the gifted and talented pull-out teachers. A total of 16 teachers participated over the course of the study, including elementary homeroom teachers in grades 3 to 5, the social studies teachers at grades 6 to 7, and one other sixth grade math teacher. Approximately 30 gifted and other highly capable students were involved in curriculum compacting over the course of the study. The parents of those gifted and highly capable students were invited to participate in focus group sessions.

Role and Bias of the Researcher

Working within the construct of practitioner research, I participated in the research as the curriculum coordinator in the district and facilitator of the study. This position as researcher is categorized by Herr and Anderson (2005) as the "insider in collaboration with other insiders" model of action research. Herr and Anderson (2005) suggest that this is the most democratic model for shared decision-making and may have the greatest impact on the setting.

Due to my insider role in the study, action was taken in the study's design and interpretation to safeguard bias and verify results. Sampling bias was addressed by including all teachers and students that met the criteria for the study (Robinson & Lai, 2006). Subjects were included based on their grade level and content area assignment or administrative position. This strategy lessened the chances that teacher enthusiasm or personal relationships influenced outcomes. Confirmation bias was addressed through collaborative articulation, as the core team of the task force acted as a critical friends group throughout the process, but most significantly at the close of the study to alleviate bias interpretation of the data by the researcher (Creswell, 2009; Robinson & Lai, 2006). Discussions regarding formative data during cycle transitions helped to generate

consensus regarding progress. Additionally, interviews with staff participants also assisted in gathering information in order to verify trends and patterns in the data.

Methodology

This study followed a mixed-methods approach using a concurrent embedded design (Creswell, 2009). The design encompassed one data collection phase, with qualitative data collected as the primary source and quantitative data embedded as a secondary consideration. According to Creswell (2009), a concurrent embedded design is most appropriate when examining "different research questions or different levels in an organization" (p. 214). The study proved to be a good match for such an approach, as each research question was developed to inquire about how the initiative had impacted the organization at three different levels: student achievement, teacher practice, and district culture. Qualitative methods focused on inquiry at all three levels, while concurrent quantitative data collected from teacher surveys and walk-throughs were used to determine if participation in the study contributed to a transformation in teacher practice and disposition. Furthermore, a stratified purposeful sampling approach was employed in order to examine and compare the professional growth of teacher task force members as two separate cohorts based on their degree of participation in the five cycles of the study.

Data Collection Strategies

Due to the multi- levels of inquiry proposed, various methods of data collection were applied in the study. A triangulation of data, as outlined in Table 3.1, was gathered and analyzed, including a teacher survey, teacher and administrator interviews, classroom walk-throughs, and parent focus group summaries. Researcher journal entries were also

used as an overarching data set to support triangulation and reflect on applied leadership throughout the action research process.

Table 3.1

Data Triangulation Matrix

Focus of the Action Research Study Implementing a differentiated instructional design for gifted and talented learners		
Overarching Question 1: Evaluation Level: Teachers How does participation in effectively designed professional development alter the capacity of teachers to differentiate for advanced learners in the regular classroom?		
Data Set 1	Data Set 2	Data Set 3
Teacher and Admin. Interviews	Administrative Walk-throughs	Teacher Surveys
Overarching Question 2: Evaluation Level: Students How has the integration of 21st century learning skills promoted student achievement?		
Data Set 1	Data Set 2	Data Set 3
Teacher and Admin. Interviews	Parent Focus Groups	Administrative Walk-throughs
Overarching Question 3: Evaluation Level: District/Parents How does the implementation of a classroom instructional model focusing on gifted and highly capable learners shape the district culture regarding differentiation?		
Data Set 1	Data Set 2	Data Set 3
Teacher and Admin. Interviews	Parent Focus Groups	Teacher Surveys

Note. Adapted from Craig, 2009, p. 124.

The action research data collection plan included various benchmarks during the five cycles of the study. Quantitative data were collected as pre and post surveys, during Cycle II and Cycle V, as a means to support the qualitative outcomes. Classroom walk-throughs were conducted during Cycles II, III, and IV to inform both quantitative and qualitative data. Two parent focus groups were held at the onset of the study during Cycle II, with one additional focus group held in Cycle III and Cycle IV. Formal interviews were conducted during Cycle V with teachers and administrators. Researcher journal entries were recorded during each of the five cycles in order to report on the general progress of the study, and reflect on leadership practice. Cyclical formative

reflections were also included throughout the course of the study to identify potential barriers and assist the researcher in planning for the next action research cycle (Creswell & Plano Clark, 2011). Data collection benchmarks are portrayed in Figure 3.1.

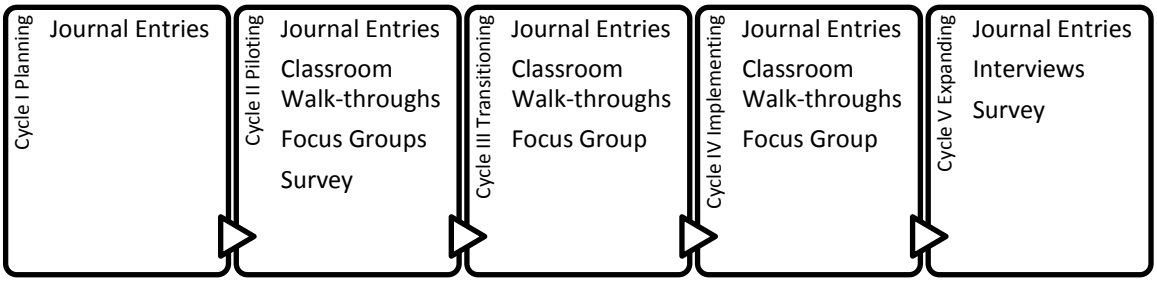


Figure 3.1. Data Collection Plan

Researcher journal entries. Journal entries kept by the participant-researcher were used to record organizational issues that impacted the study as well as to monitor and assess changes in teacher attitudes and practice throughout the course of the study during the articulation sessions and planning meetings described below. The participant-researcher was also interested in gathering any anecdotal reports that the teachers may have had regarding parent and student opinions surrounding the change effort. These data contributed to cyclical formative reflection. Journal entries were also used by the participant-researcher to connect my own leadership philosophy and apply it in practice by leading change during this action research study.

Parent focus group meetings. A series of four parent focus groups were scheduled over the course of the study. Data were collected in the form of chart paper and handwritten notes from core team members. These focus groups offered formative data to the core team, which allowed various aspects of the initiative to evolve in order to

address concerns from parents. Parent focus group meetings also offered a forum for the district to build a more formalized partnership with parents of highly capable students. The researcher elicited input from parents regarding concerns surrounding traditional and proposed approaches for instructing gifted learners. An explanation of the benefits and research surrounding differentiating for their gifted children in the regular classroom was shared, while evoking a heightened sense of responsibility in that regard at home. Summary notes from each meeting provided information for the core team to consider when planning action in the next cycle.

Teacher surveys. The researcher conducted a pre and post survey during Cycle II and Cycle V of the action research study, and is included as Appendix A. Survey data were collected using an online likert-style survey instrument, which allowed the participant-researcher to email the link to task force members. The online survey was adapted from the Instructional Practices Questionnaire developed by Hong et al. (2006). The survey explored three main areas of instructional practice: cognitive, interpersonal, and intrapersonal, which were identified by Hong et al. (2006) as areas that address the learning style of gifted students. The survey further explored the professional disposition of teachers in relation to their knowledge, attitude, skill, aspiration, and behavior associated with the differentiation model. According to Killion (2008), collecting data to measure changes in these five areas of disposition is critical in order to evaluate the impact of professional development on student achievement. The survey provided both quantitative and qualitative data, as it offered an area for open-ended comments by participants. By using this self-assessment, the teachers were afforded an opportunity to critically reflect on their own changes in practice as well as behavior and attitude toward

differentiating instruction for advanced learners as a result of their participation in the professional development program.

Administrator and teacher interviews. The participant-researcher conducted six formal interviews at the conclusion of the study with one task force member representative of each grade 3-6, and the two principals during Cycle V. Interview data were collected using an electronic recording device. The electronic files were then transcribed to a word processing document. The interview protocols are included as Appendices B and C. The final interview protocol was guided by the Survey of Practices with Students of Varying Needs (Tomlinson et al., 1995) and the Classroom Practices survey (Archambault et al., 1993) both developed in conjunction with the National Research Center on the Gifted and Talented. Teachers were given open-ended prompts to offer opinions on how the initiative had influenced their own practice, reshaped district culture, and offered insight of how both gifted and talented students as well as regular education students in their class may have benefitted from the differentiation model. Interviews also sought to reveal suggestions for improvement in the structure of the professional development program aligned with the study, in order to provide data to inform a framework for reform.

The participant-researcher also collected data through informal conversations at the end of Cycle II with the teachers who piloted the initial compacted units. These data assisted with formative reflection and planning for Cycle III, as the study took a hiatus over the summer break.

Classroom walk-throughs. A walk-through form (see Appendix D) was developed by the participant-researcher in collaboration with the building principals.

Principals completed each form by hand. The form was based on the five change evaluation measures recommended by Killion (2008) and the Classroom Practices Record, an observational tool developed by Westberg, Archambault, Dobyns, and Salvin (1993). This walk-through form offered both quantitative and qualitative data regarding changes in teacher practice and disposition toward differentiating instruction. By using this form during routine classroom walkthroughs in Cycles II, III, and IV, administrators were able to evaluate the level of program implementation by each teacher and communicate obstacles to the participant-researcher that needed to be addressed at upcoming professional development sessions.

Data Organization

Study data were organized for analysis in a two step process. First, each data set was analyzed for meaning separately at the conclusion of each cycle. This formative assessment served to provide a constant comparison of data. Second, a comparison of data sets that aligned with each research question was conducted at the conclusion of the study. This summative assessment allowed for triangulation of the data and allowed the researcher to derive meaning from the results of the action research study.

The participant-researcher was interested in identifying emergent themes and patterns of change in relation to each of the three research questions. Data sets were organized into categories related to teacher practice, student learning, and district culture. These categories are reflective of the study framework included as Figure 1 in Chapter 1. Attributes were then defined for each category to identify evidence to support findings in each category.

Data Coding System

Coding was used mainly when interpreting patterns and themes in the interview data, and for purposes of triangulation comparison. The transcribed interviews were extracted to a spreadsheet, and divided by responses to each question using a separate tab. Themes that emerged from the interview data were then color coded as follows: yellow—teacher practice, green—culture, blue—student learning, orange—change process, light orange—teacher collaboration, grey—framework, tan—parents. Coding of data for purposes of triangulation was applied directly to the text contained in Chapter 4, Cycles I to V. Evidence that related to the main categories of teacher practice, student learning, and district culture was highlighted in yellow, green, or blue, as identified above. The highlighted data were then pasted into Table 4.10, 4.11, and 4.12 to reflect a constant comparative analysis by cycle to support a summative assessment for triangulation purposes. Each data set was identified in each table by an abbreviation as follows: SUR—survey, INT—interview, PAR—parent focus group, WKTH—walk-through form, and JOUR—researcher journal. Anonymity was provided to all study participants by analyzing the data in terms of stakeholder and cohort group and referring to respondents by a general title, such as principal or teacher, or a pseudonym.

Data Analysis

By nature of the action research study, the participant-researcher "is immersed in the research setting in order to comprehend the situation and fully provide insight to other practitioners" (Craig, 2009). A constant comparative method was employed in the triangulation of the data to reveal emerging categories, themes, and patterns across the data sets in order to contribute to a summative interpretation of the data (Craig, 2009).

This method aligns with a qualitative approach to data analysis and supports the cyclical, reflective nature of an action research study (Craig, 2009). Therefore, although the study design employs a mixed-methodology for data collection, the data analysis methods were of a qualitative nature.

Data were analyzed in distinct ways given its qualitative or quantitative form. Qualitative interview, focus group, journal entry, and walk-through data contained in the observational section were either coded, as described in the previous section, or important points were summarized to reveal themes and patterns. Quantitative data from surveys and the professional disposition section on the walk-through form were examined using comparative graphs and tables on a whole sample and cohort basis. The extent to which teachers integrated instructional strategies and subscribed to a professional disposition aligned with 21st century learning standards was examined in a table format. Responses to survey questions were analyzed according to the extent that teachers integrated a strategy almost always or often. A strategy was classified as extensively integrated if at least 85% of the survey participants reported integrating that strategy almost always or often in their instructional practice. If at least 75% of teachers reported integrating the strategy almost always or often, then it was classified as frequently integrated; while at least 50% integration was labeled occasionally integrated, and less than 50% was identified as sporadically integrated. Patterns in the extent of integration within and across the three categories of instructional categories were analyzed.

Change Framework

The process of the action research study was guided by a combination of two change models. According to the model developed by Heifetz (1993), seven stages

encompass an effective change process. Heifetz (1993) explains that his model is an underlying structure inherent to all change processes. The seven stages of change developed by Heifetz (1993) are represented in the shaded shapes within Figure 3.2 below. Guidance from Calhoun (1994) was used to structure the intervention cycles to reflect an inquiry model of action research. Stages of change, according to Heifetz (1993) were aligned with progressive cycles of action research that are numbered one through five in Figure 3.2 below. By combining the cyclical inquiry model developed by Calhoun (1994) with the underlying linear model of change recommended by Heifetz (1993), I was able to define formative cyclical benchmarks within a progressive sequence to support the change embedded in this action research study, as illustrated in Figure 3.2.

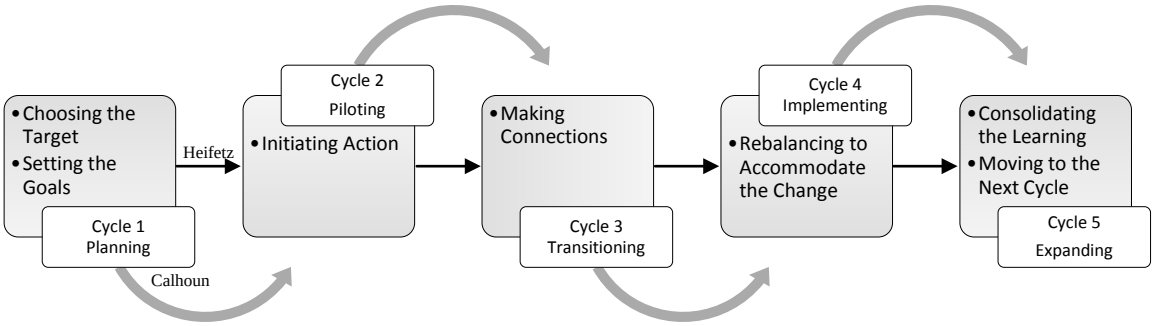


Figure 3.2. Change Process Framework

Names for each cycle naturally evolved from the planned actions and expectations at each stage leading to achieving the initiative's goals. When planning for change through a professional development program, Killion (2008) agrees that planning formative evaluations throughout is critical to be able to "replicate a program and contribute to the broad conceptual knowledge base of the field of professional development [as] program planners must understand how the process leads to the results"

(p. 15). Therefore, the models of Calhoun (1994) and Heifetz (1993) each represent a layer of the change effort and made a critical contribution in guiding the course of my study to realize sustained change resulting from transformative professional learning.

Action Research Project

As Heifetz (1993) suggests, an initial environmental scan was conducted in order to determine the challenges of providing differentiated instruction for advanced learners in the regular classroom. Both internal and external sources of information assisted the researcher in designing an approach to meet the needs of stakeholders in the change process. The Tables 3.2 and 3.3 outline the guiding questions and sources of information that will be used to determine the targets to be addressed in differentiated program design for students, teachers, and parents.

Table 3.2

Environmental Scan: Internal Sources of Information

General Area	Guiding Question	Information Source
Technology Skills	What is the general level of competency for technology among the G&T students and their teachers?	Tech plan surveys
Staff Relations	Who are the best candidates to include on the district task force?	Conversation with director, principals and teachers
Student Relations	Would students welcome the idea of curriculum compacting and extension projects?	Informal survey by previous pull-out G&T teachers of G&T students
Labor Relations	Are there any contractual issues involved with planning time for the proposed initiative?	Conversation with union vice president and building representatives
Organizational	How does this change relate to the district's PD plan and schedule?	Analysis of professional development plan
Budget	Is there any peripheral cost associated with the initiative?	Review of resources needed

Note. Adapted from Cornerstones for Kids, 2010.

Table 3.3

Environmental Scan: External Sources of Information

General Area	Guiding Question	Information Source
Geographic	How do other districts in the county meet the needs of elementary G&T students?	Informal survey of country district curriculum council members
Demographic	What is the current population of Milltown G&T students?	Special services department reports
Social	Would parents welcome the idea of in-class differentiation for G&T in the elementary grades?	Annual G&T parent meeting
Political	How does the BOE feel about moving to in-class differentiation for G&T in the elementary grades?	Discussion with BOE curriculum committee
Technological	What resources are available to support the extension projects?	Web search, review of NJCCCS and Partnership for 21st Century Skills online resources

Note. Adapted from Cornerstones for Kids, 2010.

Action Research Cycle I: Planning

The planning stage of my action research study served as a discussion phase to solidify the concept of differentiating for gifted and highly capable students through a curriculum compacting model. As Heifetz (1993) suggests during such a planning stage in a change cycle, the researcher recruited key stakeholders to form the core leadership team who collaboratively led the planning and program change. Data from the environmental scan were shared with the core team, comprised of the director of student support services, the district's two gifted and talented teachers, and the researcher-practitioner. The core team focused on expanding perceptions of the responsibilities for educating gifted students from mainly that of the gifted and talented teachers, to a shared responsibility with the regular classroom teachers through a differentiated instruction model. The core team concentrated on developing a professional development program

for teachers and organizing focus group sessions for parents in order to solicit input on the differentiation design throughout the transformational process.

Data from the literature were considered when developing the professional, parent, and student programs. Consideration of the effective core features and structural characteristics of professional development, according to Garet et al. (2001), were included in the design of a comprehensive teacher training program regarding differentiation for advanced learners. The research-based profiles of gifted and talented students and their parents were also considered by the task force when developing the differentiated program and the parameters for the extension projects, as well as in the planning of the parent involvement component essential for gaining the stakeholder support necessary for successful change.

Using results of the data collected from the literature review, the researcher in collaboration with the team created a cyclical plan including a timeline for implementation, progress benchmarks, and anticipated obstacles to drive the change effort. This plan reflected an action research inquiry model including a "formative study of progress, requiring regular and frequent data collection so that changes and trends can be seen" (Calhoun, 1994, p. 50). Meeting agendas, focusing on data analysis relevant to the academic and social domains that impact student learning (Calhoun, 1994), were included in the design. Specific opportunities to collect data concerning teacher and parent responses to the initiative were included as well.

Upon approval by the district administrative cabinet, the team proceeded with the first step of informing the teachers involved. Although the cabinet and team were aware of the details of the gifted and talented program redesign, the majority of teachers

involved in the initiative were not aware at that stage. These teachers needed to be afforded the same opportunity to digest the concept of the change and work through their own trepidation and realizations, as did the cabinet and the task force members (Evans, 1996). The core leadership team was very attentive to the timeline of implementation in this regard. Sufficient time for introduction of the innovation and overview of the action plan was given so teachers fully understood the initiative. This transitional period for the teachers continued to occur simultaneously throughout the course of the study as part of the articulation component of the professional development program plan. As Fullan (2001) reminds us, "change is a process, not an event" (p. 40). Effective leaders are sensitive to people's needs while sustaining the momentum for change (Fullan, 2001).

With the core team in place, the participant-researcher facilitated the formation of a gifted and talented task force with the classroom teachers directly involved in the study. Teachers were introduced to the idea of curriculum compacting during a professional development session on the first district inservice day in the fall of 2010. Teachers in grades 3 to 6 who worked with enrichment, gifted and accelerated students were established as members on the task force. Additional teachers, who did not currently have students identified as gifted, were also included on the task force due to their grade level and/or content area assignment in order to encompass a logical structure for implementation. Therefore, planned membership on the taskforce originally consisted of the following staff with the core team members denoted with an asterisk: curriculum coordinator*, director of student support services*, lower elementary gifted and talented teacher*, upper elementary gifted and talented teacher*, third grade teacher with enrichment students (1), fourth grade teachers (3), fifth grade teachers (3), sixth grade

social studies teachers (2), and sixth grade accelerated math teacher (1). The core team members participated in task force meetings as well as separate core team meetings, acting as leaders in this change process.

Cycle I offered the opportunity for gifted and talented task force members to discuss the change effort and begin the initial planning of activities associated with the study. Discussion during this phase mainly focused on clarifying the concept of differentiating through curriculum compacting proposed as part of this change effort. In addition to discussion, task force meeting agendas in Cycle I concentrated on developing parameters for creating the differentiated projects that were used with the advanced students as part of the program design. Building principals were included in the discussion during gifted and talented articulation meetings scheduled as an extension of faculty meetings. These articulations allowed teachers to keep the principals informed as to the task force's progress while offering a forum to voice concerns that may need to be addressed administratively. These articulation sessions also served to reinforce administrative expectations for the initiative as reflected in classroom and instructional practice.

Upon approval by the university Institutional Review Board, the researcher presented the proposed study at a district Board of Education meeting. The presentation served as a forum to gain momentum and support for the change initiative as well as to introduce the idea to the public. The study then progressed through a total of five cycles spanning the 2010-11/ 2011-12 school years. The Figure 3.3 depicts how the study proceeded in each phase, with a more explicit description of Cycles II through V to follow.

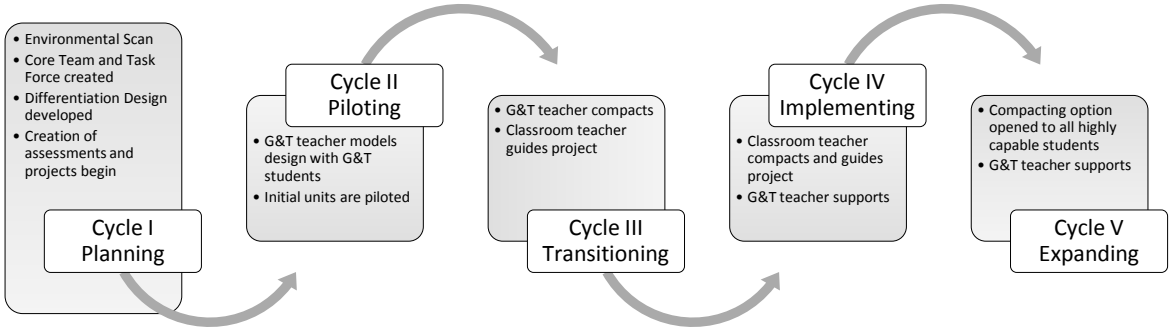


Figure 3.3. Action Research Cycle Design

Action Research Cycle II: Piloting

The piloting phase of this action research study commenced during the fourth marking period in the 2010-11 school year. The initial action of Cycle II in this study corresponds with the change cycle outlined by Heifetz (1993), during which the intervention for change actually occurs. The goal for Cycle II was for the two gifted and talented teachers to implement the full scope of the differentiated program design with their gifted and talented students. Gifted and talented teachers were expected to model the program design for regular classroom teachers by involving their grade level task force members as collectively as possible in the pilot through daily conversations and emails regarding the sequence of lessons and compacting strategies. One third grade teacher and the three sixth grade teachers also piloted a compacted unit, and collaborated closely with the gifted and talented teachers for support through the process.

Both quantitative and qualitative data were collected during this cycle. Teachers participated in a survey to self-report current levels of differentiation in their practice, while administrators conducted walk-throughs to gather a baseline status of differentiation in the classrooms. Additionally, comments and concerns from the first 2 of

4 parent focus groups were obtained. The participant-researcher continued to reflect on task force meetings and other significant events throughout the course of the study through journal entries to help guide the course of the study.

Cycle II closed with an analysis by the core team of formative assessment data gathered during the piloting phase of the study. The core team adjusted certain elements of the design and professional development program based on analysis and discussion of classroom walk-throughs, parent focus group comments, and the teachers' experiences in piloting the initial units of the differentiation design.

Action Research Cycle III: Transitioning

With the beginning of a new school year, the task force was expanded to include all of the third grade teachers, and the seventh grade social studies teacher. The study continued to proceed as planned with the gifted and talented teachers releasing responsibility of facilitating the extension project to the regular classroom teachers in grades 4 and 5, while maintaining the role of compacting the curriculum for the students at those grade levels.

The definition of transitioning changed slightly when applied to grades 3 and 6, given the absence of direct support from the gifted and talented teachers at those grade levels. The focus in this cycle for those grade levels was on the group management aspect of the extension projects. The teachers at those grade levels included all students in the 21st century skills project through small, leveled groups. Teachers also modified the project rubric based on the ability of each group. This served to give the teachers at all grade levels a similar experience with managing differentiated group learning.

As Heifetz (1993) recommends in this stage of the change cycle, data collection focused on eliciting from the teachers during the articulation session and planning sessions precisely which priorities, skills, and actions must be modified in order to move beyond superficial change. Classroom walk-throughs by administrators continued for a second section of data collection, and parent input was again solicited from a focus group meeting. The researcher continued to reflect on task force and articulation meetings through journal entries. Formative data were reviewed by the core team and recommendations to the task force at the end of Cycle III were made for Cycle IV.

Action Research Cycle IV: Implementing

Cycle IV brought the change effort to full implementation as the regular classroom teachers of enrichment and gifted and talented students in grades 4 and 5 adopted responsibility for facilitating both curriculum compacting and the extension projects for the gifted students in their classrooms. The third grade teachers implemented the differentiation model with their enrichment students. The middle school teachers implemented the model with students on their rosters identified as gifted and talented as of the fifth grade. Given the number of gifted and talented students and the dynamics of the schedule, each sixth grade teacher did not have gifted and talented students in each class they taught. Therefore, the differentiation model was only implemented in certain class sections in the sixth grade.

The gifted and talented teachers continued to support the classroom teachers through discussion during articulation and task force meetings. Data collection from articulation, task force, and focus groups continued as in previous cycles, focusing on, as

Heifetz (1993) recommends, any systemic adjustments necessary to promote sustained change. These data served to inform planning for the last cycle of the study.

Action Research Cycle V: Expanding

The final cycle of the study expanded the differentiated design to include highly capable students who had not been formally identified as gifted and talented learners. Regular classroom teachers continued to be fully responsible for compacting the unit of instruction and facilitating the extension project. Parents of students who met eligibility requirements as highly capable learners, and were included in the design during this cycle, were contacted to explain the evolution of the differentiated program and address concerns.

In addition, Cycle V involved summative data collection. Interviews with the teachers and administrators were conducted in order to assess shifts in beliefs, attitudes, and behaviors. Teachers also participated in a final survey regarding classroom practice.

Once the researcher analyzed findings from the data, the core team met to discuss the summative data in order to make recommendations for the program adjustments for the following year. These adjustments took the shape of an action plan. According to Craig (2009) an action plan should be developed as a direct result of an action research study.

Validity Criteria

Due to the practice-driven nature of action research, standards of inquiry associated with more traditional methodologies may not be completely appropriate (Herr & Anderson, 2005). In response to this quandary, Herr and Anderson (2005) propose five validity criteria defined by quality indicators and linked with the traditionally accepted

goals of action research. The brief outline below describes how the design of this study fulfills the rigors of inquiry using an action research methodology according to recommendations by Herr and Anderson (2005).

Outcome validity. Action Research Goal: "The achievement of action-oriented outcomes" (Herr & Anderson, 2005, p. 55). A vision for change was developed and shared throughout the study. The cyclical progression of action research, through reframing of the problem and sustained inquiry, contributed to the integrity of the study in this regard (Herr & Anderson, 2005).

Process validity. Action Research Goal: "A sound and appropriate research methodology" (Herr & Anderson, 2005, p. 55). A concurrent embedded mixed-methodology was employed to complement the action research design. Stratified sampling was applied to both survey and walk-through data to ensure multiple perspectives in study outcomes. Instruments for the teacher survey and walk-through forms were derived from external sources and standards in order to support quantitative validity. Peer review was addressed through the role of the core team as a critical friends group charged with engaging in critical and reflective dialogue to assist the researcher with data interpretation to support qualitative validity (Herr & Anderson, 2005).

Democratic validity. Action Research Goal: "Results that are relevant to the local setting" (Herr & Anderson, 2005, p. 55). The problem driving the study emerged from the local context and was addressed in collaboration with multiple stakeholders (Herr & Anderson, 2005).

Catalytic validity. Action Research Goal: The education of both researcher and participants" (Herr & Anderson, 2005, p. 55). Study participants developed a heightened

awareness of the issues underlying the urgency of the study and the instructional strategies associated with the initiative which expanded their professional capacity to reflect on their own beliefs and practices associated with differentiating for gifted and highly capable learners (Herr & Anderson, 2005).

Dialogic validity. Action Research Goal: "The generation of new knowledge" (Herr & Anderson, 2005, p. 55). Conclusions and recommendations were developed from evidence gathered through a constant comparative strategy used to triangulate the data, with confirming and contradictory commentary articulated in a substantial empirical narrative (Herr & Anderson, 2005).

Conclusion

The action research methodology was selected for this study in order to produce an educational change in the local context. Participants' beliefs and district culture surrounding gifted education were challenged through a professional development program designed specifically to improve teacher practice and student achievement by redefining expectations in terms of 21st century learning goals. Leading this action research study as a participant-researcher enabled me to do more than just report on the results. I was directly engaged with team members in examining data and identifying the resources necessary to manage the progression of the professional development program to help ensure success. Subsequent chapters contain in-depth discussions of the formative data findings for each cycle as well as a summative interpretation to generate a local action plan to sustain change and offer more general inferences that apply to a broader context.

Chapter 4

Findings

Action research is a process of discovery encompassing formative, progressive cycles to realize change. The change cycles for this study, described in the methodology of Chapter 3, were assumed to be dynamic and evolutionary in accordance with the philosophy of action research. The five cycles were both unique in their focus and collectively comprehensive in their contribution toward achieving the researcher's vision of supporting gifted and highly capable students in their capacity as 21st century learners through a routine differentiated instructional model. The description of the actual events, including data collection and analysis of each cycle, are included as findings in this chapter for consideration in developing conclusions to the action research study.

Cycle I: Planning

The first cycle of this action research study spanned a 10-month time period, the longest of all the study cycles. As the name of the cycle suggests, initial focus was on planning the change initiative. Data were collected solely from research journal entries and the following discussion has been organized into three formative phases based on researcher reflection.

Phase I: Emergent. Planning for the action research study began with the researcher, acting in my role as district curriculum coordinator, observing several fourth, fifth, and sixth grade classrooms for differentiation strategies employed by the teachers. Observations of those classrooms revealed that most teachers focused on differentiating for struggling learners during their regular course of instruction. Differentiation for highly capable students, when noted at all, was in addition to the current assignment such

as critical thinking activities in the form of worksheets when the students had finished their regular work early. Observations also revealed that teachers incorporated differentiation strategies for high level learners routinely when they were embedded within the design of the instructional program, and were much less likely to do so if expectations for differentiation were not included in the program design for the content area. Therefore, since both the reading and math programs in grades 4 and 5 embed differentiation strategies for all levels of learners through guided reading techniques and scheduled response to intervention periods, differentiation in other content areas was much less likely. As students progress to the sixth grade, the higher level learners are scheduled into accelerated language arts and math classes. The curriculum in these language arts and math courses differ in mastery expectations from the general courses. This embedded program acceleration in sixth grade reading and math reflects the embedded differentiation expectations within the fourth and fifth grade reading and math program. Differentiation in other content areas is left up to the discretion of the teacher. Observation by the researcher in a sixth grade social studies class revealed the same scenario as in the lower grades, where the focus of differentiation, when not program embedded, was almost entirely on struggling learners with very little consideration of different work for advanced learners.

Sharing of these classroom observations served to begin a discussion with the special services director and the principals of the district's two schools regarding program services for gifted and talented students in the intermediate grades. The researcher shared with the administration that the premise of the study was driven by a personal interest of the researcher in seeking ways to better meet the needs of gifted learners and these

classroom observations had revealed justification to explore this issue in the district. Administrators conceded that although the district provided conventional services for gifted and talented students, there were otherwise minimal expectations for classroom teachers to differentiate for highly capable learners. The researcher then gained the support of each school's gifted and talented teacher as members of a core leadership team, along with the director of student support services, to lead an effort to better meet the needs of gifted students through regular classroom instruction.

The core team, led by the researcher as participant, proceeded to investigate several research-based models for gifted learners that would best match the district culture. The core team reached consensus on the curriculum compacting model. The team met several times to gain a solid conceptual understanding of curriculum compacting and work through scenarios as to how this model would realistically fit into the district's existing grade level curriculum. Plans for the change model, at this point, included the gifted and talented teachers becoming experts in the compacting model. Existing enrichment projects, currently part of the gifted and talented curriculum, would be revised in order to more purposefully focus the pull-out program on social studies content area instruction within a curriculum compacting model. Through their gifted and talented pull-out program, the gifted and talented teachers involved the classroom teachers in the design of compacted units and extension projects through a professional development series. The core team believed that by the gifted and talented teachers modeling curriculum compacting, the classroom teachers on the gifted and talented task force would mimic the gifted and talented teachers' practice and enthusiasm, and eventually place more value on differentiating for advanced learners in their classroom.

The core team brainstormed a membership list for a task force of teachers who would be involved in the change initiative through the professional development series. The gifted and talented teachers then met with those teachers at the fourth through sixth grades in their respective schools that were slated for membership on the gifted and talented task force to solicit some initial reaction to the idea of program changes using a curriculum compacting model. Initial reaction from the teachers included limited enthusiasm for the idea with several concerns expressed. Much of the initial concerns stemmed from the lack of a full explanation and comprehensive conceptual understanding of the curriculum compacting model. The most prominent concern involved removing the gifted students from whole class social studies lessons. Classroom teachers felt that these gifted students acted as peer models, and their participation in class discussions and group activities were beneficial in advancing the capacity of other learners.

Acting on the teachers' feedback, the core team reevaluated initial thoughts on the program design for the curriculum compacting model. The director of student support services brought to the team's attention the fact that the premise of the initiative was to effect the instructional practice of the classroom teacher and not necessarily redesign the existing gifted and talented pull-out program. Therefore, the core team decided that the initiative as previously conceived was actually shortsighted and would better serve as the first stage in a transitional model for change. A roll-out of the change initiative beginning with gifted and talented teachers acting as models with the classroom teachers eventually taking full ownership of the differentiation model was then outlined by the researcher as action research cycles. The cycles addressed expectations to transition from existing

practice to fully implementing the curriculum compacting model in the regular classroom. Figure 4.1 depicts the original action research cycles at this point in the study, which were modified as the study proceeded.

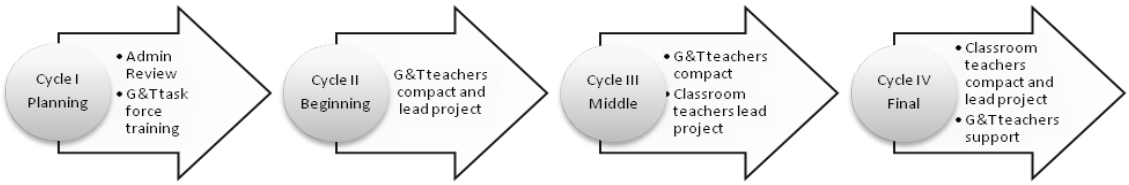


Figure 4.1. Gifted and Talented Differentiated Program Action Plan Calendar

Phase 2: Development. With this transitional plan in place, the core team held a teacher training with the gifted and talented task force as part of a professional development session on the first scheduled district in-service day. Teachers participated in a jigsaw activity where four groups of teachers each read a different article focused on the importance of differentiating for highly capable students in the regular classroom and shared their commentary with the group. Discussion regarding the charge of the task force to implement a curriculum compacting model at the training was prompted by the use of video clips demonstrating curriculum compacting in action as well as other differentiation models for gifted students.

Following this formal task force training, feedback about the initiative was formally solicited from the teachers by the gifted and talented teachers and curriculum coordinator during the scheduled professional development sessions for the task force. Informal feedback was received in the form of impromptu hallway conversations or asides during other discussions. Feedback mainly focused on the timeline set forth at the

in-service meeting. One of the major concerns related to the practical nature of implementing the model surrounded the lack of time to process the concept and thoroughly prepare to implement the model to ensure success. As curriculum compacting necessitates the creation of pre and post assessments as well as extension projects, teachers felt that the timeline was unrealistic in its expectations to prepare materials for the units.

As feedback on the timeline was being weighed by the researcher-participant, ideas for extension projects were also being considered. To this point, very loose guidelines for extension projects had been considered by the core team. However, as the initiative progressed, it became increasingly clear that the extension projects had to be based on a significant instructional premise in order to justify the alternative instruction offered when compacting the curriculum.

The use of document-based questions (DBQs) became a viable solution to use as a foundation for building extension projects. This format was appealing since document based questions are considered a best practice strategy for social studies and the compacting would be mainly concentrated in that content area. The researcher moved forward with the document based question idea and gathered several resource books that provided a collection of grade level appropriate document based questions. The task of matching the social studies curriculum units with the document based question topics followed. An explanation of document based questions and the rationale in relation to the extension projects was shared with the core team and subsequently with the task force. Each group expressed appreciation for more specific guidelines for developing the extension projects.

As the task force began to work more with the document based questions, two issues consistently arose as concerns. First, teachers were not entirely satisfied with the caliber of the document based questions offered in the resource books and felt that they would need to customize each in order to develop a quality project. Second, sixth grade teachers already used document based questions as an instructional tool and felt that basing the extension projects on that model would generate very little enthusiasm for a compacted project on the part of the students. In considering these concerns, the core team agreed that another alternative to the document based questions was needed, especially in sixth grade.

In response to these issues, the researcher led the core team in making a connection between differentiating for advanced students using compacted projects and 21st century learning skills. By creating project rubrics derived from 21st century learning skill maps, the researcher was able to offer teachers a wide variety of extension projects to align with compacted units that were designed to meet a high instructional standard while addressing the characteristic learning styles of gifted students. Several 21st century rubrics were created and document based questions were infused within the rubric entitled information literacy.

As the idea for the extension projects evolved, it was clear that the task force's concerns about the timeline for implementation were valid and the core team adjusted expectations for implementation. Additionally, concerns were raised by the researcher as to the extent of curriculum equity proposed by limiting the compacting option to just identified gifted learners. Therefore, the core team agreed to extend expectations for curriculum compacting to all highly capable learners as the last cycle of the change

initiative. The process for change agreed to at this point, as depicted in Figure 4.2, is the timeline that drove the course of this action research study.

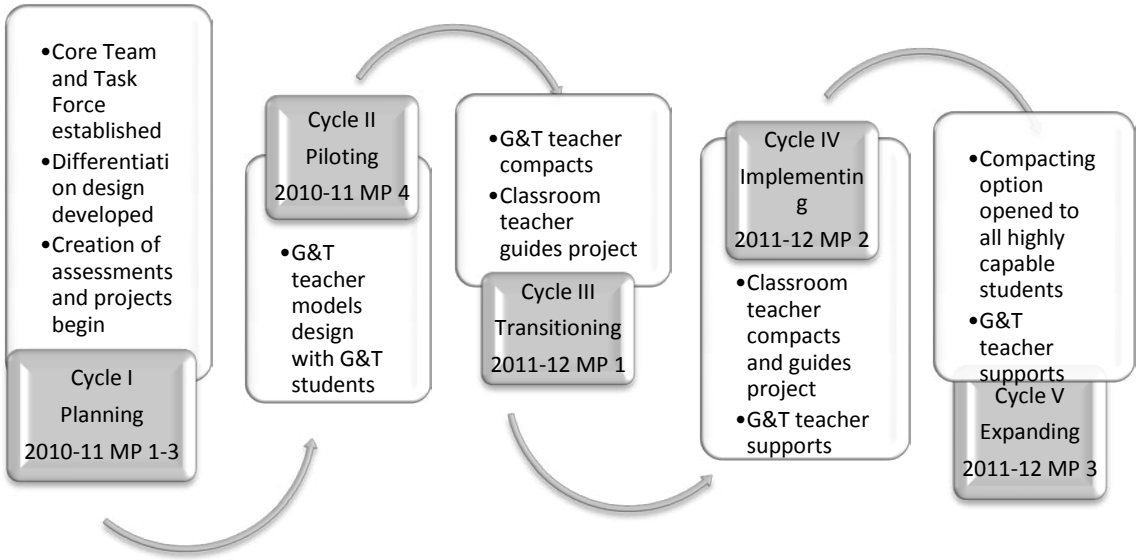


Figure 4.2. Action Research Study Implementation Timeline

In addition to facilitating consensus on guidelines for extension projects, the researcher also elicited input from task force members concerning eligibility guidelines for student participation in the extension projects. It became clear that during the piloting cycle it would be necessary to have all identified gifted and talented /enrichment students participate in the compacting project. However, as the transition progressed through the cycles, there would need to be criteria that defined demonstrated mastery for project participation. Discussions were held at task force meetings in order to come to consensus on the meaning of mastery as it translated into eligibility criteria. The task force agreed that beginning in Cycle III, after a guided preview period for the particular chapter/unit, students who meet mastery on the pretest with a score of 91 or above will immediately

participate in a 21st century learning project that relates to the current topic for the duration of the classroom chapter/unit. Other students, who take the pretest and do not meet mastery on the first try, but score between an 84 and 90, will participate in a compacting period with the teacher. This compacting period will most likely span 2-3 days during which time the teacher will work with the student to review the material that was incorrect on the pretest and offer a retest. The student will participate in the 21st century project if he/she scores above a 91 on the retest. If the retest score is below a 91, the student will be included in the regular course of instruction for that unit/chapter. Figure 4.3 illustrates this curriculum compacting model used in this action research study.

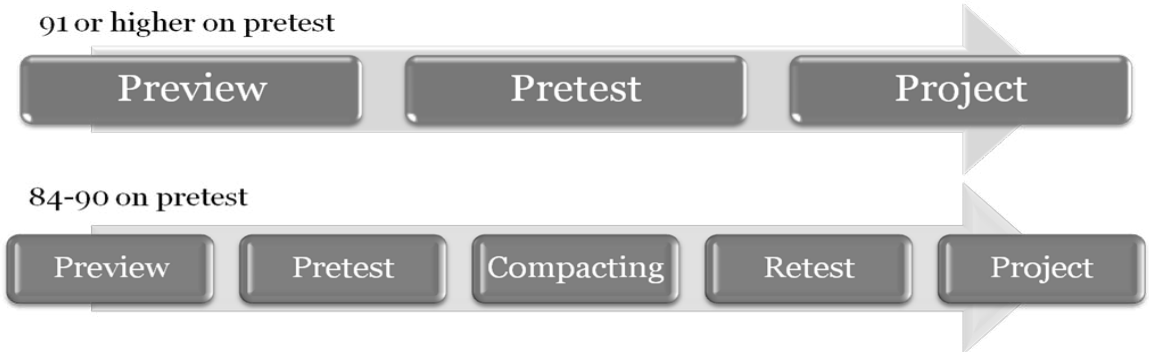


Figure 4.3. Curriculum Compacting

Phase 3: Advancement. As time went on and the teachers engaged in the professional development series embedded in this change initiative, members of the task force became more invested in the idea, as demonstrated by their advanced level of contribution to the development of the instructional program model. Some task force members began to bring up the idea of experimenting with this model in their classroom. In conjunction with ideas of trying the model came concerns about managing various

groups of learners that accompanies the practical classroom application of instituting curriculum compacting. In order to capitalize on teacher enthusiasm and address anxiety surrounding group management, the researcher scheduled coaching sessions with two literacy consultants that had been contracted to work with our fourth through sixth grade teachers in the past. The researcher established an agenda for the coaching sessions with the consultants that focused on familiar group management skills practiced by teachers in their balanced literacy blocks and methods of transferring those same techniques to social studies instruction. One teacher at grade 4 and one teacher at grade 5 volunteered to work with each of the coaches. The goals of the coaching sessions were to provide a clearer concept of differentiation in the content area. The coaches worked to join the idea of curriculum compacting for advanced learners with the idea of guided reading in the content area for students. Since the teachers were already incorporating guided reading in their language arts program, this provided a coherent strategy for drawing a connection in concepts. According to Garet et al. (2001), emphasizing coherence is part of an effective professional development design. This idea helped to address the concerns by teachers about the group management aspect of the model. By including a guided reading component, teachers were better able to envision how to manage the learning of other students at points when their attention would need to be focused on a small group of learners, and not the whole class. Figure 4.4 illustrates how guided reading in the content area supplements curriculum compacting in order to offer a full scope of differentiation in the social studies program design.

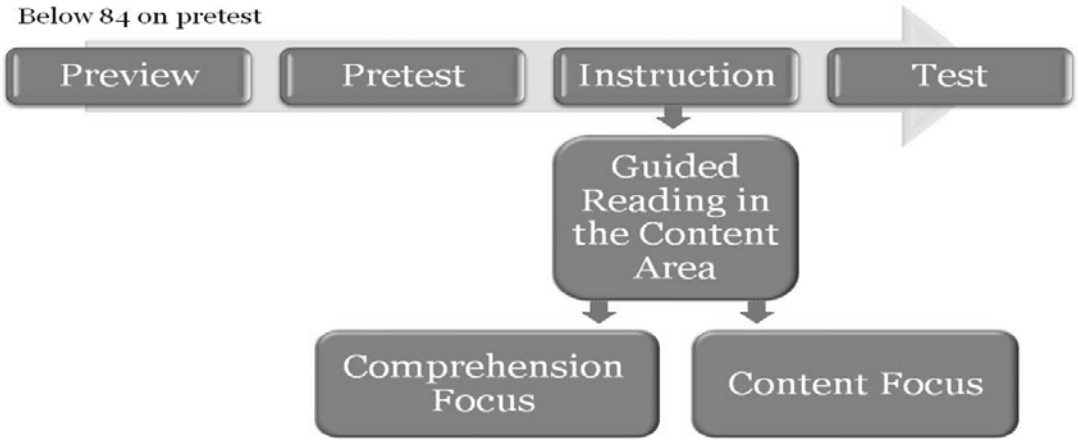


Figure 4.4. Guided Reading in the Content Area

As the coaches worked through the curriculum and reviewed the extension projects matched to each unit, teachers became more aware of time constraints accompanying a typical unit of instruction. Given that some grade levels alternate instruction between social studies and science and that some units are structured with an introductory and follow-up chapter, it became increasingly obvious that expecting every chapter to provide an opportunity for compacting was unrealistically ambitious. Therefore, task force members at each grade level revisited their compacting plan and reworked the rubrics to match one unit per marking period. The task force agreed that additional chapters/units could always be added during the following school year, considering the success of compacting during this initial implementation year.

With the task force gaining momentum, the action research study was presented to the local Board of Education during a regularly scheduled meeting. Board members expressed enthusiasm for the change initiative and generally supported the idea. The only concern that was raised by one board member addressed the issue of pretesting the students. This concern prompted the researcher to guide task force members in further

discussion as to how previewing and pretesting would occur as part of the model. Initially, thoughts were that previewing of the chapter/unit would be done by students independently as homework or do-now activities. Eventually, teachers came to consensus that previewing the chapter/unit is a good teaching practice regardless of instituting curriculum compacting. From that realization, agreement that each grade level would establish 2 to 3 standard previewing activities was adopted. The first chapter of each school year would provide the instructional opportunity for teachers to teach students how to use each previewing tool. For the remainder of the year, all students would be engaged in a guided preview of the chapter/unit as a routine instructional practice. After this guided preview period, students who meet eligibility for compacting would then take the pretest, whereas others would just benefit from the previewing as support to their regular course of unit instruction.

Issues related to pretesting were further addressed as the coaching sessions progressed. One additional fourth grade teacher joined the original fourth grade teacher in a coaching session and expressed the need to immediately try the compacting model. The two fourth grade teachers, with the support of the researcher, decided to plan for one chapter that would mirror the curriculum compacting model as it would look in the last cycle of the roll-out. The emphasis during this practice period was to ascertain data to inform the best procedures to use when the compacting opportunity was eventually opened-up for all learners in Cycle V. From the follow-up conversation with the fourth grade pilot teachers during a second coaching session, it became apparent that by offering pretests to learners who are clearly unable to achieve a score of 84 or higher without the teacher's instructional support, students' self-esteem and motivation may be

compromised. Therefore, pretest eligibility criteria was developed at the next fourth grade coaching session, which was then shared with the entire task force to garner feedback in preparation for expanding this option to all highly capable learners in the last action research cycle. The whole task force agreed that since curriculum compacting was conventionally a model for gifted students, these criteria were necessary to avoid unnecessary frustration with lower ability students. The criteria developed by the fourth grade pilot teachers and shared with the task force are explained below.

Eligibility criteria. The first marking period (MP), beginning in 2011, offered the curriculum compacting option to only those students who had been identified as gifted according to the district eligibility matrix. The second marking period allowed the teacher to reflect on student performance from the previous marking period and identify those students who were eligible for the pretest/compacting option during that 2nd marking period. These criteria were anticipated to be most relevant during the final action research cycle. During Cycle V, or marking period 3, the opportunity to participate in a compacted unit was opened to students that were not identified as enrichment or gifted and talented, thus expanding eligibility to include other highly capable students in the differentiation model. Experimenting with the expanded version of the program was an important preliminary step during Cycle I in order to have sufficient time for the task force to confront any issues that may have impeded the expansion of the model in the last cycle. The points of eligibility were as follows:

- A 91 or above average on social studies tests/assessments during the previous marking period;
- An A or above in social studies for the previous marking period;

- Ability to use time wisely when working independently—teacher recommendation;
- Ability to work cooperatively with peers—teacher recommendation;
- This same reflection on student performance will take place again at the end of the marking period to allow other students to participate in the compacting option for the next marking period.

Applied Leadership

The development of the essential logistics in procedures and eligibility criteria described above was a result of the shared leadership philosophy that I, as the researcher-practitioner, practiced through the implementation of this action research study. The planning and leadership that the core team provided in this initiative was extended even further as two task force members unexpectedly chose to adopt a shared leadership role. The two fourth grade teachers who offered to implement a preliminary compacting unit were encouraged by the participant-researcher to move forward with this instructional risk, although such a practice unit was not originally planned. As Brundage and Mackeracker contend, adults learn through experience (as cited in Trotter, 2006), and Mezirow's theory suggests that these new experiences redefine habits of mind and contribute to transformative professional learning (Cranton & King, 2003). By providing an opportunity for these teachers to contribute to the development of the process and procedures for implementation of the model, I was able to validate their ideas and build their investment in the initiative according to Deming's theory of Total Quality Management. This vested interest increased the likelihood of sustainability for the initiative (Shafritz et al., 2005).

Much of my energy at this stage was spent developing and sharing a vision for change. This vision was refined in many ways by the core team in regard to how to best serve the needs of gifted and highly capable learners in the classroom. Originally, curriculum compacting was being considered as the model for the existing gifted and talented program. However, that scenario would not have best served the vision of better meeting the needs of advanced learners during the course of their regular classroom instruction. Collaboratively redirecting the model to address the instructional practices of classroom teachers, rather than redesigning the gifted and talented program, served to better define a shared vision for providing an instructional process for our most capable students to reach their full potential. This vision would ensure the needs of gifted learners would be met regardless of gifted and talented pull-out program services.

Aspects of my instructional leadership were also exercised during this cycle. In my role as curriculum coordinator and researcher-practitioner, I was charged with researching and presenting viable differentiation models to the administration and core task force team for review. Once the curriculum compacting model was agreed upon as the best fit for our district, I researched and created the 21st century skills rubrics to guide the teachers in creating their extension projects. The rubrics were then shared with task force members and critiqued, so they could be finalized and used for planning compacted units and assessing the projects.

Formative Reflection

Cycle I was very productive in regard to setting the groundwork in order to put such a comprehensive initiative in place. The significant change that Cycle I produced in the course of the study was in terms of student participation and eligibility criteria for

Cycle V and beyond. The professional development articulation sessions provided teachers with an opportunity to discuss the components of the model and stages of implementation in order to adapt the expectations embedded in the shared vision and initiative for change to the reality of our district culture. According to Mezirow's transformative learning theory, it is through opportunities for collaborative discourse during professional development sessions that cultural change occurs (Transformative learning theory, 2011). Opportunities for such dialogue helped to move the initiative from an abstract idea to an operational reality.

Cycle II: Piloting

The second action research cycle coincided with the last marking period of the 2010-2011 school year and continued through August 2011. A total of five teachers participated in piloting an initial unit of instruction, while the full task force continued to meet as scheduled and collaborate in support of this pilot. All gifted and talented task force members also participated in a survey of instructional practice to be used as a baseline of comparison for professional growth through the course of the study. Administrative walk-throughs were also conducted to assess the current state of classroom practice focusing on differentiation strategies. Data collection during this cycle also included chart notes from the first two of a series of parent focus group meetings. The researcher also met with each teacher at the conclusion of each pilot unit to solicit feedback on their experience and student outcomes. Researcher journal notes included other issues and circumstances impacting this second cycle and future cycles.

Among the five teachers who piloted the differentiation model were the two gifted and talented teachers at fourth and fifth grades, the three sixth grade teachers, and one

third grade teacher. Each teacher implemented the unit that was agreed upon in collaboration with the other task force members. The units focused mainly on social studies with the exceptions of the third grade science unit, and one sixth grade math unit.

One distinct variation between the lower and upper grades in the model implementation was the pretest component. Although both the third and fourth grade teacher understood that pretesting and compacting were a part of the pilot unit, both skipped those steps during implementation. The teachers attributed their decision to the lack of preexisting expectations to assess in those particular curricular units that were part of the pilot. Both teachers did preview the material with the enrichment and gifted and talented students, according to the first component of the model, but informally assessed their understanding. The students were all included in the extension project, as if they had all scored a 91 or above on the pretest without the actual administration of the pretest. Elimination of the pretest component prohibited the opportunity to experiment with compacting of instruction. Therefore, data in regard to the pretesting and compacting components of the model are only available at grades 5 and 6.

The sixth grade teachers also departed from a component of the program model in regard to student participants. Eligibility criteria at this pilot phase was to only include identified gifted or enrichment students. The sixth grade teachers saw the formal end of the gifted and talented program in fifth grade as an opportunity to mold the criteria to better suit their preferences for pilot participants. The math teacher conducted the pilot in one of her general education courses with a group of four students whom she was recommending for placement in the accelerated course in seventh grade, but were not

formerly identified as gifted and talented. Both sixth grade social studies teachers chose to pilot the initial unit with an entire class in one of their sections at the grade level.

Conversational Teacher Feedback

At the conclusion of the units, the participant-researcher informally discussed the outcomes with each teacher. This data collection strategy was not originally anticipated, and no formal interview protocol was used. However, as the action research study took its course, this conversational feedback seemed like a natural part of progressing with the process and proved to be essential formative data to the researcher-practitioner.

All teachers reported that students were very excited at the opportunity to participate in the given extension project and enjoyed the learning experience overall. Students worked in pairs or small groups very productively to complete high-quality products. One sixth grade teacher commented that because the students were moving along so well independently, she felt uncomfortable with how little they actually needed her. Students in grades 3, 4, and 5 were able to share their projects with the rest of their classes and teachers agreed that the other students responded enthusiastically to the presentations. Students in grades 5 and 6 who did not pass the pretest with a 91 or above were visibly unhappy. One sixth grader who scored a 90 reportedly had tears in her eyes. The gifted and talented teacher in fifth grade described how she was able to capitalize on the disappointment of those who fell below mastery on the pretest by connecting the students' previewing work with incorrect responses on the pretest. The teacher shared how once the students realized that incomplete notes were the reason for the lower score, there seemed to be a diminished sense of injustice and a greater sense of responsibility for one's own learning. Due to the strong connection that this model places on pretesting,

the teachers agreed that focusing on previewing strategies was critical. Teaching outlining strategies appropriate for each age level was consistently identified as the most vital factor to the previewing stage.

The fifth and sixth grade teachers who experimented with the pretest-compact-retest components of the model had different views on the process. The fifth grade gifted and talented teacher and the sixth grade math teacher felt that the process went fairly smoothly. However, the sixth grade social studies teachers felt that the process of compacting and retesting was very time consuming. Both of them struggled with developing alternate questions for each item missed and customizing each test based on the specific questions that each student got wrong on the pretest. Both teachers agreed to work together for three half-days over the summer in order to create alternate retests and refine the rubrics for each project.

Classroom Walk-Throughs

As task force members were piloting the differentiated instructional model in their classrooms, the building principals conducted a preliminary round of walk-throughs. The principals used the walk-through form that they developed in collaboration with the participant-researcher based on recommendations by Killion (2008) to measure impact of professional development on teacher practice. One building principal observed two classroom teachers and the other observed five teachers. These preliminary walk-throughs served to heighten the awareness of the building principals as to the observable elements related to differentiating for advanced learners using a curriculum compacting model, as well as report baseline data of the actual extent of differentiation for learners occurring in the classroom. The walk-through form focused on three areas: the learning

environment, curricular activities, and professional expectations. These data were gathered to support or dispute the self-reported survey data from teachers. Survey findings were analyzed following the results of the walk-throughs.

Learning environment. The learning environment section of the walk-through was concerned with evidence that the teacher used formative data to inform grouping and the management aspect of using differentiated groups. Group work was observed in three of the seven classrooms. In two of the classrooms, the group dynamic was heterogeneous and the assignment was the same for the entire class. One of those three classroom teachers created a group of highly capable students with the intent to remediate for compacting purposes before moving that entire group to a differentiated project. This teacher was one of the fourth grade teachers who also attempted to practice the model in Cycle I of the study. This teacher used data that included report card, test, and independent abilities to identify learners as highly capable, as there were no formally identified gifted and talented students in the class.

Curricular activities. Evidence of curriculum compacting and 21st century learning projects were the focus for the curricular activities section of the walk-through form. Two classrooms that engaged students in group work focused on a project that could be categorized as a 21st century skills project according to the skills defined in the rubrics used for this study. The third classroom was involved in previewing information that would precede opportunities for compacting and project work. There was no evidence that compacting or 21st century learning projects were being employed in any regard in the other classrooms.

Professional learning. The professional learning categories on the walk-through form offered an opportunity for principals to gauge the teachers' disposition as it related to differentiating for advanced learners based on classroom evidence and anecdotal reflection. Most teachers during this preliminary observation period can be aligned to one of two camps. Teachers in the first camp have internalized the concept of curriculum compacting and appreciate its value as an effective differentiation model. This first camp seems to also encompass the teachers that are already somewhat skilled at differentiating instruction for various levels of students in their class. The profile of the second teacher camp is teachers who have limited comprehension of the curriculum compacting model with a limited repertoire of differentiation strategies. These teachers currently do not believe differentiation is that important for student achievement and are not grasping the importance of preparing students as 21st century learners. These teachers are participating as members of the task force and agreeing to implement the model as a form of compliance, rather than due to a perception of the inherent value of the instructional strategy. Figure 4.5 illustrates the baseline data from the walk-throughs conducted by the principals to gain a current professional profile of teacher disposition toward differentiating for advanced learners in seven gifted and talented task force members' classrooms.

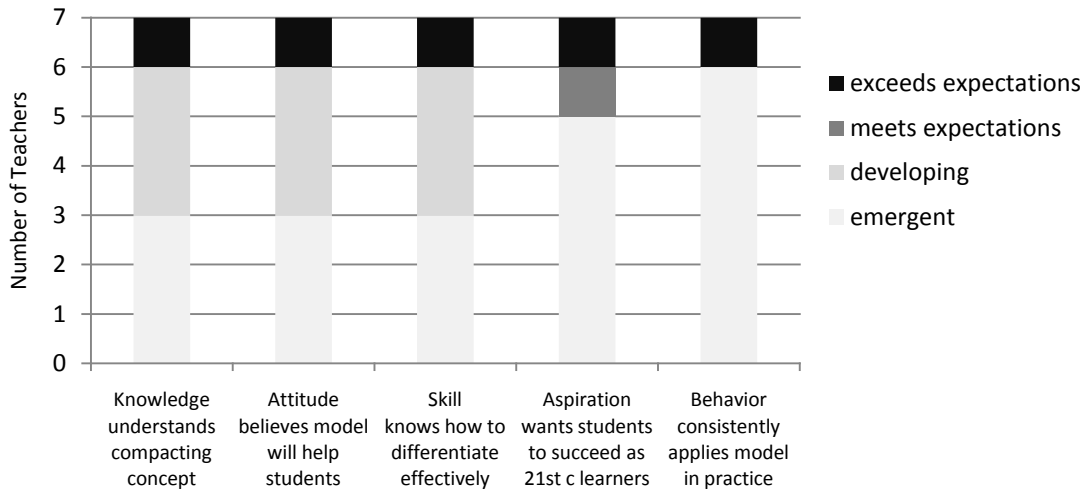


Figure 4.5. Walk-Through Baseline Disposition Data

Instructional Practices Survey

The instructional practices survey was another tool used to assess current professional disposition toward differentiating for advanced learners through the curriculum compacting initiative. During this cycle, teachers were asked to participate in a survey reporting the extent to which they currently differentiate for gifted or other highly capable students in their classroom. The survey was divided into sections addressing cognitive, interpersonal, and intrapersonal differentiation strategies adapted from the Instructional Practices Questionnaire developed by Hong et al. (2006). Participants were asked to rate the inclusion of related strategies in their instructional practice as rarely, sometimes, often, or almost always. Two additional sections were included to address years of teaching experience and professional disposition related to differentiating for advanced learners. All teachers who were on the gifted and talented task force in 2010-11 as well as those teachers who joined the task force in 2011-12 due

to reassignments participated. A total of 16 teachers took the survey during Cycle II. The results of each section of the survey are displayed in Figures 4.7 and 4.8 that follow.

Teaching experience. Half of the teachers reported having 10 to 15 years of teaching experience. Six of the remaining teachers reported having 4 to 9 years of teaching experience, while the remaining 2 teachers had between 1-3 years experience. Figure 4.6 below illustrates the composition of the gifted and talented task force by teaching experience.

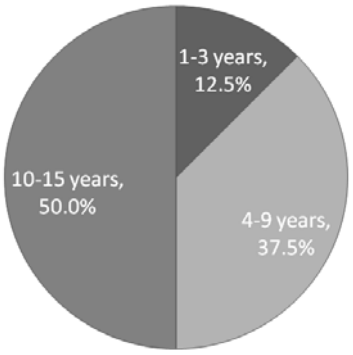


Figure 4.6. Gifted and Talented Task Force Collective Teaching Experience

Cognitive strategies. Descriptions of 12 different cognitive categories were included in the survey. The majority of teachers reported that they almost always differentiate within four of the categories: writing skills, problem solving, transference, and encouraging students to accept challenges in their learning. Six categories were reported to be used often or almost always by at least 14 of the 16, or 85%, of participants. These categories may be classified as encompassing the most extensively integrated differentiation techniques. Categories reported to be routinely integrated almost always or often by at least 12, or 75% of participants were classified as

differentiation opportunities that were frequently extended to students. If less than 12, but at least half of participants reported integrating strategies in the category almost always or often, the category was classified as occasionally extended to students. While, if less than half of the teachers reported such routine integration, the category was classified as sporadically extended differentiated opportunities for gifted and highly capable students. Table 4.1 indicates the extent to which teachers reported offering cognitive differentiation opportunities to students in each category.

Table 4.1

Cognitive Differentiation Baseline Survey Data

Extensively Integrated At least 85% reported opportunities almost always or often	Demonstrate Brainstorming Skills Utilize Imagination or Visualization Creative Figurative Language Practice Problem Solving Demonstrate Transference Encourages Acceptance of Challenges
Frequently Integrated At least 75%	Develop Critical Reading Skills Develop Writing Skills Distinguish Fact and Opinion Determine Relevance and Irrelevance
Occasionally Integrated At least 50%	Develop Thinking Skills Interpret Information from Various Sources
Sporadically Integrated Less than 50%	None

Interpersonal strategies. The next section of the survey inquired as to the opportunities designed by the teacher to differentiate for the interpersonal needs of advanced learners. The majority of teachers reported often providing interpersonal differentiation opportunities for students in 9 of the 10 categories. The only category that the majority of teachers reported almost always offering was for active listening skills.

Table 4.2 indicates the percentage of teachers reporting almost always or often offering interpersonal differentiation opportunities to students in each category.

Table 4.2

Interpersonal Differentiation Baseline Survey Data

Extensively Integrated At least 85% reported opportunities almost always or often	Refine Relationships with their Gifted Peers
Frequently Integrated At least 75%	Cooperate with Group Members Demonstrate Communication Skills
Occasionally Integrated At least 50%	Refine Relationships with Regular Ed. Peers Practice Group Dynamics
Sporadically Integrated Less than 50%	Develop Leadership Skills Practice Active Listening Skills Practice Decision-Making Skills Experience Risk-Taking Demonstrate Empathy

Intrapersonal strategies. The survey also assessed the extent that teachers were integrating opportunities for advanced learners to develop their interpersonal skills. This section of the survey explored eight categories that promote growth in a more personal capacity. This is the only section where the majority of teachers reported sometimes or rarely offering differentiated instruction related to any of the categories. According to the survey data, the majority of participants sometimes or rarely offer differentiated opportunities to advanced learners through individualized or self-selected interest areas. Otherwise, the majority of teachers reported integrating strategies that promote intrapersonal growth often or almost always with their gifted and highly capable students. Table 4.3 indicates the extent to which intrapersonal differentiation opportunities are offered by participants in their classroom.

Table 4.3

Intrapersonal Differentiation Baseline Survey Data

Extensively Integrated At least 85% reported opportunities almost always or often	Demonstrate Responsibility
Frequently Integrated At least 75%	Demonstrate Task Commitment Address Learning Styles
Occasionally Integrated At least 50%	Pursue Interests of their Own Demonstrate Initiative Increase Autonomy
Sporadically Integrated Less than 50%	Demonstrate Decision-Making Set Goals in Interest Areas

When comparing the extent of opportunities across the three sections, it is clear that teachers participating in the survey integrated cognitively focused differentiation strategies more often than interpersonal or intrapersonal strategies. The trend in Figure 4.7 suggests that most intrapersonal opportunities are only offered occasionally in the regular course of instruction, while interpersonal strategies are offered least often. The trend in the cognitive data illustrates how all categories of cognitive differentiation opportunities are integrated most extensively by the teachers.

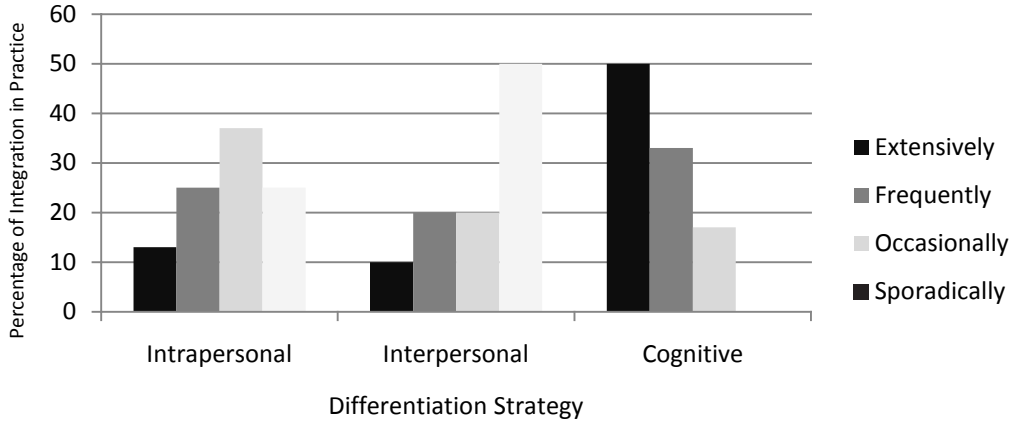


Figure 4.7. Differentiation Comparison Baseline Survey Data

Professional disposition. The final section of the survey investigated the teachers' initial tendency to support the premise of differentiating for advanced learners. Five key areas that Killion (2008) suggests predict the impact of professional development on teacher practice in the classroom were used to prompt a measure of professional disposition. The majority of teachers self-reported that they are fully invested in the notion of differentiating for gifted and highly capable students in their classrooms. Teachers reported at an 85% or higher response rate that they currently felt exceedingly or fully confident in their skills to employ a variety of instructional strategies and believed they did consistently differentiate for these students currently. Additionally, all but one teacher, fully or exceedingly aspired for their students to excel as 21st century learners. The survey suggested that during this cycle, teachers were most unsure of their understanding of the differentiation model embedded in the study's initiative and were not overwhelmingly convinced that the model was important to student success. Figure 4.8 further illustrates the results of this professional section of the survey.

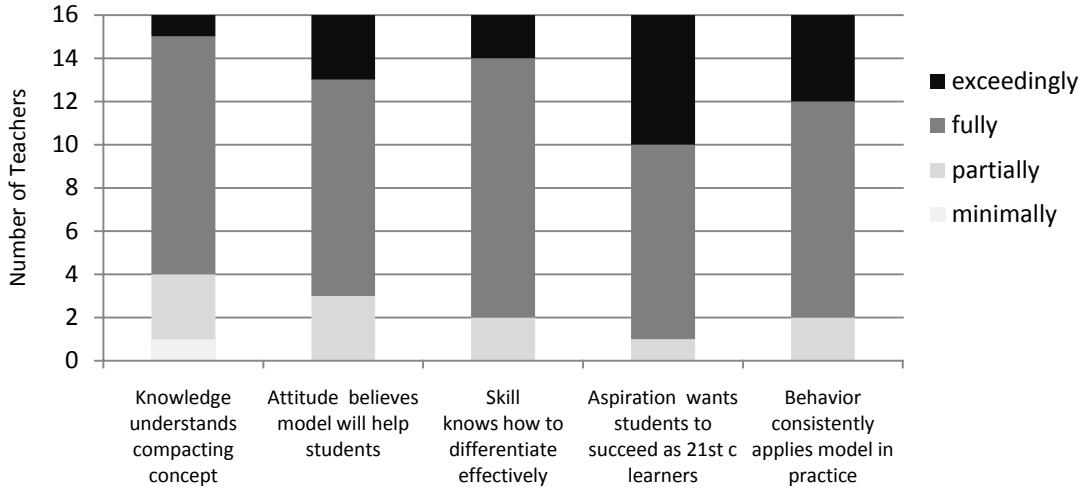


Figure 4.8. Professional Disposition Baseline Survey Data

The comparative and sectional survey data from this Cycle II survey were collected to establish a baseline in order to determine professional growth through teacher practice. These baseline survey data will be compared with a post survey in the last cycle of the study.

Parent Focus Groups

Two parent focus group meetings were held during Cycle II to discuss the instructional differentiation program model initiative. The sessions were facilitated by the participant-researcher along with the core team of the gifted and talented task force. The first session was held prior to the pilot units, and the second took place following the completion of the pilot units. Data were gathered in the form of comments and concerns by parents, which were recorded on chart paper for each session.

A detailed letter to introduce parents to the concept of curriculum compacting and 21st century skills was sent to the parents of the students involved in the piloting of the differentiated units. Included in the letter was an invitation to a focus group meeting. The first session was split into an afternoon and evening session for the convenience of the parents. Of the 35 parents invited to the focus groups, a total of 13 parents attended. During the meetings, parents were shown a presentation that explained the curriculum compacting initiative. An opportunity for questions and answers followed the presentation. The concerns expressed by parents at the first session addressed the management of groups by the classroom teachers, the amount of teacher contact time, and the value or benefit of the extension projects in relation to the regular curriculum. Comments by parents included the lack of studying at home to prepare for tests, the need for the general curriculum to be more robust, and the consideration of extending the

initiative to include seventh and eighth grades. At the debriefing by the core team following the session, the consensus was that the tone of the meeting was suspicious and skeptical. The core team felt that the fear of the unknown was generating an obstacle to parents embracing the potential benefits that the success of this initiative would have for their children.

The second focus group session was held after the instructional units were completed. The meeting was attended by a total of seven parents, all of whom were among the 13 that attended the first session. The participant-researcher again facilitated the meeting and gave an overview of the third and sixth grade pilot. The fourth and fifth grade gifted and talented teachers displayed the students' extension projects and shared the strengths and challenges revealed during these initial units. The most consistent comment from both the teachers and parents addressed the issue of study skills. Parents commented that they were happy their children were now going to have to learn to study more. Healthy competition was deemed to be the catalyst for one of the children to take ownership for studying without coaxing by the parent. The teachers shared how the students began to draw a connection between their own responsibilities as learners and their ability to begin the extension project right away. The parents expressed that the projects themselves were well received by the children. Parents felt that the extension project motivated the children to apply themselves more to pass the pretest. One parent did express that her daughter was devastated when she did not score the 91 or above on the pretest. The parent shared that this was the first time that her fifth grader had received a test grade below an A. However, the parent did not express that this was enough of a concern to protest moving forward with the differentiated program model. Another parent

shared that when she told her child that this was just a trial period, the child stated, “the school should definitely do this (the compacting projects).”

Parent concerns during the second session mostly centered on the previewing period prior to the pretest. Parents expressed a need for more graphic organizers to guide note-taking and feedback on the outlines that the students were studying from to assure notes are complete. During the meeting debriefing, the core team agreed the tone of the meeting was much lighter and more positive than the first focus group session. Parents’ anxieties seemed to have been dispelled by the reality of the process and benefits of curriculum compacting.

Applied Leadership

In addition to the benefits that this transformational change model was providing, the need to implement the change was becoming more apparent to the core team as we became more aware of teacher practice and the importance of differentiation focused on 21st century skills. Several members of the task force who were routinely late, absent, or just generally disengaged at the meetings in Cycle I, became more involved during this cycle as the task of lesson, unit, and assessment planning actually became the main focus of the meeting agendas. The teachers began to realize more of a connection between their role on the task force and the instructional changes associated with the differentiation model. Most evident of this evolving investment in the change was the challenges by task force members to the names of the stages and cycles in the model. As the concept of the transitional model became clearer, teachers suggested that the term “previewing” for the first stage of the compacting process did not clearly define the actions of that stage. Therefore to support clarity, the name of the first stage of the compacting process was

renamed as “preteaching.” Additionally, task force members were concerned about expectations in Cycle II since it was named modeling. The task force felt that by naming the second cycle “modeling” there was a heightened expectation for the classroom teachers to actually observe the gifted and talented teachers. The teachers did not feel that observing the practice during this cycle was as important as actually experiencing the model through a trial unit. It was the consensus of the task force that the second cycle should be renamed to “piloting” to more clearly describe the focus of the cycle. Assisting teachers in making this connection between PD sessions and the curriculum is the key behind Mezirow’s transformative learning theory (Cranton & King, 2003). Challenging current practice through new expectations that are collaboratively developed engages teachers in changing their habits of mind and transforms instruction and culture, according to Mezirow (“Core Principles,” 2011).

Being immersed in this transformational change process required me to exercise aspects of emotionally intelligent leadership. Given my agreement with Fullan (2001) that change is a process that requires patience as people internalize and adapt to the change, I needed to be careful in checking my own emotional reactions to situations that could be categorized as professionally frustrating. It was very important for me to maintain my focus and reinforce the shared vision for change with the core team in the wake of the negative and skeptical energy exhibited by parents at the first focus group meeting. According to Goleman et al. (2002), it is important for a leader to carefully check her own emotions when faced with unanticipated situations, which may throw her off course. Maintaining my decorum, during the parent meeting as well as during the core team’s debriefing session that followed, was excellent practice in exercising emotionally

intelligent leadership as I defused anxiety and resentment surrounding the change expressed during the first focus group.

Formative Reflection

Indicative of an action research study, certain dynamics and unforeseen circumstances were addressed in Cycle II. Initially only one third grade teacher who had the enrichment students in class was involved as a member of the task force. However, given that this was the teacher's first year at the grade level, it was difficult for the teacher to confidently select units to target for compacting per marking period without involving the other veteran teachers at the grade level. Therefore, as researcher-practitioner, I encouraged the other third grade teacher, who also had enrichment students in class, to more actively join the gifted and talented task force. The additional third grade teacher collaborated in the development of the compact unit planning, but did not pilot a unit during this cycle.

Transfers and retirements are customary over summer months in school districts. Such staff changes impacted the gifted and talented task force at the end of Cycle II. The teacher who was a part of the gifted and talented task force as the original third grade member was reassigned to seventh and eighth grade social studies, while one of the fifth grade teachers retired. The movement of staff created a need for the researcher-practitioner, in my role as district curriculum coordinator, to schedule summer articulation sessions for staff new to the social studies department as well as new teachers filling the third and fifth grade vacancies. These articulations included an abbreviated training with explanation and planning for differentiated instruction through the curriculum compacting model as part of the dialogue with their new colleagues.

It was very encouraging to the participant-researcher that the study's initiative was being more positively received at this stage as compared with the end of the first cycle. Responses from parents, teachers, and students, described above, supported the notion that we were moving in the right direction. However, certain factors that emerged from the data were significant in contributing to modifications regarding expectations, implementation, and professional development.

Staffing changes and continued anxiety expressed by the social studies teachers prompted the scheduling of summer task force meetings for the middle school social studies department. These summer meetings proved to be very productive in providing an uninterrupted block of planning time for the teachers to more fully develop their projects and rubrics. This also allowed the new seventh and eighth grade social studies teacher, who had piloted one of the compacted units as the third grade teacher, to become aware of how he could transfer his knowledge of differentiating for third grade enrichment students to a seventh and eighth grade content area class. This department articulation allowed time to consider projects that would support extending the original scope of the program to include seventh and eighth grade social studies as well.

Data from the piloting cycle also suggested that it was necessary for the participant-researcher to clarify the expectations of third and sixth grade teachers during the transition cycle. Since the gifted and talented teachers were only supporting the transition with the fourth and fifth grades due to their schedule, there was lingering confusion as to what defined transition for the third and sixth grades. During the summer articulation sessions, the abbreviated training reiterated that focusing on the group management aspect would best define a transition cycle for the grades without direct

gifted and talented teacher support. This would allow all the teachers to focus on the extension project with the enrichment and gifted and talented students without having to immediately become fluent in the pretest-compacting-retest components of the model. Many teachers continued to struggle with the differentiation premise of managing separate learning groups simultaneously. The benefit of the transitional cycle was to also allow the teachers to become more comfortable with one of their major concerns from the pilot cycle of structuring and guiding students in outlining during the previewing component of the model. Once the expectations of the transition cycle were explained again to the task force members, teachers expressed relief in that they did not have to fully implement the model immediately in the first marking period.

Cycle III: Transitioning

The third action research cycle was conducted during the first marking period of the 2011-2012 school year. According to the change model of Heifetz (1993) embedded in this action research, Cycle III represents the fourth stage of change. It is during this stage that teachers struggle with making connections between past practice and new expectations, and this stage is where the essential shift in attitudes and beliefs occurs (Heifetz, 1993). Therefore, the focus of this cycle was to allow teachers to experiment with the phase of curriculum compacting that requires managing differentiated group work. Most teachers, especially at the lower grades, did not usually plan student projects or small group activities in their social studies and science instruction. Typical lessons were conducted as teacher-led whole group lessons. Although some task force teachers did have some experience with student projects and small group work within their content area units, most had never attempted to use those strategies as a means to

differentiate instruction. This transitional cycle offered the time for teachers to experiment with the management aspects of the differentiation model and ascertain just how much personal and professional growth would be required to fully implement the change (Heifetz, 1993).

The first meeting of the gifted and talented task force for the new school year was held during the first fall district in-service day. The agenda for the meeting was to revisit the work of the task force from the previous school year in the form of both concept and document review. Teachers met as grade level groups during this meeting. The researcher, as curriculum coordinator, circulated to each grade level to answer questions and assist in developing strategies to implement the model. The enrichment/gifted and talented teacher in grades 3 and 4 sat with the fourth grade teachers, while the director of student support services sat with the fifth grade teachers. Two of the sixth grade teachers mistakenly attended another in-service session scheduled at the same time. It was not practical to retrieve the teachers from the other session, so the one attending sixth grade teacher worked with the participant-researcher to discuss the next steps to focus on for that grade level. The seventh grade teacher, who had worked as member of the task force as a third grade teacher during the previous school year, checked in with the participant-researcher prior to the start of the session. The teacher requested permission to attend a different session scheduled simultaneously to the task force session, the same one that the other sixth grade teachers attended. The seventh grade teacher expressed concern about implementing the model in seventh versus third grade, but agreed to meet at another time to work toward implementation at his new grade level, in lieu of attending that currently scheduled task force meeting. The interactions between the participant-researcher and the

teachers during the first task force meeting of this cycle exposed how each grade level held different attitudes and had different needs surrounding the change effort at this point.

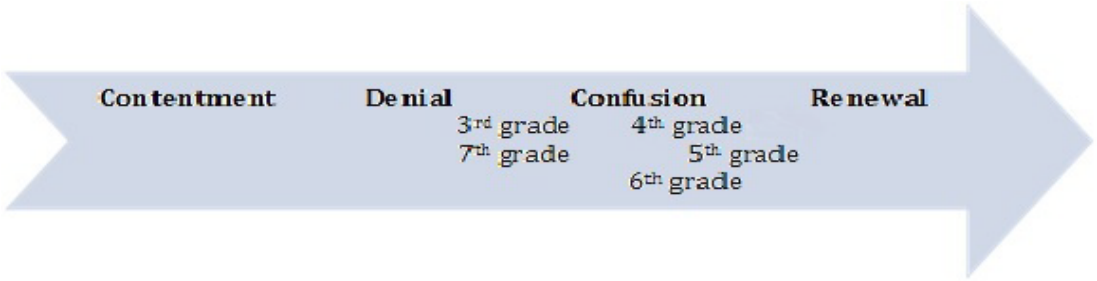
The most obvious difference in attitudes and beliefs was that of the third grade teachers. The third grade teacher who was most involved with the task force last year had transferred to seventh grade, and that exposed a gap in the collective ability of that grade level to conceptualize the curriculum compacting model and to recall the projects developed in the past year. The two teachers who remained at the grade level both initially denied any recollection of having chosen the units that would be compacted and the 21st century skills rubrics associated with the extension project for each unit. After describing the specific meetings and locations where decisions were made and a specific email signed by the two teachers which forwarded the units to be included in the parent focus meeting last year, they alluded to some level of recall in their part in the decision-making.

Third grade teachers expressed concerns over the eligibility of the students participating in the model. Since third grade students are only identified as enrichment and not formally as gifted and talented, the teachers were not confident that all enrichment students should be eligible to take the pretest based solely on their enrichment status. From this concern, the participant-researcher worked with the third grade teachers during the in-service session to extend the pretest eligibility criteria for third grade students to require a minimum standard reading inventory score of 500, which equates to an average third grade reading ability. It should be noted that, after the in-service, the third grade teachers decided to accept the enrichment status of students as the basic

criteria to take the pretest for compacting, and use the additional minimum reading score as criteria for other highly capable students in taking the pretest in later cycles.

Transformational Change

Collectively, each of the grade levels can be placed at slightly different points on a continuum representing the change process. Figure 4.9 illustrates those points according to Janssen's change model (as cited in Dezieck, n.d.).



Note. Adapted from Janssen's Four Room Apartment Model of Change (Dezieck, n.d.)

Figure 4.9. Collective Progress toward Change Cycle III

According to Janssen, engaging in change can be equated to moving through four rooms of an apartment (Dezieck, n.d.). Initially, a proposed change shakes one out of the contentment in sustaining the status quo. When introduced to a change, a typical first reaction is denial (Deziak, n.d.). If the pressure for the change continues and there is evidence that others begin to accept the change, then movement occurs from passive recipient to tentative uncertainty in the confusion stage. This is the room where both third and seventh grades were located during Cycle III. There was some degree of acceptance in the inevitability of the curriculum compacting model being fully implemented at their grade level, however this cycle was marked by the presentation of obstacles to suggest that it might not work at their levels. Aside from staffing changes, the degree of

involvement in the previous two cycles may have contributed to the confusion that remains. Interestingly, the two third grade teachers that remain and the third grade teacher that transferred to seventh grade had the three lowest attendance rates at the task force and articulation meetings during the last school year. Although task force meetings were scheduled as part of the district's regular calendar of professional development, the calendar did occasionally have conflicting meetings, which interfered with teachers attending all of the task force meetings. Additionally, teachers may seek permission from their principals to be excused from meetings for various reasons. The delays in concept clarity and instructional planning as compared with other grade levels may be a manifestation of the lower attendance rate at gifted and talented task force and articulation meetings. Both Tomlinson (1997) and Hall and Scott (2007) agree that the time for teachers to meet and discuss changes associated with gifted and talented programming is critical to the successful transformation of practice.

In the confusion stage, which is where fourth and sixth grades are placed in Cycle III, the teachers have begun to put the pieces together but there is still some uncertainty about the nuances of implementing the model pertaining to group management and connecting the extension projects with the focus of the units (Deziak, n.d.). Fifth grade is mostly beyond the point of confusion and beginning to enter the stage of renewal. In renewal, people embrace the possibilities presented by the change and displace old practice in favor of new (Deziak, n.d.). As the change is embedded and sustained in the culture, contentment results (Deziak, n.d.). Reaching the contentment stage with curriculum compacting is the goal of this action research project.

The progress of fifth grade may be contributed to the overwhelming support that the gifted and talented teacher has provided at that grade level. The gifted and talented teacher has worked diligently to fulfill her role as a core member of the gifted and talented task force. She has provided frequent, comprehensive explanations of her planning in both the pilot and this transition cycle to the fifth grade teachers both in person and through email. The gifted and talented teacher shared her process for preteaching along with her strategies for assigning homework to prepare the students for the pretest. Although the fifth grade teachers did not participate in the compacting, they lived the experience vicariously through the explanations of the process provided by the gifted and talented teacher. With the help of the gifted and talented teacher, the fifth grade completely planned their social studies instruction on a calendar for the year. This pacing takes into account the beginning, pretest date, and end date of each social studies unit targeted for compacting each marking period. Although fifth grade also has a new teacher at that grade level, who did not participate in the gifted and talented task force in the previous year, that teacher has not expressed the level of anxiety surrounding the change that some other veteran task force members of other grade levels continue to express.

The fourth grade has also benefitted from the guidance of the gifted and talented teacher assigned to that grade level. This gifted and talented teacher, as a core team member of the task force, has also worked with the teachers to provide explanation and clarification of the differentiation model. However, the fourth grade gifted and talented teacher has not used the same level of communication as the fifth grade gifted and talented teacher. Furthermore, the fourth grade teachers engaged the gifted and talented

teacher in a negotiation regarding the first marking period compacting unit. As a result, the fourth grade gifted and talented teacher would now implement the 21st century skills project, originally designed as the extension project for the social studies unit in the first marking period, as part of her gifted and talented curriculum. The teachers cited the hectic schedule that accompanies the first marking period of school and were convinced that the gifted and talented students would still benefit from the project as part of their pull-out period and they would be relieved of having to plan for a differentiation activity during their social studies instruction in the classroom in the beginning of the year. This compromise ultimately meant that the fourth grade did not commit to having a targeted unit for compacting during the first marking period. This compromise was brought to the attention of the participant-researcher after the negotiation was complete and the fourth grade teachers had begun instruction of the first social studies unit. With this negotiation, the fourth grade bypassed the opportunity to practice small group differentiation during this transition cycle.

The participant-researcher made the principal aware of the decision by fourth grade to opt out of the transition cycle. The discussion about the issue revealed that the principal felt that this was not an indication of resistance to change from the fourth grade teachers. In contrast, the principal felt that given the strong personalities of the fourth grade team, the decision reflected their thoughtfulness in attempting to design the model in a way that would enable them to sustain implementation. When the participant-researcher discussed the situation with the fourth grade teachers, they expressed the impractical expectation of focusing on compacting in the first marking period due to the age of the students and the first time exposure to using a textbook for social studies, as

third grade did not have a board of education approved textbook for social studies. The teachers believed that both of these issues would prevent the success of preteaching during the first marking period, but were not opposed to moving forward with the model according to the implementation cycles despite the loss of practical experience in managing differentiated projects with small groups during Cycle III.

The interpretation by the principals as to the progress that the teachers were making in moving through the implementation process is further evidenced by the walk-through data discussed in the following section.

Classroom Walk-Throughs

Classroom walk-throughs were used as a tool by the principals to observe whether instructional strategies developed as part of the gifted and talented task force were evidenced in classroom practice. Walk-throughs also contained a section that prompted the principal to assess the status of professional learning of teachers in terms of their knowledge, attitude, skill, aspiration, and behavior as it relates to the curriculum compacting differentiation model. All 12 regular classroom teachers on the task force were observed using the walk-through form.

Learning environment. During the walk-throughs, principals observed a mix of whole class instruction and group work. However, it was only in the fifth grade that group work was reported to be differentiated for the identified gifted and talented students. Other teachers who engaged the students in group projects used a cooperative model where students were differentiated in their ability levels, but the project expectations were the same.

Curricular activities. The walk-through focused on both evidence of curriculum compacting and 21st century learning skills. Since Cycle III focused on managing differentiated group projects, there was an expectation to see evidence of this present during the walk-throughs. The principal of the middle school reported that there was evidence of compacting in all three of the fifth grade classrooms. She noted that gifted and talented students were working off to the side actively engaged in researching and discussing information. The gifted and talented students in the fifth grade classrooms were engaged in a 21st century differentiated skills project that was aligned with the unit project derived from the work of the gifted and talented task force. The same principal reported there was no evidence of compacting in the sixth and seventh grade classrooms, which was to be expected, given the focus of this transition cycle. The elementary school principal reported no evidence of compacting in either third or fourth grades. This result was also to be expected given the negotiated opt-out in partnering with the gifted and talented teacher on the compacting unit during this cycle.

The professional development experience of the gifted and talented task force has emphasized the importance of preparing our students for global competitiveness by integrating 21st century skills in instructional activities and projects. The walk-through data reported that aside from the three classrooms where the students were engaged in the extension project related to the compacting unit, only one other teacher provided an opportunity for teachers to apply 21st century skills during the lesson. The principal explained that she identified the students to be engaged in a 21st century skills based activity because it focused on using higher order thinking skills in a cooperative group structure. Twenty-five percent of the teachers used an interactive whiteboard activity or

digital media as part of their lesson, but did not extend the use of technology to the students to give them the experience of practicing 21st century skills.

Professional learning. The data gathered from the walk-throughs regarding professional learning were analyzed as a whole and then by grade level. Figure 4.10 depicts the professional dispositions of the teachers during Cycle III.

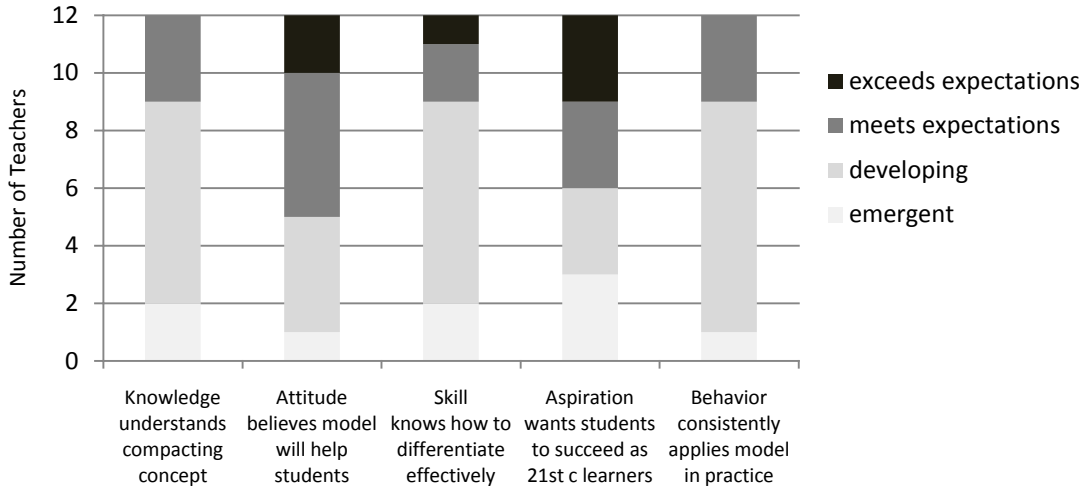


Figure 4.10. Walk-Through Cycle III Disposition Data

As a whole, the majority of task force members were identified by the principals as still developing in their knowledge about the curriculum compacting model, still developing their skill in knowing how to differentiate effectively, and behaving consistently with the current expectations of the implementation. There was an even split among the 12 teachers in regard to aspiring to want students to succeed as 21st century learners. This may be due to the fact that there has been so much time spent on clarifying the concept of curriculum compacting that the 21st century skills driving the extension projects have been a secondary consideration.

There was also a wide range of disposition in attitude toward the differentiation model during this cycle. One principal identified the attitude of a fourth grade teacher as exceeding her expectations, and explained that based on the teacher's historical pattern of unwillingness to change, her attitude was surprisingly positive related to this implementation. The principal felt that the teacher's effort to engage in productive conversation to design the program in a meaningful way was evidence that she was planning to eventually fully implement the model.

When examining the principals' perceptions of teacher disposition by grade level, an interesting picture of the current status of the implementation was revealed. Overall, the fifth grade was rated the lowest in teacher disposition in professional learning as compared with other grade levels. Each one of the teachers in fifth grade was rated by the principal as emergent, or still developing in their skills, aspirations, and behaviors associated with the differentiation model. All three were also rated as developing in both their knowledge about compacting and their attitude regarding the model. Two of the three remaining grade level groups did not have any teacher placed at the emergent level and had at least one teacher exceeding expectations in one area. All of the remaining grade level groups had several teachers meeting expectations in various areas. This seems to be logically contradictory in some respect due to the fact that fifth grade was the only grade level that was observed putting the model to practice as was intended in this cycle. This grade level was also the only group that did not express the level of anxiety regarding the change that was still being expressed during this cycle by other teachers in the task force. The principal's perception suggested that the fifth grade teachers were still functioning at a passive compliance level rather than actually moving toward renewal,

and challenges the earlier suggestion that the fifth grade teachers are ahead of the other grade levels on Janssen's continuum of change (Deziak, n.d.). This passiveness may be due to the strong involvement of the fifth grade gifted and talented teacher in leading and modeling the instructional planning during the process thus far. Although other grade levels may be placed more in a current state of confusion, their level of knowledge and skill may allow them to surpass fifth grade on the change continuum during the next cycle, if fifth grade does not begin to take more ownership of the implementation and realize the inherent value in the differentiation model.

Parent Focus Group

The feedback from parents at the focus group meeting during Cycle III suggested that parents did realize the inherent value in curriculum compacting as a differentiation model for highly capable students. The parent focus group meeting was held as the second half of the agenda for the annual district gifted and talented parent meeting. This meeting is usually hosted for all parents of students in grades K-5 who have been formally identified as gifted and talented or eligible for enrichment services. Invitations for this meeting were also extended to sixth and seventh grade parents who were involved in the gifted and talented parent focus groups in the previous school year. Approximately 30% of the parents who received an invitation attended the meeting. Just one parent attended this meeting who had also attended the two previous focus group meetings. Although parents of students who were participating in enrichment or gifted and talented last year received an informational letter during Cycle I explaining the differentiation model, this was the first time the overwhelming majority attended a full presentation on the change initiative.

There were very few questions and comments at this meeting that rose to the level of concerns in previous parent focus group meetings. The main area that needed clarification during the question and answer period pertained to grading. Parents raised concerns about the ability of the students to achieve the score of 84 or above needed on the pretest in order to participate in compacting or the extension project given only an abbreviated preteaching experience with the material. The response to this concern stemmed from the experience of students in the pilot cycle, and was corroborated by the one parent who had attended the previous focus group meetings. Focus group dialogue has suggested that the cognitive ability of the students targeted for pretest eligibility allows them to achieve the minimum score with this abbreviated instruction as long as they assume responsibility to study the material on their own as well. The parents at this focus group meeting, as in the past, responded positively to this premise. The parents acknowledged, as others have at previous meetings, that their highly capable students put minimal effort into school due to their cognitive aptitude and feel that promoting study skills through this model would be beneficial to their children's growth as learners.

One parent of a third grade student raised the issue of grades at that level. The third grade does not report a number or letter grade for social studies or science on the report card. Achievement is reported as beginning, developing, secure, and outstanding based on standardized skills for the content area on the report card. This same concern about using a numeric grade for a pretest score at this level was also brought up by the third grade teachers during the in-service meeting. The participant-researcher shared with the parent that in third grade eligibility for the pretest may take on a more

developmentally appropriate form at that level, since the pretest may be less like a traditional test and more like an activity based assessment.

Applied Leadership

During the course of Cycle III, both the third and fourth grade teachers had mentioned that the absence of a board approved social studies textbook for third grade caused an obstacle in the implementation of the differentiation model for both grade levels. The third grade teachers found it difficult to plan meaningful preteaching activities and develop assessments, while the fourth grade teachers felt they had to forego compacting during the first marking period to compensate for time to address the students' lack of skills using a textbook in social studies. The researcher, acting in my capacity as curriculum coordinator, reacted to this concern by contacting the publisher for the social studies series that is currently used in the fourth and fifth grades and requested a sample of a third grade social studies textbook for the teachers to review. I also encouraged teachers to attend the New Jersey teacher convention, which coincided with the end of Cycle III, to browse through the sales floor and request additional sample copies of other textbooks and resources that align with the third grade social studies curriculum. By employing both instructional and shared leadership in this regard, an informed decision may be made as to whether a textbook would be a valuable addition to the third grade social studies curriculum; and, if so, reach a consensus as to what resource would best serve our needs.

As is typical of many school districts, new projects and initiatives are introduced simultaneously. The beginning of this school year was no different. During the first grade level task force meeting with third grade, the teachers slid a piece of paper across the

table to the researcher-practitioner. The paper listed approximately 15 requirements that they felt all together were beyond reasonable expectations for a classroom teacher. The curriculum compacting model was on the list. This situation offered me the opportunity to exercise both emotionally-intelligent and visionary leadership. It was obvious from the opening of the meeting that there was a secondary agenda. As Schertz (2004) explains "putting aside your investment in the outcome long enough to really hear and appreciate the objections of your subordinates can help them feel valued. If they feel valued they may be more receptive to what you have to say" (p. 60). Temporarily setting aside the meeting agenda may have prevented running off the road rather than just taking a detour. Half of the meeting time was spent respecting and accepting their concerns about the list of expectations, then I was able to refocus the meeting to our shared vision of differentiating for highly capable students in the content area.

One of the concerns that I addressed through my capacity as curriculum coordinator was the conflict between the teacher professional learning community goals and the goals of other initiatives that were district driven. The teachers expressed that there were too many directions that they were expending their energy: the district driven differentiation model, a new board of education driven writing portfolio initiative, and teacher driven professional learning communities. Each initiative had its own meeting schedule and associated planning activities. Upon consideration of these concerns, I collapsed several professional learning communities into one to align with the writing portfolio initiative goal. This rearrangement also collapsed two separate series of meetings into just one series. When this rearrangement was finalized and I reported it to

one of the third grade teachers, she smiled and said, “Thank you Stephanie. You’re one of the only ones who really listens to us” (personal communication, October 6, 2011).

As a follow-up to the in-service day conversation with the seventh grade social studies teacher, a meeting was held with the teacher, the researcher-practitioner, the principal, and the grade 6/7 social studies teacher, who had also attended a different session during the task force meeting on the in-service day. The grade 6/7 social studies teacher shared that a parent of a student from her sixth grade class last year inquired as to whether we were continuing the curriculum compacting in seventh grade this year. Both teachers agreed that they would be willing to plan to expand the model to the seventh grade social studies classes, but needed the time to plan for targeted units and extension projects. The principal agreed to offer the teachers one day of release time to work collaboratively to move the seventh grade up to the same point of implementation as the lower grade levels. The teachers used the day productively and prepared to finalize plans at the task force meetings in order to join the implementation during Cycle V.

Formative Reflection

The core team recognized that a new school year would bring about new considerations when moving forward with the implementation plan. The variation in the needs of the grade levels was identified at the first gifted and talented task force meeting during the in-service day. This prompted the core team to redesign the schedule for the task force meetings for this school year. During the previous school year, members of the entire task force met together, or the task force split and held separate meetings at each school on the same afternoon. However, with the collective differences in moving through the change process, there was a natural transition from that meeting structure to

one that allowed grade levels to meet individually. By revising the professional development calendar to allow grade levels to meet separately to continue their work on the gifted and talented task force, attention to their unique needs could be better addressed, since the attention of the participant-researcher was not split among grade levels.

Further reflection by the core team at the end of Cycle III highlighted a concern over the pacing of compacted units in classes that had special education students included in content area instruction. The teachers who taught the inclusion classes at each grade level all indicated to the participant-researcher on different occasions throughout Cycle III that they anticipated issues with keeping the same pace with the other teachers at their grade level during the compacting unit. The teachers all felt that they generally moved at a slower pace due to the needs of the inclusion students and were unsure if they could feasibly adhere to the same timeline with the unit pretest and end date as the other teachers at the grade level. The core team resolved to put this as an agenda item for discussion at the next gifted and talented task force meeting for each grade level to brainstorm ways to address this concern.

One last point that the data revealed was the lack of aspiration associated with the teachers in valuing the necessity of preparing students to succeed as 21st century learners. The principals reported a full range of disposition among the teachers in this area. To this point, the majority of the discussion during task force and articulation meetings has been on the logistics of managing the curriculum compacting model. Cycle IV is a suitable time to begin to replace the emphasis on the details associated with compacting phase with an emphasis on the extension project phase of the model. By redirecting the focus, a

greater explanation of the 21st century skills and the urgency surrounding their integration may serve to shift reported aspirations in what successful learning means for our 21st century students.

Walk-throughs were conducted by the principals during this cycle for the second time using the form developed by the participant-researcher for the study. The principal of the lower elementary school expressed a need to make the form more user-friendly. The participant-researcher revised the walk-through form, based on this discussion, and shared it with both principals. The principals agreed that the added details made it a much clearer tool for them to use. The principal's interest in revising the form suggested a rising interest in becoming better informed as to what the model entails and what the teachers should be doing to reflect the compacting model. This was a positive sign as to the support that the principal's were willing to give to the success of the differentiation model.

Lastly, during this cycle the potential for one of the sixth grade teachers to continue as a full participant in the study became unlikely. The sixth grade teacher, who was the only teacher attempting the differentiation model in math announced her pregnancy and pending maternity leave. Walk-through data were not gathered for this teacher during Cycle III, as the principal felt that she did not want to add any stress given the teacher's condition. The teacher informed the participant-researcher that she intended to continue the differentiation model upon her return in the fall of 2012.

Cycle IV: Implementing

Cycle IV spanned the second marking period of the 2011-2012 school year. It embodied the expectation of full implementation of the differentiation model by the

teachers. This cycle aligns with stage five in the organizational change cycle developed by Heifetz (1993). Heifetz suggests that during this stage of rebalancing and accommodating change the pieces of the project come into alignment. This alignment was apparent in the reduced amount of support that the teachers needed during this cycle. The previous unit planning activities and internalization of the concept of curriculum compacting developed through Cycles I to III provided a solid foundation for teachers to move ahead during this cycle with much less guidance than previously required.

Teachers in grades 3, 4, and 5 used their scheduled task force meeting to finalize their unit project and assessment. There was very minimal communication with the participant-researcher during the actual implementation of the compacted units at these grade levels. The sixth grade teachers included the participant-researcher in regular email communications they had regarding modifications to the final project. Teachers at these grade levels reported that the gifted students were excited about the opportunity to compact their learning and enjoyed the extension project.

The fifth grade teachers delayed the gifted and talented task force meeting during this cycle by choosing to use a "meeting pass," which are distributed as a motivational tool by principals in each building to alleviate some after school requirements for teachers. When the task force meeting was eventually rescheduled three weeks later, issues surrounding the implementation were revealed. The teachers reported that during a meeting with the superintendent regarding the fifth grade's spring standardized test scores, the superintendent recommended that they alternate social studies and science, rather than teach them simultaneously, to gain instructional time for writing. This change interfered with the social studies pacing schedule that they had worked on during Cycle

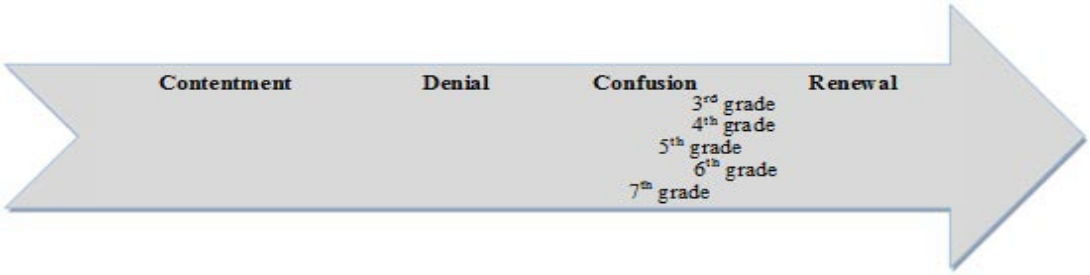
III at the October in-service. The task force meeting was then used to reschedule the implementation unit for Cycle IV and another task force meeting, held two weeks later, was used to re-pace social studies for the year and include one compacting unit per marking period as was included in the vision for this change initiative. This unanticipated administrative change required the fifth grade to realign compacting with different instructional units in marking periods 2 and 3 and recreate those unit extension projects. The fifth grade did implement the compacting unit with the gifted students the very first week of the third marking period, and parents were informed of the circumstances surrounding this delay at the final parent focus group meeting.

Pacing of the units at each grade level became a very important point of discussion during this cycle for other grade levels as well. Although sixth grade did not encounter such an extreme need for revisions due to pacing as fifth grade, the teachers were faced with pacing issues. One sixth grade teacher fell slightly behind the other in their agreed pacing schedule and began to be questioned by parents as to when the compacting unit was going to begin. The misalignment of pacing also impacted the extension project. Originally the teachers had planned to have the gifted students in their two classes participate in a debate; however, the project had been reworked to a different presentation format instead. Once that issue was resolved, the compacting unit was implemented as planned.

Transformational Change

Cycle IV offered an opportunity for several grade levels to collectively progress in the change process. At the end of Cycle IV most grade levels were ready to leave the confusion room and move into renewal. Teachers were no longer confused about the

concept or logistics associated with the differentiation model. Their comfort level with curriculum compacting had grown with the actual implementation of their first unit. There remained some lingering uncertainty regarding the inclusion of students who are not formally identified as gifted in the upcoming cycle. This confusion kept them from exiting the room at this point. The graphic below depicts the current status of each grade level in relation to Janssen's continuum of change.



Note. Adapted from Janssen's Four Room Apartment Model of Change (Dezieck, n.d.)

Figure 4.11. Collective Progress toward Change Cycle IV

At the end of Cycle III, fifth grade was plotted ahead of other grade levels due to their comprehension of the differentiation model and their preparedness for implementation. However, due to the unforeseen change in the curriculum design of science and social studies recommended by the superintendent, other grade levels were able to catch up to fifth in their understanding and planning.

Both the third and seventh grade also made substantial progress during this cycle. Any doubt that the expectation for implementation would pass was dismissed as the principals contacted the teachers to schedule walk-throughs to observe implementation in their classrooms. Teachers at both those grade levels worked quickly and cooperatively to seek clarification and finalize various components of the model.

The seventh grade teachers requested an additional curriculum articulation day to work with the researcher-practitioner, as curriculum coordinator, in order to revise the social studies curriculum in order to realistically pace the units for the year. Changes resulted in moving certain mastery expectations for some standards from seventh to fifth or eighth grade. These curriculum revisions allowed seventh grade to commit to a pacing schedule in social studies that included one targeted unit for compacting per marking period. The seventh grade teachers were no longer denying the fact that the parents, students, and administration expected compacting to be integrated in seventh grade to continue to benefit those students who participated from the pilot in sixth grade last year, as well as other students. Despite the fact that the change initiative did not originally envision seventh grade being included in the differentiation model, the second articulation meeting allowed seventh grade teachers to be fully prepared to implement their first compacting unit in the third marking period. Since both seventh grade teachers had experienced compacting already, one with sixth grade in Cycle IV and one with third grade in Cycle II, they felt confident with including all highly capable students in their first compacting unit. This would allow seventh grade to align with all other grade levels at the same stage of the roll-out of the change initiative.

Classroom Walk-Throughs

Principal walk-throughs conducted during Cycle IV reflected compliance by all teachers in the expectations set forth in the implementation plan. Teachers who had gifted students in their class moved forward with the differentiation model, while those teachers who did not have gifted students maintained business as usual instruction. Data did

reflect professional growth in certain aspects, which will be discussed in the following sections.

Learning environment. The incorporation of differentiated groups was mainly observed as the gifted students working within the differentiation model and other students engaging in the same classwork as a whole class or in heterogeneous small groups under the direction of the teacher. However, the two third grade teachers showed evidence of differentiated activities for all students during the walk-through. Students in those classes were leveled by ability and were engaged in a different learning activity in each group related to the lesson topic. The learning environment in these classrooms made it less obvious that the gifted students were doing something special, since all students were working on different tasks. This was a change from the last walk-through, as no teachers showed evidence of differentiated group work for all students during the last cycle.

Curricular activities. The principals did observe the implementation of the differentiation model as expected for this cycle. One third grade teacher reported that her one formally identified gifted student was sick and then went on vacation during the instructional unit targeted for compacting, and consequentially was unable to take advantage of the opportunity to participate in the model this cycle. Otherwise, all identified gifted and talented students in the third through sixth grade participated in the model.

Teachers reported that all students who took the pretest passed with a 91 or higher on the first attempt. This allowed students to begin the 21st century learning project immediately without the need for a compacting period. One fourth grade teacher

mentioned that even though the students participating in the compacting typically scored in the 90s on tests, they were anxious about the expectation of having to score a 91 or above on the pretest to move immediately to the project. It seemed to her that students became competitive and did not want to be left behind on the project or be the only one who needed compacting and a retest.

Teachers at the third and fourth grade also expressed that students needed a lot of reassurance. In their opinion, it was not that the students were confused, it was that they wanted to be sure that they were on the right track as they moved along. All teachers described how the personalities of individual students impacted the dynamics of particular groups and the outcome of their project. The developmental differences in the maturity between the genders also surfaced. For example, the two fourth grade groups were comprised of all boys and all girls. Teachers reported that the on-task behavior as well as the caliber of the final project was much better with the group of girls versus boys. One sixth grade teacher reported that the two girls in her group did a fabulous job of keeping the one boy on track.

All teachers shared how they further developed the project rubrics to make them more student-friendly, and developed benchmark expectations for student work as the project progressed. Teachers were very careful to plan for the same amount of grades through the course of the unit for all students. This included grades taken on classwork and homework. Teachers at the lower grades gave the gifted students different homework, as related to studying for the pretest or developing the project, than other students. The upper grade teachers allowed students to come to consensus about what they should work on for homework and share with the teacher what they had decided.

Teachers were satisfied with the strategies that were developed to ensure the unit went smoothly.

Professional learning. Walk-through data for Cycle IV revealed that all task force members had moved beyond the emergent stage in their professional disposition regarding the differentiation model. All dispositional areas now contained at least one teacher who exceeded expectations in that area. There was also marked increase in the level of teacher knowledge and skill surrounding curriculum compacting as compared to the last cycle. More positive feelings about the value of the model were also apparent in dispositional data reported for teacher attitudes and aspirations. One teacher who was the only one reported as still developing in her attitude and aspiration in differentiating for advanced learners was selected as the school's Teacher of the Year during the course of this cycle. The principal attributed that recognition to the teacher's commitment to going above and beyond expectations in supporting the achievement of the neediest students. The implicit responsibility that this teacher holds toward supporting struggling learners may explain the delay in valuing differentiating for highly capable students as compared with her colleagues. Figure 4.12 summarizes the professional dispositions of the teachers during Cycle IV.

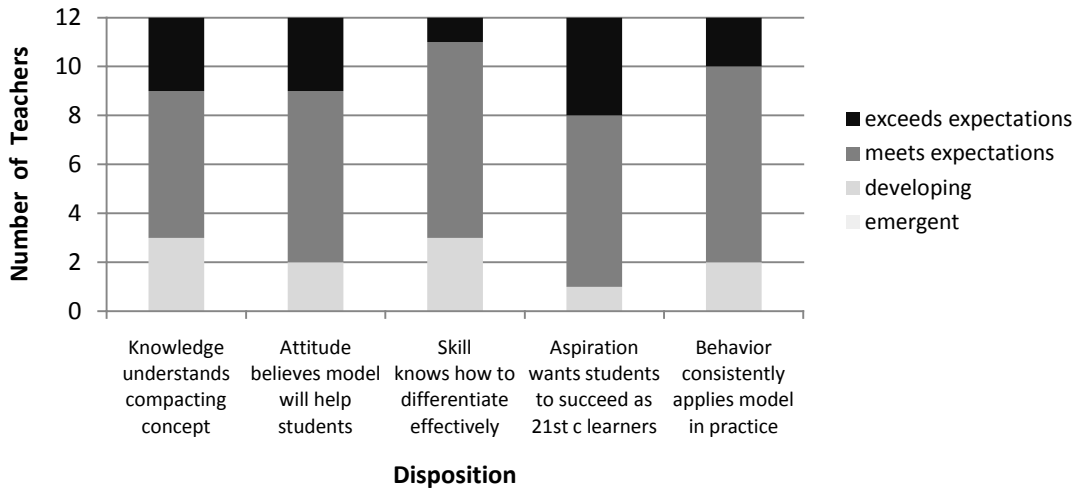


Figure 4.12. Walk-Through Cycle IV Disposition Data

Parent Focus Group

Forty-four parents attended the focus group meeting held during the final week of Cycle IV. Unlike previous meetings, the parents of students who were identified by the teachers as highly capable and deemed eligible to participate in the Cycle V expansion of the differentiation model were also invited, in addition to the parents of those gifted students who had already participated in the model. The meeting agenda focused on the continued progress with model implementation, expansion of the model beyond formally identified gifted and talented students, sharing of student project samples, and assessing strengths of the model and points for improvement. The core team attended the meeting along with teacher task force members from grades 4, 6, and 7. Teachers each shared a summary of the unit implementation and student reaction to the experience. A discussion period during the meeting allowed for questions from parents new to the model and feedback from the parents of students who had already participated in curriculum compacting. Feedback from parents who were unable to attend the meeting was also

elicited on a form printed on the back of the meeting invitation. Four guiding questions were posed as discussion prompts and to frame feedback from the parents who had experienced the model already. The responses are summarized in the following sections.

What comments has your child shared with you regarding the instructional changes involving curriculum compacting? All parents expressed that their child enjoyed participating in curriculum compacting and liked the challenge. One parent shared that her daughter stated, “it goes faster and easier.” Another parent said her son “loved it.” The positive aspect of expanding the model to include other highly capable students was reinforced as a parent expressed how her son told her he “can’t wait for other students to join,” so the number of students working on the projects is larger. Parents shared that their children did not seem to feel excluded or that they were missing something that the rest of the class was doing.

What are your thoughts on how the differentiated design is working? Overall parents felt that the preteaching period was a reasonable amount of time for the children to learn the material. Parents were pleased with the responsibility that the model encouraged in students taking ownership for mastering the material. The emphasis on collaboration, research, and technology was held in high regard as skills that students might not otherwise have had a chance to develop to such an extent through the regular instructional unit.

What ideas do you have for improving the design? One parent felt that some teachers were projecting their stress over implementing the program to the students. She felt that less emphasis on the fast pace of the preteaching period and more emphasis on the project would contribute to a more positive experience for the students. Another

parent felt that the design should set measurable goals to gauge success, although she could not articulate what type of impact she would like to measure. A parent also suggested that if a student, who was eligible in a previous marking period, would not be eligible for an upcoming unit the teacher should communicate to the parent what eligibility criteria impacted the child's eligibility status.

What are your thoughts on the district's efforts to meet the learning style of your child? Generally, parents were pleased with the decision to focus energy in the instructional changes reflected in the differentiation model. One parent expressed that the model was "worth the try," while another shared that she wanted the district to "keep it up." Several different parents came to the participant-researcher after the meeting had formally concluded, and expressed their approval, excitement, and gratitude regarding the initiative.

Applied Leadership

In this rebalancing stage, Heifetz (1993) states, "the implications for other parts of the organization often do not crystallize until the change can be observed in action" (p. 15). The actual implementation of the units in this cycle brought to light the connection between the differentiation model and the school libraries. During the course of instruction, several teachers requested that students be able to work in the library as part of the preteaching and project phase of the compacting unit. Since the district shares one library media specialist between two schools, supervision for students when working in the library became an issue.

The participant-researcher met with the principals and the library staff to discuss this issue. Since in the absence of the media specialist and teacher, the main supervisory

responsibility would ultimately fall on the library aides, the participant-researcher worked with the superintendent to propose a motion for the board of education to compensate the library aides as substitute teachers during the periods that they were responsible for facilitating instruction connected with the curriculum compacting unit. The board approved this motion and the library became a viable option for teachers to allow students to use for studying and research associated with the unit assessment and extension project.

Formative Reflection

Cycle IV was successful in providing both students and teachers with the full experience of curriculum compacting. There is little remaining confusion about the model's concept. The general anxiety in anticipation of the implementation dissipated upon the actual implementation. Although the delay with the fifth grade unit and the missed opportunity with the one third grade student could be classified as avoidance on the teachers' parts, the sustained support provided through the task force meetings continues to refocus everyone on the vision for change.

Heifetz (1993) suggests that it is essential to monitor and assess shifts in commitment by those involved in the change process. Although the sustained support of the task forces remained strongly in place, the commitment to articulation meetings was in need of attention. The articulation meetings were meant to provide the principals with an opportunity to meet with the teachers for an update on the status of the model's progression and air any concerns that needed to be addressed by an administrator. These meetings were scheduled once per cycle. The majority of faculty would be dismissed

early and task force members in each building were expected to stay for the articulation meeting.

During Cycles I and II in the 2010-2011 school year, the articulation meetings were essential in demonstrating administrative support of the initiative and providing the formal authority necessary to prompt a cycle of change. However, with the beginning of a new school year, the articulation meetings have each been cancelled during Cycles III and IV. Principals are aware of the scheduled meetings, but allow other things to take precedence over that scheduled time. This is what Heifetz (1993) refers to as unintentional mixed messages. Heifetz (1993) states, "managers of any change process must be continually aware of the messages—conscious or unconscious—they are sending regarding organizational commitment to a change process" (p. 106). The principals are sending the message that short-term issues take precedence over long-term goals (Heifetz, 1993). This very obvious reprioritization of the differentiation model initiative by the principals needs to be addressed before it becomes detrimental to the sustainability of the change effort.

Upon reflection by the core team, a strategy was developed to design the articulation meetings to regain their priority and effectiveness. The participant-researcher would give the meetings a more formal tone by developing a draft agenda that included asking teachers to bring student work to share with the principals, and review of the compacting schedule to discuss issues pertaining to the previous unit or the upcoming unit. This agenda would be forwarded to the principals for review and to include as an addendum to their faculty meeting agenda. The core team felt the chances that principals would cancel the articulation meetings would be lessened, if they sent a meeting notice

themselves that expected teachers to take time to prepare to meet with them. The core team also felt that the principals might feel guilty keeping the task force members later while excusing the rest of the staff. So, the core team also decided to make a recommendation to the principals to schedule the articulation meeting before the faculty meeting and delay the start of the faculty meeting for all staff. This would allow all staff to be dismissed at the same time. The participant-researcher followed up with the principals regarding this issue and they were agreeable to the articulation meeting changes suggested by the core team.

Cycle V: Expanding

The final research cycle was characterized by a sense of acceptance on the part of the task force. Teachers, who remained resistant to the model in the last cycle, seemed to be convinced that their efforts to delay or extinguish the initiative had little remaining support from colleagues, or any other stakeholder groups. Administrators and parents were vocal and visible in their expectations surrounding the full integration of the model within normal operations. Gifted and talented students expected that another compacting unit would follow the previous. Other highly capable students and their parents were notified of their inclusion in the model, and participated with success. The cycle also allowed the opportunity for reflection and closure by task force members as they participated in the final data collection survey and interviews.

Cycle V encompassed the desired outcomes that Heifetz (1993) associates with Consolidating the Learning in stage six of his framework for change. Heifetz (1993) describes this stage as a time to "step back, take in all that has been accomplished, refocus on any outstanding problems, and think about the possibilities for the future"

(p. 91). Therefore, the key to this stage is to celebrate the efforts of those involved in contributing to the current success, while reflecting on what worked well and what did not. The action research design of this study fits solidly with this stage. As the last cycle in the study, the following discussion will allow for a formal reflection of the data from interviews, surveys, and reflective journal entries, which Heifetz (1993) suggests is critical to identifying new possibilities and the potential that exists as a result of the change.

Teacher and Administrator Interviews

The participant-researcher conducted a total of six interviews with task force members. Each of the building principals was interviewed along with one teacher each from grades 3-6. The interview protocol was based on the research questions and explored the impact that the change initiative had on teacher practice, student learning, and district culture in regard to differentiating for gifted and highly capable students in the regular classroom. Themes and patterns that emerged from the data will be discussed according to each of these three overarching areas that the study investigated.

Teacher practice. Throughout the interviews, grasping the initial concept was emphasized by all teachers and administrators as a challenge. But once teachers were able to fully understand the model, the most challenging part of the initiative was clearly the logistics of how the concept would ultimately look in practice. The main concerns stemmed from the necessity of managing different groups of learners. One teacher said,

> It's like a dance. You have to make sure the rest of the class is working and make sure the G&T kids are on their own but they're still OK… I think it can get out of control if classroom management is not that strong.

One principal expressed how working through this concept and acquiring the skills to put the model into practice moved the teachers "to the next level in terms of teaching competencies." The other principal was pleased that the teachers now had "new tools in their toolbox."

This new tool gave teachers the answers they were looking for in a strategy of how to differentiate for students in the content areas. One teacher was able to share how she had strategies to differentiate for highly capable students in reading and math by giving "them higher level books and…harder challenging problems;" but wondered in retrospect "in the content area, really how do you challenge them?" She went on to express how the model "answered that question because…I didn't have any…activities for kids who really understood it…so [this model] was a way for me to challenge them all day, not just during reading or math."

The teachers also expressed the importance of working together and planning for the compacting unit. Each teacher was able to recall a specific contribution that they made to the unit implementation, such as developing graphic organizers, translating the rubrics to kid-friendly language, or creating a timeline or checklist to keep students on track as they worked on their projects. The collaboration aspect was important in moving the initiative along. One teacher said, "I think the key is in the planning and development of the projects…and, yes, it can make the process a little slower…but I think in the end it's worthwhile. It really has to be collaboration." Another teacher commented that her fondest impression of the initiative was working together with her colleagues; she shared, "It was fun for us to come up with these extension activities."

Interviews also revealed how being involved in sustained conversations about gifted learners impacted their practices beyond the parameters of the targeted compacting unit. One principal shared how she noticed a "much richer" discussion with "a lot of depth and more complexity" than would have typically been present in the science lesson she observed. She felt that teachers "saw that they were able to challenge kids to look for that kind of depth in the social studies area, so they gave it a try in the science area." Another teacher shared that she and her colleague built on the technology skills that the gifted student acquired during the compacting unit project and assigned them as peer leaders in small groups. The teacher shared that they would not have normally attempted to integrate a technology presentation with that unit, but with the gifted students help in supporting their peers, the teachers felt it was feasible to attempt and reported success.

Student learning. The most common perception reported regarding student learning was the level of independence that the students had demonstrated. One principal remarked that the students who were participating in the compacting units at the lower grades demonstrated a level of responsibility and ownership for their own learning that she was only used to seeing in upper grade students. A lower grade teacher commented that "the students are realizing that they need to become more independent learners which is a hard thing…because they're so used to being, like we say, spoon-fed." Another teacher remarked that the opportunity to participate in the model has been exciting for the students because "they crave the independence."

The gifted students also realized that they were involved in something special. One boy expressed his gratitude for the level of unprecedented attention, and reportedly said to his teacher, " 'Oh, we're meeting with you more often… I really like working

with you Miss K'." The principal shared that she felt "their self-esteem and their own self-status in how they saw themselves as learners was also a positive by-product" of the model.

Other students, not directly involved in the compacting unit, benefitted from the initiative as well. One principal commented that "just by other kids being able to see that opportunity…other students [were motivated] to work harder at trying to understand the concepts …so that they could…have some of those opportunities further down the line." The second principal agreed that "it influenced the students, not just those working on the projects but those that were observing those working." She felt "that other children were very interested in what the children were doing independently over there."

District culture. The scope of the change in the district culture toward a higher value on differentiating for the needs of advanced learners came through in each interview. All teachers and administrators made comments about the amount of energy and level of expectations surrounding the achievement of advanced learners prior to the initiative. One principal commented "we really [did not] put anything in place to challenge [the advanced learners] or bring them to the next level, we're just very happy that they get it and don't need a lot of support." One of the teachers described how the district's culture had previously allowed the highly capable students to become almost invisible when she remarked, "we're so busy working with the other students that we might not even see them." The other principal shared,

> We've always placed the emphasis on helping those children meet proficiency, those that need the extra help. We have not been a district that has offered extra programs for G&T. The more time we spent analyzing the needs of our G&T children, the more evident it became that this was an area that we as a district were lacking.

The impact of the differentiation model on basic cultural assumptions in how the district valued the learning of highly capable students was evident through comments by the principals and teachers. One teacher described that the district's effort in putting the differentiation model in place,

> Definitely shows that it is expected and is important for the staff to not forget about those kids who are the high achievers. Not to think, 'Oh they're OK. They're doing fine.' But, to find ways to challenge them and match their learning abilities.

Another teacher commented, "It's a shift to making sure that they are reached as well." One principal also recognized the shift in how espoused and implicit beliefs about meeting the needs of advanced learners were better aligned when she shared,

> I really think the staff has changed their thinking about what we need to do in order to truly differentiate for every child in the class. That it's not only modifying work for less able students but it's enriching and refining and adding opportunities for kids to grow at a much higher level for those very able students. And I think that was a huge paradigm shift.

Comments from the interviews also underscored the partnership with parents in the change initiative. One principal felt that "the parents are finally feeling…validated [because]… the kids are truly being challenged as that relates to what they should be learning in school rather than doing some other novelty thing." The second principal felt that the level of parent involvement throughout the initiative created a new awareness,

> So the parents are now and will always be looking for new and optimal challenges for the children. So, this [new] culture that initially started off as a conversation, has grown within the staff and the students and into the parents. So, I believe that this type of initiative will be long lasting.

Other staff members concurred with the second principal's perception that the change effort would be long lasting. One teacher felt that the model would have a lasting impact on the district "because you're setting a precedent that it's a focus. It's definitely

out there. The parents know about it and will continue to want it, so it's not something you'll do one year and forget about it the next." Another teacher expressed that she would like to see it continue "because it makes our job a little bit easier. I know it's a lot of planning but it makes your block of time run smoother." A third teacher said, "I would want it to last…especially since we've invested so much time." The principal of the lower elementary school, who serves a dual role as superintendent, summed up the change effort during the course of the study as follows,

> Certainly, my expectations are that they would continue to use the model and expand its use. But, I don't think we can let them go to their own devices. I think we have to continue to provide the support and articulation period, so that they can see that it is important, so they don't think it's just a one hit wonder and say, 'ok we did it and that's it.' I think we're almost there to be making it automatic and fluent, but I think it's going to take a little bit more time to get there.

Instructional Practices Survey

The instructional practices survey was administered for a second time to task force members during Cycle V. The responses of teacher participants were explored in each of the three main instructional categories of the survey: cognitive, interpersonal, and intrapersonal strategies. Data were charted in each category to reveal differences between the Cycle II and Cycle V survey results. Integration of the skills was analyzed with the same system used in Cycle II by combining the percent of frequency reported as almost always and often to tier the extent that teachers incorporated them in practice. A strategy that was reported as included in practice almost always or often with a percentage of combined frequency at 85% or higher was considered to be extensively integrated; while those skills reported with less frequency were reported as frequently (75%-84%), occasionally (50%-74%), or sporadically (less than 50%) integrated in practice.

The overall results of the survey given in Cycle II and Cycle V were compared to examine any changes in the frequency that instructional strategies were incorporated in practice. The trend in Figure 4.13 reveals that teachers were incorporating strategies across all three categories an average of 24% more extensively and frequently than they were at the beginning of the initiative. There were greater increases in some categories than others, which will be discussed in more detail in the following sections of analysis.

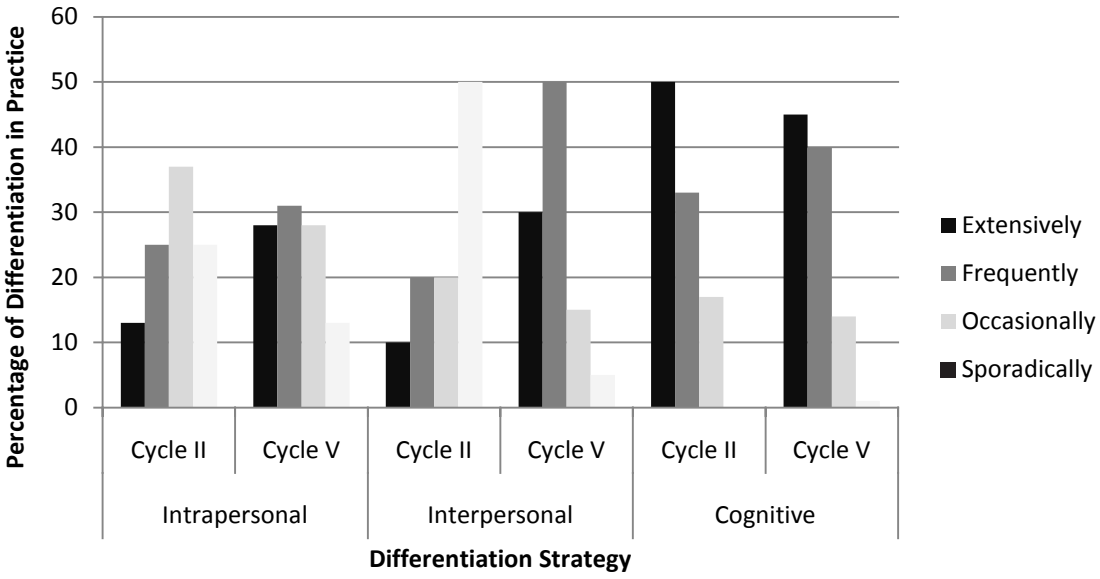


Figure 4.13. Differentiation Comparison Cycle II and Cycle V

The data from the survey were further analyzed to compare two distinct cohorts of teachers, which emerged over the course of the study. The 10 classroom teachers who participated in the study fully through all five cycles were distinguished from the four classroom teachers who began their involvement at the end of Cycle II. Since the cycles of the action research study spanned across two school years, some teachers, due in part to reassignments over the summer, became more involved in the second school year than

the first. This gap in personal involvement for some teachers in the conceptualization and planning that encompassed much of Cycle I and II was an important variable that justified comparison on two cohorts within the gifted and talented task force. The gifted and talented teachers who acted as teacher leaders and models in the earlier cycles of the study were not included in this cohort analysis. Since the intention of the study was to reveal changes in teacher practice in differentiating to meet the needs of advanced learners in the regular classroom, including the gifted and talented teachers who are experts in servicing formally identified gifted and enrichment students in a pull-out program, may have skewed the findings. The following sections explore data from the three main categories as well as the self-assessment results regarding the teachers' own professional dispositions as related to the differentiation model.

Cognitive strategies. The cognitive category explored 12 different strategies related to advancing cognitive learning skills. Comparison between the Cycle II and Cycle V survey data showed movement in five of the 12 strategies. Table 4.4 indicates the Cycle II and V comparison.

Table 4.4

Comparison of Cognitive Strategies

	Cycle II	Cycle V
Extensively Integrated At least 85% reported opportunities almost always or often	Demonstrate Brainstorming Skills Creative Figurative Language Practice Problem Solving Demonstrate Transference Encourages Acceptance of Challenges Utilize Imagination or Visualization	Demonstrate Brainstorming Skills Creative Figurative Language Practice Problem Solving Demonstrate Transference Encourages Acceptance of Challenges Interpret Information Develop Critical Reading Skills
Frequently Integrated At least 75%	Develop Writing Skills Determine Relevance and Irrelevance Distinguish Fact and Opinion Develop Critical Reading Skills	Develop Writing Skills Determine Relevance and Irrelevance Develop Thinking Skills

Occasionally Integrated At least 50%	Develop Thinking Skills Interpret Information	Utilize Imagination or Visualization Distinguish Fact and Opinion
Sporadically Integrated Less than 50%	None	None

The integration of three cognitive strategies increased, while the integration of two strategies decreased overall. The development of critical reading skills increased from frequently to extensively integrated. The development of thinking skills increased from occasional to frequent integration. The most considerable increase was seen in the integration of activities that expected students to interpret information from a variety of sources, which increased two tiers from occasionally to extensively integrated. The two categories that saw a decline in the level of integration were related to using imagination and distinguishing fact from opinion.

The extent of integration of cognitive strategies was also investigated based on cohorts identified as full and partial participants throughout the course of the action research study. The survey data reveal a noteworthy difference in the extent to which fully engaged study participants integrate cognitive strategies in their practice as compared to those task force members who began to participate in the study at the end of Cycle II. Fully engaged task force members reported extensively integrating 75% of the cognitive strategies in their practice, where partially involved members reported integrating only 25% to that extent. When comparing fully participating members only, the integration of fact and opinion actually increased and the imagination strategy remained stable. The data comparison in Table 4.5 below reveals differences in cognitive instructional strategies when cohorts are compared.

Table 4.5

Cohort Comparison of Cognitive Strategies

	Fully Participated in all 5 Cycles	Partially Participated (Cycles III-V)
Extensively Integrated At least 85% reported opportunities almost always or often	Develop Critical Reading Skills Creative Figurative Language Demonstrate Transference Demonstrate Brainstorming Skills Practice Problem Solving Demonstrate Transference Encourages Acceptance of Challenges	Develop Critical Reading Skills Creative Figurative Language Demonstrate Transference
Frequently Integrated At least 75%	Develop Writing Skills Distinguish Fact and Opinion Develop Thinking Skills Determine Relevance and Irrelevance	Develop Writing Skills Demonstrate Brainstorming Skills Practice Problem Solving Encourages Acceptance of Challenges Interpret Information
Occasionally Integrated At least 50%	Utilize Imagination or Visualization	Utilize Imagination or Visualization Distinguish Fact and Opinion Develop Thinking Skills
Sporadically Integrated Less than 50%	None	Determine Relevance and Irrelevance

Interpersonal strategies. The data reported in the interpersonal category revealed the most remarkable increase in the extent of integration of instructional strategies in practice. The extent of integration for almost every strategy increased by at least one tier in Cycle V as compared with Cycle II. The development of leadership skills and practice in active listening actually showed a three-tier increase, moving from sporadic integration to extensive integration. Interpersonal strategies went from the majority of strategies being integrated sporadically, to the majority of strategies being integrated extensively. No other category on the instructional practices survey showed such a dramatic difference in self-reported assessment of practice. Table 4.6 reflects the extent of change

in the opportunities that teachers presented to allow students to acquire skills to effectively and respectively communicate with their peers.

Table 4.6

Comparison of Interpersonal Strategies

	Cycle II	Cycle V
Extensively Integrated At least 85% reported opportunities almost always or often	Refine Relationships with Gifted Peers	Refine Relationships with Gifted Peers Cooperate with Group Members Demonstrate Communication Skills Refine Relationships with Peers Develop Leadership Skills
Frequently Integrated At least 75%	Cooperate with Group Members Demonstrate Communication Skills	Practice Group Dynamics Practice Active Listening Skills
Occasionally Integrated At least 50%	Refine Relationships with Peers Practice Group Dynamics	Practice Decision-Making Skills Experience Risk-Taking Demonstrate Empathy
Sporadically Integrated Less than 50%	Develop Leadership Skills Practice Active Listening Skills Practice Decision-Making Skills Experience Risk-Taking Demonstrate Empathy	None

Changes in the integration of interpersonal strategies in practice become even more apparent when cohort data are compared. Those who were fully involved in the study, extensively integrate 50% more interpersonal strategies than those who were partially involved. Table 4.7 below further defines the difference between cohort integration.

Table 4.7

Cohort Comparison of Interpersonal Strategies

	Fully Participated in all 5 Cycles	Partially Participated (Cycles III-V)
Extensively Integrated At least 85% reported opportunities almost always or often	Refine Relationships with Gifted Peers Refine Relationships with Peers Develop Leadership Skills Cooperate with Group Members Demonstrate Communication Skills Practice Active Listening Skills Experience Risk-Taking Practice Group Dynamics	Refine Relationships with Gifted Peers Refine Relationships with Peers Develop Leadership Skills
Frequently Integrated At least 75%	Demonstrate Empathy	None
Occasionally Integrated At least 50%	Practice Decision-Making Skills	Demonstrate Empathy Cooperate with Group Members Demonstrate Communication Skills Practice Active Listening Skills Experience Risk-Taking Practice Group Dynamics
Sporadically Integrated Less than 50%	None	Practice Decision-Making Skills

Intrapersonal strategies. Leadership as an intrapersonal strategy that offered students the opportunities to take greater ownership of their own learning remained as the only strategy in this category that was extensively integrated. Overall interpersonal strategy integration remained stable, with two strategies seeing a slight decline. Table 4.8 illustrates the cycle summaries.

Table 4.8

Comparison of Intrapersonal Strategies

	Cycle II	Cycle V
Extensively Integrated At least 85% reported opportunities almost always or often	Demonstrate Responsibility	Demonstrate Responsibility
Frequently Integrated At least 75%	Demonstrate Task Commitment Address Learning Styles	Address Learning Styles
Occasionally Integrated At least 50%	Demonstrate Initiative Pursue Interests of their Own Increase Autonomy	Demonstrate Task Commitment Pursue Interests of their Own Increase Autonomy
Sporadically Integrated Less than 50%	Demonstrate Decision-Making Set Goals in a Interest Areas	Demonstrate Decision-Making Set Goals in a Interest Areas Demonstrate Initiative

The survey descriptions for the two strategies that showed a decline, task commitment and initiative, each focus on incorporating enrichment activities through the use of a specific program or kit designed to motivate students to progress independently. The locally developed design of the differentiation model implemented by the gifted and talented task force was not a prepackaged program. Depending less on published programs may explain why survey respondents would integrate such strategies less as they became more confident in the concept of curriculum compacting and with their own abilities to design differentiated units for highly capable students using the strategies aligned with the differentiation model.

A comparison of the cohorts in the intrapersonal category reflected the pattern of integration in previous categories, with the fully engaged task force members reporting a higher extent of strategy integration as compared with those partially engaged. Teachers who participated in the full five cycles of the study reported integrating 50% of

intrapersonal strategies either extensively or frequently, where members who became more engaged during the second school year reported integrating almost all intrapersonal strategies occasionally or sporadically. Comparison is further illustrated in Table 4.9.

Table 4.9

Cohort Comparison of Intrapersonal Strategies

	Fully Participated in all 5 Cycles	Partially Participated (Cycles III-V)
Extensively Integrated At least 85% reported opportunities almost always or often	Demonstrate Responsibility Increase Autonomy Address Learning Styles	Demonstrate Responsibility
Frequently Integrated At least 75%	Pursue Interests of their Own	None
Occasionally Integrated At least 50%	Demonstrate Initiative Demonstrate Task Commitment	Demonstrate Initiative Demonstrate Task Commitment Address Learning Styles
Sporadically Integrated Less than 50%	Demonstrate Decision-Making Set Goals in a Interest Areas	Demonstrate Decision-Making Set Goals in a Interest Areas Increase Autonomy Pursue Interests of their Own

Professional disposition. The final section of the survey asked teachers to self-assess their own tendency toward differentiating for advanced learners. Figure 4.14 shows overall growth in knowledge, attitude, and skill, with stability in behavior and a slight decrease in aspiration when comparing the Cycle II and Cycle V survey results.

The stability in behavior between Cycle II and Cycle V may be evidence that teachers' had a misconception of their own behaviors related to advanced differentiation. As discussed earlier in this chapter, principal walk-through data was contradictory to the teacher self-reporting data in Cycle II as it pertained to their dispositional behavior. The

principals recognized that the majority of teachers were emerging or developing in their behaviors during Cycle II, whereas 25% of teachers reported that they felt they exceedingly applied strategies consistent with the differentiation model at that early stage of the change process. The stability in self-reporting behavior is likely a reflection of the clarity of conceptual understanding resulting from applying the model in practice.

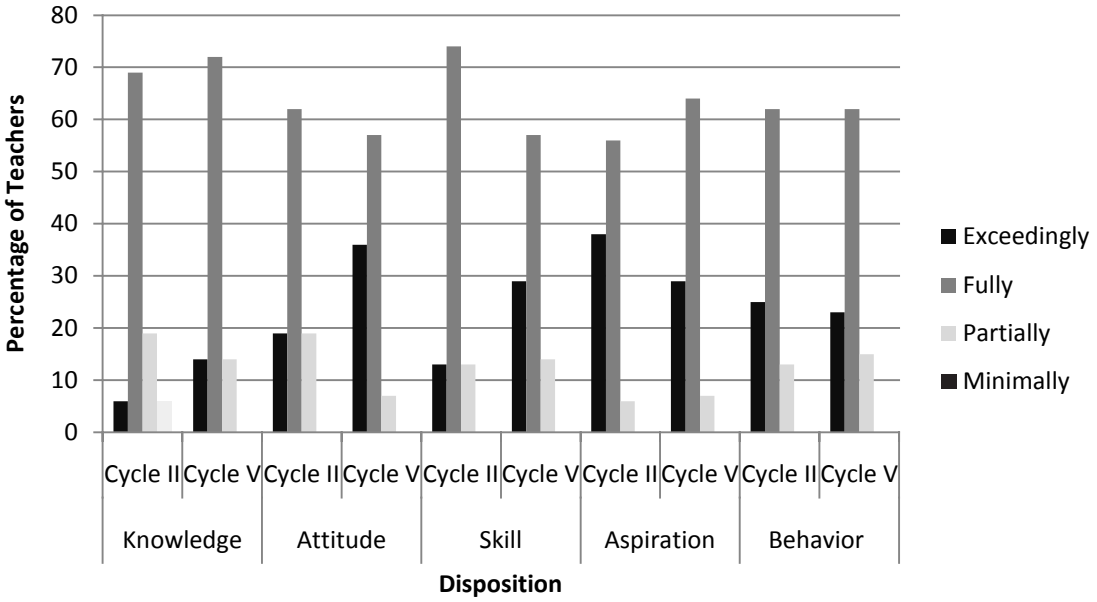


Figure 4.14. Professional Disposition Survey Comparison

The difference in dispositional growth is also apparent when examining the self-assessment disposition in the survey between cohort groups. All teachers associated with the fully engaged cohort were invested either fully or exceedingly in each of the five dispositions 100% of the time; while the majority of the partially engaged cohort was still holding onto a partially invested disposition 60% of the time. Figure 4.15 depicts the comparison of professional disposition by cohort reported at the end of Cycle V.

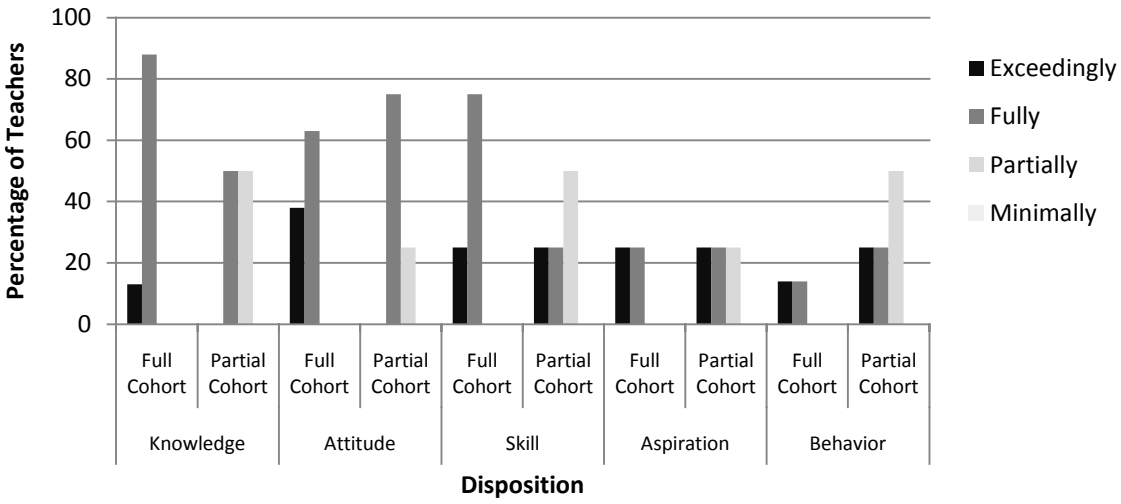


Figure 4.15. Professional Disposition Cohort Comparison

The teachers who have been involved in this change initiative for its full implementation are clearly reporting a stronger change in disposition between the two surveys than the cohort who was not fully involved in Cycles I and II. This delayed engagement in the initiative appears to have the greatest impact on the areas of knowledge and attitude, as these two categories were the only areas in which no teachers in cohort two reported an exceeding disposition.

Applied Leadership

Exercising shared leadership dominated my experiences during Cycle V. Exploring data from this action research study with various stakeholders proved to be an opportunity for me to build my own leadership capacity through a process for school improvement.

Core team members of the gifted and talented task force were critical in the evaluation of data and findings to ensure the validity of this action research study. As participant-researcher, I engaged the core team members in a review of the current data

and the development of an action plan to promote a continuous cycle of change. Actions to solidify the efforts of the first five cycles of the change initiative were included in the plan along with natural extensions of the differentiation model, which would build on current success. Details of the action plan are further discussed in chapter five.

Exercising leadership to involve parents in shared decision-making is a strategy that Lambert (2002) includes as an important feature in her framework for school improvement. Capitalizing on the interests of parents as partners in their child's success moves beyond parent involvement to what Ferlazzo (2011) identifies as parent engagement. A strategy of engagement may offer an avenue to transform a skeptical parent to an advocate versus an adversary. An opportunity to promote parental engagement presented itself when the parent of a gifted and talented student approached me with a keen interest in the differentiation model. The level of involvement that this parent has attempted to maintain in other circumstances has gained her the reputation of a classic parent of a gifted student. Gosfield (2002) and Fouse and Beidelman (1995) both address how the inquisitive nature of gifted students is often escalated in their parents to levels of overbearing "quests for information" (Fouse & Beidelman, 1995, p. 39). In order to satiate the appetite of this classic gifted parent, as participant-researcher I invited the parent to partner with me in collecting data from parent feedback and collaborate in the development of the subsequent action plan based on information from Cycles I through V.

By affirming the parent's interest and aptitude in contributing to school improvement, I was able to establish a precedent for building relationships with parents that moves beyond a one-way communication. Ferlazzo (2011) describes active listening

and two-way conversations with parents as an effective strategy to empower families and improve student achievement. Lambert (2003) goes on to suggest that "parents who participate in conversations about schooling develop a broad perspective that enables them to honor their own values, remain vigilant regarding their own children, and advocate for and help create successful schools for all" (p. 69). Welcoming a reciprocal partnership with this parent allowed me to build my leadership skills in how to work together with parents to "reflect, discuss, analyze, plan and act" toward building a structure for shared decision-making involving all stakeholders (Lambert, 2002, p. 38). The confidence gained from this experience will provide a foundation to explore atypical partnerships with other parents in the future.

Triangulation of the Data

The conclusion of the action research study offered the opportunity to analyze the data in a summative fashion. Considering the research questions associated with the study, an analysis of data was conducted across the various sets of formative data collected throughout the course of the five research cycles. The analysis in the following tables provides a summative perspective on the outcomes of the study given patterns and themes that emerged from the various data sets. The tables provide excerpts of formative data from previous cycles to support the summative findings in response to the research questions.

Teacher Practice

The category of teacher practice is derived from the first research question of the study. This category examines the impact that participation in the structure of professional development set forth in the study had on the capacity of teachers to

differentiate for advanced learners in the regular classroom. Attributes included the increased integration of cognitive, interpersonal, and intrapersonal instructional strategies. Attributes also addressed disposition in regard to skills, knowledge, and attitude. Data collected from all five data sets were analyzed to reveal if attributes of this category were present across three sets. Table 4.10 contains data excerpts from the previous formative analysis that illustrates the results of this summative analysis.

Table 4.10

Triangulation of Teacher Practice

Supporting Data (SUR—survey, INT—interview, PAR—parent focus group, WKTH—walk-through form, and JOUR—researcher journal)	
Cycle I	
JOUR	Observations of those classrooms revealed that most teachers focused on differentiating for struggling learners during their regular course of instruction. Some task force members began to bring up the idea of experimenting with this model in their classroom All students would be engaged in a guided preview of the chapter/unit as a routine instructional practice
Cycle II	
SUR	The survey suggested that during this cycle teachers were most unsure of their understanding of the differentiation model embedded in the study's initiative and were not overwhelmingly convinced that the model was important to student success
JOUR	Teachers felt that the process of compacting and retesting was very time consuming. The teachers struggled with developing alternate questions for each item missed and customizing each test based on the specific questions that each student got wrong on the pretest Teachers in the first camp have internalized the concept of curriculum compacting and appreciate its value as an effective differentiation model Many teachers continued to struggle with managing separate learning groups simultaneously Teachers expressed relief in that they did not have to fully implement the model immediately
Cycle III	
WKTH	Teachers who engaged the students in group projects used a cooperative model where students were differentiated in their ability levels, but the project expectations were the same. Aside from the three classrooms where the students were engaged in the extension project related to the compacting unit, only one other teacher provided an opportunity for teachers to apply 21st century skills during the lesson.

Table 4.10 *Triangulation of Teacher Practice* (Continued)

JOUR	The teachers expressed that there were too many directions that they were expending their energy Teachers have begun to put the pieces together but there is still some uncertainty about the nuances of implementing the model pertaining to group management and connecting the extension projects with the focus of the units
	Cycle IV
WKTH	Two third grade teachers showed evidence of differentiated activities for all students during the walk-through The learning environment in these classrooms made it less obvious that the gifted students were doing something special, since all students were working on different tasks All teachers shared how they further developed the project rubrics to make them more student-friendly version, and developed benchmark expectations for student work as the project progressed. Teachers were very careful to plan for the same amount of grades through the course of the unit for all students The upper grade teachers allowed students to come to consensus about what they should work on for homework and share with the teacher what they had decided
JOUR	Teachers were faced with pacing issues…misalignment of pacing also impacted the extension project Teachers were no longer confused about the concept or logistics associated with the differentiation model Teachers requested an additional curriculum articulation day
	Cycle V
SUR	The integration of three cognitive strategies increased The interpersonal category revealed the most remarkable increase in the extent of integration of instructional strategies in practice Teachers who participated in the full five cycles of the study reported integrating 50% of intrapersonal strategies either extensively or frequently, where members who became more engaged during the second school year reported integrating almost all intrapersonal strategies occasionally or sporadically.
INT	Moved the teachers “to the next level in terms of teaching competencies.” So [this model] was a way for me to challenge them all day, not just during reading or math. She noticed a “much richer” discussion with “a lot of depth and more complexity” Another teacher shared that her and her colleague built on the technology skills that the gifted student acquired during the compacting unit project and assigned them as peer leaders in small groups I really think the staff has changed their thinking about what we need to do in order to truly differentiate for every child in the class Another teacher expressed that she would like to see it continue “because it makes our job a little bit easier “It really has to be collaboration.” I didn’t have any…activities for kids who really understood it…so [this model] was a way for me to challenge them all day, not just during reading or math.

How does participation in effectively designed professional development alter the capacity of teachers to differentiate for advanced learners in the regular classroom? A triangulation of data revealed that participation in the course of the study increased the capacity of teachers to differentiate instruction for advanced learners. This was evident from interview data that spoke to how teacher competencies have escalated with the expansion of the repertoire of strategies that teachers now have in planning to meet the needs of highly capable students. Walk-through data reflected full implementation of the model according to benchmark expectations in the cycles of the study, reflecting the abilities of teachers to plan for curriculum compacting and orchestrate the differentiation model in practice. Survey results illustrated the growth from Cycle II to Cycle V in the teachers' perception of their own disposition to integrate cognitive, interpersonal, and intrapersonal instructional strategies in their practice.

By presenting experiences that engaged teachers in challenging the instructional status quo, habits of mind, as termed by Mezirow, have been altered ("Core Principles," 2011). According to Mezirow, when habits of mind are reformed, transformative learning occurs ("Core Principles," 2011). This increased capacity of teachers to differentiate for advanced learners supports the research and recommendations discussed in the Chapter 2 literature review. The importance of collaboration when implementing such change, as suggested by Guskey (1991), was reiterated by one teacher during an interview. The extension of the timeline for Cycle I and the great extent of input that the teachers exercised in shaping the differentiation model during task force meetings, as noted in cycle descriptions from researcher journal notes are reflective of the importance in garnering different perspectives to generate shared responsibility for improvement

(Guskey, 1991). A comment from one teacher about the overwhelmed feeling of too many priorities being expressed by the district at one time, supports the need to limit the number of professional learning goals, as suggested by Nielsen et al. (2008).

The study design employed many of the recommendations that supported an effective professional development design. However, due to contractual and budgetary restrictions, the study was unable to embed 30 hours of contact time on the initiative, as recommended by Guskey and Yoon (2009). An average teacher who participated fully in the study through all five cycles experienced 12 hours of contact time with colleagues regarding the differentiation model. Despite the average of less than half of the recommended hours by Guskey and Yoon (2009), teachers in the fully engaged cohort did show an increased capacity to differentiate for advanced learners in their regular classroom practice as evidenced by walk-throughs, surveys, interviews, and researcher journal entries. This early evidence of change in practice prompts the question as to what further gains in professional capacity are possible given a continuation of professional development in this regard.

Is there a transfer of differentiation strategies throughout the curriculum?

Furthermore, there was evidence that teachers applied knowledge and skills acquired in the scope of the professional development aligned with the differentiation model to areas that were not specifically targeted. In the early stages of discussions with teachers, social studies was the main content area being targeted for compacting. As the study progressed, teachers became more willing to explore the possibility of applying curriculum compacting to science as well. Two of the three self-contained grade levels chose to develop one compacting unit targeted in science. Additionally, there was

evidence that teachers were extending particular 21st century learning skills across the curriculum as well. This was clear in the description during a teacher interview when she shared how both she and her colleague incorporated a collaborative project in a different unit offered the gifted students the opportunity to act as group leaders during that activity.

Student Learning

The category of student learning is derived from the second research question of the study. This category examines the impact that the differentiation model had on student learning. Attributes addressed the infusion of 21st century skills within the differentiation model that addressed: Learning and Innovative Skills; Information, Media and Technology Skills; and Life and Career Skills as identified by the Partnership for 21st Century Skills (2008). Attributes also included the increased opportunity for students to take ownership of their own learning, feel excitement about learning, and experience challenge. Data were analyzed to reveal if attributes of this category were present in three of the five data sets. Table 4.11 illustrates the results of this summative analysis.

Table 4.11

Triangulation of Student Learning

Supporting Data (SUR—survey, INT—interview, PAR—parent focus group, WKTH—walk-through form, and JOUR—researcher journal)	
Cycle I	
JOUR	There would need to be criteria that defined demonstrated mastery for project participation by offering pretests to learners who are clearly unable to achieve a score of 84 or higher without the teacher's instructional support, students' self-esteem and motivation may be compromised
Cycle II	
PAR	The concerns expressed by parents at the first session addressed the value or benefit of the extension projects in relation to the regular curriculum. Comments by parents included the lack of studying at home to prepare for tests Parents commented that they were happy their children were now going to have to learn to study more. Healthy competition was deemed to be the catalyst for one of the children to take ownership for studying without coaxing by the parent Students began to draw a connection between their own responsibilities as learners The parents expressed that the projects themselves were well received by the children. Parents felt that the extension project motivated the children The child stated that the school should definitely do this
JOUR	Students were very excited at the opportunity to participate in the given extension project and enjoyed the learning experience overall Students were moving along so well independently… other students responded enthusiastically to the presentations The teacher shared how once the students realized that incomplete notes were the reason for the lower score, there seemed to be a diminished sense of injustice and a greater sense of responsibility for one's own learning
Cycle III	
PAR	Focus group dialogue has suggested that the cognitive ability of the students targeted for pretest eligibility allows them to achieve the minimum score with this abbreviated instruction as long as they assume responsibility to study the material on their own as well. The parents acknowledged that their highly capable students put minimal effort into school due to their cognitive aptitude and feel that promoting study skills through this model would be beneficial to their children's growth as learners.
WKTH	Gifted and talented students were working off to the side actively engaged in researching and discussing information
Cycle IV	
PAR	All parents expressed that their child enjoyed participating in curriculum compacting and liked the challenge Parents were pleased with the responsibility that the model encouraged in students' taking ownership

Table 4.11. *Triangulation of Student Learning* (Continued)

WKTH	Teachers reported that all students who took the pretest passed with a 91 or higher on the first attempt
	The upper grade teachers allowed students to come to consensus about what they should work on for homework and share with the teacher what they had decided
JOUR	Teachers at these grade levels reported that the gifted students were excited about the opportunity to compact their learning and enjoyed the extension project.
	Changes resulted in moving certain mastery expectations for some standards from seventh to fifth or eighth grade
	Cycle V
INT	One principal remarked that the students who were participating in the compacting units at the lower grades demonstrated a level of responsibility and ownership for their own learning that she was only used to seeing in upper grade students.
	The model has been exciting for the students because "they crave the independence."
	Just by other kids being able to see that opportunity…other students [were motivated] to work harder
	The kids are truly being challenged
	They were the "go to" person for their group when it came to the slides and making sure they had everything they needed and actually making the power point product.
	I know that all the students that I worked with took the work home with them. They studied. They wanted to be prepared.
	So they actually really got into it, they were excited to do it. They were more than willing to give up their recess time to do extra work in the computer lab.
	Teachers saying that they couldn't believe how skilled the children became at using their internet resources and focusing in on various written or print materials in order to find out the information they needed.
	They were researching what they were supposed to do, and they were putting that into actions, and they were extremely responsible. So, I can really see a shift in that leadership and responsibility, that innovation, the initiative and the self-direction take place within the classroom.
	They had to think outside the box a little more and come up with their own solutions and also manage working together
	They showed great leadership and it was like when they were presenting it was like they were teaching the class and they were very proud of their work and I was very proud of their work.
	I think that certainly the leadership and responsibility skills have been refined.
	They were like, 'we can go to club and work on our power point?' They were excited to do that. It motivated them more and more so that was good

How has the integration of 21st century learning skills promoted student learning? The expectation for students to work collaboratively to develop their extension project promoted their sense of responsibility for their own learning. This increased sense of responsibility was also coupled with a strong perception that the students had grown as leaders. Responsibility and leadership is noted by the Partnership for 21st Century Skills

(2008) as one of the five Life and Career Skills that students must acquire to compete in the 21st century. Interviews reflected both teacher and administrator comments regarding a "shift in leadership and responsibility." Walk-through data also reported that students were productively engaged in guiding their own learning, even to the extent that middle school students planned their own homework assignments. Parents corroborated these findings as they mentioned how their children were now able to draw a connection between their own responsibilities and success as learners. The growth in the students' sense of responsibility is interesting given that one point of resistance by teachers in the very beginning of the study was in regard to the students' general inability or motivation to work as independent learners.

The time that teachers spent developing the projects to incorporate technology may have served as the catalyst to promote intrinsic motivation among the students and promoted learning. The Partnership for 21st Century Skills recommends that students be able to exhibit a range of information, media, and technology skills. Parents reported that the extension projects did motivate their children. Researcher journal entries reflect that students were excited at the opportunity to participate in the extension project. Several teachers commented during interviews about how pleasantly surprised they were with the students' level of engagement with the technology during the projects. This connection supports Prager and Alderman (2003) in their contention that the use of technology allows students to perceive their work as more authentic, which increases student motivation.

The technology integration and level of challenge included in the projects were crafted by teachers to challenge students at a slightly higher level without producing frustration. One teacher explained that she

> Wanted to make sure that it was something that was challenging for them but not too hard because they'd be on their own and I wanted to make sure that they would be interested in doing it too. I don't want it to be boring for them. I want them enjoying it while they're learning.

This approach to planning the extension projects supports the social-cognitive developmental theory developed by Vygotsky, known as the zone of proximal growth (as cited in Lefrancois, 1988). According to Vygotsky, it is only when students are challenged in their zone of proximal growth that learning occurs. Additionally, brain research tells us that if activities are not within the zone of proximal growth, the brain will either downshift or mimic sleep. Teachers were cognizant of the fact that most of the instruction is geared to a level below the zone of proximal growth for advanced students. One teacher shared that "a lot of times we do focus on the low and we try to pull them up to average or whatever and then the kids who are high are just like hanging out and are bored." Developing appropriately challenging projects promotes intrinsic motivation by addressing the zone of proximal growth for highly capable learners, and incorporating technology as an additional motivator, further promotes growth as a 21st century learner.

How has curriculum compacting shaped student learning? The basis for the differentiation model in the study was the strategy of curriculum compacting. The curriculum compacting design involved a preteaching phase where students were expected to study content at an accelerated rate in order to pass a test and move on to an extension project, while the rest of the class continued with the regular course of instruction for that unit. The data suggest that one of the consequences of the expectation

for accelerated mastery was the promotion of study skills among the students. Parent focus group data reflects that parents were happy that the students were going to have to learn to study more. Parents also shared that this expectation may help to address the lack of studying at home and take the pressure off of them to motivate their children to apply themselves more. This frustration on the parents' part in expecting their gifted student to embrace continuous growth is typical of the limited amount of effort that gifted students are willing to expend on average assignments (Brookhart & DeVoge, 1999). Researcher journal entries reflect that once the teacher pointed out the connection between poor note taking and the student's performance on the pretest, the student exuded a diminished sense of injustice and was able to make the connection between study skills and his own performance on the test. Data from teacher walk-throughs reported a heightened awareness of studying as all students' demonstrated mastery on the pretest on the first attempt. One teacher, during an interview, commented that she knew her students all took work home with them to study because they wanted to be prepared.

Concerns and questions regarding this finding may revolve around the instruction of study skills. Does the cognitive aptitude of gifted students allow for a rereading of the material as a means to mastery, or are gifted students in need of formal instruction in study skills? In a differentiation model that embeds criteria for accelerated mastery of the regular curriculum before offering opportunities for advanced projects, this is a critical point of contention. If a highly capable student finds mastery on the pretest to be a routine obstacle, it may not be that the student does not have the aptitude to master the material in an accelerated fashion, but is lacking knowledge of strategies to learn the

material independently. The teachers in this study did discuss and agree to use outlining as a strategy to guide the students in using as a means to study for the pretest.

District Culture

The category of district culture is derived from the third research question of the study. This category examines the impact that the change initiative had on how the district values differentiating for advanced learners in the regular classroom. Attributes included data that revealed a shift in behavior and expectations reflective of a move away from a NCLB dominant mentality of focusing energy exclusively on struggling learners. Data were analyzed to reveal if attributes of this category were present in three of the five data sets in order to support triangulation of the findings. Table 4.12 illustrates the results of this summative analysis.

Table 4.12

Triangulation of District Culture

Supporting Data (SUR—survey, INT—interview, PAR—parent focus group, WKTH—walk-through form, and JOUR—researcher journal)	
Cycle I	
JOUR	Administrators conceded that although the district provided conventional services for gifted and talented students, there were otherwise minimal expectations for classroom teachers to differentiate for highly capable learners Initial reaction from the teachers included limited enthusiasm for the idea with several concerns expressed The core team agreed to extend expectations for curriculum compacting to all highly capable learners as the last cycle of the change initiative Members of the task force became more invested in the idea as demonstrated by their advanced level of contribution to the development of the instructional program model Board members expressed enthusiasm for the change initiative and generally supported the idea

Table 4.12. *Triangulation of District Culture* (Continued)

	Cycle II
PAR	The core team felt that the fear of the unknown was generating an obstacle to parents embracing the potential benefits that the success of this initiative would have for their children. Parents' anxieties seemed to have been dispelled by the reality of the process and benefits of curriculum compacting
JOUR	These teachers are participating as members of the task force and agreeing to implement the model as a form of compliance, rather than due to a perception of the inherent value of the instructional strategy Most evident of this evolving investment in the change was the challenges by task force members to the names of the stages and cycles in the model
	Cycle III
PAR	Parents did realize the inherent value in curriculum compacting as a differentiation model for highly capable students
WKTH	The principal's perception suggested that the 5th grade were still functioning at a passive compliance level rather than actually moving toward renewal
JOUR	The teachers were not confident that all enrichment students should be eligible to take the pretest based solely on their enrichment status The principal felt that given the strong personalities of the 4th grade team, the decision reflected their thoughtfulness in attempting to design the model in a way that would enable them to sustain implementation A parent of a student from her 6th grade class last year inquired as to whether we were continuing the curriculum compacting in 7th grade this year The principal agreed to offer the teachers one day of release time to work collaboratively to move the 7th grade up to the same point of implementation as the lower grade levels The data revealed the lack of aspiration associated with the teachers in valuing the necessity of preparing students to succeed as 21st century learners The principal's interest in revising the form may suggest a rising interest in becoming better informed as to what the model entails and what the teachers should be doing to reflect the compacting model
	Cycle IV
PAR	Several different parents expressed excitement, and gratitude regarding the initiative
WKTH	Teachers who had gifted students in their class moved forward with the differentiation model, while those teachers who did not have gifted students maintained business as usual instruction. More positive feelings about the value of the model were also apparent in dispositional data reported for teacher attitudes and aspirations
JOUR	Any doubt that the expectation for implementation would pass was dismissed as the principals contacted the teachers to schedule walk-throughs to observe implementation in their classrooms The second articulation meeting allowed seventh grade teachers to be fully prepared to implement their first compacting unit in the third marking period. Principals are aware of the scheduled meetings, but allow other things to take precedence over that scheduled time

Table 4.12. *Triangulation of District Culture* (Continued)

	Cycle V
INT	Definitely shows that it is expected and is important for the staff to not forget about those kids who are the high achievers The parents are very pleased with the different type of learning for those students I think the parents are finally feeling that the kids are truly being challenged It's a shift to making sure that they are reached as well I think that was a huge paradigm shift The parents are now and will always be looking for new and optimal challenges for the children I think …to give them something special and for them to know it's just for them because they are at the top of the class and they are G&T, I think that's worthwhile. My expectations are that they would continue to use the model and expand its use I hope it will be lasting. It seems to be beneficial and the parents are happy. We've always placed the emphasis on helping those children meet proficiency, those that need the extra help. We have not been a district that has offered extra programs for G&T. But now that we have, it really has made me aware that there is definitely an urgency to see this through and make this change on a permanent level. I would want it to last…especially since we've invested so much time. So I hope it continues because it makes our job a little bit easier. I know it's a lot of planning but it makes your block of time run smoother. I've got lower kids and resource kids and classified kids in my regular science and social studies that I need to modify all the time but wasn't doing that for the more advanced learners.
JOUR	Gifted and talented students expected that another compacting unit would follow the previous

How does the implementation of a classroom instructional model focusing on gifted and highly capable learners shape the district culture regarding differentiation? Having the courage to challenge the status quo and take a risk in implementing an uncommon instructional approach with the potential to benefit gifted students has presented a positive impact on the way the district now values differentiating for highly capable learners. Data from researcher journal entries, parent focus groups, and walk-throughs show evidence of the district culture moving from a point of skeptical compliance to a heightened awareness of the importance and possibilities for challenging advanced learners. The overwhelming emphasis on differentiating for struggling learners has been diminished to allow for valuing the time and energy necessary to differentiate for highly capable students as well. One principal shared the efforts of the change

initiative “definitely shows that it is expected and is important for the staff to not forget about those kids who are the high achievers.”

A comparative analysis of the data through the five cycles of the study portrays a distinct shift in the attitudes of various groups of stakeholders. Parent focus groups began in Cycle II focused only on the negative implications of implementing curriculum compacting, and ended in Cycle IV expressing gratitude and excitement over the initiative. Researcher journal entries reflect that the initial reaction from teachers included limited enthusiasm with several concerns expressed. However, in Cycle V, teacher interviews revealed that the teachers were pleased in how they felt it challenged the students, with one teacher commenting that it makes her job a little bit easier. In a study by Stamps (2004), teachers also agreed that implementing curriculum compacting as a differentiation strategy for gifted students eventually saved them time. Changes in teachers’ attitudes, aspirations, and behavior surrounding the differentiation model as reported on the survey also saw growth from Cycle II to Cycle V. Teachers who were fully engaged in the study were invested either fully or exceedingly in their attitude, aspiration, and behavior as related to differentiating for gifted students in the regular classroom, as compared with Cycle II results where some teachers reported a partial investment in these areas. Teachers also reported incorporating differentiation strategies 24% more extensively and frequently in Cycle V than they had in Cycle II. Evidence of Deming’s theory of total quality management, which directly addresses cultural change in organizations, was analyzed to uphold this perceived shift in underlying values. The general components of total quality management theory as it correlates to study data are illustrated in Table 4.13. Evidence from the study suggests that there was a triangulation

of data to support incorporation of the theory of total quality management throughout the study.

Table 4.13

Data Correlation to Total Quality Management Theory

Five General Components of TQM in Relation to an Educational Context	Evidence from Study
Strong Leadership Participant-researcher guided the study through a lens of transformational leadership and applied various leadership styles as the situation demanded.	JOUR: Being immersed in this transformational change process required me to exercise aspects of emotionally intelligent leadership. Given my agreement with Fullan (2001) that change is a process that requires patience as people internalize and adapt to the change, I needed to be careful in checking my own emotional reactions to situations that could be categorized as professionally frustrating.
Focus on Student Achievement Premise of the study embraced the continuous achievement of advanced learners and the integration of instructional strategies and skills reflective of a 21st century learning environment.	PAR: The emphasis on collaboration, research and technology was held in high regard as skills that students may not otherwise have had a chance to develop to such an extent through the regular instructional unit.
Continuous Improvement The cyclical action research design of the study supported continuous improvement, through a transitional implementation of the initiative.	INT: When Stephanie initially came to me and we discussed this, I really had to wrap my mind around it because we were never a district that invested our time and energy in the G&T population. But the more time we spent analyzing the needs of our G&T children, the more evident it became that this was an area that we as a district were lacking; that we need to put as much effort into the G&T area as we do into the struggling students. So, I happen to think that this was the perfect project for an environment such as ours.
Teacher Empowerment Teachers were included in the selecting, planning, and developing of various components of the initiative.	JOUR: The whole task force agreed that since curriculum compacting was conventionally a model for gifted students, this criteria was necessary to avoid unnecessary frustration with lower ability students. The criteria was developed by the 4th grade pilot teachers and shared with the task force.
Data-Driven Decision Making Cyclical benchmarks served as formative assessments points to adjust action as the initiative progressed.	JOUR: Data from the piloting cycle also suggested that it was necessary for the participant-researcher to clarify the expectations of 3rd and 6th grade teachers during the transition cycle.

(SUR—survey, INT—interview, PAR—parent focus group, WKTH—walk-through form, and JOUR—researcher journal)

Are staff espoused and implicit beliefs aligned regarding differentiating for advanced learners? The data support evidence that the espoused and implicit beliefs of staff were aligned both at the beginning and end of the research study. Moreover, the difference in the espoused and implicit beliefs reflects a change in professional disposition and district culture. Interviews provided data that spoke directly to a perceived paradigm shift in district culture from a minimal emphasis on differentiating for advanced learners to a clearly heightened sense of responsibility in challenging them. Several staff members admitted during interviews that prior to their involvement in the initiative they thought of differentiation in terms of low-level learners. Many staff members seemed to be very surprised at just how successful their students actually were when they were offered the opportunity to demonstrate their capabilities. Staff members were all in consensus during the interviews that the change was a good thing and they were supportive of the model continuing. There was agreement that since the bulk of the work was done, it would be a shame not to continue.

What are parents' perceptions of district changes to meet the needs of advanced learners? After a series of four parent focus groups, numerous paper communications describing various facets of the initiative, and individual follow-up emails, phone calls, and informal conversations with parents regarding the initiative, and through researcher journal entries, the participant-researcher has gauged a sense of general approval from parents of the district's efforts to differentiate regular classroom instruction to better meet the needs of their highly capable children. Parents who had difficulty embracing the initiative when first introduced have expressed gratitude and appreciation for the staff's efforts in successfully implementing the differentiation model

at the end of the last focus group meeting. Teachers shared during interviews that parents were pleased with this new approach to learning for their children. One principal commented that the parents are finally feeling that their children are truly being challenged. The contentment in the services provided for gifted learners that parents' felt prior to introducing the notion of the differentiation model now seems to be transformed, as the second principal expressed that parents would now "always be looking for new and optimal challenges for the children." One parent shared that the benefit to her child as a learner justified that the model was "worth the try."

Conclusion

Framing the study within an action research design provided data that were not limited to the original conceptualization for the transformational change effort. As the research cycles progressed, and formative data were gathered, an assessment of the initiative was afforded at significant benchmarks through the process of change to develop a plan of action to address any identified or anticipated obstacles. Formative reflection and subsequent improvements or modifications that were generated from the data were necessary to build the basis for a comprehensive framework for reform. The recommendations for this framework will be elaborated on in the following chapter.

Chapter 5

Conclusion and Recommendations

The multi-faceted design of this study attempted to address elements associated with a broader 21st century vision for educational reform, while embracing one aspect of that vision through a renewed value in promoting the continuous growth of learners who regularly exceed achievement expectations in the general curriculum. The data gathered from the underlying action research strategy have enabled the participant-researcher to remediate gaps in a process for reform identified through cyclical formative reflection. Implications from the major findings of the study will provide information upon which to develop a generalizable framework for reform, while also informing action to support a culture of continuous improvement in the local context.

Summary of Theoretical Findings

Data discussed in Chapter 4 revealed evidence of changes in three organizational levels targeted in the study as related to the study's theoretical framework. Table 4.13 illustrated evidence of the integration of the five general components of the Total Quality Management theory. The incorporation of these theoretical components supports the determination that a change in cultural awareness had occurred as a result of the initiative. The theory of transformative learning was also used to analyze changes in teacher practice. Changes in the level of integration of cognitive, interpersonal, and intrapersonal instructional strategies contribute to the conclusion that professional habits of mind, as termed by Mezirow, have been altered in regard to differentiating for highly capable students in the regular classroom ("Core Principles," 2011). The general consensus by staff and parents that the differentiation model benefitted student learning

supported Vygotsky's theory that learning only occurs when individuals are challenged within their zone of proximal growth (as cited in Lefrancois, 1988). Students were excited to demonstrate their advanced capabilities through activities that focused on building their capacity as 21st century learners.

Extending analysis of findings beyond the theoretical framework to include an exploration of the interrelated impact of the study's conceptual framework and change framework provides information to build a framework for 21st century educational reform.

Elements of Reform

The differentiation model that the study introduced into the local context disrupted the status quo at various levels. The changes associated with the model were managed through a conceptual framework that involved professional development and instructional improvement. The changes associated with beliefs and assumptions about teaching and learning were managed through a change framework model developed by Heifetz (1993) and based in action research. The study design was purposefully constructed to offer insight into effective strategies that contribute to comprehensive changes toward 21st century educational reform. Werthemier and Zinga (1998) suggest that there are four critical elements that reveal if educational reform has occurred. The following sections will relate each element to the study in order to determine if the coupling of the conceptual and change frameworks have contributed to educational reform in the local context of the study.

Irreversible change. The first element of change that Werthemier and Zinga (1998) suggest must occur is at either the individual or cultural level. This level of change was explored through collection of various data sets. Triangulation of data did reveal that there was change in teacher practice and disposition. Triangulation of data also showed that there was a change in cultural values related to expending energy and resources on differentiating for gifted learners. Inquiring as to whether the resulting change from the initiative is irreversible is best revealed through Cycle V interviews with staff. During the interviews teachers made comments, such as "I would want it to last," "I hope it will be lasting," and "I think this will be a long-lasting effect." This hesitation about the commitment to the change is summarized by one principal's comments,

> Certainly, my expectations are that they would continue to use the model and expand its use. But I don't think we can let them go to their own devices, I think we have to continue to provide the support and articulation period so that they can see that it is important, so they don't think it's just a one hit wonder and say ok we did it and that's it. I think we're almost there in making it automatic and fluent but I think it's going to take a little bit more time to get there.

So, although the staff seems to want to see it last, there is still a need to solidify the change in the district culture and therefore allow the teachers to justify the change permanently in their practice.

Critical mass. The second element to achieving educational reform is finding that a majority of stakeholders has internalized the change (Werthemier & Zinga, 1998). In order to uncover an internalized change among stakeholders, the best measure was self-reported changes in professional disposition on the survey. The survey was anonymous so there was no incentive for teachers to embellish their responses, whereas walk-through data may have portrayed more of a compliance-generated perspective on changes in practice. Reporting one's disposition toward the change was meant to reveal changes in

attitude and aspiration, which reflect an internalization of the beliefs and values associated with the change. On the survey, attitude was defined as: Teacher believes differentiation model is important to student success within and beyond school; and aspiration was defined as: Teacher has a genuine desire for students to excel as 21st century learners. To address this element, the cohort of teachers who were fully engaged in the study was examined to see to what extent they reported their current disposition in attitude and aspiration. This fully engaged cohort encompassed the majority of teachers in the study as well. Survey data revealed that 100% of the teachers reported they were fully or exceedingly committed in their attitude and aspiration associated with the change initiative. This evidence supports the conclusion that the study did achieve critical mass in its reform effort.

Institutional shifts. Educational reform must also demonstrate a shift in "budgets, staff, curriculum, and infrastructure to support and sustain the change (Werthemier & Zinga, 1998, p. 113). Throughout the course of the action research study, issues arose that required the participant-researcher to be responsive in order to maintain the momentum for change. In light of the budget, additional science textbooks needed to be purchased in order to support the targeted compacting unit for third grade. The gifted and talented teachers were recruited as in-house experts, and acted as mentors and models to assist regular classroom teachers in making the transition to the differentiation model. Curriculum was revised to embed a targeted compacting unit, pacing guides were revisited in order to realistically incorporate time for compacting, assessments were updated, and mastery standards were reassigned to different grade levels as a result of work and suggestions by the task force. The district professional development calendar

was reformatted to include a series of articulation and planning meetings to support the work of the gifted and talented task force. This evidence of support in each aspect of the institution supports the institutional shift that accompanied the change initiative.

Standardization. The final element to establish educational reform identified by Werthemier and Zinga (1998) suggests that there must be alignment to a standard relevant to the change. Werthemier and Zinga (1998) explain, "this standardization attempts to address some gap or weakness in the system that is undermining the success of the organization" (p. 113). As was argued as the premise for the problem that drove this study, there is a gap in educational philosophy and urgency for reform in valuing the continued learning of highly capable students. This inequity in the amount of energy and resources provided to different levels of learners is contradictory to recommendations for 21st century learning that promotes greater value in critical thinking, communication, and collaboration, and creativity rather than regurgitation of content easily retrieved in an information age. By engaging teachers and parents in an endeavor that challenged the standards associated with No Child Left Behind and introduced 21st Century Skills (Partnership for 21st Century Skils, 2004) as a vision for student success, the study was able to meet the criteria described as the fourth element to establish educational reform.

Conclusion

The study successfully addressed three of the four elements of reform recommended by Werthemier and Zinga (1998). In the areas of critical mass, institutional shifts, and standardization, there was evidence to suggest that the study accomplished success. In regard to the element of irreversible change, the study fell just short of meeting a standard for success, as data suggested that participants were unable to

confidently envision the change being sustained. The inability of the study to fully realize success in this element may not completely discredit the design as a framework for reform. Since the study was based in a cyclical action research process, continuation of the change initiative by planning for additional cycles may produce the permanent results in cultural change necessary to meet all four elements indicative of educational reform (Werthemier & Zinga, 1998).

Heifetz (1993) refers to evolution versus transformation in distinguishing the various stages that organizations experience when changing. Heifetz (1993) explains that "evolution is the energy of transformation—not the transformed energy or substance…Without this energy, there would be no sustainable change process." (p. 182). The point that staff currently found themselves at the end of Cycle V may be equated more to a state of harmony that precedes the force of evolution in the change cycle described by Heifetz (1993). Heifetz characterizes the state of harmony as contemplative and stable. There has been a shift in "the dominance patterns of forces within a defined system" and balance has been achieved (Heifetz, 1993, p. 180). An issue that Heifetz identifies in this stage is the assumption that the process is complete when the change has not yet stabilized. During this stage Heifetz (1993) warns, that "regression is still possible" (p. 26). The state of harmony is associated with stage five in the change cycle, which was aligned with Cycle IV in the study. Although the differentiation model expanded its design in Cycle V, the stage of change did not evolve within that same timeframe.

The alignment of the action research cycles and the stages of change that Heifetz (1993) describes in his change model were originally planned according to The Change

Process Framework included as Figure 3.2. However, this alignment has been challenged by the data revealed from the study. The feelings of staff reported through interview data at the end of the study suggest that both Cycles IV and V should be associated with stage five of the change cycle, which differs from the planned alignment in Figure 3.2. Findings suggest that additional cycles would be needed to move through the remaining stages of change as recommended by Heifetz (1993) in order to sustain the change in the district culture. This same issue of time was discovered during Cycle I of the study. Moving through stage one and two in the change cycle, which included choosing a target and setting goals, took substantially longer than originally anticipated. As noted in previous discussion, Cycle I took 10 months whereas changes associated with other cycles took 10 weeks.

The process of change for staff was apparent as well through the different cohorts of teachers that emerged as the study progressed. The teachers in the third grade, who were not fully engaged in the change process through Cycles I and II, were at a different place in the change process than the fully engaged cohort, despite being in the same action research cycle. The third grade teachers expressed at a meeting with the participant-researcher during Cycle III that they felt overwhelmed by the expectations to implement the differentiation model, given the number of other expectations associated with the new school year. Heifetz (1993) identifies this issue of conflicting priorities as a barrier in stage two of the change process. The low level of involvement that these teachers had in Cycles I and II of the action research study clearly put them behind the rest of the teachers in moving through the process of change. The frustration that they experienced moving through Cycles III and IV was likely associated with the

misalignment of expectations associated with the roll-out of the model and the stages that they were experiencing in the process of change, as compared with those teachers who were fully engaged in Cycles I and II.

Study Implications

Throughout the course of the study, the participant-researcher focused on developing a framework for reform by leading change through a philosophy of transformational leadership. Experiences from the study have provided a first-hand perspective on how leadership directly impacts educational reform initiatives. Data and findings have reflected several instances where changes in the construct of the change process were necessary, aspects of the differentiation model were revised, and various leadership issues arose. These three areas will be the focus for the following sections, which will explore how the study has revealed implications for 21st century reform, differentiating for highly capable students in the regular classroom, and leadership.

Implications for Educational Reform

The coupling of the conceptual framework and change framework for the study provided a successful model to realize educational reform. Pairing the two frameworks was essential in producing the resulting reform and level of success that the study reported. Each framework complemented the other and addressed aspects of reform that would not have been possible independently.

The change framework was based on a transitional change model that was aligned with the action research design of the study. Each of the five cycles of the study was associated with the state of chaos or contentment that individuals and the organization would reflect at that point in time according to the model developed by Heifetz (1993).

This alignment proved very helpful in guiding the change process; however, data from the study revealed that the Change Process Framework as conceived in Figure 3.2 should be revised to include additional cycles in order to ensure sustainability of the change. Additionally, it became very clear that individuals who were not fully engaged from the beginning of the change process could not be expected to implement the differentiation model successfully during the same action research cycle as their fully engaged colleagues. Instead of pushing forward with teachers who were not fully engaged in the initial planning stages of a change, it would be more productive to develop a separate timeline for different groups of teachers. As Heifetz (1993) points out, forcing people to change when they are not ready leads to feelings of frustration and anger and "these emotions will likely stay alive for the duration of the change process, and may be expressed against both the change and the one imposing it" (p. 123).

Aligning the action research process to the change model developed by Heifetz (1993) assisted with addressing the various unanticipated issues that inevitably arise as change is implemented. The action research element allowed for formative assessment data to be reviewed and embedded data-driven decision making within the change process. This foundation embeds a safeguard whereas an initiative can be improved as the process moves forward. Moving ahead blindly without reflecting on data to readjust before moving forward will serve to ultimately undermine the sustainability of the change or cause the change to become extinct (Werthemier & Zinga, 1998). "The action research process calls for both ongoing data analysis and summative data analysis" (Craig, 2009, p. 21). By embedding formative data analysis within a process for change, issues and obstacles to sustainable change can be better addressed. Furthermore, formative

assessment as part of cyclical action research is reflective of recommendations by Guskey (1991) that call for the use of benchmark measures to evaluate success as a component of effective professional development.

The conceptual framework that placed professional development as the central element to drive educational reform proved to be essential to realizing success. The professional development structure which allowed for planning meetings, articulation meetings, and in-service training was critical to moving the change forward. Teachers took ownership of the change as they developed the materials necessary to put the units in place. Teachers also used each other as experts during articulation sessions, and ideas to improve the program were clearly generated from those opportunities to share ideas. The continuous series of meetings also provided the time to do the work necessary to fully implement the change, and the repetition necessary to convince stakeholders that the change was inevitable. This confirms the work of Garet et al. (2001) who found that opportunities for teachers to collaborate over an extended period of time produced changes in classroom instruction.

Implications for Advanced Differentiation

Since the study relied on the recommendations of research and the professional aptitude of teachers, the efforts to develop a differentiation model that was feasible for classroom teachers was an important outcome of this initiative. The participant-researcher and teachers began with a vision of differentiating for gifted students in the regular classroom, but were unsure how that model would ultimately look until well into Cycle II. The investment of the teachers in developing a model that would realistically fit within the constraints of scheduling, planning, and assessment was a challenge. But, it

was ultimately the main reason why teachers and principals want to see the change continue. Klecker and Loadman (1998) confirm that by allowing teachers latitude in choosing the direction for change, they will feel empowered and less resistant to implementing new practices. Purchasing a prepackaged kit and telling teachers to implement a program would have never resulted in a change equated with educational reform.

Teachers paid attention to several critical areas when perfecting the differentiation model. The issue of assessment surrounding the pretest phase in the compacting design was given a great deal of discussion time during meetings. Just as Clymer and Williams (2007) found in their study investigating differentiation in the regular classroom, consensus on standards of mastery for each compacting unit became critical for teachers to move forward with the model. Both teachers and parents wanted to be assured that students were learning the same material as everyone else before being offered the opportunity to engage in the extension project. Development of the extension projects was also a critical piece in the process. Teachers and parents were also concerned that the level of challenge and interest that the project generated justified releasing the students from the direct instructional unit traditionally taught by the teacher. Schoen and Fusarelli (2008) suggest that the need for this justification is due to the mentality generated by No Child Left Behind. They state, "School leaders and teachers fearful of consequences are not highly motivated to innovate or to deviate from the tried and true. The fear factor, an unintended consequence of high-stakes testing, may ultimately inhibit the capacity of the school…to transform" (Schoen & Fusarelli, 2008, p. 194). Incorporating rubrics that focused on the 21st Century Skills in Life and Career, and Information, Media, and

Technology was a standard that filled a gap in existing practice and aligned with a vision of educational reform. Group management was another area that stood out as a point of contention in implementing the model. Since differentiation dictates various groups of learners, teachers were concerned with strategies and classroom procedures to manage students during the units. Facilitating the connection between managing groups in language arts to managing curriculum compacting, helped teachers to envision how to transfer skills they already possessed to other areas of the curriculum.

Implications for Leadership

Envisioning and facilitating the change initiative required application of various behaviors associated with transformational leadership. Transformational leadership was most essential in this change process as a method to reassure people that their limited energy was not expended to satisfy an institutional fad or administrative whim, but that the initiative was aligned with a moral imperative and would ultimately make a difference for their own teaching, the success of their students, and the district as a whole. Maintaining a focus on the moral imperative associated with the change initiative is summarized by Evans' (1996) description of how a transformational "leader works with the staff to make explicit the school's defining values and beliefs and translates them into informal norms for performance and behavior, and then relies on these norms to ensure fulfillment" (p. 173). Various applications of leadership styles were also exercised and the implications are outlined in the following sections.

Visionary leadership. It was critical to raise awareness of the moral and ethical consequences of remaining with instructional methods that perpetuated an NCLB mentality when our district mission was to prepare all students as 21st century learners

(Bass & Avolio as cited in Bolden et al., 2003). In his autoethnographic study on leadership, Mundell (2010) confirms the importance of a leader's ability to articulate a shared purpose to clearly focus the will of the school. Providing inspirational motivation to stir the will of stakeholders to change was a challenge in the early cycles of the study (Bass & Avolio as cited in Bolden et al., 2003). It was necessary for the participant-researcher to continue to express confidence that the goal would be ultimately accomplished and that the supports would be provided to overcome any obstacles to realizing success.

Shared leadership. As was stated earlier, the high level of involvement by the teachers contributed to the success of the initiative. According to Bass and Avolio (as cited in Bolden et al., 2003), seeking the perspectives of different teachers to work through the problems that arose throughout the course of the study is a behavior associated with transformational leadership. This behavior encourages staff to embrace non-traditional thinking and stimulates change (Bass & Avolio as cited in Bolden et al., 2003).

Emotionally-intelligent leadership. Offering individualized attention throughout the study to different people helped to build relationships with staff and parents. This individual consideration offered the opportunity for the participant-researcher to listen attentively to concerns and help address unique issues that may not be shared by the entire group (Bass & Avolio as cited in Bolden et al., 2003). This need for individual attention is affirmed by studies conducted by Hargreaves (2005) that found teachers at different stages in their careers had different attitudes toward change.

Instructional leadership. Building respect and trust, by demonstrating a level of competence regarding the model itself, provided stakeholders with a level of faith that maintained their commitment to the initiative. In order to facilitate a change based in an instructional differentiation method, it was critical that I became an expert in that area. The familiarity gained in the concept of curriculum compacting established the knowledge base necessary to guide teachers in the development of a model that would best suit the local context.

Recommendations

Recommendations from this research are targeted at both the local context and the broader scope of educational reform. Findings from this study have provided valuable information in order to extend the differentiation model in the district and contribute to an understanding of transformational change in education.

Local action plan. The conclusion of data analysis from the action research study offers the opportunity to use information gained from the study to design an action plan. Craig (2009) explains,

> Many experts in the field of action research consider the action research study…synonymous with the *action plan*. There is a distinction, however, because the action plan is a direct result of the inquiry. The action plan may be likened to a professional development plan or school improvement plan. (p. 220)

The participant-researcher involved the core team and a parent in the review and development of an action plan based on the summative assessment of the study. This formal reflection is recommended by Heifetz (1993) as a strategy to consolidate the learning in a change process and identify "new possibilities and potential" (p. 27). Table 5.1 outlines the next steps that the team felt were best suited to continuing the work of the

task force from the first five cycles. The action plan projects through the following school year. Each stage is identified according to the change model developed by Heifetz.

Table 5.1

Local Action Plan

Goals	Strategies	Timeline
to solidify the advanced differentiation model in the district culture	to extend the current five cycles of the change initiative to include two additional cycles two additional cycles will address the final two stages of the change process suggested by Heifetz (1993)	Cycle VI: Marking Period 4 current school year Cycle VII: MP 1 following school year
	to revisit and revise compacting unit plans and rubrics to choose at least one 21st century learning skill from extension project rubrics and plan to incorporate that skill in the regular instructional unit	Cycle VI: Marking Period 4 current school year Stage six: Consolidating the Learning
to foster "a sense of completion and readiness to move on to the next challenge" (Heifetz, 1993, p. 28)	to prepare updates to the social studies curriculum with compacting units and 21st century skills included for adoption by the Board of Education	Cycle VII: MP 1 - MP 2 following school year Stage seven: Moving to the Next Cycle
to further integrate 21st century skills throughout the curriculum	to choose another curriculum area to target for integration of 21st century skills	Cycle I: MP 3-4 following school year Stage One: Choosing the Target

Framework for reform. The study has provided information to help substantiate the value in promoting 21st century educational reform through a framework that incorporates action research, a process for change, and effective professional development. Strategies used in this study and lessons learned from the success and impediments described were considered in the development of the framework for reform depicted in Figure 5.1. Although the local context of the action research limits the

generalization of the findings, it is the intent of the participant-researcher to broaden the framework in a way that may be applied to districts that do not reflect the unique characteristics of the site of the study. All cycles in the framework are equal to a typical 10-week marking period, with the exception of Cycle I. The full framework spans marking period 1 of the first year to marking period 1 of the third year. Each stage is identified according to the change model developed by Heifetz (1993).

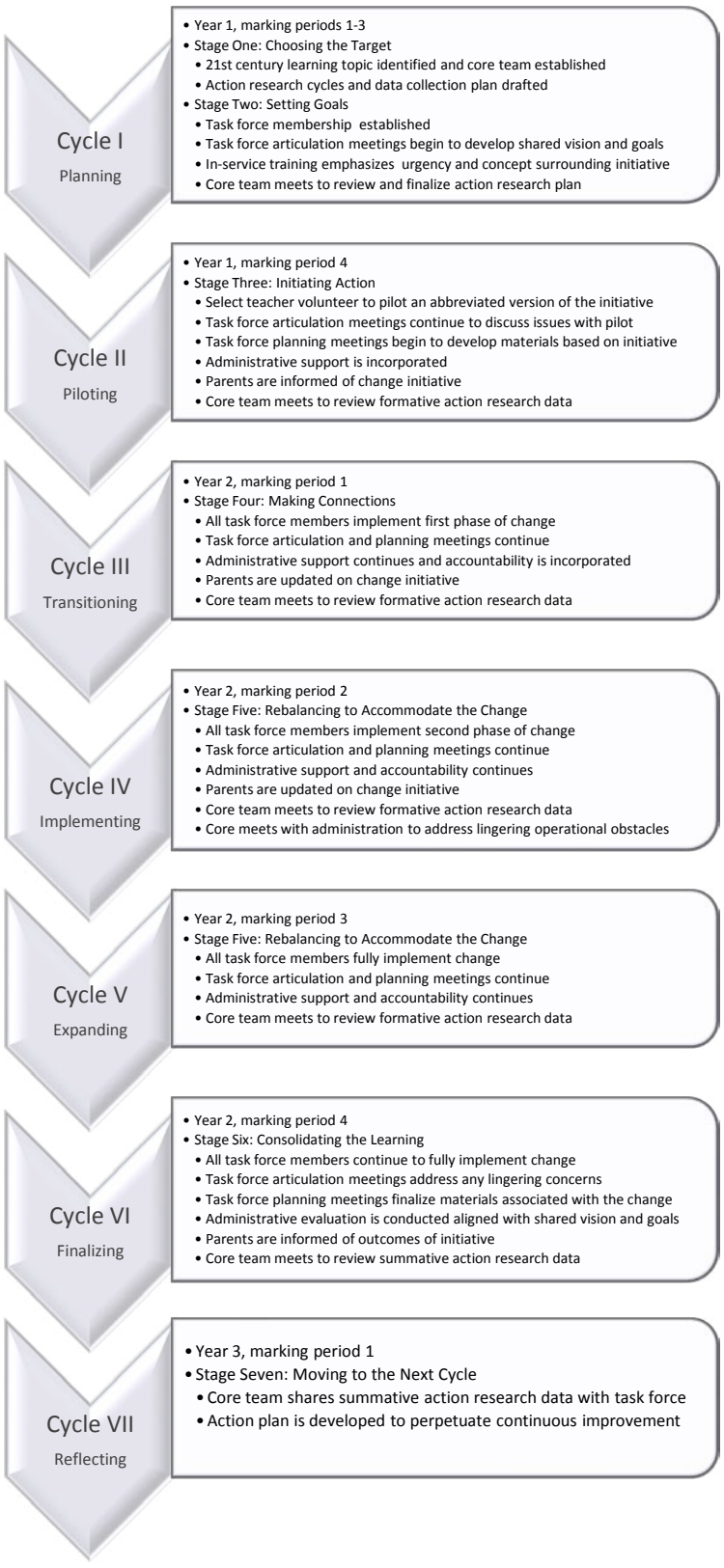


Figure 5.1. Framework for 21st Century Educational Reform

Final Summary

This study attempted to change instructional practice to better meet the needs of highly capable students in an educational climate that diminishes the value of continuous learning beyond minimal levels of proficiency. Through a sustained campaign of meetings that addressed this deficit philosophy regarding advanced differentiation with both staff and parents, a resulting change in practice and culture was realized.

Future researchers may be interested in exploring issues related to the limitations of the study. Change in practice was contained to intermediate grades and one content area. Future researchers may be interested in exploring to what extent teacher practice may be changed in science, language arts, or math given the same framework for change and differentiation model. The study concentrated participation to teachers at grades 3 through 7. Future research may explore the success of integrating advanced differentiation and changing practice among secondary or even post-secondary level instructors. Furthermore, future research is necessary to support the credibility of the Framework for 21st Century Educational Reform developed as a result of this action research study. Action research is limited in relation to its local context, and studies that implement reform according to the framework outlined in Figure 5.1 would serve to support the generalization of the findings of action research to a broader milieu.

As we progress further into the heart of the 21st century, the gap between the experiences of current teachers and current students will continue to widen. Changing the values and beliefs of adult educators whose personal experiences are grounded in an industrial-aged education model is critical to preparing students for the information age that is the 21st century. Providing the opportunity for students who are capable of

reaching beyond the content to explore critical thinking and problem solving as routine curriculum opportunities is essential to promote future leadership. This study has developed a viable framework for educational reform that would fulfill the moral imperative to allow all children to realize their full potential as promising global citizens in a changing world. The researcher-participant encourages all educational leaders to embrace the framework as a guide to promote classroom level instructional and professional change toward a 21st century educational environment in their own district.

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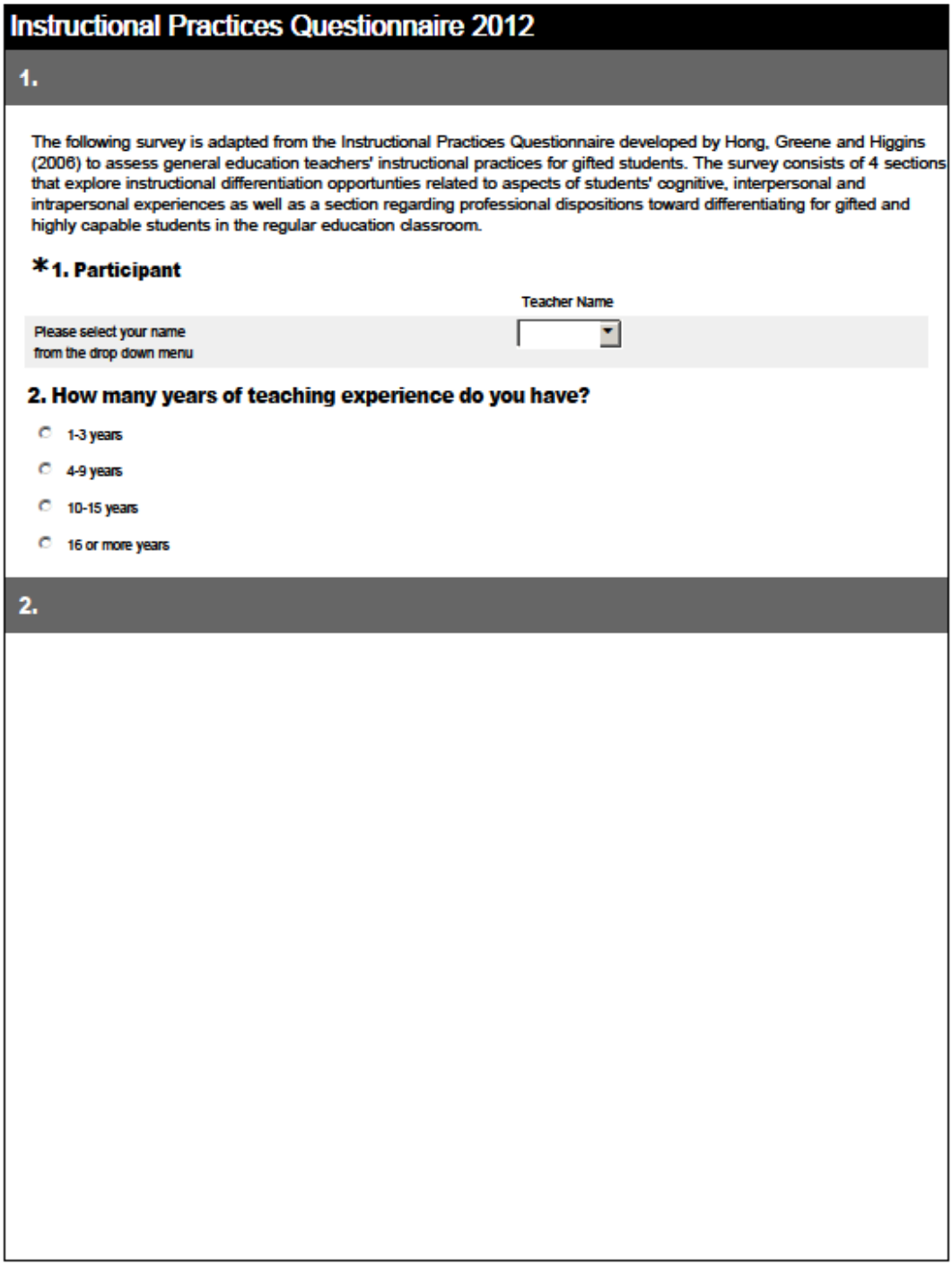
Appendix A

Instructional Practice Questionnaire



Instructional Practices Questionnaire 2012

1.

The following survey is adapted from the Instructional Practices Questionnaire developed by Hong, Greene and Higgins (2006) to assess general education teachers' instructional practices for gifted students. The survey consists of 4 sections that explore instructional differentiation opportunities related to aspects of students' cognitive, interpersonal and intrapersonal experiences as well as a section regarding professional dispositions toward differentiating for gifted and highly capable students in the regular education classroom.

*1. Participant

Teacher Name

Please select your name from the drop down menu

2. How many years of teaching experience do you have?

- 1-3 years
- 4-9 years
- 10-15 years
- 16 or more years

2.

Instructional Practices Questionnaire 2012

***1. COGNITIVE**

Please report on your own instructional behavior using the 4-point scale below to indicate the extent to which gifted students or other highly capable students currently receive differentiated educational experiences in your classroom as a result of your own instructional planning and teaching.

Students are given the opportunities to:

	4 - almost always	3 - often	2 - sometimes	1 - rarely
develop critical reading skills (e.g., I assign advanced level reading, use advanced text, or provide advanced novels on themes discussed in class).	○	○	○	○
demonstrate brainstorming skills (e.g., I ask students open-ended questions, provide advanced tasks at learning centers, or provide activities that generate ideas).	○	○	○	○
develop thinking skills (e.g., I teach units on thinking skills, use advanced computer programs, or use puzzles or word searches).	○	○	○	○
utilize imagination or visualization (e.g., I provide visual material to be interpreted, engage students in visualization exercises, or assign activities in which students demonstrate visual thinking such as creative artwork or writing).	○	○	○	○
develop writing skills (e.g., I assign teacher-selected creative writing projects, coach students on writing skills, or assign homework on self-selected topics).	○	○	○	○
create figurative language (e.g., I encourage students to participate in class discussions, assign creative or expository writing projects, or encourage students to share ideas, information, and interests).	○	○	○	○

Instructional Practices Questionnaire 2012

practice problem solving (e.g., I incorporate problem- solving activities in the grade level curriculum, provide competitive problem-solving programs, or provide questions that encourage reasoning and logical thinking).				
interpret information from various sources (e.g., I encourage research-based reports, assign book reports, or encourage students to compare and contrast ideas from advanced materials).				
demonstrate transference (e.g., I provide opportunities for students to use prior knowledge when solving problems, encourage students to relate facts to real life, or teach students how information in one situation can be used in another situation).				
distinguish fact and opinion (e.g., I coach students on ways to distinguish fact from opinion, provide exercise materials for students so they identify information as fact or opinion, or have students gather facts and opinions as part of homework).				
determine relevance and irrelevance (e.g., I require evidence or proof, encourage students to check for accuracy, or encourage students to evaluate whether information is relevant).				
accept challenges in learning (e.g., I encourage students to ask high-level questions, help students set criteria for high quality, or encourage students to tackle problems that are considered difficult for their grade level).				

Instructional Practices Questionnaire 2012

3.

***1. INTERPERSONAL**

Please report on your own instructional behavior using the 4-point scale below to indicate the extent to which gifted students or other highly capable students currently receive differentiated educational experiences in your classroom as a result of your own instructional planning and teaching.

Students are given the opportunities to:

	4 - almost always	3 - often	2 - sometimes	1 - rarely
refine relationships with their gifted peers (e.g., I sometimes group students by their ability level, provide opportunities for students to work with other advanced students, or encourage students to demonstrate the ability to work cooperatively as a group member of gifted peers).	○	○	○	○
refine relationships with peers from regular education (e.g., I use cooperative group activities, encourage students to organize interest-based groups, or encouraging students to appreciate different learning styles exhibited by other members of the group).	○	○	○	○
develop leadership skills (e.g., I assign students to various leadership positions, describe students various leadership styles, or provide group activities where various leadership styles can be practiced).	○	○	○	○
practice active listening skills (e.g., I use activities such as role-play, encourage students to provide constructive feedback on their peers' oral presentations, or use group activities where listening skills are used).	○	○	○	○

Instructional Practices Questionnaire 2012

practice decision-making within a group setting (e.g., I have students establish activity groups on their own, provide prompts that requires group decision, or encourage students to demonstrate the ability to compromise).				
cooperate with group members (e.g., I encourage students listen to others' suggestions when they participate as a member of a group, use a reward system in which the success of the group is determined by group's efforts, or encourage students to do their best to contribute to their group).				
experience risk-taking (e.g., I encourage advanced questions, provide competitive problem-solving activities, or assign activities and games that require HOTS).				
demonstrate empathy (e.g., I design units of study in which students have to consider another person's point of view, encourage students to consider the opinion of others, or set a stage for students to recognize other students' social and emotional needs).				
demonstrate communication skills (e.g., I demonstrate oral presentation skills, coach individual students to improve communication skills, or provide group activities for the purpose of improving communication skills).				
practice group dynamics (e.g., I provide opportunities for students to demonstrate self-discipline during small-group activities, encourage group members to keep the group				

Instructional Practices Questionnaire 2012

on task, or encourage consideration of individual differences in the way other students approach group activities).

4.

***1. INTRAPERSONAL**

Please report on your own instructional behavior using the 4-point scale below to indicate the extent to which gifted students or other highly capable students currently receive differentiated educational experiences in your classroom as a result of your own instructional planning and teaching.

Students are given the opportunities to:

	4 - almost always	3 - often	2 - sometimes	1 - rarely
pursue interests of their own (e.g., I allow in-class time for individual projects, assign writing projects on topics selected by student, or allow students to choose their own topics for research projects).	○	○	○	○
demonstrate initiative (e.g., I encourage students to establish goals, use learning centers whether students can choose their own activities, or use programmed instructional materials with which students can initiate and monitor their own learning).	○	○	○	○
demonstrate decision-making for individual activities (e.g., I encourage students to select topics for independent study, allow students to choose work areas other than class, or consider individual students' opinion in allocating time for their projects).	○	○	○	○
set goals in a self-selected interest area (e.g., I use contracts for individual projects that allow students to list their goals, encourage students to set	○	○	○	○

Instructional Practices Questionnaire 2012

proper-level goals for projects, or help students develop a long-term goal).				
demonstrate task commitment (e.g., I use enrichment activities that encourage students' commitment, use self-instructional kits that contain interesting tasks, or encourage students to demonstrate the ability to keep on task).	○	○	○	○
increase autonomy (e.g., I provide students with projects that require their initiative, assign projects that allow students to plan and manage independently, or allow students to work by themselves).	○	○	○	○
demonstrate responsibility (e.g., I help students realize every action comes with a consequence, hold students responsible when they do not turn in homework assignments, or encourage students to complete a given task even when it is a difficult one).	○	○	○	○
understand and expand their learning styles (e.g., I help students understand that individuals have varied learning styles, provide homework where they can use their preferred learning styles, or tell students think of different ways of studying when their way of studying does not help them learn).	○	○	○	○

5.

Instructional Practices Questionnaire 2012

***1. PROFESSIONAL**

Please report on your own professional disposition toward differentiation for gifted and highly capable students in your clasroom using the 4-point scale below to indicate your current professional status.

	4 - exceedingly	3 - fully	2 - partially	1 - minimally
Knowledge (Teacher understands concept of curriculum compacting and differentiation model)	○	○	○	○
Attitude (Teacher believes differentiation model is important to student success within and beyond school)	○	○	○	○
Skill (Teacher knows how to employ a variety of strategies to differentiate effectively)	○	○	○	○
Aspiration (Teacher has a genuine desire for students to excel as 21st century learners)	○	○	○	○
Behavior (Teacher consistently applies instructional practices reflective of the differentiation model)	○	○	○	○

6.

Thank you for your time in completing this survey.

1. Please feel free to offer any comments.

Appendix B

Teacher Interviews

1. What is your general reaction to the work of the G&T task force and the differentiation model we have put in place over last year and this year?

2. Share with me what you feel were your most memorable contributions to the development and success of the initiative.

3. What were some issues you feel were challenging in our attempts to move toward differentiating in the regular classroom for these advanced learners?

4. What aspects of the professional development structure, which involved the task force meetings, articulation meetings, and walk-throughs did you find the most valuable? What aspects did you find the least effective?

5. Have you applied the instructional strategies developed as part of the G&T task force to other content areas? If so, how? If not, why?

6. I am wondering how the 21st century standards-based projects have promoted student learning and achievement. Let's think about the various areas that we addressed with the task force rubrics. Would you share your thoughts and perhaps some examples of how the focus of the 21st century learning projects may have promoted student achievement?
   leadership and responsibility initiative and self-direction information literacy
   creativity and innovation critical thinking and problem solving

7. I am wondering what type of effect moving toward curriculum compacting has had on our students. Would you share your perception of how curriculum compacting has shaped student achievement in social studies/science?

8. What type of implications do you feel the work of the G&T task force and the differentiation model has had on the expectations among staff, students, and parents in the way we value the learning of our advanced students? Do you think the expectations will be lasting?

9. What type of impact has participation in this change initiative had on your attitude about the level of urgency we place on advancing the learning of already capable students as compared with those struggling to meet proficiency?

10. Would you please share anything else about the different aspects of the study that you feel are important for me to know?

Appendix C

Administrator Interviews

1. What is your general reaction to the work of the G&T task force and the differentiation model we have put in place over last year and this year?

2. Share with me what you feel were your most memorable contributions to the development and success of the initiative.

3. What were some issues you feel were challenging in our attempts to move toward differentiating in the regular classroom for these advanced learners?

4. What aspects of the professional development structure, which involved the task force meetings, articulation meetings, and walk-throughs do you feel were most valuable in promoting the teachers' professional growth in this area? What aspects did you find the least effective?

5. Have you noticed the instructional strategies developed as part of the G&T task force being transferred to other content areas? If so, how? If not, why?

6. I am wondering how the 21st century standards-based projects have promoted student learning and achievement. From your conversations with teachers and walk-throughs, would you share your thoughts and perhaps some examples of how the focus on 21st century learning skills as part of the projects may have promoted student achievement?
   leadership and responsibility initiative and self-direction information literacy
   creativity and innovation critical thinking and problem solving

7. I am wondering what type of effect moving toward curriculum compacting has had on our students. Would you share your perception of how curriculum compacting has shaped student achievement in social studies/science?

8. What type of implications do you feel the work of the G&T task force and the differentiation model has had on the expectations among staff, students, and parents in the way we value the learning of our advanced students? Do you think the expectations will be lasting?

9. What type of impact has participation in this change initiative had on your attitude about the level of urgency we place on advancing the learning of already capable students as compared with those struggling to meet proficiency?

10. Would you please share anything else about the different aspects of the study that you feel are important for me to know?

G&T Task Force Walk-Through Form

Teacher_____ Date_____

Differentiation Strategy Observation Checklist

Learning Environment Differentiated Groups	Instructional Model Curriculum Compacting	Instructional Activities 21st Century Learning
☐ G&T students only	☐ G&T students only	☐ G&T students only
☐ G&T and other highly capable students	☐ G&T and other highly capable students	☐ G&T and other highly capable students
☐ All students—differentiated activities	☐ All students offered compacting option	☐ All students working on 21st c activity
☐ All students—but same activity	☐ No evidence of compacting option	☐ Teacher integrated 21st c in lesson
☐ No grouping—whole class lesson	☐ Preteaching or Compacting observed	☐ No evidence of 21st c skill integration
☐ Other:	☐ Pretest observed	☐ Other:

Professional Learning Checklist

	exceeds expectations	meets expectations	developing	emergent
Knowledge Teacher understands concept of curriculum compacting and differentiation model				
Attitude Teacher believes differentiation model is important to student success within and beyond school				
Skill Teacher knows how to employ a variety of strategies to differentiate effectively				
Aspiration Teacher has a genuine desire for students to excel as 21st century learners				
Behavior Teacher consistently applies instructional practices reflective of the differentiation model				

Adapted from Kilion, 2008, p. 38

Other comments:

_____
administrator's signature