EXPLORING TEACHER IMPLEMENTATION OF DIFFERENTIATION PRACTICES AND PROCESS SKILL DEVELOPMENT IN ELEMENTARY CLASSROOMS

by

KATHERINE BACKES BROWN

(Under the Direction of Thomas P. Hébert)

ABSTRACT

The purpose of this study was to examine teacher experiences through implementation of process skill development and differentiation practices into regular education classrooms. Three third grade teachers were provided with a variety of professional learning opportunities surrounding the implementation of these practices. This multiple case study design collected data through interviews, observations, and journals from both the researcher and participants. This study focused on how differentiation strategies and process skills were implemented with all learners, but paid special attention to how teachers utilized strategies to meet the needs of learners who demonstrated mastery or advanced abilities in a particular curriculum area. Teacher experience was analyzed by examining teacher processes, external factors that affected implementation, and perceptions of teachers as they implemented differentiation and process skill development.

Keywords: differentiation, process skill development, professional learning

INDEX WORDS: Differentiation, Process Skill Development, Professional Learning

EXPLORING TEACHER IMPLEMENTATION OF DIFFERENTIATION PRACTICES AND PROCESS SKILL DEVELOPMENT IN ELEMENTARY CLASSROOMS

by

KATHERINE BACKES BROWN

B.S.Ed, Valdosta State University, 2005

M.Ed., University of Georgia, 2007

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOROF PHILOSOPHY

ATHENS, GEORGIA

2011

EXPLORING TEACHER IMPLEMENTATION OF DIFFERENTIATION PRACTICES AND PROCESS SKILL DEVELOPMENT IN ELEMENTARY CLASSROOMS

by

KATHERINE BACKES BROWN

Major Professor:	Thomas P. Hébert
Committee:	Jori. N. Hall Mark D. Vagle Sally M. Reis

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
December 2011

DEDICATION

To Landon and my future children. May the contents of this dissertation someday impact your education in a positive way. May your teachers differentiate for your unique needs and teach you to be productive and thoughtful democratic citizens.

To my husband. Who knew that when we met as young teenagers, we would make such a beautiful life together. May we remember these days of graduate school with smiles and laughter.

To my parents. Thank you for teaching me to love learning. This dissertation is a result of this love and my desire to impact the future of education.

ACKNOWLEDGEMENTS

I wish to thank Drs. Jori Hall, Mark Vagle, and Sally Reis for agreeing to serve on my committee. Each of these individuals contributed invaluable advice at various stages of my research process. I thank the Chair of my committee, Dr. Thomas Hébert, for his wonderful support and friendship to my family and me throughout my graduate school experience. I will look back fondly to Sunday morning Jittery Joe conversations about education, family, and life.

I am grateful to my participants for allowing me into their classrooms and sharing their time and experiences with me. Each has led me to a better appreciation of the implementation of differentiation and process skill development in the regular education classroom.

I also wish to express my appreciation for all of my family and friends for supporting me throughout the writing process. Through encouraging words, feedback, and even babysitting, I could not have finished on time without help. Thanks for the help and love, Mom, Dad, Barbara, Sharon, Michelle, Emily, Melvin, Diane, Abby, Isabelle, Layla, and Lindsay Ann. Thanks to Rose Tahash for her transcription and editing services. My life was much easier because of her attention to detail.

Finally, I wish to thank my beautiful family. My wonderful husband Philip lifted me up when I was feeling inadequate, coached me forward when I wanted to quit, cheered me up when I needed a laugh, but most of all loved me unconditionally throughout every moment of this process. Thanks to my sweet Landon for being a good baby so Mommy could write. I hope one day you and your siblings love learning as much as your Dad and me.

TABLE OF CONTENTS

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

Imagine a school. In this school, there are hallways filled with classrooms, and classrooms filled with children. Children arrive each morning and walk to their assigned classroom, just as they have done every morning since the beginning of the school year. Down the third grade hallway, there are two classrooms directly across from one another.

In one classroom, you can hear the students conversing as soon as you enter. They are busy in both mind and body. The students work in groups and talk to one another as they analyze the information they collected from a survey they designed about recycling in their school and community. They look at examples of reports and graphs from different professionals and decide how they want to present their data. They plan out the materials and technology needed to complete the task and assign jobs to each other. The students have different jobs and complete different levels of work depending on their needs and interests at the time of the activity. They work through numerous process skills all the while incorporating creativity into their design, communicating their results, and beginning to think about ways they can expand their knowledge about the data. During the work session, the teacher is walking around the room asking the students questions about their work. She gives feedback and helps students to think through all the possibilities of present and future exploration with recycling in their school and community.

In the other classroom across the hall, there is silence. All the students sit at their desks, which are placed in neat rows. They complete a worksheet where they draw a graph based on survey data fabricated for them and displayed at the top of the page. At the bottom of the

worksheet are five questions about the data which they must answer. When students complete the worksheet, they must turn it in to the basket and can then draw, read, or work on homework. All the students must complete the same worksheet. Some students finish it in five minutes and have the remainder of the period to sit quietly and keep themselves busy, while other students take the full 45-minute work period to complete the worksheet. The teacher sits at her desk for a while, and then meets with a couple of students who are having trouble with the graphing sheet.

In which classroom would you rather be a student? In which classroom would you rather be a teacher? It is no surprise that most children and modern educators would likely choose the first classroom. And rightly so, according to Noddings (2005) who said, ñThe public school as a major institution in a democratic society should be a place where children learn to make intelligent, well-informed choicesò (p. 75). In the first classroom, students have the opportunity to develop more skills than just the ability to read and interpret a graph. These students receive learning opportunities that allow them to make decisions and work with others at a level that is appropriate for each student.

What makes a teacher decide to teach the first way over the second? What types of experiences promote or hinder a teachersô desire to teach using differentiation and process skill development? How can teachers feel more comfortable and prepared to teach their classrooms in a way which promotes active learning and thinking? This study examines the experiences of three teachers as they implement differentiation and process skill development with their students. All of these teachers believe in the importance of these teaching methods but choose to implement them in different ways. This study will illustrate the different ways of implementation and highlight the unique and common experiences of the three teachers.

Relevance and Rationale

ñIn schools, those under instruction are too customarily looked upon as acquiring knowledge as theoretical spectators, minds which appropriate knowledge by direct energy of intellectò (Dewey, 1916/1944, p. 140). Dewey believed that students should have the opportunity to learn by doing through learning opportunities designed for studentôs academic needs and interests.

Torrance (1965) also spoke of the importance of teachers being responsive to their students and providing them with an education that actively works to address their current level and teach skills that will help them reach their potential. He discussed the importance of continuous growth for educators as well as students, where the teacher constantly reflects on the immediate situation he or she is working in, the current students he or she is working with, and the teacherôs own abilities and style to create the ideal learning environment.

> If you are counting upon your college education, your courses in education, or your student teaching to ñmakeò you a teacher, you will be disappointed. You might learn much about the subjects you will be teaching, the nature of children, the learning process, the methods and materials of instruction, and the like, but this is not enough. [é] All of these things are inadequate. They must be combined with your own potentialities and the needs of your own pupils in such a way as to become your own unique invention, your way of teaching. This unique invention of the teacher is tremendously important in the teaching of gifted children to help them discover and become their potentialities. (Torrance, 1965, p. 88)

It is arguable that Dewey and Torrance were referring to teaching students through differentiation and process skill development. Differentiation is defined as a teacherôs ability to

respond to the varied needs of students in diverse academic settings (Tomlinson, 2003). Tomlinson (2003) discussed the importance of differentiating for student readiness, interest, learning profile, and defined student readiness as, ñknowledge, understanding, and skill related to a particular sequence of learningò (p. 3). When differentiating for a studentôs interests, the teacher is incorporating topics, issues, and pursuits that create curiosity and excitement for the student. Teachers who differentiate for learning profile focus on the way a student may learn best. Finally, *affect* refers to a studentôs feelings surrounding his or her work, self-esteem, and overall feeling towards the classroom environment (Tomlinson, 2003). Tomlinson suggested differentiating for process, content, product, and learning environment in the regular education classroom. Teachers may implement numerous strategies within the classroom to differentiate for students in various ways.

Process skill development can be defined as teaching students how to manipulate and utilize knowledge for multiple purposes in and outside of the learning environment. In this study, process skill development will be defined as addressing the following areas: a) creative thinking and problem solving, critical thinking, and analytical processes; b) affective and character development skills; c) a wide variety of specific learning how to learn skills; d) skills in the appropriate use of advanced level reference materials; and e) written, oral, and visual communication skills (Renzulli & Reis, 2008). The process skills incorporated within this study are based on process skills developed as part of the Schoolwide Enrichment Model (Renzulli & Reis, 2008) and Twenty-First Century Skills (Partnership for Twenty-First Century Skills, 2009).

While educators have spoken of the theories supporting differentiation for the past century (Dewey, 1916/1944; Ward, 1961; Torrance, 1965), most of the research on this topic was conducted in the past 30 years**.** Studies have looked at differentiation from both a ñsplitterò and

ñlumperò view (Tomlinson, 2004). ñSplitterò views look at only differentiation for identified gifted students, while ñlumperò perspectives focus on differentiating for all learners. This study will focus on differentiation from a ñlumperò perspective but will pay special attention to differentiation for gifted learners.

Previous studies have examined at the prevalence of differentiation strategies implemented by teachers in the regular education classroom (Westberg et al., 1993; Westburg & Archambault, 1997; Westberg & Daoust, 2003;). Additionally, studies have focused on the collaboration between teachers of the gifted and regular education teachers (Tomlinson et. al, 1996; Purcell & Leppien, 1998; Latz et. al, 2009) and staff development for teachers learning about specific types of differentiation (Johnson et al., 2002; Reis & Westberg, 2004). Studies have also looked at the process of implementing specific differentiation strategies including but not limited to curriculum compacting, tiered lessons, independent projects, grouping, open-ended activities, questioning, and learning styles (Reis et al., 1993; Pryor, 1994; Baum, Renzulli, & Hebert, 1995; Kulik, 2003; Noble, 2004; Adams & Pierce, 2007).

These studies have been very influential in supporting differentiation and expressing the need for differentiation for students and collaboration among regular education teachers and gifted education teachers. However, few studies have examined the experiences of teachers as they receive professional learning and work with a collaborator to implement differentiation strategies during this era of high-stakes testing and accountability. This study sought to deeply examine teachersô lives within the classroom as they implemented differentiation strategies into their regular education practice. This exploration is important in order to gain a deeper understanding of the day-to-day experiences faced by teachers and how these experiences affect a teachersôability to differentiate for students. I wondered: What do teachers experience as they

work to implement differentiation? Which strategies do teachers implement more readily, and why? What types of practices encourage sustained differentiation implementation? How do teachers negotiate differentiation with other state, district, and school expectations? What are teacher perceptions during this implementation? These questions led me to a focus on the process that teachers experience when implementing differentiation strategies.

Current educational experts have encouraged the incorporation of process skill development into regular education classrooms (Darling-Hammond, 1998; Renzulli & Reis, 2008). Darling-Hammond (1998) argued that, ñé the information age is pressing for new forms of schooling that will enable many more students to think creatively, communicate proficiently, manage information and resources, solve novel problems, and engage in knowledge workò (p. 150). Darling-Hammond (1998) suggested a balanced approach that combines considerations of the subject matter to be studied in a classroom with considerations of the students who will be learning and using the subject matter. She highlighted, ñé two-way pedagogies to understand what and how students are thinking, the use of direct instruction and discovery methods, and the integration of basic skills into authentic experiences where students are able to work with a variety of materialsò (Darling-Hammond, 1998, p. 151).

Although there has been a push towards the incorporation of process skill development (Darling-Hammond, 1998; Noddings, 2005; Renzulli & Reis, 2008), most studies related to this topic focus on specific process skills incorporated into the classroom or curriculum models as a whole that include process skills as a component (Burns, 1987; Kohlberg, 1976; Betts, 1986; Hudson, Lignugaris-Kraft, & Miller, 1993; Maker 2005; Zaremba, 2005). However, no studies were found that examine the incorporation of process skills in the classroom from the point of view of teachers. If educational leaders wish for teachers to become more effective at

incorporating process skills into the regular education classroom, there must be an examination of teachersô experiences in implementing these skills. Teachersô experiences must be highlighted in order to begin to understand what skills teachers implement, why they implement specific skills, what hinders the implementation of process skill development, and what supports the implementation of process skill development.

Current educational trends have called for teachers to differentiate to meet the needs of all students and prepare students for a global society through process skill development (Noddings, 2007; Bronson & Merryman, 2010; Jacobs, 2010). However few studies have explored teacher implementation of these strategies from the perspective of teachers. This study sought to gain insight into the experiences of teachers as they implemented both differentiation strategies and process skill development in this era of high-stakes testing and accountability. In this study, teachers worked with the researcher as an enrichment specialist and collaborator. Teacher experiences were explored through analyzing teacher processes and perspectives. External factors that affected the implementation of differentiation and process skill development were also examined.

Research Questions

This study was guided by the primary research question: How do teachers experience implementation of differentiation practices and process skill development in the regular education classroom?

Secondary questions were also explored to help highlight aspects of the research question related to examining teacher experiences. These questions included:

- What processes do teachers experience as they implement differentiation practices and process skill development?

- What external factors affect teachersô implementation of differentiation practices and process skill development?
- How do teachers perceive the implementation of differentiation practices and process skill development?

Chapter Summary

Though differentiation and process skill development are both considered best practices among many educators, additional research would add knowledge to the field, specifically research focusing on teachersô experiences in the implementation of differentiation and process skill development with regular education and gifted learners. This study explored the differentiation and process skill development practices of three teachers through an in-depth qualitative study in order to capture their experience in implementing these strategies.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

"In this case the child becomes the sun about which the appliances of education revolve; he is the center about which they are organized" (Dewey, 1915/2001, p. 24)

Education in the United States of America has evolved over time with the expansion of our country and technological advances. Even with changes to American society, much of our educational practice today is based upon ideas and theories that were developed over 100 years ago by John Dewey. These theories helped to shape our cultural beliefs, expectations for our students and teachers, and educational practices. Links can be made between Deweyôs theoretical perspectives and the philosophies surrounding differentiation and process skill development.

In order to understand the current implementation of differentiation and process skill development, one must be aware of early views of differentiation and process skill development and how these views have shifted over time. It is also important to understand the contemporary theoretical perspectives of Dewey and how his philosophies influenced what educators and theorists believe is differentiation, process skill development, and teacher professional learning.

This chapter begins with a discussion of Deweyan Pragmatism. I then discuss literature on differentiation and link the literature to Deweyôs philosophies. Next, I explore literature on process skill development and connect this literature to Deweyan pragmatism. Finally, because this study focuses on the process of teacher implementation of differentiation and process skill

development, I share professional development literature and align the process undertaken in this study with Deweyan pragmatism.

Epistemological Stance: Deweyan Pragmatism

Pragmatism is a philosophical movement that began in the mid-nineteenth century with the beliefs of Charles Sanders Pierce, William James, and John Dewey (Murphy, 1990). This movement focuses on meaning in a practical context. Pragmatists contend that an idea is true only if it works and that meaning is found through the practical acceptance of the idea. However, ideas that are impractical should be rejected. Pragmatists also believe that no theory or idea is certain, but is instead a working hypothesis, which should be refined, revised, or rejected based on continuing inquiry and experience. Although many scholars have criticized pragmatism, much of the criticism stems not from the founders, but from the followers of this movement (Crotty, 1998).

Deweyôs ideas align with pragmatism because of his overarching beliefs that curriculum which does not invoke meaning among individuals and their present experiences should not be taught. ñMeaningò does not simply refer to things that may happen in the future, but for knowledge that is important in the present and interesting to an individual. He often discussed that the thinking and learning processes required by students were a waste of time and distraction from the real world (Dewey, 1933). These pragmatist views later helped to shape theories of differentiation and process skill development. Additionally, professional learning practices in this study were designed based on Deweyan philosophy. A more in depth discussion linking Deweyan pragmatism with differentiation, process skill development, and professional learning is discussed within the chapter.

Differentiation

In order to begin a discussion regarding educatorsô implementation of differentiation strategies, one must first define differentiation. Therefore, an examination of various definitions of differentiation is appropriate. Definitions of multiple differentiation strategies and research related to these specific strategies as well as research focusing on differentiation in a broad sense are presented.

Defining Differentiation

Much of the research on differentiation, now considered a vital practice for all students, began with theories focused on differentiating for students with gifts and talents (Ward, 1961). Tomlinson (2003) stated that:

> Somewhat more recently, the term ódifferentiationô has been applied to a broader range of students and, in that context, has to do with ways in which teachers can respond effectively to the varied needs of students in academically diverse settings-including, but not limited to students with high-ability and/or advanced learning status. (p. xxv)

Tomlinson (2003) described definitions of differentiation as either ñsplitterò or ñlumperò. The ñsplitterò definition of differentiation focuses mostly on designing practices for a specific population, in this case identified gifted students, whereas ñlumperò means to implement differentiation practices to address the needs of the entire population.

ñSplitterò Perspectives on Differentiation. When considering early definitions of differentiation within the field of gifted education, many researchers published work from a ñsplitterò perspective. Virgil Ward is often noted as the grandfather of differentiated education since he was the first to specifically discuss differentiation for students with gifts and talents (Herzog, 1998). Wardôs (1961) definition of differentiation mostly involved students with

advanced cognitive abilities, scoring in the upper first, second, or third percentiles on measures of intelligence. Ward (1961) believed that, ñWhen the deviant quality is intelligence, so significant is the role of behavior and experience, distinctive variations justify an educational program of special scope, subtlety, complexity, and abstractionò (p. 86). When designing an educational program for gifted students, Ward (1961) suggested ña qualitative reorganization of the materials and methods used in teaching, in order that the essential problems of the gifted may be more adequately metò (p. 87). He believed that education should allow children with superior intellectual abilities the opportunity to go as far in education as their capacities will allow, noting that students who are cognitively gifted will be able to work at a more advanced level than their peers of average ability (Ward, 1961).

The Marland Report (1971) was the first national report on gifted education published by Sidney P. Marland, Jr., Commissioner of Education. The report included the results of a national study on the state of the education of gifted and talented students in the United States and stated that gifted and talented children, ñrequire differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and societyò (Marland Report, 1971, p. ix). It also presented three necessary characteristics for a differentiated educational program:

1. A differentiated curriculum that promotes higher cognitive processes;
2. Instructional strategies that accommodate both curriculum content and the learning styles of gifted and talented children; and
3. Special grouping arrangements appropriate to particular children, i.e., special classes, honor classes, seminars, resource rooms, and the like. (Marland, 1971, p. x)

This report was reauthorized in 1994, providing evidence that a differentiated curriculum remains a priority for students with gifted abilities.

Maker and Nielson (1996) also defined differentiation from a ñsplitterò perspective focusing on gifted students. They believed that differentiation should occur within a gifted classroom, as ñno program can be effective for all gifted students, who may differ as much from each other as they differ from students not identified as giftedò (Maker and Nielson, 1996, p. 15). Maker and Nielson (1996) recommended that differentiated curricula for gifted students be designed based on the unique characteristics of gifted students; encourage the development of higher order thinking processes and methods of inquiry; provide opportunities for exploration with more complex concepts; and allow for ñadministrative or other arrangements necessary to enable gifted students to realize their potentialò (p. 23). These researchers believed that above all, a differentiated program for gifted students must take into account the students for whom the program was implemented.

Even today, some researchers adopt a ñsplitterò perspective of differentiation, focusing on the specific differentiation needs of gifted students. VanTassel Baska and Stambaugh (2006) indicated that differentiated curricula for gifted students should be developed according to individual student characteristics and needs. They argued that these characteristics and needs should be determined based on standardized test data and observations. VanTassel Baska and Stambaugh (2006) focused on three fundamental differences of gifted students in comparison to average learners: ñthe capacity to learn at faster rates, the capacity to find, solve, and act on problems more readily, and the capacity to manipulate abstract ideas and make connections more easilyò (p. 18). In response to these differences, VanTassel Baska and Stambaugh (2006)

maintained that teachers should design differentiated curricula to address these differences in order to meet the needs of gifted learners.

"Lumper" Perspectives on Differentiation. E. Paul Torrance (1965) was one of the first educational researchers to focus on the ñlumperò perspective of differentiation. He did not limit differentiated instruction to only gifted-identified students, but instead believed all students could benefit from differentiation to address their individual needs. He wrote about the special effort that must be exerted by teachers in order to cultivate the varieties of giftedness demonstrated by students. He believed that education was fair only if all students were provided with the opportunity to excel in their area of strength. Although Torrance did not use the term differentiation, his beliefs about education align with our current understanding of the term. This was made clear when Torrance (1965) expressed the importance of providing, ñopportunities for mastering a variety of learning and thinking skills according to a variety of methods and [é] the outcomes of these efforts should be evaluated in a variety of waysò (p. 3). He suggested that a more meaningful process of intellectual development exposed students to, ñguided, planned learning experiences which in turn are based upon an analysis of the requirements of the learning task and the condition of the childò (p. 10). Torrance believed that analysis of the task considers the structure of the task, multiple strategies by which the task can be accomplished, and the surroundings or conditions that may support or hinder accomplishment of the task. Torrance (1965) also argued that an analysis of the childôs condition was imperative in designing the individualized learning experience by considering the, ñstage of development relevant to the concepts of skills to be learned, the level of relevant abilities [é], and the individual childôs

preferred ways of learningò (p. 10). Torrance (1965) felt it was important to focus on the individual potential of the child when designing instruction, rather than focusing solely on test scores and norms.

Differentiation was also defined by Wang and Walberg (1985) as the responsibility of the schools to maximize each studentôs education by taking into account that individuals learn differently and at varying rates. They pointed out the obvious when they described a typical classroom as, ñEvery class contains students with different interests, problems, and talents; and most educators realize that whole-group instruction lessons geared to the óaverageô student are bound to be too difficult for some learners in the class and too easy for othersò (p. 325). They believed that the learning process could be more effective by tailoring instruction based on studentsôneeds (Wang & Walberg, 1985).

Renzulli and Reis (2008) discussed the importance of enriching curriculum for all students. Their views on enrichment teaching and learning support differentiation for individual students and are based on four principles. First, teachers must believe that, ñeach learner is unique; therefore, all learning experiences must be examined in ways that take into account the abilities, interests, and learning styles of the individualò (Renzulli & Reis, 2008, p. 29). Also, they proposed that students are motivated and learn best when they are working on a task which they enjoy. While some educators believe that enjoyment should be only a small factor in curriculum design, Renzulli and Reis (2008) argued that designing a task for student enjoyment is as important as other goals. Additionally, they indicated that learning should occur in an authentic problem solving situation in order to make the learning more meaningful and enjoyable. Finally, ña major goal of this approach to learning is to enhance knowledge and

thinking skills, which are gained through formal instruction with applications of knowledge and skills that result from studentsô own construction of meaningò (Renzulli & Reis, 2008, p. 29).

Widely known by educators as a leading expert on differentiation, Tomlinson defined differentiation as ñresponsive teachingò (Tomlinson, 2003, p. 2). She argued that teachers must understand their studentsô individual needs, become comfortable with the curriculum they are teaching, and develop flexibility in matching the instruction to each studentôs identified needs in order to maximize the growth taking place in the classroom. Tomlinson (2003) believed that teachers must consider who they are teaching as well as what they are teaching, evident in her statement, ñThe goal of a differentiated classroom is to plan actively and consistently to help each learner move as far and as fast as possible along a learning continuumò (p.2). In order to differentiate effectively, student traits such as readiness, interests, learner profiles, and affect should be considered when designing instruction. Instruction should then be differentiated through content, process, product, and learning environment.

Although differentiation has been defined in slightly different ways throughout this section, all definitions are similar in that the focus of instruction is not on state standards, parent and teacher desires, or school goals. Instead, the focus of instruction lies in the needs, interests, and learning styles of the child. While some individuals focus their research solely on differentiation for students identified as gifted, I believe it is important to design differentiation strategies that attend to the gifts and talents of all learners. If a teacher is effectively differentiating, then he or she will provide for studentsô needs and interests regardless of the childôs readiness level.

As Eyre & McClure (2001) stated, ñFor a school to be a good school for the gifted and talented it must first be a good school for the majorityò (p. 1). Students who are identified as

gifted and talented spend the majority of their time in school within the regular education classroom. In order for gifted and talented students to receive appropriate services, regular classrooms must be designed with adequate support to meet the needs of diverse learners. While defining differentiation and arguing for this practice is relatively easy, the actual act of differentiation is not. The following section will discuss classroom strategies which have been designed to support differentiation practices with all learners.

Differentiating Instruction through Classroom Strategies

Over the past few decades, much literature has offered educators strategies that may be effective for differentiating curriculum for gifted and talented students. This section provides a discussion of these strategies and research related to differentiated instructional practices.

Questioning. Questioning is an effective strategy used by teachers to promote higher levels of thinking among students. Maker (1988) expressed the importance of questioning when she said, ñThe most important factor influencing the development of thinking and reasoning in students is the type of questioning employed by the teacherò (p. 8). Teachers may assign students similar tasks, yet encourage students to explore the task deeper through questioning. Through the use of this strategy, teachers must act as facilitators, spending the work time questioning students and encouraging them to immerse themselves in the content. Maker (1988) suggested that teachers ask open-ended questions, which allow for multiple responses through the completion of unrestricted tasks. She proposed that frequent questioning is imperative, with the questions being focused, meaningful, and integrated into studentsô learning experiences.

As a support tool for questioning students at varying levels, teachers are typically taught Bloomôs Taxonomy (Davis & Rimm, 2004; Noble, 2004; Shaunessey, 2000). Davis & Rimm (2004) noted the importance of Bloomôs Taxonomy. ñóBloomôs Taxonomyô made an international impact on education by drawing attention to the difference between ólow-levelô

academic knowledge, which is commonly taught, and ôhigher levelô thinking skills, which everyone seemed to realize were rarely taughtò (Davis & Rimm, 2004, p. 252). The original version of Bloomôs Taxonomy described six levels of increasing cognitive processing, including knowledge, comprehension, application, analysis, synthesis, and evaluation. Pryor (1994) completed a study in which teachers were trained in questioning through Bloomôs Taxonomy and implemented higher level questioning strategies with gifted students in the regular education classroom. The results of the study demonstrated an increase in student scores on the Ross Test of Higher Cognitive Processes. Additional results of the study demonstrated that even after training teachers with this strategy, teachers still felt that gifted students were not receiving sufficient instruction based on their differentiated needs and requested additional support (Pryor, 1994). Evident from the results of the study, questioning can be an effective strategy for promoting higher order thinking among students. Questioning requires less preparation time than some other differentiation strategies, as a teacher may choose to use the same task with all students and only differentiate through asking different types of questions to students during the lesson. However, asking high-quality questions on the spot proves to be a difficult skill for many teachers unless they have planned at least some questions ahead of time and practiced possible questioning scenarios. Although questioning techniques are an important component of a differentiated classroom, as shown through Pryorôs study, many teachers feel that questioning alone does not provide for the needs of gifted students (Pryor, 1994).

Grouping. Teachers may also use grouping strategies to allow for enriched or accelerated curriculum for high ability students (Davis & Rimm, 2004). Teachers may form groups heterogeneously or homogeneously. Heterogeneous grouping is when students of different abilities, interests, or learning styles are placed in a single group for instruction or group

work on a task. The current trend in education is for regular education classrooms to be heterogeneously grouped in elementary school (Rappoport, 2010; Adams-Byers, Whitesell, Moon, 2004; Kulik, 2003).

Although some individuals hesitate to group students homogenously, many gifted education researchers contend that homogeneous grouping for gifted students is an effective practice (Kulik, 2003; Davis & Rimm, 2004). Homogeneous grouping is when students of similar ability, interests, or learning styles are placed together for instruction. This may be a small group within a heterogeneously grouped classroom for a single subject area such as reading or math, or students may be homogenously grouped as an entire class for the instruction of a subject area.

Kulik and Kulik (1982) found that ability grouping had a positive effect on gifted studentsô achievement, yet had little to no effect on the achievement of students who were academically deficient. Students who were ability grouped also had a slightly more positive attitude towards the content area that they were studying (Kulik & Kulik, 1982). Rogers (1991) also reported positive results related to grouping, when she found that both within-class grouping and pull-out grouping in a resource room increased academic achievement, creativity, and various other critical thinking skills. While grouping is somewhat controversial, research supports it as an effective strategy for students with advanced abilities (Adams-Byers, Whitesell, Moon, 2004; Rogers, 1991; Kulik & Kulik, 1982).

Compacting. Compacting is another strategy utilized by teachers to differentiate for gifted students in the regular education classroom. Teachers may use pretests or other measures to determine what content students have mastered prior to the teaching of a unit. During the unit,

students who have demonstrated proficiency in specific content are able to work on advanced or enriched material in place of the mastered material (Reis, Burns, & Renzulli, 1992).

A comprehensive study on curriculum compacting conducted by Reis et al. (1993) found that approximately 95% of teachers were able to identify high ability students and their strengths, while 80% of teachers could indicate areas within the curriculum that students still needed to master and document instructional strategies which would help students master standards. One interesting finding from the study was that up to 50% of the grade level curriculum in mathematics, language arts, science or social studies could be eliminated for targeted high ability students included in the study. Furthermore, when this content was eliminated, there were no differences in the post achievement test results between the treatment who received compacting and control groups who did not receive compacting. Another important finding to consider indicated that although teachers were compacting mastered curriculum, they struggled to replace the curriculum with high-quality, advanced content (Reis et al., 1993).

Stamps (2004) replicated some aspects of the study by Reis et al. (1993), focusing on the effects of compacting with high ability first grade students. Many interesting results arose from this study involving teachers, parents, and students. Teachers in the study were trained on strategies for curriculum compacting. Both teachers in the treatment group noted positive changes in their teaching practices after being trained in and utilizing compacting practices. Students who received curriculum compacting had improved attitudes towards school and the subjects that were compacted. Parents of students who received curriculum compacting had more positive attitudes towards their childôs enrichment activities than parents in the control group (Stamps, 2004).

As evident in these studies, curriculum compacting can have many positive effects for students (Reis et al., 1993; Stamps, 2004). However, teachers implementing this strategy must be careful that the measures used are accurate assessments of the material to be compacted, otherwise they may compact material that students actually need to explore. Additionally, in order to ensure that the replacement tasks are meaningful assignments for students, teachers must ensure that regular education content is replaced with challenging, interesting, and authentic learning opportunities for students (Reis et al., 1993).

Type III Investigations Some schools and teachers provide students with the opportunity to work on independent projects as a result of additional time afforded by curriculum compacting. Independent projects can be designed around studentsô interests and areas of giftedness. The most effective independent projects involve students working on authentic products designed for a real-world audience (Renzulli & Reis, 2008). The students lead their own projects, while working to research the topic and developing the product independently with the teacher working as a facilitator.

Renzulli presented independent, interest-based products called Type III investigations as part of his Schoolwide Enrichment Model (Renzulli & Reis, 2008). Type III investigations are chosen by students based on their interests and facilitated by an adult. This may be the classroom teacher, a gifted education specialist, or an adult within the community. In a K-12 setting Type III investigations typically involve a student pursuing a product for the majority of an academic year and upon completion the student is encouraged to share the finished product with an authentic audience. One example of a Type III investigation was completed by two girls who were concerned about proposed immigration laws in their state. They researched immigration in the United States and specific laws proposed by the state government. The girls

spoke with an immigration lawyer and participated in a rally at the Capitol building. They then created a website to share at their neighborhood community center to teach families about immigration, the proposed laws, and information on becoming a United States Citizen.

Much research has been conducted on the effectiveness of Type III investigations, including using them as a tool for reversing underachievement among gifted students (Emerick, 1988; Baum, Renzulli, & Hebert, 1995), increasing postsecondary education plans (Reis, Schader, Milne, & Stephens, 2003), and improving attitudes regarding school experiences among gifted students with learning disabilities (Olenchak, 1991).

Tiered Lessons. According to Tomlinson (2003), tiered lessons are a substantial base for differentiated instruction. Tiered lessons focus on a specific learning standard, but provide students opportunities to work towards that learning objective at their own personal readiness level. Teachers begin by addressing the content with the entire class through a mini-lesson. The students then work through differentiated tasks during the work session.

Teachers have much flexibility in implementing tiered lessons within their classrooms, in that they may allow students to choose which tier to work on based on a self-assessment of student abilities, or the teacher may assign students to a tier. Teachers may choose to differentiate the tiers by increasing the difficulty of the content presented at each tier. Teachers may also differentiate the process studentsô work through by offering tiers that allow students to utilize different modalities in working with the same concept. Finally, tiered lessons can provide students with the opportunity to develop different content-based products focusing on student interests (Tomlinson, 2003).

Although tiered lessons are a common method for differentiating instruction, limited empirical research exists regarding the use of this strategy with elementary learners. One study

conducted by Adams and Pierce (2007) found tiered lessons that were used with secondary science students. A control group received instruction at a medium level, while an experimental group was taught using tiered lessons, differentiating science concepts for students with low background knowledge, medium background knowledge, and high background knowledge. The researchers found that students with low background knowledge benefited significantly from tiered lessons. Additionally the researchers found that teachers must be provided with support when beginning to implement tiered lessons and respond best with change in practices and beliefs over time (Adams & Pierce, 2007).

Differentiating for Learning Styles. In addition to differentiating curriculum in order to provide students with advanced content, students can benefit from the opportunity to explore the content using their preferred learning style. Many educators consider Gardnerôs (1999) Multiple Intelligences to describe a childôs preferred learning style. These multiple intelligences include linguistic or verbal, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalist intelligence (Gardner, 1999). A person may demonstrate strengths in one or more of the intelligence areas, but not in others. Therefore, a student may benefit from exploring academic content through one or more of his or her intelligences. Teachers may use several strategies to allow for this exploration.

Teachers may also decide to use higher levels of processing through the revised Bloomôs Taxonomy in conjunction with Gardnerôs Multiple Intelligences Theory. These tools have been combined to form the Multiple Intelligence/Revised Blooms Taxonomy (MI/RBT) matrix (Noble, 2002) which, ñprovides sentence stems to suggest learning activities and questions that range from simple to complex thinking in each of the MIsò (Noble, 2004, p. 194). Teachers may present students with a similar concept; however students may address the concept through

varying depths and modalities. In this way, a student may be working on a task that is differentiated both by the level based on Bloomôs Taxonomy and his or her preferred learning style based on Gardnerôs (1999) Multiple Intelligences.

A study using the MI/RBT matrix was conducted by Noble (2004) in 16 classrooms from kindergarten through sixth grade at two elementary schools. Teachers incorporated the MI/RBT for curriculum differentiation in learning centers. According to the researcher, ñThe teachers reported consistently that the typologies of MI theory and RBT helped them in different ways to cater to the individual learning capabilities of the students in their classes and thereby facilitated student successò (Noble, 2004, p. 195). Questioning using the MI/RBT matrix and other processing tools can help teachers to take classroom content to a deeper level for students.

Teachers may also utilize the Think-Tac-Toe method to organize differentiation through various learning styles (Tomlinson, 2003). When designing this strategy, teachers provide students with a Think-Tac-Toe board with nine options of products related to the content. These products may be differentiated based on the studentsô preferred learning styles and allow students to work with the curriculum using Gardnerôs Multiple Intelligences (Gardner,1999). Students are typically required to choose three tasks in a row from the Think-Tac-Toe board as derived from the popular childhood game Tic-Tac-Toe.

Differentiation through Open-ended Activities. A current push in elementary education includes the implementation of open-ended activities. One example of an open-ended activity is writing workshop. Using this strategy, students write daily on self-selected topics, working through the writing process at an individual pace (Fletcher & Portalupe, 2001). Hertzog (1998) argued that this method of teaching allows for differentiation. She advocated for, ñopen-ended activities as a powerful teaching strategy to provide such freedom in a general education

settingò (p. 101). Hertzog (1998) pointed out that open-ended activities are good for all students, including gifted students. She maintained that teaching strategies for gifted students are not required to be, ñappropriate for the gifted and inappropriate for other studentsò (Hertzog, 1998, p. 63). When implementing a model which allows for open-ended activities, teachers sometimes struggle with providing students ample opportunities to work through the activities due to scheduling conflicts. Conversely, the use of open-ended activities requires less teacher preparation time up front and allows for more individual conferencing with students and opportunities to give formative feedback throughout daily lessons.

While the above discussion of differentiated instructional strategies seems quite broad, teachers must receive professional learning using a variety of strategies when attempting to meet the needs of diverse students. Westberg and Archambault (1995) investigated six schools known for their ability to successfully serve gifted students. A common theme among these schools was that schools effectively serving gifted students had teachers who differentiated for students using a variety of instructional strategies. These teachers modified the curriculum, had high expectations for students, encouraged students to pursue their interests through independent projects, provided mentors, and utilized flexible groups. As teachers receive professional learning regarding differentiation, a key aspect to successfully differentiating for students involves varying the differentiation strategies used in order to meet the needs of all diverse learners within the classroom.

Influential Differentiation Research

In addition to empirical research focusing on specific differentiation strategies, many influential studies have been completed which involved a more holistic view of differentiation and the effects on various stakeholders within a school. I will discuss several of these studies below.

One influential study completed by Westberg et al. (1993) focused on differentiation for gifted students in the early 1990s. This comprehensive study looked at 46 third and fourth grade classrooms across the United States to examine the differentiation that occurred for gifted students in regular education situations. Westberg and her colleagues used the Classroom Practices Record (Westberg et al., 1993) to analyze teacher-student interactions, curricular strategies utilized by teachers, and classroom materials provided to students in five subject areas over a 92-day observation period. The study revealed that teachers provided gifted students with little differentiation in the regular classroom setting; results showed that gifted students participated in homogeneous grouping only 21% of the time and received some type of differentiated instructional practices only 16% of the time (Westberg et al., 1993). Additionally, these researchers found that students identified as gifted and talented spent most of their time completing written assignments and listening to lectures, and received significantly less wait time after questioning than average ability students.

Based on these findings, the researchers suggested that pre-service and in-service teacher training should be designed to teach specific differentiation strategies for students with gifted abilities. The gifted education specialistôs role should also be expanded to include opportunities for collaboration with regular classroom teachers. This study has recently been replicated in two states using the Classroom Practices Teacher Survey. One state in the Southeastern United States

surveyed teachers regarding their differentiation practices with mandated gifted education, while the other state, which was in the Midwest, had no gifted education mandate. The replication found similar results as the initial study which showed that limited differentiation occurred for gifted learners in regular education classrooms (Westberg & Daoust, 2003).

In a national study, Westberg and Archambault (1997) analyzed classroom teachers nominated for being exemplary in differentiation for high-ability students in regular education classrooms in 10 elementary schools across the country. Differentiation strategies used within the schools included flexible grouping, advanced level projects, and collaboration to create more challenging work for students. Across the 10 sites, the following themes emerged as being factors that contributed to teachersô abilities to differentiate: teachersô advanced training and knowledge; teachersô willingness and readiness to embrace change; collaboration between teachers; teachersô beliefs about and strategies for differentiating instruction, leadership, and autonomy and support.

A task force commissioned by the National Association for Gifted Children (NAGC) completed a three-phase collaboration study to examine attitudes of regular education and gifted teachers resulting from linking regular education and gifted education practices. During the first phase, the task force developed an interview protocol and established the procedures for data collection and analysis. During the second phase, the experts conducted interviews with two individuals who made valuable contributions to the field of gifted education and two who made valuable contributions to the field of general education. The researchers then analyzed the interview data for recurrent themes (Tomlinson et. al, 1996). During the third phase of the study, the task force reviewed the draft report to critique the information revealed within the report. The final report included a rationale for collaboration, obstacles to collaboration, benefits to

collaboration, and recommendations. Notably, the report stated that obstacles to collaboration include negative attitudes from both gifted and regular education teachers, isolationism, and scarcity of resources. The researchers concluded if teachers are able to overcome these obstacles, there are many benefits to effective collaboration, including enhancing the dynamics of trust among gifted and regular educators, supporting professional development for all educators, and enhancing student learning (Tomlinson et. al, 1996).

A related study conducted by Purcell and Leppien (1998) investigated collaboration practices between general practitioners and gifted teachers to better understand the act of collaboration and the assumptions both teachers bring to the collaborative relationship. Targeted study participants had graduated from a gifted education program within the last four years and were primarily employed as enrichment specialists. Each participant identified a classroom teacher and administrator to participate in the study as well. Participants completed a five-part survey, and the data were matched to the respondent group (enrichment specialist, classroom teacher, and administrator). Data from the survey indicated two important findings. First, the researchers found that collaboration was occurring between gifted and regular education teachers and was often initiated by the enrichment specialist. A second finding illustrated the importance of the assumptions that enrichment specialists and regular education teachers hold for one another in forming and maintaining a positive collaborative relationship.

Johnsen, Haensly, Ryser, and Ford (2002) worked with the Mustard Seed Project to train teachers in differentiation techniques for students with gifts and talents in regular education classrooms and assess the changes in teacher practice and factors surrounding these changes. This mixed method study collected data throughout three stages of the project, including pre-training, training, and post-training. Data consisting of field notes, observations, and interviews,

and the Classroom Instructional Practices Scale were analyzed to determine changes in classroom practices, while field notes, observations, and interviews were used to identify the factors that influenced these changes. This study cited significant changes in classroom practices and an increase in teacher ability to differentiate (Johnsen et al., 2002). Additional findings related to these changes include positive attitudes, a clear vision, freedom to choose goals, staff development activities, mentoring, support among teachers, leadership support, community support, research assistants support, material resources, effects on students, and current practices.

A more recent study on differentiation cited the current trend in serving gifted students in the regular education classroom instead of through a pull-out (e.g., resource) program. Latz, Neumeister, Adams, and Pierce (2009) described the importance of peer coaches or mentors to support teachers in implementing differentiation practices with gifted students served in the regular education classroom. They sought to understand the influence of a peer coach on teachersô understandings and ability to differentiate lessons for gifted students in the regular education classroom. A total of 46 teachers were paired with nine mentors who had been teaching for at least 15 years. These mentors were supposed to conduct three non-evaluative observations per year and give feedback to the mentees. The findings of this study seemed to focus more on the factors that inhibit coaching relationships for differentiation than on the influence a peer coach or mentor has on a classroom teacher. Findings included issues surrounding scheduling and logistics and miscommunications. Despite claiming to conduct non-evaluative observations, one finding was related to the minimal increase in teacher differentiation abilities. This was evident when the study cited that, ñsix of the nine mentors reported minimal differentiation being used by their mentored teachersò (p. 35). A positive

outcome of the study was the fact that teachers were motivated to work with their mentors to become more effective at differentiating for gifted students in the regular education classroom.

The studies described above have benefited the field of education and helped to influence current practices regarding differentiation for students with varied strengths and talents. However, several gaps still exist within the literature. Much of the research on differentiation discusses whether or not teachers differentiated for their students. I wanted to look deeply at the process of differentiation. What do teachers experience as they work to implement differentiation? Which strategies do they implement more readily and why? What type of practices will encourage sustained differentiation implementation? How do teachers negotiate differentiation with other state, district, and school expectations? These gaps include a need to focus on the process that teachers experience when implementing differentiation strategies.

Deweyan Pragmatism and Differentiation

Principles supporting differentiation are imbedded within much of John Deweyôs writing published in the early twentieth century (Dewey, 1902/2001; 1916/1944; 1933). In Deweyôs *The Child and the Curriculum* (1902/2001), he discussed the importance of the focus of education being the child. Dewey believed that the child must be able to assert his or her strengths and work at his or her appropriate mental capacity. In order for this to occur, teachers must know their students and have an understanding of the whole child. Dewey (1933) proposed that:

> The more a teacher is aware of the past experiences of students, of their hopes, desires, chief interests, the better will he understand the forces at work that need to be directed and utilized for the formation of reflective habits. The number and quality of these habits vary from person to person. (p. 36).

He also warned against education designed with a ñone size fits allò mentality. Curriculum must be designed according to the specific needs, interests, and capabilities of the students who will be benefitting from the educational experience. Dewey (1916/1944) further developed this point when he wrote, ñThere is also an inclination to propound aims which are so uniform as to neglect the specific powers and requirements of an individual, forgetting that all learning is something that happens to an individual at a given time and placeò (p. 108). Dewey recognized the importance of differentiating educational experiences for students and providing them with opportunities to constantly grow through reflection. The latter can only be achieved if the experiences are designed with the individual student in mind.

Deweyôs philosophy provided educators with principles rather than specific recommendations. In looking at these principles, Dewey hoped educators and philosophers would expand upon his own philosophical beliefs. One belief that has been expanded upon by many scholars through theoretical and practical means is interest-based inquiry (Davis, 1998; Fishman & McCarthy, 2001; Renzulli & Reis, 2008).

Critics of Deweyôs work are often skeptical of the ability to connect the studentsô interests and the required curriculum (Breault & Breault, 2005; Fishman & McCarthy, 2001). However, Dewey (1915/2001) warned of the careful attention required when planning differentiated experiences for students:

> It is clear with the increasing differentiation of lines of work and interest, leading to greater individuality and independence in various studies, great care must be taken to find the balance between, on one side, undue separation and isolation, and, on the other, a miscellaneous and casual attention to a large number of topics without adequate emphasis and distinctiveness to any (p. 68).

There must be a balance between having students choose what they will learn with no interference from the teacher, and students having no voice regarding their studies. While the students should be able to pursue inquiries based on topics which interest them, the teacher must be there to question students and support them with material that will provide tension to the learning experience. The teacher must provide learning opportunities for the students, not just the teacher, to think critically and creatively (Fishman & McCarthy, 2001). Fishman and McCarthy (2001) argued, ñSince we cannot hand over ideas like bricks, students will have to develop their ideas and reconstruct themselves through their own struggles with assigned material and one anotherò (Fishman & McCarthy, 2001, p. 20). Through these struggles, Fishman and McCarthy (2001) challenged teachers to teach indirectly in order to encourage students to acquire new information and develop skills needed for deeper inquiry. According to Davis (1998), ñWe can and must plan for experiences so that our students engage tasks in such a way that their experiences will be richerò (p. 172).

Process Skill Development

The following discussion addresses process skill development. Process skill development can have many different meanings. Therefore, I begin by discussing the definitions of process skills development which I employed in this study. I will then describe specific process skills and research related to these specific strategies as well as research focusing on process skill development in a broad sense. Finally, I discuss how process skill development aligns with Deweyan pragmatism.

Defining Process Skill Development

For the purpose of this study, process skills are defined as skills which allow the learner to manipulate and utilize knowledge for multiple purposes. Rather than focusing only on

acquiring new knowledge and facts, process skill development seeks to make learning authentic. Process skill development often employs an inquiry-based approach where students take responsibility for their learning and the skills necessary to achieve an authentic learning outcome. Process skills are more meaningful when embedded into tasks and learning explorations rather than taught in isolation (Seney, 2005). This study focuses on process skill development based on Type II skills, a component of the Schoolwide Enrichment Model (SEM) (Renzulli & Reis, 2008) and Twenty-First Century Skills (Partnership for Twenty-First Century Skills, 2009).

Process skill development is widely known as a component of the Schoolwide Enrichment Model (SEM). Renzulli and Reis (2008) called for a change in the school-wide curriculum in order to provide all students with enriched curriculum through the implementation of SEM. This model includes several components to enrich and differentiate the curriculum for all learners, including Type I, Type II, and Type III enrichment opportunities, and enrichment clusters. Type I enrichment exposes all students to a variety of careers, disciplines, topics, and interests through guest speakers, books, learning centers, websites, and presentations. Sometimes students are able to choose if they want to participate in a Type I enrichment experience, but sometimes they are provided to all students in a classroom. However, students who become interested in a topic or problem introduced by a Type I are encouraged to pursue further in-depth study through a Type III enrichment experience. Type II enrichment opportunities provide all students with advanced process skill training including creativity, critical thinking, analysis skills, research skills, and ñhow to learnò skills. Often these Type II skills are also introduced in a differentiated manner depending on the needs of the students. Type III enrichment investigations are in-depth studies that students choose to develop based on their interests and strengths.

Students take on the role of a practicing professional using process skills and advanced content knowledge to develop a product or service. Finally, Enrichment clusters are small group explorations facilitated by teachers throughout the school. Students choose a cluster based on their interests and work together with peers to develop a product or service which addresses a real world problem. Throughout the components of the School-wide Enrichment Model, the complexity of the learning experience is increased for all students. However, a great deal of choice and the level at which students begin to explore disciplines and solve problems is differentiated for individual students.

When discussing process skill development, an important component of the SEM includes the development of Type II skills or process skills. Many educators agree that students should be taught higher-order thinking skills and creativity in the regular education classroom (Torrance, 1965; Struck, 2003;Renzulli & Reis, 2008). Type II process skills include a) creative thinking and problem solving, critical thinking, and analytical processes; b) affective and character development skills; c) a wide variety of specific learning how to learn skills; d) skills in the appropriate use of advanced level reference materials; and e) written, oral, and visual communication skills (Renzulli & Reis, 2008). See Appendix A for a list of Type II process skills. In addition to the process skill categories listed, often students will need additional process skills more specific to an independent exploration. Process skill development may occur as a whole-class learning experience, small group exploration, or as part of a studentôs independent project.

The Partnership for Twenty-First Century Skills (2009) developed a framework for practitioners that integrates knowledge, skills, and expertise into the curriculum in order to help students succeed in society now and in their future work environment. The framework supports a

balanced approach, with the foundation of student learning built on the core academic subjects, including mathematics, language arts, art, history, world languages, economics, science, geography, government and civics, and reading. However, The Partnership for Twenty-First Century Skills (2009) argued that, ñWithin the context of core knowledge instruction, students must also learn the essential skills for success in todayôs world, such as critical thinking, problem solving, communication and collaborationò (p. 1). In addition to Twenty-First Century Skills and core knowledge instruction, the framework also supports the interweaving of interdisciplinary themes such as global awareness, financial and economic literacy, civic literacy, health literacy, and environmental literacy.

While Twenty-First Century Skills and interdisciplinary themes were presented by The Partnership for Twenty-First Century Skills, Renzulli and Reis (2008) have been promoting this type of instruction through Type II skills as a component of SEM since the 1970s (Renzulli, 1977). Jacobs (2010) argues, ñIn truth, except for specific media skills, the entries do not look significantly different from skills that might have been proposed 30 or 40 years agoò (p. 27). Both Type II skills and Twenty-First Century Skills have a focus on providing students with opportunities to develop their creativity, critical thinking, communication, collaboration, technological, and life skills. In order to better educate the Twenty-first century student, I worked with a colleague, Abby Johnson Hughes to create an updated version of Twenty-first century Type II skills originally created by Deborah E. Burns. Appendix A provides a list of Type II skills linked with Twenty-first Century Skills. These skills and supporting research is discussed in the following section.

Research Surrounding Specific Process Skills

Cognitive Training. Buddha once said, ñWhat we think, we become.ò A goal of education should be to provide our students with opportunities to strengthen their cognitive skills and become independent thinkers with the ability to deliberate and reason. Researchers have supported the incorporation of cognitive training in the classroom (Renzulli & Reis, 2008; Cramond, 2002; Torrance, 1965). Cognitive training includes analysis skills such as comparing and contrasting, predicting, and pattern finding; organization including skills like goal setting, formulation of questions, decision making, and summarizing; critical thinking skills such as inductive and deductive thinking, determining the strength of an argument, and logical thinking and reasoning; and creativity including skills such as creative problem solving, fluency, flexibility, elaboration, and originality.

Torrance (1965) discussed the implementation of self-initiated learning in relation to cognitive development. He believed that students need the opportunity to explore topics by choice, not working completely alone, but making use of experts of many kinds. He also believed that students should be allowed to learn on their own and discover knowledge rather than always being told the answer. Torrance (1965) stated, ñThere are times when the teacher would be wise to leave most of the planning of an activity to students. Let them plan in advance and make their own decisionsò (p. 43). Additionally, students should be exposed to academic disciplines as ways of thinking. He believed that education should focus on problems and gaps in knowledge. In this way, he thought, ñsome students who were mediocre achievers become the high achievers and vice versaò (Torrance, 1965, p. 44). He indicated a responsive environment is also important to providing students with opportunities for process skill development and differentiation, in which children are ñpropelled through their curiosity,ò and teachers design

instruction in response to the students and their needs and interests (Torrance, 1965, p. 44). Another frontier suggested by Torrance supported a revised concept of readiness. He believed that teachers should challenge students by sometimes giving them problems that may be too difficult to solve. Upon the presentation of such problems, students should be trained on various coping skills. Finally, Torrance believed that children, specifically gifted children, should be taught how to love themselves and value their individual gifts and talents.

Cramond (2002) also discussed the importance of teaching cognitive process skills. She argued that creativity is more than simply an artistic expression and includes a studentôs ability to problem solve and think critically. Cramond (2002) separated creativity into two types: expressive and adaptive. She defined expressive creativity as creativity which communicates the creatorôs emotional senses. Adaptive creativity is used to address a problem and develop a new and meaningful solution. Cramond (2005) argued that teachers should infuse specific creativity strategies into the classroom in order to promote the development of attitudes and thinking skills that encourage creativity.

Affective and Character Development Skills. For decades, educators and researchers have encouraged the incorporation of affective development into schools (Kohlberg, 1976; Sisk, 1982; Renzulli & Reis, 2008). With the increased attention on bullying in the twenty-first century, affective and character development among students is even more necessary. Affective and character development include skills such as being able to develop moral reasoning, self-esteem, responsibility, task-commitment, multicultural awareness, social skills, environmental awareness, and the ability to deal with critical life incidents.

Our understanding of the importance of affective and character development was developed by the work of Kohlberg in the 1970s. Based on a 12 year study with 75 boys,

Kohlberg (1976) developed a stage model to describe the moral development of individuals. His six stages of moral development are divided into three main levels which each contain two stages. The first level is the pre-conventional level. In this level, the behavior is influenced by the physical consequences of the action. The second level, the conventional level, the orientation of behavior is related to societal influences including stereotypes, social conventions, rules, and laws. The third level is the post-conventional level in which the individual has an understanding of universal and personal moral principles.

In response to the study, Kohlberg (1976) maintained that teachers should expose students to one step above their current stage of moral development and encourage them to think at this higher level of morality. In this way, affective processes should be taught in regular classrooms and should also be differentiated for students. Nugent (2005) suggested the incorporation of affective processes through a variety of instructional strategies including, classroom climate, the incorporation of arts, bibliotherapy, cinematherapy, character education, service learning, and self-understanding activities.

Roeper (1995) believed that if studentsô affective needs were not addressed, students were likely to adopt unhealthy lifestyles or maladjusted behaviors. However, if teachers recognized the importance of affective development and incorporated this type of training into the classroom, students would face challenges with the appropriate behaviors and coping mechanisms, which in turn would allow them to reach their full potential.

Learning How to Learn Skills. Another component of process skill development includes teaching students how to be lifelong learners by learning how to effectively learn new

concepts and skills. This includes learning how to listen and observe others, organize new information through note taking and outlining, interview individuals, survey groups to obtain pertinent data, and organize and analyze data.

When discussing the process of teaching students how to take notes and create organizers for themselves, positive effects of using graphic organizers have been found at all stages of learning (Hudson, Lignugaris-Kraft, & Miller, 1993). However, researchers have also found that an important component of making graphic organizers effective with increasing student learning includes teaching students how to use the graphic organizers, create them themselves, and eventually be able to design their own organizers which are appropriate for the learning situation (Carnes et al. 1987; Clements-Davis & Ley, 1991).

Interviewing is also a ñlearning how to learnò skill that benefits students. When students learn interview skills, they begin to realize the knowledge that can come from human resources. Interviewing also incorporates numerous skills including the ability to develop questions, communicate with others, and synthesize information upon completion of an interview. Sebranek, Meyer, and Kemper (1990) shared tips for students who are developing interviews including asking open ended questions and making eye contact with interviewees. By sharing tips for this process rather than just sending students into an interview unprepared, teachers are helping students to develop multiple process skills that will assist them in other situations later in life.

Advanced Level Reference Materials. Students should also be able to utilize advanced level reference materials as they design and carry out independent explorations. In order to carry out these types of explorations, students should be able to problem find and develop research

questions of interest, utilize library resources including print and technological resources, and identify community resources which would strengthen advanced level research related to independent explorations.

Several curriculum models include components which allow students to create independent research projects (Renzulli & Reis, 2008; Maker, 2005; Betts & Kercher, 1980). Research has been found that supports the process skill development that occurs while students are participating in independent research projects (Renzulli & Reis, 2008; Stephens & Karnes, 2005). Stephens and Karnes (2005) noted the importance of independent projects in strengthening process skill development stating, ñThe act of product development is multifaceted in scope and sequence, and, through the production process, gifted students can develop, enhance, and evaluate a wide-spectrum of content and process skills, thus adding to the advancement of self-esteem, self-analysis, and self-actualizationò (p.152).

Stephens & Karnes (2005) highlighted seven stages that a student works through when developing a product including, formulating their topic, organizing the process, transforming learned content, communication, evaluation, celebration, and reflection. Each of these steps requires the incorporation of multiple process skills imbedded into a learning experience that is meaningful and relevant to the student.

Communication Skills. Students must develop the ability to communicate effectively either through verbal, written, or artistic means in order to be successful in the twenty-first century. A five phase process was presented by Tchudi and Mitchell (1999) in which communication skills could be formally developed. Through this process, students incorporate the process skill of communication through teachers involving and engaging them in a topic.

Then students explore the material, transform the material as they gain new understandings, present the information to others through formal presentations, and reflect on their process.

Zaremba (2005) studied the process of teaching communication skills in elementary schools with third through sixth graders. Results from the study indicated that students were able to share the meaning of communication, discuss reasons for communication, explain five elements of the communication process, and identify factors that have an effect on this process. As a result of the study, Zaremba (2005) contended that communication instruction was both necessary and successful with elementary students.

Influential Literature on Process Skill Development

According to *A Nation at Risk* (National Commission on Excellence in Education, 1983), ñAmerican students lack rigorous thought and perhaps even thinking is not valued in our schoolsò (p.2). This assessment of United States Schools demonstrates that process skill development is not a high priority in most classrooms. In response to recent school reform initiatives, Noddings (2007) contended that successful teachers know that student learning is more than what is measured by test scores. She encouraged educators to teach more than simply facts, but to focus on process skill development:

> Scores on a standardized math test will not tell us what a teacher has done to encourage intellectual curiosity in the arts, literature, science, history, or a host of subjects that can be related to mathematics. Similarly, test scores will not tell us how students have grown (or deteriorated) as citizens or as considerate peers under this teachersô tutelage (p. 42).

Noddings (2007) believed that our students should develop wholly as individuals in schools, through the teaching of not only facts related to content areas, but also process skills.

Maker (2005) also shared research by the National Science Association (1996) and National Council for Teachers of Mathematics (2000) that promoted the use of process skill development based on a constructivist approach. The following elements characterize this approach: constructing new knowledge from existing knowledge and understandings, focusing on higher-order thinking and problem solving, integrating skills into ñreal-worldò tasks, utilizing a variety of resources that are authentic to the task, covering fewer topics in greater depth, and students working as builders of their own knowledge (NAS, 1996; NCTM, 2000).

Other researchers have also recognized the importance of teaching students process skills within schools. In addition to the Schoolwide Enrichment Model, multiple curriculum models encourage the incorporation of process skills into the curriculum. Tomlinson et.al (2003) argued for the importance of curriculum models incorporating process skills by saying, ñWhile the majority of young learners do not reshape fields of human endeavor, they can, nonetheless, begin to work like professionals in a field. This type of authentic work is a part of the progression from novice to expert and should be central in curriculum designò (p.8).

Parallel Curriculum Model (Purcell, Burns, & Leppien, 2002) is a set of four interrelated and parallel designs for organizing curriculum. Parallel Curriculum Model includes core, connections, practice, and identity. The core supports a deep understanding of the curriculum, while connections link the content to themes across time. Practice involves process skill development, where learners develop advanced methods which relate the content to real-world application. Finally, identity looks at the personality traits required to obtain self-actualization in the field.

Betts Autonomous Learner Model (Betts, 1985), a widely used curricular model (Betts, 1986), relies heavily on process skill development. The model focuses on five dimensions of

learning including: orientation, individual development, enrichment, seminars, and in-depth study. Within the individual development dimension, opportunities for process skill development are provided to students through the incorporation of inter/intrapersonal skills, learning skills (creativity, critical thinking, problem solving, decision making, etc.), technology, college and career involvement, organizational skills, and productivity.

Another curricular model which focuses on process skill development is Makerôs DISCOVER Model (2005). This model is based on principles for identified gifted students but supports the use of the model with all students. The principles of this model include: integrated, interdisciplinary content, higher order thinking and problem solving, the development of independent products based on studentsô interests, student interaction with others, experts, and differing and supportive learning environments. Additionally, the DISCOVER curriculum model supports the integration of arts and the development of various problem solving abilities.

Van Tassel-Baska (1994), developer of the Integrated Curriculum Model, discussed six features of process skill implementation in order to encourage maximum transfer by students. These features include the process skills being well-defined, addressed consistently over time, taught within the content and independently, organized by a scope and sequence and utilized grades K-12, modeled by the classroom teacher, and supported through questioning techniques.

While much literature has been written related to specific process skills and curriculum models which seek to teach process skills to students, there is minimal research that explores teachersô experiences in incorporating process skills into the regular education curriculum. Views from teachers are especially important in response to the tensions stemming from recent educational reforms including No Child Left Behind 2001 and Race to the Top 2009 which have implemented policies that some researchers say limit teachers ability to implement process skill

development and differentiation (Noddings, 2005). This study will address teachersô experiences in implementing process skills into regular education classrooms.

Deweyan Pragmatism and Process Skill Development

A focus on student learning through inquiry can incorporate multiple process skills. Dewey believed that a true education for students occurs through inquiry-based learning. Inquiry provides students with opportunities to identify authentic problems, ask questions, and search for solutions. Through this process, ñA person who has gained the power of reflective attention, the power to hold problems, questions, before the mind, is in so far, intellectually speaking, educatedò (Dewey, 1915/2001, p. 93).

Inquiry gives students a sense of puzzlement (Pring, 2007). Dewey felt that students needed to struggle at times to make sense of the knowledge for themselves. If students are engaged in a study of interest, they will learn how to handle the ambiguity presented through the inquiry with discipline and effort. Teachers should be aware of this process and help students push forward through times of uncertainty and struggle by providing support through process skills and studies of similar problems in the past (Dewey, 1938).

Through inquiry, students identify a problem and search for meaning. Inquiry is more than simply learning about different symbols from the past or preparing for a future career, ñbut active centers of scientific insight into natural materials and processes, points of departure whence children shall be led out into a realization of the historic development of manò (Dewey, 1915/2001, p. 14)). Students have questions about the world around them and consciously decide to answer these questions through the use of reflective thinking, reasoning, and deliberation. Students are actively engaged in choosing the relevant material which will help them answer the

question and find a solution to their specific problem. In this case, the students inherit the problem and assert control over their own learning through the search for a solution (Dewey, 1915/2001).

When students begin an inquiry, their work brings about the development of multiple curriculum areas, normally separated by educators into different subject areas. As a society, we have compartmentalized topics into subject areas such as science, language arts, math, and social studies. However, in real-world inquiries, these ñstudies are naturally unifiedò (Dewey, 1915/2001, p. 55). As students ponder various questions related to the problem at hand, they are required to utilize information, materials, and processes from multiple disciplines and areas. In fact, Dewey (1916/1944) contended that in order for schools to have full efficiency, students must have the opportunity to pursue activities which conjoin these multiple disciplines in order that students begin to gain an understanding of their own powers and of materials and processes used in the past. Activities which allow for these opportunities are authentic learning experiences.

In most traditional schools, learning is a process through which students learn and understand certain symbols which are predetermined by the teacher and focus only on outcomes (Dewey, 1915/2001).The child is required to participate in specific activities to obtain knowledge or prepare him for something else he *may* do in the future. In this case, the information does not become a part of the experience of the child and therefore is not ñtruly educativeò (Dewey, 1959, p. 24). So often, time is spent on learning skills and facts that *may* be of use in the future. However, very rarely is the information remembered or even needed in future situations or careers (Dewey, 1938/1998). In this case, time and energy are wasted on things that have little value to the child or our society (Dewey, 1916/1944). Authentic learning experiences do not

focus on such symbols and general knowledge unless they further the understanding of the learning experience under study at the present time. In this case, students feel the need to truly learn the information and make it a part of their being.

For some individuals, memorizing facts and symbols and accumulating information is interesting and maintains discipline (Dewey, 1915/2001). However, for many people, intellectual knowledge is not enough. ñThe simple facts of the case are that in the great majority of human beings the distinctively intellectual interest is not dominantò (Dewey, 1915/2001, p.19). The majority of individuals feel the need to do, act, create, and produce in order to have an educative experience (Dewey, 1915/2001). Authentic learning experiences provide students with opportunities to experience and connect to things which have already come before them, are happening now, and will come again in the future.

In *The Child and the Curriculum*, Dewey (1902/2001) explored three evils that exist if learning is not authentic. First, if there is no organic connection with things children have already seen and felt in their lives, the material means little. It is symbolic and formal. Second, if authentic learning is not occurring, students have nothing in which to connect the new material. This lack of connection creates a lack of desire for learning among children. Finally, Dewey (1902/2001) pointed out that even the matter which seems so interesting and engaging to adults will lose this quality by the time it gets to the child if it is presented in an ñexternal, ready-made fashionò (p. 119).

Experiences that encourage students to solve authentic problems and search for meaning also deepen their understanding of a topic and create a connectedness to the past and the future. According to Dewey (1938/1998), ñIn a certain sense every experience should do something to

prepare a person for later experiences of a deeper and more expansive quality. That is the very meaning of growth, continuity, and reconstruction of experienceò (p. 47).

In authentic learning experiences, students develop the ability to become reflective and critical thinkers. As defined earlier, reflective thinking is when a student thinks deeply about a subject and is continuously processing the information in different ways as to create new knowledge. Reflective thinking is not memorizing facts and regurgitating information on an exam or through a recitation. Learning in this way means simply to acquire what is already known in books or in the minds of others. This type of learning is static and taught as a finished product, without paying any attention to how the material was originally developed or to the changes that will occur in the future (Dewey, 1938/1998). Instead, reflective thinking begins with a state of doubt or perplexity when faced with an authentic problem. Students then begin the act of searching and inquiring in order to find material which will resolve the doubt (Dewey, 1933).

Students must be presented with learning experiences that encourage their thinking processes. In order for students to further develop these skills, the following opportunities must be provided. First, children should have an authentic situation which they are interested in exploring. Second, students must uncover a genuine problem in this area. Third, they must possess the background information and make the observations needed to deal with the problem. Fourth, they need to be able to develop appropriate solutions through flexible thought processes. Lastly, children must be able to test their final solutions for accuracy and determine future steps (Dewey, 1916/1944).

Dewey (1933) presented three values to critical and reflective thinking in his book, *How We Think*. First, thinking makes action possible with a conscious aim. Rather than simply acting

on impulse, students who are reflective thinkers are able to direct activities and plan accordingly to reach a goal. Also, reflective thinking allows individuals to develop and arrange signs which remind them of consequences. They plan strategies ahead of time that help avoid and overcome setbacks. Finally, reflective thinking enriches a childôs understanding with meaning. Things which once would have been strange to students begin to mean something once they have had opportunities to experience these things through critical thought and through process skill development. If educators wish to produce citizens with thinking skills Dewey (1933) suggested:

> The only way to increase the learning of pupils is to augment the quantity and quality of real teaching. Since learning is something that the pupil has to do himself and for himself, the initiative lies in the learner. The teacher is a guide and director; he steers the boat, but the energy that propels it must come from those who are learning. (p. 36).

Professional Learning

Education for teachers does not end as newly certified teachers walk across the stage to receive their undergraduate degree. Webster-Wright (2009) argues, ñThe need for continuing professional development (PD) to maintain high-quality practice is widely identified as an implicit responsibility of professionals today, reinforced by explicit requirements of professional standards and registration proceduresò (Webster-Wright, 2009, p. 702). As educational reform has become a front runner on the national agenda, professional learning is often looked at as the key to this reform (Wilson & Berne, 1999).

Many early researchers of PD built theories around models of PD to describe and organize the process of teacher change. One such example of a PD model is the Concern Based Adaption Model (CBAM). The CBAM argues that PD must take into account the individualôs level of concern towards the learning opportunity and target approaches based on seven different

stages of concern which include, awareness, informational, personal, management, consequence, collaboration, and refocusing (Hord et al., 1987). According to the CBAM theory, change results from the type of questions an individual asks and how he or she is able to use the change. A goal of the CBAM is that PD opportunities will support teachers as they grow from simple awareness of a skill to being able to take the skill and refocus it in order to make it even better than when it was presented.

Although the use of models to organize and describe the process of professional learning is common, current researchers argue against the use of stage models (DallôAlba & Sandberg, 2006). A concern with stage models is that ña focus on stages veils more fundamental aspects of development; it directs attention away from the skill that is being developedò (DaôAlba & Sandberg, 2006, p. 388.) DaôAlba & Sandberg (2006) argued that a fundamental component of professional skills and abilities is overlooked when basing PD on stage models. This fundamental component includes the understanding of the professional skill in practice. Other researchers agree with the importance of focusing on professional learning as it occurs through experiences in the context specific to the practicing professional (Webster-Wright, 2009).

Modern researchers look for a shift in the definition and process of PD provided to teachers from uniformed, whole group, presentations to more meaningful continuous professional learning (CPL) (Abdal-Haqq, 1995; Webster-Wright, 2009; Wilson & Bern, 1999). Abdal-Haqq (1995) maintained that effective professional learning:

1. Is ongoing
2. Includes training, practice, feedback; opportunities for individual reflection and group inquiry into practice; and coaching or other follow-up procedures

3. Is school based and embedded in teacher work
4. Is collaborative, providing opportunities for teachers to interact with peers.
5. Focuses on student learning , which should, in part guide assessment of its effectiveness
6. Encourages and supports school-based and teacher initiatives
7. Is rooted in the knowledge base for teaching
8. Incorporates constructivist approaches to teaching and learning
9. Recognizes teachers as professionals and adult learners
10. Provides adequate time and follow-up support
11. Is accessible and inclusive (p.1)

Many researchers support the move away from one day professional development opportunities to ongoing learning opportunities, where professionals learn through experience working within their practice, have the freedom to reflect on their learning, and receive support in individual learning within a specific context (Garet et al., 2001; Lieberman & Miller, 2001, Webster-Wright, 2009). Webster-Wright (2009) warned against the one day professional development session when she said, ñNot only does this approach tend to imply a transmission model of teaching, and learning, but it also moves the emphasis from the ñknowledge deficientò professional to the ñknowledge possessingò providerò (p. 713). Wilson & Berne (1999) also argued that ñteacher learning ought not to be bound and delivered but rather activatedò (p. 194).

Despite these recent findings over the past few decades, when scanning the literature, most of the discourse surrounding professional learning focuses on the development of professionals through the implementation of specialized programs, rather than deepening the understanding of teachersô experiences with professional learning (Webster-Wright, 2009). Webster-Wright (2009) supported a ñfocus on learning rather than developmentò and argued for

continuous professional learning (CPL) that linked formal learning opportunities with informal learning at work (p. 714). She encouraged research designed to ñunderstand the professionalsô experiences of learning in a way that respects and retains the complexity and diversity of these experiences, with the aim of developing insights into better ways to support professionalsò (Webster-Wright, 2009, p. 714). Webster-Wright (2009) did not believe that professionals, like other learners, could be controlled and forced into learning. However, she believed that they could be supported to learn at their own pace, in their own authentic way, when given opportunities for learning in their specific working and learning context.

Importance of Professional Learning and the Link to Deweyan Pragmatism

Garrison, an influential researcher and Deweyan scholar, (1997) maintained that, ñthe most important thing practitioners can do to improve the quality of their practice is to improve themselves. That involves developing the habits, abilities, thoughts, ideals, technical mastery, and virtues of practiceò (p. 73). There is no such thing as a perfect teacher. Teachers must always improve their practice and be open to change depending on the particular students and the world context. Additionally, although teachers must care for their students, Garrison (1997) believed that in order for teachers to continue to grow and remain invested in the field of education they must allow others to take care of them.

Throughout Deweyôs work, he discussed the importance of teaching students to learn how to fall in love with a task and sustain motivation in working on the task through a passionate desire to see it to completion (Dewey, 1902/2001, 1933, 1959). Garrison (1997) related this belief to teachers and the passion they must have for working with students and helping them realize their own desires when he wrote, ñAnswering the call of the vocation to teach with discipline, dedication, and deliberation allows the practitioner to call into existence within herself

the poetic capacity to call into existence the goods of the practice in others (p. 76). His view on teaching looks at it less as a career, and more as a calling and a passion where teachers have the right to be imaginative, creative, and reflective of the current situation at hand.

Vagle (2008) expanded on this belief with his discussion of teacher dispositions. Vagle (2008) suggested that written teacher dispositions should have a passionate capacity in order to deepen the level of the disposition. Rather than being general and abstract, descriptors should encourage passionate behavior from teachers that leads the learner towards growth. This growth should be achieved not through a dualist interchange in which the teacher and the student are acting separately from one another, but with a connectedness, in which one simply cannot exist without the other (Vagle, 2008).

Among the dispositions necessary for teachersô enhanced growth is their need to seek wisdom through practice. Teachers must look past established habits and be open to growth and change. They must be aware of their students and the tools and strategies available to them. Sometimes productivity is inhibited by what is available in that, ñIt requires wisdom to determine what is really possible given current conditionsò (Garrison, 1997, p.72). However, teachers must be encouraged to be imaginative, take risks, and have expansive dreams for students (Vagle, 2008). Teachers must use deliberation to look into the future and imagine the possibilities that exist for students in a given situation. Vagle (2008) believed that educators must be brave enough to imagine and take risks.

According to Dewey (1902/2001), intellectual, moral, and social growth is a goal of education. This growth should be continued throughout life. Students should be taught to seek out this growth through learning by experiences for the remainder of their lives. Individuals

should constantly strive to reexamine and revise existing knowledge and be open to the possibility of growth. Learning should be never-ending, except in death (Pring, 2007).

The importance of experience is discussed by Dewey throughout essays, books, and speeches. Ideas surrounding experience are interwoven throughout almost every page of every chapter. Dewey believed that individuals learn through experience. He contended that active learning is necessary and that thinking cannot be separated from doing (Dewey, 1902/2001) when he stated, ñIn schools, those under instruction are too customarily looked upon as acquiring knowledge as theoretical spectators, minds which appropriate knowledge by direct energy of intellectò (Dewey, 1916/1944, p. 140).

Dewey believed that sitting and listening as a passive learner does not require reflective thinking. In fact, reflective thinking may be more than just the sheer experience of even doing. Reflective thinking was defined by Dewey (1933) as, ñthe kind of thinking that consists in turning a subject over in the mind and giving it serious and consecutive considerationò (p.3). For reflective thinking to occur, learning must be a communication between the teacher and the student where they are ñsharing an experience till it becomes a common possessionò (Dewey, 1944, p.9). Dewey (1938) believed that the learner must be involved in the act of learning and contribute to his or her own experience within the classroom. He truly believed that knowledge was not stagnant and final, but could be further developed through inquiry and connections made with the past. This discussion is also relevant for teachers as they learn new practices such as differentiation and process skill development. Rather than teachers simply sitting and listening to a presenter discuss new strategies to implement, teachers must actively engage in the practice in order for them to fully become responsible for their own learning.

Closing: Finding a Link between Process Skill Development, Differentiation, and Professional Learning

When reflecting upon the research presented in this literature review, the importance of a study related to teachersô experiences of differentiation and process skill development is evident. With regard to differentiation, numerous studies have been conducted which look at the frequency of differentiation occurring in the classroom and strategies used to help teachers differentiate (Archambault,et al., 1993; Adams & Pierce, 2002; Hertzog, 1998; Johnsen, et al., 2002; Latz et al., 2009). However, few studies have focused deeply on the experiences of teachers. Studies which involve process skill development typically focus on specific curriculum models or skills (Burns, 1987; Kohlberg, 1976; Betts, 1986; Hudson, Lignugaris-Kraft, & Miller, 1993; Maker 2005; Zaremba, 2005). Instead, this study examined process skill development as a whole and focused on teachersô experiences in implementing process skills. Additionally, I believe that process skill development and differentiation go hand-in-hand in the classroom. I believe that in order to identify where the field needs to grow in the areas of process skill development and differentiation and create a link between these two strategies, we must gain a deeper understanding of the experiences of teachers who are actually implementing these strategies. In this study, professional learning was employed in which the teachers implemented strategies of differentiation and process skill development with meaningful support from a colleague who worked in their classrooms as a peer, learner, collaborator, and enrichment specialist.

Although this study focused on the experiences of teachers, it is my belief that a focus on teachersô experiences will enlighten educators and researchers on changes that should be made to

the educational process in order to better provide differentiation and process skill development to all learners. I believe Dewey (1915/2001) said it best, when he declared:

> When the school introduces and trains each child of society into membership within such a little community, saturating him with the spirit of service, and providing him with the instruments of effective self-direction, we shall have the deepest and best guaranty of a larger society which is worthy, lovely, and harmonious. (p. 20)

CHAPTER 3

METHODS

Statement of Purpose

The purpose of this study was to examine the experience of teachers as they implemented process skill development and differentiation practices into regular education classrooms. While teachers were provided with a variety of professional learning opportunities surrounding the implementation of these practices, it was of interest to explore the process of teacher implementation of these skills as they naturally occurred in the regular education classroom. Teachers began at different levels of comfort and ability regarding the implementation of differentiation and process skill development. Examining the process of implementation revealed a better understanding of the experience of a pedagogical growth, in this case through differentiation and the implementation of process skill development.

The importance of experience was discussed often by Dewey. He believed that individuals learn through experience. This is illustrated through a statement he made in his pedagogical creed, ñI believe that the only true education comes through the stimulation of the childôs powers by the demands of the social situations in which he finds himselfò (Dewey, 1959, p. 20). In the same way, teacher growth is better understood through the natural experience of implementation, as thinking cannot be separated from doing (Dewey, 1902/2001). This study focused on how differentiation strategies and process skills were implemented with all learners, but paid special attention to how teachers utilized strategies to meet the needs of learners who demonstrated mastery or advanced abilities in a particular curriculum area.

Research Question

This study was guided by the overarching research question: How do teachers experience implementation of differentiation practices and process skill development in the regular education classroom?

Secondary questions were also explored to highlight aspects of the research question related to examining teacher experiences. These secondary research questions included:

- What processes do teachers experience as they implement differentiation practices and process skill development?
- What external factors affect teachersô implementation of differentiation practices and process skill development?
- How do teachers perceive the implementation of differentiation practices and process skill development?

Multiple Case Study Research Design

This instrumental, multiple case study design used qualitative methods. In this study, I hoped to gain a deeper understanding of the phenomenon of teachersô experiences regarding the professional learning opportunities and implementation of differentiation and process skill development into the regular education classroom. Qualitative inquiry allowed me to ñfocus on relatively small samples [é] selected purposefully to permit inquiry into and understanding of a phenomenon in depthò (Patton, 2002, p. 46). By using qualitative methods, I was able to delve into the phenomenon as a participant observer and understand how this affected the experiences of the individual cases (Patton, 2002).

The study was an instrumental multiple case study which used the cases to gain a deeper understanding of the phenomenon under study (Stake, 2006). I chose to look at three cases

during this intensive study to gain a deeper sense of the experience and perceptions of teachers as they developed their practice. See Appendix B for a graphic of the research design. According to Stake (2006), ñAn important reason for doing the multi-case study is to examine how the program or phenomenon performs in different environmentsò (Stake, 2006, p. 23). Each of the cases provided the opportunity to study the phenomenon in depth; however, the individual cases allowed for a diverse exploration into the phenomenon.

Context and Participants

Specifically, this study examined the differentiation practices of a school in the southeastern United States. Lincoln Elementary School claimed to focus on differentiation and incorporation of process skills, with training for teachers provided throughout the school year. Of the approximately 550 students, 70 % were Hispanic students, 25% African American students, and 5% Caucasian students. Around 98% of Lincoln Elementary students received free or reduced lunch. Lincoln Elementary also sought to have all teachers certified in gifted education within five years and implemented the Schoolwide Enrichment Model (SEM). This model, created by Joseph Renzulli and described by Renzulli and Reis (2008), included several components to enrich and differentiate the curriculum for all learners, including Type I, Type II, and Type III enrichment opportunities, and enrichment clusters. Type I enrichment exposes all students to a variety of careers, disciplines, topics, and interests through guest speakers, books, learning centers, websites, and presentations. Type II enrichment opportunities, which is synonymous to Twenty-First Century Skills, provide all students with advanced process skill training including: creativity, critical thinking, analysis skills, research skills, and ñlearning how to learnò skills. Type III enrichment opportunities are in-depth studies that students choose to participate in based on their interests and strengths. Students take on the role of a practicing

professional using process skills and advanced content knowledge to develop a product or service. Finally, enrichment clusters are semi-structured mini-courses on a topic of student interest that include Type Is and Type IIs, and may lead to a group Type III. Students choose a cluster based on their interests and work together with peers to develop a product or service which solves a real world problem.

Three regular education teachers from Lincoln Elementary School agreed to participate in the study. See Appendix C for the consent form. These teachers were chosen through purposeful sampling. Purposeful sampling, ñfocuses on selecting information-rich cases whose study will illuminate the questions under studyò (Patton, 2002, p. 230). In this study, I looked at the processes teachers experienced as they implemented process skill development and differentiation into their regular education classrooms. Teachers implemented strategies with all learners, but this study also keyed in on how teachers addressed the needs of learners who demonstrated mastery of specific skills or content areas through formal and informal assessments, regardless of whether the students had been officially identified as gifted.

I decided to choose three teachers from the same grade level because these teachers worked towards the phenomenon in a similar context, but were diverse in their teacher experiences, teaching styles, and classroom demographics. I chose third grade as participants because of the scarcity of differentiation and process skill development research with early and middle elementary students. I believed that working with third grade teachers would add to the research base on differentiation and process skill development. Additionally, students in third grade and fifth grade at Lincoln Elementary School must pass the state standardized assessment in order to be promoted to the next grade. I believed that this level of accountability should be explored as teachers implemented differentiation and process skill development.

Third grade had a total four teachers in the grade level. I asked all four teachers to participate in the study but only three volunteered. All three teachers were relatively new teachers, with the range of professional teaching experience being from two to five years. Third grade teachers at Lincoln Elementary were required to teach the same curriculum using the school districtôs pacing guide and administered the state standardized assessment at the end of the school-year, which was used to determine Adequate Yearly Progress. Also, some lesson development took place as a group during common planning times, while some occurred independently. Despite these similarities, there were also differences among these educators. The three teachers had various cluster groupings including students identified as gifted, English Language Learners, students with special education needs, and students receiving Early Intervention Program (EIP) services, in addition to otherwise heterogeneously grouped classes. Additionally, the three teachers were at differing levels of implementation regarding process skill development and differentiation based on their previous training and experiences as I was able to observe through working as the enrichment specialist at the Elementary School. As the enrichment specialist, I organized components of SEM and collaborated with classroom teachers to plan and implement differentiation and process skill development into their lessons. I also led professional development sessions on differentiation and process skill development throughout the year. Additional descriptions of participant characteristics will be discussed in chapter four.

Procedures for Data Collection

Prior to the research study and the beginning of data collection, teachers started the school year with professional learning on process skill training and four differentiation strategies provided by myself and three members of the Enrichment Team at the elementary school. The Enrichment Team consisted of the school principal, the instructional coach, four teachers, and

me. One of the teachers on the Enrichment team, Hailey Cason, was a participant in the study. Teachers then set goals and had opportunities to discuss these goals with me as the enrichment specialist and researcher. Starting in August, I was available for classroom demonstration lessons and lesson development. I also attended grade-level collaboration meetings bi-weekly, where teachers had the opportunity to request support in these areas. These processes continued during the data collection period of the study beginning in January. See Appendix D for a graphic diagram of the data collection process. Teachers were also able to practice their differentiation and process skill development during Enrichment Clusters. These clusters continued through the middle of the data collection period. This served as an alternate teaching environment with fewer pressures and structural limitations. See Appendix E for a graphic diagram of the professional learning opportunities teachers Lincoln Elementary teachers received.

Once the data collection period began, qualitative methods were used to collect data from the three teachers. As the enrichment specialist and researcher, I was a part of the culture of the school and became a part of each classroom environment as a participant observer. As a participant observer, I had the opportunity to participate in the daily lives of the participants, ñin order to gain as complete an understanding as possible of the cultural meanings and social structures of the group and how these are interrelatedò (Davies, 2008, p. 77). The data collection period lasted approximately five months. I spent time in the classroom as a participant observer four to seven days each month. I participated in all lessons, taking brief notes during the activity, but often waiting until after leaving the setting to take field notes. I wrote up two observations each month, however during April and May, I wrote up only one observation in each classroom due to medical leave. See Appendix F for the observation protocol. In the first, third, and fifth month, I interviewed each teacher for 60 minutes using a semi-structured interview. I had topics

in mind that I wished to explore and questions I wanted to pose. In this way, I was able to direct the conversation with the research in mind, but did not impose too much structure on the interaction (Davies, 2008). See Appendices G, H, and I for the interview guides. I also collected various artifacts from teachers each month, including lesson plans and materials, collaboration minutes, and journal entries. These artifacts helped me to gain an understanding of the differentiation and process skill development implemented by teachers. It also allowed me to see how teachers were working together through the implementation. Teachers began writing one-page, double-spaced journal entries each week. This continued until March. After March, the teachers were overwhelmed by the workload at home, in school, and with the study and ceased writing the journal entries. The journal entries allowed them to reflect on their practice and provided me with deep insight into the perceptions of the teachers regarding their experiences. See appendix J for the teacher journal prompt. I also kept a researcherôs journal which documented my subjectivities and feelings as I served as a participant observer, researcher, and enrichment specialist. The researcherôs journal also allowed me to keep track of any conversations that occurred related to the phenomenon under study outside of the interviews. As an insider, I believe this research journal was imperative in helping me to be aware of my feelings and reflexivity (Davies, 2008). I utilized triangulation within the data collection by collecting data from multiple data sources. I ñincreased confidenceò in my interpretation by addressing incidents related to the phenomenon from various sources of data in the case study including interview, observation, journals, and additional data review (Stake, 1995).

Data Analysis

The data in this qualitative, multi-case design study was analyzed using multiple analytical methods. In addition to analyzing data at the end of the data collection period, I

constantly reflected on the data throughout the collection period in order to inform the conversations during the interviews and the support I provided the teachers.

When looking for themes within the data, I utilized inductive analysis strategies, in which I was open to themes emerging as I analyzed the data, rather than coding the data based on a predetermined framework. When analyzing the data for the research questions, I situated cross-case and within-case evidence together. Through within case analysis, I framed the analysis by looking at each individual case as a separate entity, analyzing the data of the individual case and making comparisons within this case. I gathered significant categories from each case and decided to present them in a sequential manner through a narrative description for each case (Polkinghorne, 1995, Riessman, 2008). These narrative pieces told a detailed story of the individual participantôs experience in implementing differentiation and process skill development through the identified categories. A graphic representation was then created to highlight the categories that formed the experience of each case. These representations can be found in chapter five and as indices.

When looking at cross case analysis, I looked at data holistically in relation to the additional cases through inductive analysis (Stake, 2006). According to Gerring (2007), ñwe gain leverage on a causal question by framing the research design in different ways and evaluating the evidence drawn from those separate and independent analysesò(p. 207). During the data collection period, I wrote notes about initial codes I was noticing in my researcherôs journal. This helped me to shape subsequent observations, interviews, and conversations with participants. When beginning the formal analysis, I first read each data source separately and conducted initial coding line by line by highlighting significant quotes and passages and labeling notes and codes through nvivo analysis software (Salanda, 2009; Charmaz, 2009). I kept my primary research

question and secondary questions in front of me and referred back to them as I completed the initial coding. After the initial coding, I completed several additional rounds of more focused coding using organizational tools within NVivo where I combined codes and renamed codes as they related to the emerging themes. Through this type of coding, I was able to ñmove across interviews and [é] compare peopleôs experiences, actions, and interpretationsò (Charmaz, 2009, p. 59). Once I felt comfortable with the themes which emerged, answering each of the secondary research questions, I organized the corresponding categories within the themes in NVivo. I could then easily access the data which supported each of the emergent categories and themes.

I established trustworthiness in the findings of this study in the following ways (Lincoln & Guba, 1985). First, in order to address credibility, I included member checking by discussing the themes and patterns found with each participant. I also utilized triangulation throughout the data collection process by collecting data using multiple methods including observations, interviews, and artifacts. I also addressed confirmability by keeping an audit trail within my researcherôs journal that carefully described any personal reflections and biases I experienced as I collected data. This helped to ensure that the findings were neutral and a reflection of the participants and the phenomenon under study. Final conclusions and inferences were drawn for the question. I then tied my findings to both the data sources analyzed through this study and established theory through extant literature, which is discussed in chapters five and six.

Subjectivity Statement

As an elementary school teacher, I desire to understand teachersô implementation of differentiation and process skill development in the regular education classroom. I had the opportunity to teach in mixed-ability classrooms at multiple grade levels and recognized the challenge of and importance in teaching using these strategies. When I began teaching in the

regular education classroom, I knew little about differentiation, but immediately recognized differences among my students. Because of these realizations, I began exploring differentiation and process skill development through professional conference sessions, books, and graduate coursework. I began to implement these strategies and immediately noticed a change in my studentsô behavior, attitudes towards learning, and academic progress. I believe that all learners should have the opportunity to explore content at their ability level and through tasks that are interesting and relevant to them. This includes learners who have demonstrated mastery of a concept. Instead of these students having to complete more work focusing on the same concept they have already mastered, I believe it is important for children to compact out of the content or explore the content at a higher level.

During the study, I worked as the enrichment specialist at Lincoln Elementary School. While serving as the enrichment specialist, I worked to implement the Schoolwide Enrichment Model (SEM), in a school which, at the time of the study, had been open for two years. During the implementation of these programs, I was able to collaborate with teachers throughout the school on differentiation strategies and learning techniques for all students. I also implemented programs throughout the school that provided all students, not simply students identified as gifted, with opportunities to pursue their interests through differentiated activities that promoted higher-order thinking skills and process skill development. In this position, I was able to facilitate learning as students explored their interests through Type III projects and worked on content at their ability levels. I believe strongly in the goals and objectives of SEM which focus on providing enriching learning experiences for all learners, including opportunities for high-ability learners to explore content at an advanced level.

Another area about which I am passionate includes working with diverse learners and students from low socioeconomic backgrounds. All three schools in which I have taught have had at least 45% of the student population on free and reduced lunch, which is a government measure of low socioeconomic status. At the time of the study, Lincoln Elementary School had approximately 98% of students on free and reduced lunch. Additionally, I have had the opportunity to teach diverse groups throughout my teaching career, both as a regular classroom teacher and enrichment specialist. As a classroom teacher at various other schools, I taught clusters of the identified gifted students and English Language Learners each year. While at Lincoln Elementary School, I worked with students at all grade levels and with a diverse school population with approximately 70% Hispanic, 20% African American, and 10% Caucasian. I firmly believe that all students, regardless of their cultural or socioeconomic background, can achieve at a high level, and I have been able to see this occur through my work with differentiation, process skill development, and SEM.

My experience and position at Lincoln Elementary School provided access to the teachers and their classrooms. Also, teachers respected me as a colleague, which I felt caused them to speak more openly regarding topics focusing on differentiation and the implementation of process skill development. They were also more willing to allow me into their classrooms to participate in this professional learning experience. I acknowledged early in the study that I did not consider myself to have all the knowledge on collaboration and differentiation in the classroom, but also intended to act as a learner throughout this process.

I am also aware of limitations that resulted from my work at the school and remained sensitive to situations that arose. For example, I was concerned about teachers remaining honest in their journal entries and during interviews regarding their feelings towards their professional

growth and experiences due to pressure from the district to differentiate for students and implement process skill development. However, by being transparent about the intentions of the study to look more at the *process* of teacher growth and implementation of differentiation and process skill development, I believe the teachers felt more comfortable being honest about their experiences as differentiators and implementers of process skill development. Additionally, the three teachers at this school received a great deal of support from me as the enrichment specialist and researcher in a very specific and differentiated context. Although the themes that may emerged from this study may be transferable to similar settings, it remains unknown as to whether the findings will be generalizable to all educational settings. Finally, I recognize that my interest in the implementation of differentiation and process skill development may have influenced my interpretation of the data or encouraged me to act in support of these strategies. However, I tried to remain open throughout the data collection and analysis process and constantly reflected on my feelings and biases in my researchersô journal.

Despite the limitations, this study provided many advantages for me as the researcher, the teachers, and the students. As the researcher, I was able to complete a study on a topic I was passionate about in a school environment that I respected and valued. I was able to incorporate my professional responsibilities into a research opportunity that shined light on the process of teacher learning experiences. Advantages for teachers included professional learning opportunities that can only strengthen teachersô abilities at differentiation and incorporating process skill development. Finally, although the study did not look specifically at student gains, the study provided teachers with opportunities to better understand their teaching as they provided rich learning experiences for students.

Summary

This chapter discussed the purpose of this study in exploring teachersô implementation of differentiation and process skill development. The research questions were noted and the research design was described as an instrumental, multiple case study design using qualitative methods. The context and participants were introduced. Methods for collection of data for teachers implementing differentiation and process skill development were delineated and the data analysis process was discussed in depth. Finally, I explored my personal biases as well as benefits and limitations of the study both to myself and my participants through a subjectivity statement.

CHAPTER 4

WITHIN-CASE NARRATIVES

Introduction

Early in the data collection period, I began to see stories emerge from the data of the three teachers in the study, Hailey Cason, Pensee Redman, and Julia Landry. Rich incidents, processes, and feelings described by the three teachers experiences related to the incorporation of differentiation and process skill development. Dewey (1915/2001) said, ñThe only training that becomes intuition is that got through life itselfò (p. 12). Each of the teachersô experiences as they explored the implementation of differentiation and process skill development told varying stories with struggles and pitfalls, praises and strengths. These were experiences that would not have been as meaningful in just a one or two hour training on differentiation or process skill development, and cannot be adequately shared through simply naming categories and themes.

Due to the stories that emerged from the data for each case, I found it important to describe each individual case as a narrative account. ñMany investigators are now turning to narrative because the stories reveal truths about human experienceò (Riessman, 2008, p. 10). I chose to write my within-case analysis from a narrative perspective because I wanted to capture the experiences of my participants and help the consumers of this research to better identify with the participants, have vicarious experiences and form naturalistic generalizations (Stake, 1995; Riessman, 2008). I chose to use narrative type inquiry, which, ñgathers events and happenings as its data and uses narrative analytic procedures to produce explanatory storiesò (Polkinghorne, 1995, p.5). In this chapter, I begin by describing the context of the cases with a description of

Lincoln Elementary School. I then use narratives to share each of my participantôs experiences based on categories identified through interviews, participant observations, and reflective journals. These narratives are from my point of view, as the researcher and Enrichment specialist. In this way, I am being transparent about the fact that these narratives come from my interpretation of the participantsôexperience. In chapter five, I illustrate these written narratives with a graphic analysis.

Lincoln Elementary School

The brand new building of Lincoln Elementary School, located in a small rural part of an otherwise urban county, has a state of the art media center, a computer lab, three mobile computer labs, and interactive white boards in every classroom. Students attend special area classes once a day and rotate through art, music, PE, health, and Spanish. The once bland walls of the school have begun to fill with student work, bulletin boards, and murals. Over the past year and a half, with the help of student initiative, the once barren lot is now welcoming with playgrounds, shade trees, and student-created gardens.

ñTeach all students like they are giftedò has been the slogan declared repeatedly by Lincoln Elementary School administrators and teachers since it opened in August of 2009, one and one half years prior to the study. The school was created in response to local outcry to better serve the impoverished children in the community. When the public school administrators interviewed teachers, they were very transparent in making their expectations for the school clear, including implementing the Schoolwide Enrichment Model, becoming a professional development school with a local Research One University, and teaching all students to reach high levels with no excuses. After opening, a steering committee of community representatives, central office administration, school administrators and teachers continued to meet monthly to

discuss the progress of initiatives within the school. One of the participants, Julia Landry, described her understanding of the vision of Lincoln Elementary School and the incorporation of process skills when she said:

> Well one thing that I really like that we do here at school is really, we try to teach strategies that some schools might only use with their upper children. We try to teach those to everybody, and I think that thatôs a really advantageous thing. Every child has the ability to learn with those types of skills, and I think Iôm guilty as a lot of people are, of sometimes limiting the lower groups, you know, but when we do exercises with creativity, itôs really neat that sometimes some of the very students that I think are not gonna be able to grasp it, or not gonna be able to contribute, get more out of it than my upper children.

During 2011, the year the study took place, Lincoln Elementary School educated approximately 550 students in grades pre-K through fifth grade, with 98% of students coming from low socioeconomic backgrounds. The school served a population of 70 % Hispanic students, 25% African American students, and 5% Caucasian students. Teachers at Lincoln Elementary believed that these students needed differentiation, maybe even more than other populations they had worked with in the past. Hailey Cason discussed seeing very little differentiation during her student teaching experience in a school in the Northeast and said, ñThe classroom I was in, they werenôt on entirely different levels like this so, I didnôt see that teacher do a whole lot of differentiating. Not the obvious kind.ò Pensee Redman discussed her increased belief in the importance of differentiation with students at Lincoln Elementary School when she described her teaching experience:

> Um, I feel like I believe in differentiation more in the school that I am in now. The group of children that I had last year was such a mix of abilities and interests that it wasé we werenôt going to be a successful classroom without differentiation and this year itôs the same thing. Differentiation wasnôt high on my radar like it is now. But itôs definitelyé I feel like itôs very important that kids have chances to be successful that might not be the same as their neighbors sitting at the other desk.

Hailey Cason: A Natural

Introduction

Haileyôs name means ñnatural.ò Hailey was a natural at incorporating differentiation and process skill development from the start. I first met Hailey Cason at a summer training for Lincoln Elementary a year and a half before the study began. The school where she and I would both teach was set to open in August. Hailey was young, outgoing, and pretty with a petite stature and short blonde hair. I noted her confidence from the start, but also noted that it did not project arrogance. She had moved to the Southeast from Pennsylvania a year prior and graduated from Pennsylvania State University. At Pennsylvania State University, she participated in the professional development school program as a part of her undergraduate degree in education. This collaboration between the public schools and Pennsylvania State University provided her with a full year of student teaching experience in a school focused on inquiry-based learning. Because Lincoln Elementary School was opening a professional development school with a research one university, administrators and university professors often asked Hailey for her point of view on aspects of professional development schools in meetings during that summer training. Although this would only be Haileyôs second year teaching, she confidently shared her opinion, which provided insight to teachers, administrators, and university professors as they worked

together to design the school and university partnership. Before teaching at Lincoln Elementary School, Hailey taught Kindergarten in a large metropolitan school system in the southeastern region of the United States. She transferred to Lincoln Elementary School because it was closer to where she lived.

Differentiating and teaching process skills before the study began

The first year Lincoln Elementary School was open and Haileyôs second year teaching, she taught third grade and had a special education and gifted cluster. As the only enrichment specialist this first year, I co-taught with Hailey for one week a month but would plan with her weekly to address the reading needs of gifted students in her classroom. I noted that Hailey was easy to work with and open to incorporating differentiation strategies such as cubing with questioning strategies and grouping based on reading abilities. Hailey implemented some process skill development specifically through planning inquiry-based science explorations and incorporating creativity into writing lessons. That year, we introduced the students to flexibility, fluency, elaboration, and originality through various writing activities. Hailey continued to refer to the creativity characteristics throughout the year by referring to specific characteristics during appropriate activities. A brightly colored mobile hung in the front of her room with the words fluency, flexibility, elaboration, and originality and the definitions of each word.

During the year the study took place, Haileyôs third year teaching, I worked with her only as the enrichment specialist. Another enrichment specialist Michelle Anderson, co-taught on a daily basis with Hailey in reading. Although the data collection period began in January, I worked with Hailey on a consultation basis from the beginning of the school year. I worked with Hailey and her students as requested throughout the year and in the development of components of the Schoolwide Enrichment Model. I would collaborate in Haileyôs classroom in an official

capacity at least once a month to teach lessons which incorporated Type II process skills, but typically ended up working with her weekly because she would request assistance in special projects she was implementing. These projects related to differentiation strategies or process skill development surrounding some type of enrichment opportunity. For example, Hailey, Michelle Anderson, and I incorporated geocaching, a high tech scavenger hunt using a GPS device, into Haileyôs math and social studies classroom a few months before the data collection of the study. We used the GPS and components of geocaching to teach students about circumference, radius, diameter, area of a circle, map skills, and to review characteristics of historical figures. Although Ms. Anderson and I already had the background knowledge about geocaching and were using it in an Enrichment Cluster we were leading, Hailey wanted to learn about geocaching. She planned with Ms. Anderson and me to create materials to implement over the course of a week in her math and social studies classroom.

One area that Hailey experimented with prior to the study was the creation of learning menus as a differentiation strategy. During the early part of the year, I helped her design a learning menu for numeration, based on Gardnerôs Multiple Intelligences to use with her advanced students. It was a single sheet, like a tic-tac-toe board, where students had multiple choices of activities to represent their knowledge of the concept. Students had to choose three activities in a row. Hailey then began using learning menus more often and incorporating student choice, especially in reading. Because of this, I asked Hailey to share her experiences and some of her learning menus at a school-wide differentiation training in October. Teachers would be able to choose two of four 45-minute sessions to attend. They could choose between sessions on questioning, tiered lessons, curriculum compacting, and learning menus. I remember walking in the room at the end of Haileyôs session on learning menus to collect the sign-in sheet and noted

that her session was standing room only. I believe the attendance at her session indicates her colleaguesô respect for her initial ability as a teacher and differentiator.

Initial Belief about differentiation and process skill development

ñI can barely give homework thatôs all the same for everybody,ò Hailey stated in her initial interview in January. It was obvious that she strongly believed in differentiation before the study began. When asked why she thought differentiation was important, Hailey said:

> I guess just because Iôve seen if I donôt do it, it doesnôt work. Like if I give books that are too hard, theyôre not going to read them. If I give math problems that are too hard, theyôre not going to understand the concept behind it so I always have to start lower for some and also if stuff is too easy, then thatôs going to be a waste of their time too.

When asked about process skill development, Hailey talked about the importance of implementing process skill development with all students. She stated in our first interview, ñI think itôs good for everybody. From special education all the way up to gifted, they all can get some sort of training with process skills. I think everyone can benefit from it.ò Hailey realized the importance of process skill development when she began teaching at Lincoln Elementary School:

> Seeing the deficit there. When I noticed that that was hard and that they werenôt doing that and having the gifted endorsement and seeing all the resources and things about it, it made me realize that I should explicitly teach those types of things. I think when we first opened the school, we read part of the school wide enrichment book and it talked about creativity. It gave me the connection with why creativity is important as a country. For example, students are not inventors because they donôt have new ideas. I thought, Oh geez, that makes sense.

Hailey's Students

At the beginning of the year and through the first month of the study, Hailey Cason had 16 students in her third grade class. She had 11 boys and five girls and the ethnic makeup was 4 African American students, 2 Caucasian students, and 10 Hispanic students. She also had four special education students, five gifted students, and two students that she described as ñon the fenceò as being gifted. One of these students qualified for gifted education services at the end of the school year. Hailey also had four students that were English-language learners but they did not receive direct services, only monitoring. During the course of the study, one of Haileyôs Caucasian male students moved to a new school and she received two new students. One new student was an African American male with an emotional behavior disorder who arrived in early February. The other new student, a Hispanic female, arrived in March.

Hailey's Classroom

In my first observation of Hailey Cason, I described her room as a ñpleasant place.ò The room was decorated with bright colors and student work was hanging on the walls and from the ceilings. I noticed charts that asked questions to support independent learning. One example was a chart that said, ñWhat is your reading goal?ò I also noticed a computer schedule with options of websites to visit. One interesting thing to note was that Renzulli Learning, an enrichment website and differentiation engine was at the top of the list above some of the other drill and practice websites and computer programs usually promoted by the school. I also noticed several charts hanging on the walls that described procedures during independent and choice times. Hanging at the front of the room was a creative thinking skills mobile.

The students typically sat in three different table groups, with two or three other large tables open for group work. A rug was in front of the interactive whiteboard. The whiteboard

was on often, and Ms. Cason used it for instruction during mini-lessons and closings. To the side of the rug was a chart stand with chart paper and a marker board. Among other technology, this third grade classroom had three computers. Ms. Cason could also check out a laptop cart from the school library, which had 16 computers for students to use.

Hailey Casonôs room was constantly buzzing with adults. She served as a mentor teacher to both a student teacher who was in her classroom daily and a university practicum student who observed and taught lessons on Thursdays and Fridays. Ms. Cason also collaborated with an enrichment specialist, a special education teacher, and a special education paraprofessional. These collaborators were in her room for approximately one to two hours each day.

Beginning the study: Hailey's Goals for implementing differentiation and process skills

Hailey decided that she wanted to focus on differentiation and process skill development in mathematics. She explained:

> I would like to get more than just those kids [that are mastering concepts] into the process skill trainings with the performance tasks and things like that. I would like to get more of the kids involved in that type of work. And, for differentiating, I guess that I could incorporate more of the different modalities. Like, I need to open it up to not just leveled by difficulty and numbers and expectations but how they actually do things.

A team

Emails, meetings, hallway conversationsé As we began the data collection period, but continued implementing differentiation and process skills, Hailey Cason was open to working as a team member and did so with me and other teachers on her team. We started the study by working as a team. Sometimes she and I would meet alone and sometimes we would plan with the whole grade level. Often, we would start our planning only to find that we would not have

time to complete all parts of the task. In this case, we would split up the workload and finish planning over email. Hailey Cason seemed excited to work as a team and remained enthusiastic as we worked together and carried out our plans in her classroom.

In one email Hailey wrote:

> Iôm really glad weôre keeping the graphing menu for next week. Iôm writing out my plans, and I think itôs going to be really fun. ☺ Just wanted to let you know that itôll be very worthwhile to come to my room all of those days, and thank you for doing that!

Engaging students

One cool January morning, Mrs. Cason put the following problem up on the interactive whiteboard: Have you ever heard of Big Foot? Have you seen him lurking around the woods at Lincoln Elementary? Recently, Mr. Conklin and the other custodians have found some very large footprints near the edge of the playground. They need to figure out whoé or what the footprints belong to, and they need to do it fast! Can you help them figure out the mystery of the ñbig feet on campusò by the end of the week?

ñWhat do you think?ò ñAre you up to the challenge?ò Ms. Cason asked. Students nodded their heads in an excited way. All eyes were turned towards the board and looking at Ms. Cason as she talked. The students wanted to help the custodians to figure out the Big Foot Mystery at Lincoln Elementary. ñIs this real?ò they asked, their eyes opened wide! ñDo you think there really is a big foot on the playground?ò After listening to the challenge and a brief mini-lesson on measurement, students were able to choose one of three tasks to work on to help solve the whole-class challenge. Ms. Cason talked to the students about how they would choose their task. She explained that students would need to listen carefully to what each task entailed in order to

ensure that the task was interesting and appropriate for each of them. The students could choose from the following tasks, which we developed together:

Task 1: As a group, measure the length of the footprints of at least six people in our classroom. Be sure to measure the feet of people of different sizes and heights. Use the chart to list the measurements you find in inches to the nearest ¼ inch. Also list the measurements in millimeters.

Task 2: Measure the size of the four footprints found on the playground in inches to the nearest ¼ inch and in millimeters. Are they all the same size? What does this information tell you? How does this information compare to your length of your own feet?

Task 3: Create a wanted poster to place in the hallways to help us uncover the mystery of the large footprints on the playground. Be sure to include the common size of feet at Lincoln by listing the measurements of studentsô, teachersô, and Big Footôs feet. Make sure everyone at Lincoln will know how to identify tracks of Big Foot and tell them what to do if they catch a glimpse of him on the playground!

The students were engaged not only during the mini lesson, but also during the work sessions. They made decisions, asked questions, and worked together with a small group to complete their tasks. Because Ms. Cason had multiple groups in the room, we each split up and worked with different groups to support their work by asking and answering questions. It took the students about three days to complete their tasks and then they shared them with one another. If students finished early, an independent task was available to expand the assignment.

Hailey Cason felt that it was important to keep students engaged. Like the Big Foot assignment in January, the majority of Haileyôs lessons presented concepts in a way that made them authentic for her students. Students were often pretending to be a character, solving a

problem, or completing a meaningful task. These types of tasks lent themselves well to both differentiation and process skill development because of the nature of the assignments. In the interviews, Hailey expressed her excitement at engaging her students. She described one performance task by saying, ñIt was fun. I thought that they would think it was cool and different and fun, and they did. I think they really liked it.ò

Another time, she discussed the importance of planning to engage her students when she said:

> I think itôs more exciting. Itôs not like a mini-lesson and then hereôs a worksheet. Iôm not saying I never do thaté but when I donôté when I make sure that I do something thatôs differentiated, itôs more exciting like, ñAre you ready for challenge?ò And the kids are like ñOoo whatôs it going to be?ò They know that a problem is coming. They know that theyôre going to get to do different things than each other, so I think they like it more and theyôll listen more attentively. They try harder on it é and then we all get to celebrate like at the end é like the Bigfoot challenge that we did.

Kids as individuals

> What I remember about elementary school is the stop light in the cafeteria. I hated that because even as a kid that young, I felt like they were rude to do that. To assume that they couldnôt come and ask me to be quiet and that I would be quiet. I always thought, ñIf I were a teacher, I would talk to the kids as people and make sure I treat them as individuals.ò

And she did. In Haileyôs classroom, she treated children with respect and encouraged them to treat their peers in the same way. One such occurrence happened in early February. I walked in to notice all the kids on the carpet for the mini-lesson. Ms. Cason had a picture graph

up on the white board accompanied by five questions. Ms. Cason asked students the questions. She told them, ñWe are doing this quickly together. When we are finished, you will work with your own graphs.ò She asked a question and called on Lewis. He responded with the wrong answer. Instead of correcting him, she said, ñCan you tell us how you found that answer?ò He began explaining, ñWell, I counted Roberto and I added it up and got 60.ò This was still the wrong answer. Once again, instead of just telling him the answer, she said, ñWhat did your equation sound like?ò He responded, ñ40 plus 30.ò Some of the other students began to call out the answer. She responded, ñPlease stop calling out because you can see that heôs thinking.ò Lewis then self-corrected and told her that the answer was actually seventy. She told students, ñTeamwork is helpful, but it is not helpful to take someoneôs thinking time.ò Ms. Cason then finished the rest of the questions about the bar graph with the students.

After the mini lesson, Ms. Cason asked students if they were ready to make a choice. She told them that there would be three worksheets to choose from for the work session. She said, ñI am going to tell you the titles and then describe each one. You can decide which one is best for you.ò Students then chose the appropriate worksheet and began working at their desks.

Becoming independent

Very quickly, Hailey became independent in developing lessons that implemented process skills and differentiation strategies. At the beginning, Hailey and I would often work as a team, meeting and developing things together. However, soon it became more difficult for us to meet because of other school or personal obligations, and we would do so over email or on the phone. Sometimes we would have plans to meet, but one of us would have a few spare minutes and develop something before the meeting.

One afternoon, Hailey and I were supposed to meet to plan a performance task. However, Haileyôs student teacher was teaching a lesson and needed to practice without Haileyôs assistance. Therefore, during this time, Hailey began working on a graphing performance task. She got so excited that she finished the task. When I went in to meet with her that afternoon, the task was already complete. Rather than working on the task together, she instead shared it with me and we talked about anything we could change to make it even better. This sequence of events became more and more common as the semester continued. I felt torn between excitement for her gaining independence, but guilt because I felt like she did not really need me. Her response to my guilt was:

> Having somebody there for the support definitely makes a big difference. And when you do this type of stuff, you feel really proud about it so you want to tell somebody about it, and I donôt want to tell people who arenôt interested in it. So it was fun to have you to talk to and show you the things and it made me more motivated to do it more often, for sure.

As an Enrichment specialist and researcher, I felt that Hailey had as much, if not more, knowledge about the development of lessons that were differentiated or incorporated process skill development. Part of this I believe was because of her increased familiarity with her students and the third grade standards. It was faster for her to develop her own tasks or to take any tasks I developed and alter them for her students.

One student can change everything

Any teacher can imagine the feeling. A voice comes over the loudspeaker, ñMs. Cason, you have a new student. We will bring him to your room shortly.ò You wonder what this student will be like. What will his needs be? How will he fit in with the current classroom dynamic? In

mid-February, Ms. Cason received a new student that brought many new challenges to her classroom community. Rather than giving up on the student and giving in to his behavioral challenges, Ms. Cason used process skill development to train him to be a respectful member of her classroom. In an interview in early March, she talked about this experience:

> Iõll tell you what weõve dealt with lately is interpersonal and intrapersonal skills. We got a new student a few weeks ago and it threw off the balance in here so we did a lot of activities to help work on how we were treating each other. First they had to think about themselves and what would hurt their feelings. Then translate it onto a construction paper man, and tear him up to show it. Then put it back together with nice words. So, that sort of helped us.

She continued:

> Just understanding that conflict resolution. Thatõs how we started, but we had to do another activity where we would write something, something good about another friend on everybodyõs desk so that they would beé just kind ofé compassionate I guess. That set of skills was effective. But we had to have a lot of conversations about how we work with other people, how your words matter, what you can do if somebodyõs bothering you, and what you do if youõre being bothered. I mean a lot lately soé weõve been working on those just because it was a necessity.

Planning a Task with differentiation and process skill development

Hailey wrote in her reflective journal until the end of February. In one journal entry, she outlined the planning it took to prepare for a performance task involving graphing. The task she gave students was: Formulate a question to survey a whole grade level! You may choose any

grade to ask a question, and will be given the opportunity to survey every class. You must collect data so that you can create a display to share what you learned from the grade level of your choice.

This task involved multiple process skills including decision-making, graphing, awareness of self, and multiple other skills based on the assignments chosen by the students. The assignment also included differentiation by choice and ability depending on student motivation. Haileyôs thoughts as she planned the performance task were as follows:

> First I looked at the standards we needed to master by the end of a graphing unit in math. Then, I chose five areas to create assignments for students to choose from: Technology Guru, Wordsmith, Musician, Artist, and Public Speaker. I chose these areas to try and get a range of abilities that I think the kids in my room have. Iôm thinking the groups should be pretty equal in size. After that I designed the initial assignment for the whole class to complete, which involves surveying an entire grade level, class by class. That way everyone must collect data, but they are able to display their results in the style they choose.
>
> I then created an order form. This requires students to check off the assignments as they complete them. They also list the side item assignment they choose, write their due date, and sign the form. The next form is a step-by-step recording sheet for the ñmain dish.ò Students list the question they will ask, the grade level, the teachers they need to visit, and a checklist for designing a sheet to collect their data, and a place to check when they have visited all of the classrooms.
>
> The next job was to create a rubric for each side item. I was able to keep them mostly the same, but change the end product for each one. I wanted to make them easy

> for students to read and use. I do think that many kids will need a teacher to help them complete the rubric, even though this is not their first experience with a rubric. I found in the past that a couple students were not judging themselves fairly, and when I went over the rubric and assignment with them, they were more honest about their work and found that they could have done better.
>
> The last task was to create a presentation for kids to follow on the smartboard to guide them through the decision-making process, and to help us keep the projects going from day to day. I included a page where students will sign their names under which side item they chose so that everyone is aware of who is doing what. Hopefully I have foreseen any questions the kids may have, and have included very clear and concise instructions. I also want to make sure that I donôt give too much information on the first day. I hope to take 5-10 minutes each day to give students the information they need, and then allow a different teacher to facilitate each group.

When asked about the length of this process, Hailey explained:

> It took me probablyé not as long as I thought it was going to take me. Maybe two hours tops broken apart. Once I decided on the original menu, with the main course and then the side dishes with the different modalities, that was the fun part.

Hailey said that she thought about making an example but did not want the students to do exactly what she did. Instead, she created supporting documents to lead students through the steps while still keeping the project open to allow for creativity.

New negotiations

As February came to a close and the state standardized assessment neared, Hailey began to get frustrated with her ability to negotiate between developing process skills through instruction of the standards and test preparation methods. She wrote in her journal:

> I feel that the remedial group is missing out on experiences with process skills and expanding knowledge beyond the standards, but I feel that they have to master the standards and get training on test-taking in order to make them more successful on the benchmark tests and CRCT. My goal is to take one day a week and do performance based tasks with this group. Right now one of the days is also for hands-on application of the standards theyôre missing in the form of games or manipulative tasks.

This was harder than she had hoped, and in an interview at the beginning of March she described pressures from the administration as a hindrance for her implementation of process skills. She described this:

> They decided to pull collaboration from younger grades and put it into 3rd and 5th grade to specifically prepare for the test in these next two weeks. So the fact that theyôre doing that, I know that that means thatôs what they want me to do too and when I have my annual review, Iôm sure that the questions will be, ñWhat are you doing to get these kids that didnôt pass ité what are you doing to prepare them?ò And if I say, ñWeôre working on a performance task.ò Theyôre going to say, ñhow does that translate to multiple-choice questions?ò So, I have to do both.

She continued:

> Administrators, ours are under pressure from the district people who areé I mean the pressure all comes down from wherever it starts in the government. I donôt even know,

> whoever those people are that think that itôs a good idea to give everybody the same test and make that determine how much money your school gets. Thatôs where it comes from. Soé theyôre noté the actual individuals of our administration are not, would never walk in here and start asking me why Iôm doing a fuzzy situation when Iôm not in a cluster, you know what I mean? They wouldnôt do that but then when youôre in a meeting and they look at scores, they want you to be doing something to make those scores higher and lots of times, if you ask for resources, what you get is remediation, a program on the computer or a coach book with multiple choice. The things that weôre given to use to fix that problem are not creative soé

Quick and efficient

By early March, Hailey Cason was very quick at developing lessons that incorporated differentiation and process skill development. One day I was in a planning meeting with Hailey and the other third grade teachers. With 10 minutes left in the meeting, her eyes got big. ñOh No!ò she cried, ñI completely forgot that my student teacher was not going to be here for math today, and she has completely taken over math.ò She quickly got out her computer and started pulling resources. Within 10 minutes, Hailey had developed a tiered lesson with three levels of tasks for students to complete during the work time.

Although she was getting quicker with different types of differentiation, Hailey still challenged herself. When she became good at one method, she continued to use it but also tried a new strategy or technique as evidenced in her statement:

> It has changed because I moved from making three worksheets of the same thing with different numbers like that kindé I got really fast at that. And then I wanted to move

away from just doing that to doing things with a performance task and making them really more choice-based.

Hailey began picking up tricks to make the creation of lessons with process skills quicker by using performance tasks as a framework for subsequent lessons. She commented, ñI used the exact same menu and then I changed some of the side dishes. One thing I changed was instead of a public speaker, I put the dance option. Kids can create a dance, or like a motion pattern, kind of é to show what they have learned.ò

Sharing everything

One day in mid-March, I walked into the teacher workroom to make copies. The third grade teachers were having lunch, and Hailey Cason was talking with her colleagues about a tiered lesson she had implemented in math that day.

Hailey Cason did not hoard the lessons she created. She shared everything. Every tiered lesson and performance task that she made, she sent out to the other members of her team by email. Conversations in the teacher workroom between Ms. Cason, Mrs. Redman and Ms. Landry were a common occurrence. When asked about this in an interview, she said, *"*We like to share things because if you know that it went well in your room, then you want other kids to get it too. So you might as well share. Plus itôs easier on teachersé ò

Too many cooks?

Hailey began to struggle with having too many adults in her room and found that rather than supporting differentiation and process skill development, it was sometimes hindering the process. Hailey had two student interns from the university, including a student teacher and a practicum student. She also had multiple collaborators including a special education teacher and

paraprofessional and an enrichment specialist. One time I went into Haileyôs room for a lesson, and there were seven adults in the classroom at the same time.

After a lesson in late March, Ms. Cason confided in me that she really just needed to vent! She was feeling very frustrated by having so many adults in the room. She admitted that she wanted to have adults like me and her other collaborators because we were trained, but she was feeling overwhelmed by having so many adults who did not necessarily know what to do. We talked about the questioning style of her student teachers and how it was hindering her studentsô ability to think. She also talked about how distracting it was having so many adults in the room and that she did not always want to have to make up a small group for students if it was not necessary. She was concerned at the amount of time it took to train a pre-service teacher to question effectively and the potential harm it was causing her students while these pre-service teachers were learning.

> As the student teacher began to take control of the classroom, Hailey voiced her concern: I want to explicitly introduce, and talk to students about process skills the same way that weôve purposely introduced creativity skills already. However, itôs difficult to get my student teacher to do this in my place because I donôt have a lot of time allotted to teach her about them and help her plan how to do this. I think itôs something we can do together, but I just havenôt been able to yet.

What the test doesn't show

In addition to the state assessment in April, the county required students to take a county created benchmark test every nine weeks. The test is a similar format to the state standardized assessment, and the scores are determined and compared between other classrooms and schools

in the district. Because of the multiple testing occurrences throughout the year, Ms. Cason struggled with having to teach test taking versus teaching the concept using process skills.

> The actual skill of taking a test has to be kind of taught separately I guess. But because the coolest thing that I think of with performance tasks is I think of manipulating things and performing and actually going and doing and creating things, like we did when we did the GPS things for radius and diameter. Then a very smart boy got all those questions wrong on the last test because the question wasnôt, ñwhatôs the line we measured when looking for the cache called?ò Like the, yeah, the radius. It wasnôt that, it was pointing to it on the circle, ñWhat is line A?ò Or, ñWhatôs this called?ò And it was the center.

April

During the month of April, I had to stop my data collection due to medical leave. Therefore, I did not collect observations. During this month, Ms. Casonôs class reviewed for the state standardized assessment for three weeks with some differentiation and process skill development, and then the assessment took approximately one week to administer. In a March interview, Ms Cason predicted what instruction would look like during the month of April.

> My true prediction is that itôs going to be less process skill development and differentiation for the next two weeks until the assessment. But I have kept in mind that people who are really solid on the assessment, and Iôm not too worried about, Iôm going to let them go independent and Iôm planning on Renzulli [Learning] helping me with that. And then, I wonôt do as much whole-class differentiated task-type of things because Iôm going to, weôre going to be studying for the assessment. Hopefully not all of the day and I wouldnôt burn them out intentionally, but I have thought about like people who donôt

need that, Iôm going to give them Renzulli [Learning] work to do so that they donôt just hate school. Because thatôs what would happen. They donôt need it, and I canôt do it.

Back to normal

By early May, the big test had come and gone. You could tell that everyone was breathing a little easier. When I walked into Hailey Casonôs room for our last observation, I wondered what I would see. With only one full week left of school, students in most classrooms were completing busy work or final assessments. Even during the last weeks of the school year, Hailey Cason differentiated and incorporated process skills into performance tasks mandated by the district. The district had created multiple performance tasks to be completed by the end of the year. Ms. Cason decided to differentiate by allowing students to complete the performance tasks at their own pace and receive conferencing based on their specific needs. As part of the performance tasks, extensions were available that students could complete if they finished the initial tasks.

All about the students

Hailey admitted:

Well when I get stressed out about test scores, then I go away from doing things like that. So thereôll be probably once a month when we get a meeting or a talk or something that I think, ñWhy am I doing these things?ò I need to be practicing test-taking, and Iôll go away from it. Then I come back and do it and remember that I donôt have to change the way Iôm teaching just for the test. So, sometimes I get away from it buté not that often.

However, Hailey tried to keep herself focused on what she believed to be most important: her students. When planning lessons, Hailey would think of her students:

> I kind of think itôs fun. Like when I picture, when I do lessons that I know are going to be student-choice, and theyôre going to get to pick their way to show what they know, I picture specific kids. I guess whoôs going to pick what and I kind of like it. I take the time, and Iôm like oh geez, that took me two hours, whatôs wrong with me?

Pensee Redman: Think Deeply, Feel Deeply

Introduction

The name Pensee means ñthinker.ò Pensee thought deeply about her experiences and life itself, and in turn, felt deeply as well. I met Pensee about a year and a half before the study began. I was walking through the parking lot, headed to the first meeting for teachers and administrators of the new Lincoln Elementary School. I was nervous and knew no one that would be working at Lincoln. As I entered the building, the first person I met was Pensee Redman. Her bright blue eyes and kind smile welcomed me. She was the type of person who strikes you immediately as someone you would like to know better, with long brown hair, soft freckles, and a cheerful dress. Pensee had a Bachelorôs degree and a Masterôs degree in elementary education from a local private college.

The year of the study, Pensee was about to begin her fifth year of teaching. Before teaching third grade at Lincoln Elementary School, Pensee taught for three years in a rural school, Jameson Elementary School. She began by teaching second grade at the school and later was a special education teacher for a first grade student. As a special education teacher, Pensee worked specifically with a first grade student with a severe emotional behavior disorder. Pensee differentiated all instruction for this student and helped him to manage his behavior. This was a challenging situation for Pensee physically, mentally, and emotionally. She still has a scar above her knee from where this young child stabbed her with a pencil.

Penseeôs early experience with differentiation at Jameson Elementary School helped to shape her current views of differentiation and process skill development. In the first interview, Pensee shared:

> I can remember my principal coming in my very first day setting up my class. I had all the desks all spread out, and they werenôt in small groups or anything. She emailed me that night and said, ñyou might want to put them in small groups because we really do a lot of the small group.ò So from that point on, it kind of was like, oh ok, so each group could maybe be doing different things. I guess for me differentiation just means kind of changing any lesson so that a kid can be successful. I feel like that the first grade student that I worked with was not successful with actually sitting down, having to do things independently. He needed a lot of help, and so we would change a lot of things so it was more hands-on and a product as opposed to a worksheet or, you know, a test.

Pensee's Beliefs about Differentiation and Process Skill Development

Pensee confided that when it came to differentiation, she was ñpretty overwhelmed at firstéô becauseéô planning a lesson takes awhile, and so it almost felt like well Iôm planning four different lessons or however many different ways you have to show it to kids. That was overwhelming.ò Despite this feeling, she believed in its importance mostly because of her own experience with schooling.

> I really believe in it. I mean I was a student that was learning disabled and needed that, and I can remember now the teachers that obviously differentiated for me and the teachers that didnôt. I can remember being more successful when things were changed for me so I doéô Iôm guilty of being so overwhelmed sometimes that I donôt differentiate a

lesson, I just teach it, but then I will always eventually feel guilty that I know thereôs one kid, why they didnôt get it because maybe I should have taught it a different way to them.

Process skill development was not something that Pensee Redman was very familiar with before the study. When asked about her understanding of process skill development, she responded with, ñHonestly? This sounds awful but I mean itôs not something Iôve ever really put much interest into finding out about. Iôve neveré Iôve always been focused on other things soé Iôm going to have to tell you itôs pretty low.ò

After discussing more about process skills, Mrs. Redman responded:

> You donôt ever really think about how you teach in depth like this, you know? So itôs interesting to think about. When youôre teaching them fractions, well youôre going to see fractions in everyday life so how are you going to be able to manipulate things? We have a lot of stuff out there that, you know, yes they have to be able to do it on paper, but they create and they do a lot of critical thinking to get themselves somewhere on there with just a little guiding.

Therefore, while Pensee believed that process skill development was important for children, it was not at the top of her list of priorities in her classroom.

Who needs differentiation?

Because of Pensee Redmanôs background and experience, she would often initially key in on students that struggled academically when differentiating. However, she also recognized the need to differentiate for gifted learners.

> I think every student does for sure [need differentiation]. I mean I cannot think of one student that I have ever had in 5 years that could have learned the way a textbook set things up. I mean they wouldnôt have been successful at everything. I look back at my

> group last year, I had some students that Iôm pretty sure are in our gifted program this year, and they needed differentiation also because they would finish in 5 minutes and be sitting there bored. So even your high academic students need [differentiation], and your low students that are normally what you think of [as needing differentiation]. You think of special education students, learning-disabled students that are going to need it but everybody does.

Pensee's Room

Home. That is one word to describe Pensee Redmanôs classroom. When entering her classroom, I was immediately greeted by Mrs. Redman and her students. The classroom was very welcoming with students sitting at desks in partners. There were two large tables for group work in the back of the room. In the front of the room is what they called the ñliving roomò with a couch, a rug, and a comfortable chair. Ms. Redman said she felt like the classroom needed to be more like a home, so students would feel more comfortable. The classroom had posters and signs on the wall with things like vocabulary words and language arts strategies. Standards were posted on the front board, along with essential questions. The room was decorated with a variety of colors and patterns. Rather than being bright colors, they were calming colors like peach, blue, yellow, and brown. Pictures and drawings hung behind Ms. Redmanôs desk. The room was neat, with minimal piles of paperwork and navy blue fabric covering the shelves.

Pensee Redman often had several adults in her classroom. She served as a mentor teacher to both a student teacher who was in her classroom daily and a university practicum student who observed and taught lessons on Thursdays and Fridays. Mrs. Redman collaborated with an English teacher as a Second Language (ESL) teacher who taught with her for approximately one hour each day.

Pensee's Students

They were eating their snack of squash, provided by the school cafeteria, when I first began to get to know Pensee Redmanôs students during the year of the study. Several of the students were leaving to go to a class for special help in mathematics. Of the normal class size of 19 students remained only 13 students. Six of the students received special instruction in mathematics as part of the Early Intervention Program (EIP) due to academic need and left the room during a majority of the math period. Four students also received special instruction as a part of the EIP reading program. Mrs. Redman described these students by saying, ñMost of those students are very smart students, they have a really difficult time, they can verbalize anything that they have read or learned but they have a really difficult time getting it on paper, testing, things like that.ò In addition to these services, five of the 19 students were identified as needing to receive services for English as a Second Language (ESL), and eight students were ESL monitored but did not receive direct services. Many of the students overlapped between ESL services and EIP. Pensee Redman did not have any identified gifted students, but had several students who were academically advanced and received differentiation in reading and were developing Type III projects. Thirteen of the students in Mrs. Redmanôs class were Hispanic and six students were African American.

Pensee's Goals for implementing differentiation and process skill development

Pensee decided to focus on differentiation and process skill development in mathematics for the study. When asked about her goals, she said:

> Well I love how Hailey Cason tiers things and that was one thing that I definitely wanted to be more aware of and produce more tiered activities and lessons. Itôd be nice to find the time to sit down and really create some different tiered things. I would want to learn a

little bit more about learning styles really. Um, because thereôs so many more than you really talk about in your education courses. We always talked about kinesthetic, and you know, the big huge ones but thereôs so many, so Iôd like to learn a little bit more about that.

A warning

Right as the data collection began, I received this email from Pensee Redman.

Hi Katherine ~

I just wanted to email you and let you know that hopefully we really can get into a good solid routine with our centers. I get overwhelmed pretty easily and I don't want that to come across the wrong way at all. I am going to try really hard (with the new year) to be a little better with work in mind and preparing. Sometimes, I feel like I spend so much time dealing with work stuff that I lose sight of the important things in my personal life. I am really going to make an honest effort to be productive and I am really excited to have you working in my room. So, please know all of that and if in two weeks or 10 weeks I begin to fall off kilter I want to know I have told you this. :) Thank you for doing so much with us and being such a huge help and asset.

Beginning the data collection: Hooray for You!

Students were captivated, as one of our first lessons involved differentiation and process skill development through helping students to understand more about themselves through Gardnerôs Multiple Intelligences. We read the students a book called, ñHooray for You!ò which focuses on differences among people. We then showed students a chart that talked about different types of intelligences and how we are all different, enjoy different things, and have different strengths. We had a group discussion with students about each type of intelligence. Students were excited to share and all wanted to tell us what they believed were their strengths.

One student said, ñMy strength is interpersonal and verbal because I like to talk and help people.ò Another said, ñI love working outside and with animals. I think Iôm naturalistic.ò Mrs. Redman and I made mental notes as students shared so that we could be sure to present activities based on the studentsô interests.

After the mini-lesson, students were able to choose from four tasks based on different learning styles. Ms. Redman and I began by explaining each of the activities and the different intelligences that went along with each activity. Ms. Redman spoke in a calm voice most of the time, but described each activity in a way that made it seem exciting. She and I both talked about the importance of understanding ourselves and choosing an activity that works best for you. This set of activities was about geometry. The first activity allowed students to explore nature and gave them an opportunity to write. Students went outside and chose areas on the playground. They used a tape measure to find the area and perimeter of these spaces. Students then answered questions that required them to describe their thinking in words. The student teacher in the classroom accompanied students working on this activity.

Another activity was a partner activity in which students played a game to help them practice perimeter. When students were sharing their interests, many of the students stated that they enjoyed interpersonal activities where they worked with their peers.

A third activity involved the use of technology. Students were given an assignment online using Renzulli Learning that allowed them to play multiple games that focused on their geometry standards. The games were at a variety of different levels and addressed several different skills.

The final activity was an independent activity for students to work by themselves with logic problems. This activity was tiered with a sheet of easier problems and a sheet of more challenging problems.

Ms. Redman allowed students to choose their activity by signing up on the board. However, the number of students in each activity was limited based on the available materials. Four students chose the partner game, three students chose the computer activity, four students chose the outside activity, and one student chose the independent center. Ms. Redman assured students that some of the activities could be completed during intervention time if the students did not get their first choice. Students transitioned to their activities with ease, and I did not hear any students complain about their activity. As students worked on their activities, they were engaged and on-task throughout the entire work session. Students were excited to share the things they learned in their center in the closing.

A bit rushed

When I met with Mrs. Redman to plan for our next class session, it was rushed because she was going to attend a student teacher planning meeting with a liaison for the local university. She only had about 30 minutes, but Mrs. Redman had gone ahead and planned the subject areas we needed to address in the next couple of weeks. She was very interested in continuing to incorporate learning centers differentiated by learning styles because it was also easy to incorporate multiple process skills in each center. At the meeting, we looked back at the slide we had of the multiple intelligences and talked about some of the things her kids had said they felt fit them. We decided to continue the current centers for one more session next week because many of the students wanted the opportunity to choose a different center. We also talked about other tasks they might like and decided upon four centers for the following week. We split up the tasks and each focused on developing materials for two centers. Just like this first set of centers, we would run the centers one day each week, but offer the choices for two weeks.

Interrupting the flow

One morning in late January, it seemed like everything was interfering with the flow. When I first walked in on that rainy morning, Mrs. Redman looked a bit stressed. ñIôm out of copies,ò she said. ñI tried to make the copies for the centers first thing this morning, but I ran out.ò Luckily, I had some extra copy capacity, so I made the copies for the centers. Then, we noted the rain. One of the centers involved students working outside and using nature. Although disappointed, the student teacher agreed to move the center inside the building. Once the centers began, four students came back into the room. These students had been pulled out for testing. Upon arriving back in the room, these students needed snacks, a brief review of the mini lesson, and their choices for todayôs centers. All of these little things kept taking our attention off giving her class the close attention to instruction that would bring out the most process skill development and differentiation. While we planned rich activities for the centers, we were unable to engage ourselves as deeply into the learning experience with the students.

Creating a community of learners

After the lesson, Ms. Redman called all the students down for a closing circle. She did this after every lesson. She told the students that they would go around and each of the different groups would share what they had done in their centers. She began with the group who had used Renzulli learning on the computer. The students said that they had practiced a game about angles. Then they told about a game where they had to sort the triangles based on their sides and angles. The group got into a discussion about the different types of triangles, and one of the students seemed a little confused. He said, ñI think there are actually two types of scalene triangles.ò Ms. Redman calmly grabbed a board and drew two scalene triangles that were different sizes, looked different, and had different side lengths. She asked the student if this is

what he meant. He said yes. She then explained that they were both scalene triangles because their sides were different sizes. He seemed comfortable with her explanation and with expressing his confusion with the class. No students ridiculed him for not understanding initially.

The moment of confusion over the triangles made Mrs. Redman think about the confusion she had seen with many students about area and perimeter. She asked the students, ñHave you noticed that many of you seemed a little confused about area and perimeter?ò She drew some examples on the board and had students solve the area and perimeter. I pointed out to students that sometimes test makers try to trick you by putting the measurements around the sides of the shape, but then ask for the area.

Ms. Redman then told students that they would choose from new centers next week. She said that we would always be watching to see what kinds of skills they needed practice with in the centers. She told students that it was important for them to be honest with her if they were having trouble with something, and that she or I would come up with a way for them to practice that skill. I told students that we wanted to know things about them, so if there were certain types of activities that they liked the best, they should let us know, so we could incorporate those interests as the centers were planned.

Bringing math to life

ñI canôt believe Iôm going to do this,ò Mrs. Redman said laughing. It was a February morning, and Mrs. Redman and I were introducing a new round of centers. She was introducing the fraction rap center that her student teacher would lead. She rapped a short rap about the center and fractions that she and her student teacher had written. She told students that they were going to create a rap they could use to teach second graders about different terms and rules involving fractions. She described an interview she had seen the night before with a popular rap

artist and explained how he talked about techniques he used when creating a rap. She told students that she was going to try to save the YouTube video to her computer so she could show them. In her journal, Mrs. Redman discussed the rap center, ñI think this week was proof that centers do not have to be step by step for kids. The rap center was so simple to create and they used their own creativity to make it successful.ò

Other Teachers

Pensee Redman worked with several other teachers each day. Some of these were certified in specialty areas, while others were pre-service teachers from the local university. When asked about planning for differentiation and process skill development with other teachers working in the classroom, Pensee responded:

> I mean you know, you might get a teacher that finds it really important and you might get a teacher that doesnôt really have any interaction with it or hasnôt seen any positive things from it, and then itôs just kind of like well whatever, Iôll do whatever you want to do.

She then confided that unless the homeroom teacher and collaborator are on the same page, it often ends up that the homeroom teacher is planning all the lessons with differentiation and process skill development. Mrs. Redman also discussed the negatives of having so many adults in the classroom:

> I mean, last year, it got to the point where I was collaborating with six people, and itôs almost impossible for the kids to independently work through something that youôve given them on their level completely because thereôs always someone there that they can raise their hand and ask help from.

Feeding off of students' excitement

In a February journal entry, Mrs. Redman wrote:

> This week I think our students really enjoyed the learning centers that were planned. It seemed to me that they enjoyed them more this week than maybe any other. I kept hearing from the students what center they were going to pick next week. This hasn't happened yet. I've had to ask them rather than them spontaneously talk about being excited for next week's centers.

Even Mrs. Redman's student teacher became passionate about the instruction that was taking place:

> My student teacher was so excited after seeing the centers that she wants to plan centers for math daily. This made me really happy because my math class last year was based around 3 centers that the kids worked through. However, they worked through each center in a day rather than one. I kept telling my student teacher how wonderful that had worked for me but she was a little overwhelmed with the idea of planning three activities. Once she saw the excitement that can come from centers she was more excited and willing to put the time into planning centers. I honestly cannot wait for next week to see how the kids react.

Supporting students

A kind smile, a loving gesture, and an appropriate assignment can go a long way. Mrs. Redman was very sympathetic to her students. I noticed that she thought about her students, their feelings, and their needs, both personal and academic, very often. When asked about why she did this, she responded:

> I feel like so many people go into teaching whose parents were teachers or their mom; I mean you know somebody was a teacher. And nobody in my family has been a teacher. I feel like I donôt do, I mean we do worksheets, we do, but I donôt just hand them a stack of worksheets and say, ñGet to it, you can do this,ò because again, that wasnôt how it was for me. I think a lot of times, the teachers who do give out worksheets and donôt think through all of the skills that they need to be able to successfully complete a worksheet and take it into the real world, they donôt remember what it was like as a student or they were one of those students that it was super easy for them and nobody, you know, they maybe didnôt struggle with it. I know for myself, I mean, yes, I take what I learned in school very seriously, but almost more for me actually remembering because I mean, I truly was the kid that had a horrible experience in school, and I think I had maybe two teachers that were amazing, and I can remember vividly what it felt like to be given an activity and have to sit down and work on a worksheet that you had no clue how to do it. So, I try not to. And I mean our lesson framework makes you think about the process skills. It makes you think about the different ways we can get them to show that they have learned what we are teaching.

So many responsibilities

The third grade teachers met every Thursday for collaborative planning. Sometimes Thursdays were unavailable for planning because the teachers had so many district responsibilities and had to use their own planning time to get things done. This happened one Thursday in Mid-February, right in the middle of a stressful week. The day before this planning, we had three meetings occurring simultaneously after school. On this particular Thursday, teachers had to work on data cards, other paperwork, and progress reports which were all due by

the end of the week. Everyone seemed so overwhelmed by all of these tasks that were not directly related to the instructional practices of their students. In fact, I had seen Pensee Redman come into her classroom with tears in her eyes the day before, because she was so overwhelmed by some of the paperwork she had to do that was required by the district.

Even when I talked to the teachers for a moment about process skill development, I really wanted to go through the document with each of them, talk to them about what they were doing that week, and help them to understand anything that they would like to implement but still had questions about, but I really could not do that. So many outside expectations sometimes make focusing on meaningful instruction difficult.

Planning for Process Skills

Later that week, Ms. Redman, her student teacher, and I all met to plan some lessons focusing specifically on process skill development. The lessons would focus on data collection, and students would be able to choose between three tasks. We outlined the three tasks together, and then split up the tasks to further develop individually. The outlined tasks and completed task are as follows:

Task 1 would be a letter from a local landscaper that wants to add more trees to the playground. Students would have to collect data about the trees that are currently on the playground and create a graph for the landscapers. Students would then make a graph with data given to them from the landscaper to help him or her decide which trees to plant. Finally, students would write up suggestions and ideas for the landscaper and create a graph on the computer. Ms. Redmanôs student teacher would create this task.

Task 2 would be a letter from the Lincoln Elementary School principal asking students about lunch choices that the school should offer. Students would have to look at past lunch

calendars with main courses from December, January, and February. They would choose the most prevalent choices offered and create a survey to use with students to find out preferences based on these choices. Students could then find out which of these choices cost the school more money to make to help them decide based on the number of students that eat them, which of the choices should be offered more often. Students would then create graphs and informational descriptions to share this information. Pensee would create this task.

I created the third task which would be a letter from Papa John requesting that students at Lincoln Elementary School help him to figure out topping choices for new kids sized pizzas. Students would graph and interpret data from other schools, then collect data from students at Lincoln Elementary and represent the data in a graph. Students would then write a report to explain their findings.

With all of these tasks, the following type II process skills would be addressed: making observations, formulating questions, planning, problem solving/decision making, judging evidence, drawing conclusions, developing data-recording and coding techniques, preparing tables, graphs, and diagrams, visual communication, and appropriate use of the latest technology. I completed my task on Wednesday of that week, and we were planning to implement them the next week. Unfortunately, the other tasks were never completed.

Overwhelmed with the Responsibility. It was a Friday morning in late February. I was looking forward to the weekend and feeling good about the data I was collecting in Ms. Redmanôs room. She seemed to be enjoying working with me to incorporate differentiation and process skill development. For weeks, we had been implementing differentiated centers designed based on the studentsô different learning styles. I thought I was collecting such rich field notes when I was observing in Ms. Redmanôs classroom. When I talked with her in the teachersô

lounge or in planning meetings, she raved about the excitement happening in her room among her students with the increased differentiation and process skill development.

Then, with little warning to me, something changed. The email I received that Friday morning from Ms. Redman says it all:

Katherine –

I will send you both of my reflections. I have to be honest though, I am feeling extremely overwhelmed. I simply do not have the planning time, prep time, or reflection time to meet your needs and the expectations for the regular school day.

I have standards for myself that I try to uphold and I just cannot keep myself to a level that I am happy with right now. I know that this may sound stupid to some people but if I cannot put forth the effort I want to I have to re-evaluate where my time is spent. I don't want to give you less than my best – and I don't want my students to get less either.

At this point, I just can't do this and give my students what they need right now. I am so sorry, I know this is an enormous inconvenience but I wanted to be honest about how I am feeling. Again, I am so sorry.

In just one moment, everything changed. Was I going to lose Ms. Redman as a participant? When did things begin to go wrong? How did I miss the signs that she was feeling so overwhelmed? Why was she feeling so overwhelmed really? How could things be fixed?

I waited to respond. Instead of emailing back, I planned to find Pensee Redman at the end of the day. I saw her in the hallway as I was leaving, and she asked me to come into her classroom to talk. After a very emotional talk with Pensee and an informative journal entry, it was clear to me that many of the factors that were overwhelming Ms. Redman were not related to her beliefs about the importance of incorporating differentiation and process skill

development, but related to outside factors such as internal pressures, lack of planning time, and personal/home issues. I thought back to Ms. Redmanôs first interview when she discussed how important she believed differentiation to be, but addressed her tendency to become overwhelmed by the act of implementing these practices. I remembered when Pensee had said:

> Iôm guilty of being so overwhelmed sometimes that I donôt differentiate a lesson, I just teach it, but then I will always eventually feel guilty that I know thereôs one kid, why they didnôt get it because maybe I should have taught it a different way to them. So I do firmly believe in it. Um, I feel like I believe in it more in the school that I am in now.

Everyone has a breaking point. For Ms. Redman, she was close to her breaking point. She had demonstrated before that differentiation was overwhelming to her, but important. I knew instantly that she had pushed herself too hard to do too much for her students all at once. She had gone against her comfort level and tried to implement things too quickly. Pensee Redman needed to take things at her own pace and in a more comfortable manner.

Instead of walking away from differentiation and process skill development, we talked and decided to scale back. Mrs. Redman was very open with me about practices that she was more comfortable with, including tiered lessons. She decided that instead of creating four differentiated centers that incorporate process skill development, she would instead tier one of her centers. The students would be grouped based on ability, and Pensee Redman would differentiate an additional center through questioning and ñin the momentò adjustment for student needs. Mrs. Redman was still going to differentiate for her students, just at a more manageable level for her. As far as process skill development would go, we would just have to see how this naturally fit into her classroom.

Taking things slowly

We started to implement differentiation and process skill development more slowly. Pensee was still feeling overwhelmed, and I did not want to push her too much. She felt more comfortable switching her focus to tiered assignments, and was able to use materials that Hailey Cason and I created, as well as some things she was creating herself. With process skills, she focused more on communication and organization, which were the items she felt more comfortable with and could incorporate easily without much prior planning.

> You know that Iôve struggled with it so, I mean the whole planning and preparing and the process of thinking it out, really, really thinking it out is difficult. Honestly I feel like Iôve let it stress myself out a little bit more because I can remember that was the big word my very first year teaching. Differentiation. I mean that was what our principal said all the time and it was like, óOh come on, we all do that, you know?ô But, yeah we all do it but when you sit down and try to show it in your lesson plans, you try to plan three different lessons and you try to, you know until you get into a real routine, for somebody, I mean for some people itôs probably really easy but for somebody like me that, I try to put my best work forth. I try to be ready beforehand, and itôs really hard for me to be ready for differentiation and not just like differentiation but like differentiated centers. That is really hard.

Differentiating in different ways

As March approached, Pensee Redman tried different ways to differentiate. Often, she found that in addition to trying tiered lessons or other planned differentiation tasks sometimes she could implement open-ended assignments that allowed her to differentiate on the spot. She

commented, ñIn math, I do whole group so it doesnôt appear really to be differentiated if you walk in the room and just kind of are standing there.ò Pensee explained in an interview:

> But, then when you see the kids break up into groups, you really see, or break off to do like their independent stuff, you really see it. I feel like itôs almost differentiation for them to share their strategies. I truly feel like thatôs almost more important that saying ok you do this level of worksheet and you do this level of worksheet because they started picking up on well I mean if I know their strategy then I can do that problem so I really feel like when we share strategies before we break off to do independent And then at that point, you can pull a group to the back table to kind of work with that group and keep this group moving. We normally will do a work session as more of an independent, with me kind of walking around to help guide or, you know, if a student is just flying through it, change the questions and kind of say ok, well what if and kind of change that. Um, so I feel thatôs differentiation.

Making planning more manageable

When Pensee Redman was planning for her lessons in March, she found ways to make them more manageable and said:

> I would say that Iôve noticed that itôs almost more difficult for me when Iôm actually consciously trying to plan differentiated activities. Itôsé soé I think my planning has changed a little bité the way that I try to plan. Differentiation, I think comes naturally to a lot of people and to teachers in general so you donôt realize that youôre differentiating when you are, and then when you sit down to actually plan out a differentiated lesson, it seems so much more, like the thought process of it all and trying to make it perfect when really it could be like a you know, you never know what the kids are going to need and

what theyôre going to need changed so I think my lesson planning has changed a lot. I started out trying to be very specific at how I was going to differentiate one skill like three different ways, you know? High, medium, low, that type of a thing. Um, and now Iôve kind of moved to just a sketch of how I could differentiate because I donôt knowé for some reason I normally am a veryé I guessé type Aé I want to follow it exactly how I have it planned person, but Iôm starting to realize that just isnôt working with my group of kids. So what I planned normally doesnôt go the way I hope it will. Iôve gotten a little bit better about planning differentiation as an outline rather than exactly how Iôm going to execute each step.

More Aware of Process Skill Development

Mrs. Redman also began to change her thinking about the types of lessons she was presenting to her students. In an interview in March, she reflected back on her earlier understanding of process skills and how this opinion had changed:

> I think at first, I was kind of like what on earth are process skills, you know? Now to me itôs just creating lessons and trying to get the kids to think more critically with more communication, more verbalization. Also, being more responsible for their own learning, really putting those into a lesson and knowing that I expect a child to create this and then explain it. Then, you know, show it to me or represent it somehow on a computer or something. Theyôre really held accountable for what they are doing. Itôs not just like hereôs a sheet and now you sit down. There are those process skills involved in that too but thinking about process skills makes you create different lessons. I donôt know how to explain it like maybe you want this to be a communication math lesson, you know, where theyôre actually verbalizing. So then your process skills kind of change into what you

> expect, and how youôre going to plan your lesson. But maybe itôs a written explanation and so then thereôs going to be organizing the data a little bit differently and organizing your thoughts and kind of changing what you think.

Enrichment Clusters and process skill development

In January through the end of March, Mrs. Redman led an enrichment cluster called Reconstructing Scraps. The cluster presented the following problem for students: *Builders all over the United States have scraps left over when jobs are completed. Left over materials from construction sites are sent to construction landfills. A construction landfill is much like a garbage dump because none of the items are used again. Tons of unused scraps are sitting in our town as we speak. These sites add to pollution because the land cannot be used for plants and the materials do not decompose quickly. How can we use these scraps to help to minimize the waste?*

During the cluster, Mrs. Redman obtained a large amount of scrap building material, and students worked together to decide on projects to make with the scraps. Some students built objects for the school, while others built things they needed at home.

Mrs. Redman believed that enrichment clusters could help teachers as they learned to teach by implementing process skills. She also admitted that teachers could miss their opportunity to strengthen process skills if they wasted the time they had in enrichment clusters when she said:

> I think your school setting kind of can strengthen process skills too. We have clusters at our school, which really probably help a lot with that. But it depends on how you feel about clusters. Or you know, if your school does clusters and if youôre going to take it seriously. Iôm really sorry Iôm talking about this but this is totally a rant but, creating a

cluster but not really following through so that the kids understand. I mean I think some kids go to a cluster, and they think, ñWell weôre just going to go in, and weôre doing this, this and this.ò Not this is what weôre doing and this is the process and how you work through solving a problem.

Tiered Lessons and thinking through the process

With Mrs. Redmanôs support, students gained confidence and enjoyed working on tiered lessons and sharing their strategies. One day during rotations, I met with the group of students who were advanced in math. Mrs. Redman and I had worked together to develop a tiered task sheet with three choices of problems. From the three tiered choices, the students all wanted to work on the second tier. Because the previous group I had worked with had struggled so much with the first tier, I did not encourage these four students to try the highest tier. I figured that they could work on the highest tier if they finished. These students were excited to tell me about their strategies before I even asked. This led me to believe that this type of verbalization was a natural part of Mrs. Redmanôs classroom. One student, Nathan, said, ñDo you know how I can do this easy? I know that 6 times 13 equals 18, so 18 divided by 3 equals 6.ò On the next problem, I heard him saying, ñIôm good at my eights!ò He was confident about his abilities and gaining momentum in completing the tier 2 task. I heard another student say, ñIôm flying through this!ò I told him that was great and that he could try the third tier since he felt comfortable with the problems on the second tier. All three tried the most challenging tiered problems. Working neck and neck, they all had trouble with a problem that involved the multiplication sentence 6x7. I encouraged them to try a strategy to figure out the problem. All three used a different strategy and shared them with one another. I was surprised at how encouraging they were to one another when sharing their strategies. They were not telling each other the answers or competing, but

seemed genuinely interested in how their friends were figuring it out. The students solved the problem just as the timer went off and the groups had to switch.

Reaching all students

Luther was the kind of child that no teacher wanted in her classroom. Nobody except Pensee Redman. She had a way with students who no one else seemed to be able to reach. I first met Luther when he was in second grade, the year before the study began. He was angry most of the time. He refused to complete any work and would say mean things to the other children. Sometimes he would get violent and other times he would simply disengage and ignore all instructions from the teacher.

It only took about two weeks of being in Mrs. Redmanôs room before Luther was a completely different child. I knew things were going to be different for him when I walked in the room and he greeted me at the door: ñHello, Mrs. Brown. How are you today?ò I then watched in amazement as he followed Mrs. Redmanôs directions and listened as she began the mini-lesson. The interesting thing about Luther was that he was very smart. After a few short months in the EIP program to make up for the instruction he ignored in second grade, Luther caught up and began to demonstrate advanced abilities in mathematics.

One day when we were working on tiered word problems, Luther decided that he wanted to try the third and most challenging tier. I wondered if he would be able to do the hardest tier. He started on the first problem and had a little trouble. He said, ñIôm gonna skip this first one.ò I told him no, that I wanted him to keep trying. Rather than giving up, Luther tried again (something that would have never happened in second grade). When he finally solved the problem, he was so excited! Luther continued with the sheet and finished almost all of the problems successfully with just a little bit of support. After the timer went off, Luther raced over

to Mrs. Redman to show her that he had completed the tier three assignment. He was so proud of himself, and the glowing smile on Mrs. Redmanôs face and warm hug she gave him showed Luther that she was proud too.

The pressures of testing

Early April came, and the room was so different. Ms. Redman seemed tense. The desks were moved from groups to individual desks in rows and columns. Posters and student work was removed from the walls. Centers became reviews of math concepts using testing format. Pensee described this change:

> I think it can get overwhelming when administration comes in at the middle of the year and says, ñOk well the standardized test is coming up. How are we going to differentiate and make it so they are all successful when really we should have been pushing it from the beginning of the year, you know?ò So itôs just a matter of us having to figure out a way to fit some review in. I think thatôs tough too with review, figuring out how to differentiate because of the timeé I mean, yes we have all of the data. We have all of the assessments that tell us what kids need help on but when do you really have the time to sit down and go through all of that data? And group them based on that and then plan an activity for each group based on that? Um, so I meané if Iôm honest, Iôm not differentiating based on our assessments right now. Iôve kind of looked to see as a whole what are our weaknesses. Today I saw two of my higher students, they were able to kind of explain it in kid-friendly terms so maybe itôs not a bad thing, you know? They got it really quickly, but then they could explain it to some other kids while I was working with another student. I think thatôs important. Kids learn from everybody soé

When asked about having to incorporate a great deal of review for the state assessments, Pensee confided:

> Yeah well because if somebody walks in your room, again, and youôre not doing what they expect you to be doing. At our last grade level meeting, we were pretty much told weôre expected to be reviewing and to be getting them ready, using the test preparation books.

SEM and testing

Despite the testing that was looming over Mrs. Redmanôs class, she did have two students working on Type III projects with me in the resource room. Mrs. Redman talked about how the state assessment and rigid standards limited the teachersô ability to differentiate and incorporate process skills when she said:

> It just really stifles childrenôs creativity, and, I really think their development because theyôre going to never go back to what they were good at or what they were interested in because theyôre continuing to be pushed through. The teacherôs donôt have time to differentiate and add in everything for everyé something for every kid. Itôs hard.

However, she did point out that Type IIIs did allow for several of her students to pursue investigations that were interesting to them. ñWhich I guess is where the Type IIIôs and stuff like that come in for some of our students, which is really good.ò

April

During the month of April, I had to stop my data collection because of medical leave. Therefore, I did not collect observations. During this month, Mrs. Redmanôs class reviewed for the state standardized assessment for three weeks with some differentiation and process skill

development, and then the assessment took approximately one week to administer. In a May interview, Mrs. Redman described what this instruction looked like in her room:

> I felt like process skills werenâ as much of a focus because, I hate to admit this but in the review groups, if you were sitting at a table with me or you were at a table with our student teacher, you were one of our high-risk students so we were teaching you not to the test but you were getting test-format while the other students were doing it in a little bit more of a laid-back way because there wasnâ anybody there to make sure you were doing it correctly. So, yes they were probably process skills involved in those two more test-like scenarios, but was it fun? No, but unfortunately the pressure was there that it was necessary.

Worn out

By early May, testing was over. There were just a few more weeks of school left. Mrs. Redman continued with her math centers, but worked with students to complete performance tasks required by the district or other assessments needed for report cards, while other students rotated through review games and activities on the computer. Everyone was feeling tired from the intense pressure in April and a long school year which was now almost behind them, but regardless, Mrs. Redman decided to try at least one interesting strategy involving process skill development and differentiation with her ESL teacher. This activity focused on using creativity and technology to tell a story. She described it as:

> We went ahead and said we want to try photo story, and we started the process with them just taking random pictures. They got a camera, and then they got to just wander around

and take pictures of whatever they wanted and then write their story to go with that. Some of them were able to write their story, but not all of them got to that point before the end of the year.

Looking forward to trying new things

Although the spring held some rocky times for Mrs. Redman involving differentiation and process skill development, she said that her experience helped her to strengthen her practice, and she looked forward to continuing these practices in the years to come.

> I felt like it went really good this year, but maybe itôs going to be even better next year because this was the first group that, you know, I worked that way with. So, I mean, I guess itôs just lifeé that the first time around is always a little more difficult than the next time.

Mrs. Redman continued:

> Thinking about that now, I never tiered lessons until this year. I never did that and so I do have files in there that are like multiplication tier one, tier two, tier three so that theyôre leveled for kids. Now that I could see pulling back out and thinking, ñI used that last year, weôre using that this year because itôs leveled.ò Now, I didnôt have those resources beforehand so maybe my teaching will be a continuation next year of what I did this year. Yeah I definitely think that I have a resource now so it might not be that I sit down to differentiate math but I have experience doing that, and I have resources to look at the activities so it will help me with other subjects. Iôll be able to pull those files and kind of look at well this is how you did it for mathé so now letôs think about how you can do that for science.

She shared the impact that this experience had on her practice versus simply attending one training on process skill development or differentiation:

> I think this was huge compared to a little one hour training. I think that everybody needs those trainings, but I think that actually having somebody in there to kind of like hold your hand through it. It was somebody to bounce it back and forth off of. So ok now we're going to do data and how can we do this with data? I think that those little trainings and things are helpful to keep reminding you, but it really helped to have it in the classroom, know that it needed to be done, and to make yourself do it. I mean because I think sometimes you go to trainings and you hear all these great ideas and you go home and then you can't get it all done, but I think actually having it in my classroom every week, once a week, helped to make it real and to let you see it in action rather just talk about it.

Mrs. Redman already had big plans for next year:

> I started talking about the ways we could use technology to differentiate for the kids, and I really want to focus on that next year. Especially during reading because not all kids enjoy sitting down and reading a guided reading book with you so photo stories and taking the responsibility to record a book on tape or cd or, you know, make a play to go along with it and record it… I think would be a neat way to mix it up for all groups. I really want to focus on technology though because that's my weak area. So… at the beginning of this I kept talking about organization. We're going to be really organized and the really obvious ones for me. Technology is the one that scares me. But now I'm ok with maybe trying something, you know, picking a process skill that I'm not strong with

and saying ok letôs use technology to figure out, and how can we use technology across the curriculum in every subject, not just reading.

Julia Landry: Youthful and Hungry Learner

Introduction. Julia means ñyouthful.ò As a new teacher to third grade, Julia was excited about everything and hungry to learn all that she could about differentiation and process skill development.

A big yellow school bus pulled up in front of Growler Elementary School where the future teachers and administrators of Lincoln Elementary School were gathering together to embark on an afternoon field trip. It was May 2009, and Lincoln Elementary School was set to open in August of that year. We were visiting the new school and the community center in the mobile home neighborhood where hundreds of our future students lived. You could not miss Julia Landry, or at least not her personality. She was excited and full of energy, ready to begin her first year teaching. Her excitement was infectious. As we rode the bus, she enthusiastically told a small group of us about graduating from the University of Georgia, student teaching in Kindergarten at another school in the same county, and her years of experience as a YMCA camp counselor. She was set to teach Kindergarten at Lincoln Elementary School and could not wait to begin her first year. Julia spoke both English and Spanish, which would be helpful because many Kindergarten students began at Lincoln knowing very little English.

The year the study began, Julia Landry was in her second year teaching Kindergarten at Lincoln. She had not yet started work on any advanced degrees and held no special endorsements. She was enjoying Kindergarten when the administrators called her into the Principalôs office. Julia Landry described this series of events:

> Yeah, at the beginning of the year I started in kindergarten and here at school, we were over for the amount of children that we had in third grade, and we were under for the amount of children we had in kindergarten based on the number of teachers that they have. So, um, the principal here at school came to me and asked me if I would be willing to switch to third grade. So I taught my kindergarten class for about 4 weeks, and then those students were split up and put into four other classrooms. Then the three third grade classroomsé I took students from each of those, and now Iôm a third grade teacher.

A new teacher again

Having to change grade levels once the new school year had begun was overwhelming, but Julia accepted the challenge. She remained in her classroom on the Kindergarten hallway and had one weekend to turn it into a room appropriate for third grade students. Ms. Landryôs classroom was away from the other third grade teachers, which caused her to feel somewhat isolated in the beginning. While Ms. Landry was nervous initially, she did her best to teach her students. In the first interview, she admitted:

> I feel like in the beginning just because I was kind of getting my feet wet and getting used to everything, I was kind of limiting some of the students in my classroom just because you know trying to get used to everything, it was just overwhelming. I wasnôt able to tier things and provide extra assignments and things like that.

Initial Belief about differentiation and process skill development

> When asked in the first interview about her beliefs on differentiation, Julia responded: Differentiation to me is presenting the content in a way that keeps the students engaged and also accommodates the strategies I guess that they need to learn. I found in this room that I do have students that need to be challenged more. And you know, some students

> need more direction, some students need less direction. So I guess being more diverse with how I present things and trying to bring different resources in instead of just teaching to the middle. I try to really, you know, provide more thought-provoking, more critical thinking questions for the students that need it but I also try to maybe simplify things sometimes for those that are having difficulty with it.

Process skill development was something that Julia Landry did not know as much about before teaching third grade at Lincoln Elementary. She explained, ñThatôs something that Iôm just not familiar with and every time we get some kind of professional training, I try to take something out of it and bring it back to my classroom because thatôs just something I didnôt have any knowledge of at all.ò When describing her initial beliefs about implementing process skills, she said:

> I found that when I try to incorporate more things like that in my lesson, it takes longer to plan it, but they grasp it a lot quicker it seems. So if my lessons are more detailed with those types of things, I really see them get it quicker than if I donôt really try to incorporate those types of things into it. After Iôve seen the results from it, I see how itôs very beneficial in my classroom. Initially when I wasnôt that familiar with process skills, I wasnôt really sure how it would go over but since Iôve had experience with it, it seems to be beneficial.

Goals for differentiation and process skill development

Julia Landry did not like writing. It was her least favorite subject to teach and as a result, also the least favorite subject of many of her students. Because of this, she decided that she wanted to focus on writing. She wanted to differentiate for her students in writing by being more

explicit in extending and supporting students through the assignments. She hoped to do this by using tiered checklists and rubrics in writing assignments.

When focusing on process skill development, Julia Landry wanted to focus in on addressing cognitive process skills. She explained:

> Higher-order thinking skills is the number one priority for me. Iôve learned that I guess Iôve kind of limited them in a way, and I used to be more of a drill and kill approach. Lately Iôm really trying to give them more opportunities to explore and question, and Iôm really trying to let them have more of a say-so in what they learn sometimes too, the direction that the content takes and that way, I guess theyôre more engaged. Theyôre more willing to put in the effort to really probe through the topics that way.

Ms. Landry's students

Sometimes a classroom of students takes on the personality of their teacher. Ms. Landryôs students did just that. She taught a caring, but very energetic, group of 17 students at the beginning of the study. She had seven boys and 10 girls. She had one Caucasian student, three African American students, and 13 Hispanic students. Initially, her class did not have any students with identified special needs. ñWhen they made my class at the beginning of the year, the students they pulled out to go in my classroom were not ESOL, EIP, identified gifted, or special education because I donôt receive any collaboration except when I work with you now. So they tried to make my classé uniform so that I didnôt have to have any collaboration,ò she commented. Ms. Landry did have two advanced students in her room who were working on a Type III project. As the semester continued, Ms. Landry got two new students. One student was

an identified gifted Hispanic male and the other was an African American female who received EIP services. When describing her students, Julia Landry discussed the differentiated instruction she thought her students needed:

> I think itôs very important especially with my group of students. I found itôs very easy to lose their attention and even though they have grasped the content, you can really extend it and do so much more with them. And Iôve really found it builds student excitement if they are really challenged, so I think itôs very crucial because it builds on each childôs level and eventually really keeps them engaged in the classroom. It really gives them an opportunity to stretch their mind.

Ms. Landry's room

I walked down the Kindergarten hallway to Ms. Landryôs third grade classroom. The room was loud and students were sitting at four different tables. Stuff was spread all over the tables, including books, studentsô breakfast, pencil boxes, and notebook paper. Other than the tops of studentsô desks, the room was neat, with minimal piles, and had several posters on the wall. The posters were homemade charts that included information students would need in various subject areas. The room did not look bare, but it was not overflowing with materials and books. Ms. Landry had four computers at the back of the wall and an interactive white board at the front of the room. The tables of desks were pushed back so students had room to sit on the brightly colored carpet in front of the interactive white board. Julia Landry had two kidney-bean-shaped tables in the room where she could meet with small groups of students.

Extending student learning?

My first day in Julia Landryôs classroom began with a mini-lesson on moving from general brainstorming of a persuasive piece to creating an organizer for an introductory

paragraph. Ms. Landry always began instruction with a mini-lesson discussing what students would work on that day or addressing any issues she had seen in previous lessons. After the mini-lesson, she assigned a student to place the writing boxes on the tables for the students. Each student had a writing folder in which they kept all organizers and drafts they were working on or had worked on in the past. Ms. Landry asked students to take out the prewriting organizers they were working on the day before to use to help them with their writing.

We decided to split up the room, each taking two tables of four children for conferencing. I went from child to child, touching base and asking them about their writing. Several students needed more help with the prewriting organizer and were not ready to begin their draft of their introduction paragraph. Two students were ready to begin the introduction paragraph right away, so I had them use the chart from the interactive whiteboard to create their own organizer for the introduction paragraph.

I noticed Ms. Landry working with the students at her two tables. I saw her pull the students aside and conference with each, one at a time. A few times when I looked over at her table, she had multiple students standing around her. In the meantime, one of the students I was working with finished with her introductory paragraph. At this point, I was unsure how to differentiate for this student, because I did not know the format Ms. Landry would require for the body paragraph of this persuasive piece. I decided to allow the student to go to the computer and research for her Type III project. At this point, I realized that Ms. Landry and I had not discussed a plan for students who needed an extension.

So many students, so little time

A few days later, I joined Ms. Landry and her students for another day of writing. After the mini-lesson, she said that she needed to talk to two students (the two students in the room

working on Type IIIs). She also named four struggling students needed to bring their work down to the carpet and stay with her for additional assistance. The other students went to their seat, got their boxes and folders, and got situated. Some students started working right away, while others talked with their neighbors.

Ms. Landry told the two advanced students that since they were finished with their body, instead of moving on to their conclusion, they could free write or work on their Type III. They both decided that they wanted to work on their Type III, so I decided to meet with them and get them started on a research task for their Type III. I encouraged one student to create a tree map to write down facts about China and the other to create a tree map to research the different types of sea turtles as initial research for their selected products. The students began researching using the Internet and wrote down information they needed.

Ms. Landry began working with her four students on the carpet, while the rest of the students worked at their seats. I went from student to student. Several of the students were working, but some students wanted a conference before they would write any sentences. Some students who were writing knew exactly what to do, while others were writing, but putting sentences in the wrong place. Students did have their bubble maps to use to help them with the construction of their body paragraphs, and most seemed to be using them; however, they would get mixed up on order and paragraph structure. During the work session, I felt like I was jumping from child to child; trying to get to all the students I thought needed help and redirecting them. With some students, I was able to use questions to lead them in the right direction, but others I ended up explicitly telling them what to do, sometimes even giving them sentence starters. I felt a little stretched and rushed. Several of the students must have felt that I could not get to them fast enough, because they moved down to the carpet to join Ms. Landry. At one point, I looked

up and noticed that there were seven students on the carpet with Ms. Landry. She seemed to be jumping back and forth between them in a manageable way, but I could hear a few times that her voice was tense and strained. I could not make out much of what she was saying, but it appeared that she was doing what I was, questioning some and explicitly responding to others, giving them sentence starters, and trying to steer them in the right direction. Even though she seemed a little frustrated at times on the carpet, her frustration was also mixed with positive reinforcement to students. I did hear her say things like, ñVery good! Was that very difficult?ò and saw her give a high five.

Before I rushed out of the room, we had a brief discussion about the session. Ms. Landry thought that the students had made a lot of progress, but admitted that she got a little overwhelmed with so many in her group. I suggested that maybe we talk next week about some kind of organizational system for conferencing and some kind of enrichment routine for students who finish the task. She agreed, but was skeptical about some students not being motivated to complete anything extra.

Excited to learn

Ms. Landry was new to third grade and new to teaching writing at this level. However, she was willing to learn and open to suggestions from anyone and everyone. She mentioned several times before, during, and after the first interview, how much it meant to have a collaborator in the room. At one point, she even said that before I started in the room, ñIt felt like I was in a box.ò Ms. Landry was excited to open up ñthe boxò that she felt was her classroom and invite others in to learn with her about implementing differentiation and process skill development with her students.

Extension tasks and Questioning

The first thing Julia and I decided to address was a system for providing meaningful extension options for advanced students or students who finished their writing assignments early. In order to make the extension exciting so students would be motivated to complete their assignments, we created a spinner, which would help students choose between multiple extension options. The morning we introduced the spinner to the kids, a buzz of excitement filled the room.

Ms. Landry pulled up the spinner on the interactive whiteboard. She told students that the class would have a new routine for when they finished a task early. She used a student, Shakira, as the example. She told students that if Shakira finished her writing assignment correctly, she would be able to use the spinner. At any point, if Shakira finished a writing assignment and would like to work on her Type III project instead of using the spinner, that would also be fine. If Shakira chose the spinner, there would be four choices: computers, free writing, prompt, or 7up (a creative elaboration activity). She would spin the spinner, and it would tell her which of the choices she would do. First, Shakira might spin computers. If she spun computers, she would be able to either work online with Renzulli Learning, type a writing piece, or do Ticket to Read. The next activity Shakira might spin was freewriting. If Shakira spun that, she would be able to spend time writing about whatever she would like. Next would be the prompt. Mrs. Landry then discussed prompts and why it is important for students to practice with prompts, citing the fifth grade writing tests and even having to respond to prompts in high school and college. She told students that you pick the topic from an envelope. You then have to write about the topic you picked.

Finally, she showed her students the 7 up activity. She talked about how this activity would help with elaboration. Mrs. Landry asked students if they remembered what this meant from when Mrs. Brown came into our classroom before and taught a lesson about creative elaboration. She called on a student who said that it meant to add details to your writing. Mrs. Landry showed students how they would be able to use a marker to rewrite the basic sentences to have more detail. She picked an example from the first 7up sheet: ñThe dog ran.ò She had the class help her to elaborate on the sentence to make it have at least seven words. One student was a little confused and said, ñThe dog walked down the street.ò Ms. Landry corrected him and said that it had to use the three words already present in the sentence, but add to them. Another student said, ñThe dog ran quickly down the street and found a bone.ò Ms. Landry told the student that this sentence did elaborate on the first sentence. She also talked about conjunctions and how, in most cases, a sentence should only have one conjunction. The students seemed really excited to start writing that day and get the chance to try the spinner.

Something new brings nerves

One Friday afternoon in February, the hallways were empty, but Julia Landry and I were still at the school planning. We were preparing materials for an upcoming unit and mapping out our projected timeline. We decided to incorporate creative problem solving into persuasive writing, presenting the opportunity for the children to use multiple process skills and practice being critical and creative thinkers.

At the meeting, we outlined a plan for the next two weeks and created our starting materials. As part of creative problem solving, we developed two ñfuzzyò situations to present to the students. Students would choose to either work on the issue of overpopulation of dogs or protecting the endangered bald eagles. We would each lead a group of students through the

Creative Problem Solving Process until they decided on their product or service to address the problem, and then the majority of the other work could be done with both groups together just differentiated by topic. We projected that after working through the Creative Problem Solving Process, whatever the students decided to do with either of these species would allow for real-world opportunities for persuasive writing. The following are the two ñfuzzyò situations we wrote up to present to the students:

1) Have you ever seen a bald eagle soaring through the afternoon sky? We need your help to solve the problems of our national bird, the Bald Eagle. The Bald Eagle is endangered because it does not have a safe habitat to live within. Bald Eagles are often hunted and killed by poachers for their beautiful feathers. Pollution can also harm the Bald Eagle in different ways: their egg shells can become thin and the water can become contaminated. Please find a way to encourage others in our world to protect the Bald Eagles.

2) Many people believe that dogs are man's best friend! Dogs make great pets and can make people's lives special. Unfortunately, too many dogs in our community and all over the world are mistreated. Many dogs live their whole lives hungry, alone, and without a home. Because of so many dogs in our community, some dogs end up in kennels. This causes another problem: kennels are often low on food and space. At our local Animal Control, over 400 dogs were euthanized last year alone. We need your help to keep these special cuddly animals alive and loved.

By the end of the meeting, Julia and I were both eager to try out Creative Problem Solving in writing the next week. I was feeling nervous before our planning meeting, unsure at how we would plan to incorporate this process, but the planning went smoothly. Julia admitted,

ñI have to tell you, I was really nervous before our meeting. But Iôm surprised at how easily we came up with ideas. This unit is going to be great!ò

Implementing Creative Problem Solving with writing

That next Monday morning, I practically skipped to Julia Landryôs classroom. The students were already sitting on the carpet when I arrived, looking at the interactive whiteboard. As Ms. Landry changed out the slides, she asked students if any of them could tell us about their enrichment clusters. She asked them if any of their clusters had to solve a problem and how they did solve the problem. About seven students raised their hands.

Ms. Landry called on a student, Pedro. Pedro told about his enrichment cluster called the Safety Stars. He said that his cluster helped people to be safe on the playground and around the buses. We asked him what product they decided to make and he excitedly told us that the Safety Stars made a video to share with other students at Lincoln Elementary.

I called on another student who told us about her cluster, the Shade Brigade. The student described her cluster and explained that they were worried because there were not any trees on the playground. She said that their solution was to have trees planted and in order to do that, they had to decide what trees they wanted and where. Another student jumped in and said that they had to write a letter to the school principal to ask if they could get some trees to plant. I asked the class what kind of a letter this was. Several students blurted out, ña persuasive letter. ñHow interesting,ò I told the students. ñOften times when we want to solve a problem, we must persuade people to help us or allow us to implement our solution. We can do this through persuasive writing or videos.ò One of the kids questioned, ñI thought persuasive meant to trick someone?ò Ms. Landry told her that sometimes we might try to trick someone, but usually a persuasive piece is used to convince someone of something.

Ms. Landry directed students to look at an example of a fuzzy about the declining butterfly population. She asked students if they had ever used a fuzzy in their clusters or the Creative Problem Solving Process. I showed the next couple of slides to see if they looked familiar to the children. Several of them said that they recognized doing this activity at the beginning of clusters. Others looked unsure. Ms. Landry told the students that we were going to practice with this fuzzy about butterflies, and then we would break up into our two groups to figure out how to solve the problem in our own fuzzies about dogs and eagles.

She read the fuzzy to the students and asked them to talk to their partner about the problems they could find within the fuzzy. I walked around and listened to students. I was surprised to hear them identifying problems in the fuzzy. I heard things like, ñthe butterflies are disappearing, we need different types of plants.ò Ms. Landry bent down and listened to studentsô answers as well. After about three minutes, she stood up. She then let students tell her some of the problems they identified including, lack of flowers, disappearing, killing insects with pesticides, not enough beds, and needing different types of plants. We were impressed that students mentioned killing insects with pesticides because that was not written in the fuzzy. Ms. Landry and I both pointed out at the same time that you could identify problems that were not necessarily in the fuzzy, but that you felt contributed to the overall problem.

I asked students what they believed was the overall problem of the fuzzy, and they said that they felt it was that the butterfly population was going down. Ms. Landry then told students that they would get to decide which of the sub-problems to focus on. I told students that while working on these tasks, we would only have three weeks, so we couldnôt focus on all of the problems. We would just have to choose one. Ms. Landry asked the students if we decided to focus on lack of flowers, how could we get help? The students said that we could write letters to

see if people would donate flowers. One student said that we should ask our principal for money. Another student said that we should write to the factory that packages the seeds to ask for seeds. Another student said that we should go to the gardens we already have outside and use those seeds. Ms. Landry and I said that those would all be great solutions, but that we would need to vote and decide on one solution. We told students that then they would get to work with the group they choose to focus on solving a problem for either eagles or dogs. She asked students who were working with the eagles to line up at the door and for students working on the dog task to stay in the room.

I took the students working on the eagle task to another small classroom next door that was not in use. I had students pull chairs into a semi-circle around the interactive white board. I had eight students in my group. I warned the students that we needed to be focused because we had a lot to think about in a short amount of time. I told them that I wouldnôt be able to be with them again until Friday, so it was important that we decided what to do today. I showed students the fuzzy about Bald Eagles.

Students read the fuzzy to themselves. Then we all read the fuzzy aloud together. I switched slides and asked students what they felt the main problem was in the fuzzy. One of the students listed two sub-problems. I told her that those were parts of the problem, but not the main problem. I told her we would need those ideas later, but right now we needed the main problem and to keep thinking about it. Another student raised her hand and said that the main problem was that bald eagles were endangered. We then listed three sub-problems as a group, which included- safe habitat, pollution, and poachers. We voted for which sub-problem to focus on.

The poacher sub-problem received the most votes. We then brainstormed solutions. The students came up with numerous solutions. I let almost every child tell a solution. Some students

said the same solution, simply in different words. When this happened, I asked students if their solution sounded similar to____ (whatever was already on the board). If they said no, I wrote what they said. We voted to decide on the top two. Most of the boys voted to write letters to display in gun shops convincing hunters not to shoot eagles. Most of the girls wanted to write letters to raise money to adopt an eagle so that they would have a safe habitat and poachers could not shoot them. We used the selection criteria on the next slide. I tried to tell students several times to vote not based on the choice they wanted but really to think about how it ranked with the criteria listed. One girl really wanted to adopt the eagle and seemed very disappointed that this solution did not have the highest score. After adding up the totals, we decided as a group to write persuasive letters and signs to display at a gun shop in order to convince poachers not to shoot bald eagles. I could hear the other group in the hallway and realized that it was time for music. I asked the kids to put their chairs up and sent them out of the classroom to line up for their music class.

Ms. Landry and I talked for a minute in the hallway as she was sending her students off to specials. She told me that her group did a good job and figured out what they wanted to do to solve the problem. Her group thought that a major reason for having so many dogs at the shelter was because the dogs needed training. The children wanted to start a training program for dogs. She said that she was not sure how she would tie this back to persuasive writing. We brainstormed a few ideas, and I told her that maybe instead of creating a training program, they could try to convince the people at the animal shelter to add this as a component to their shelter. They could also try to convince local trainers to volunteer their time training these dogs. That seemed to make her feel better, and she said that she would talk to the children about those options tomorrow. She did say that she did not use the decision grid, which really seemed to help

the children in my eagle group to identify a solution that would be manageable for us to work on. She thought that she might want to do this part with her group the next day.

Changing opinions about writing

As February ended and the students worked on researching information for their persuasive pieces, Ms. Landry still seemed excited about the creative problem solving. In fact, one afternoon, she stopped me in the hallway and told me, ñThese may be the best writing pieces my students have ever done. For once, I have not felt stressed about writing. I always feel stressed during writing.ò We talked about how maybe since the students were so motivated and because we were building on background knowledge, this was helping with their confidence in writing. In an interview in early March, Julia Landry complimented this process for meaningful writing again:

> I can literally tell my students really enjoy writing now. They come to me and ask me if they can work on their writing during free time. So I would have never expected that really. To me, if Iôm a kid, I wouldnôt want to work on something during free time if I didnôt enjoy it. So, I guess thatôs the biggest thing that helps me push through it every time and realize the work is worth it when they really are that engaged in writing.

Julia even shared her elation over this writing unit in her reflective journal. When she said: ñOverall, students have seemed more excited about writing as a whole this week. Once again, I felt that I initially limited the amount of work that my students could accomplish. After this first week, I am really impressed with the way their research skills are developing and how all students are able to participate in more challenging assignments.ò

Differentiation and organization

As students worked on their Creative Problem Solving tasks, Julia Landry attempted to develop materials at different levels to help students stay organized. She wrote about this in her reflective journal in early March.

> This week Iôve really tried to focus on differentiation in writing. Iôve also tried to simplify the process, step by step, to make it easier for my students to undertake. One adjustment Iôve made is having a small group focus every day. I try to get students started that do not have difficulty pacing themselves, and then I work with a small group of strugglers who need extra support. I try to use more tangible methods for them. For example, when we were working to structure our body paragraphs for our persuasive pieces this week, some students were able to do it independently and some students did not even know where to start. With students who were having difficulty, I tried to give them as much one-on-one attention as possible. I posed questions for them to take them through the process step by step. I gave them additional support besides the map that the rest of the students used to complete their body paragraphs.

Julia also talked about how she tiered the expectations she had for students in writing through the creation of checklists.

> What Iôve really learned is if you look at the papers that we wrote at the very beginning of the year and what we do now, they are much more time-consuming and much more meaningful as far as the process that we go through. I take them through it step by step and the ones that donôt need it, I donôt limit them. I allow them to push on but then for that lower group, itôs really great. I try to present the information in as many different ways as possible. Does that make sense? One thing Iôm really trying to implement this

> quarter is checklists and that gives students a way to be accountable on their own. Itôs really going to allow them to take responsibility for their papers instead of focusing on me going back and looking over it. Iôve literally tiered the checklist because some students have more requirements than others, so what I require physically on the papers is different. But also with my lower group it might be focusing more in conventions and things like that where my upper group, I might be focusing more on trying to include, trying to get them to stretch their content because they already have those things mastered.

Julia and I also decided that students needed differentiated mini lessons based on their progress in writing their persuasive pieces. Julia wrote about our implementation of this in her journal.

> Finally, Katherine and I attempted breaking the class into two separate groups for mini-lessons in writing this week based on their needs. I had some students who were flying through their checklists and their rough drafts. These students met with Katherine to discuss ways to vary their sentences structures and ways to elaborate. I had some students who were having difficulty even getting to their rough drafts or struggling to put the components of their papers together. These students met with me to go through the checklist once again. In addition, they also worked in small groups to work with a checklist once again. This time I simplified it even more. I gave students only the body paragraph as opposed to an entire rough draft. This time it was even easier for them to work through the checklist, and it was much less time consuming for them to find the necessary revisions.

Give and take

In addition to the tiered checklists in writing, Julia Landry began implementing some tiered lessons in math. She talked about this implementation in an interview in March:

> Itôs definitely beené if I am being honesté itôs been frustrating because like I said itôs been more work. If youôre going to present things in 3 different ways, you have to, instead of just making one assignment for the whole class, itôs going to take you three times as long. But what I said earlier, Iôve found itôs been very much more rewarding because youôre really catering to as many studentsô individual needs as possible. And I found that when I donôt differentiate, the work session time where I really get to see them apply those skills is much more frustrating because Iôm forcing them to conform to a level that theyôre not necessarily ready for, but when I do differentiate, I found that I really donôt have to step in as much and assist because Iôm really trying to hit the students on their own level. So itôs actually then, when I teach my lessons, and I present the material, itôs less work. So itôs kind of an alternating effect. Itôs either more prep ahead of time and less work during the process or less prep ahead of time and then youôre really stressed out and more work during the process.

Skills carrying over?

In March, the students were required to complete a 90 minute timed writing assessment. After the writing assessment, Julia was frustrated that many of the students struggled to write a piece of the same magnitude that they had done for the Creative Problem Solving Process. One day in her room, she confided in me:

> I was just so disappointed. Now, I didnôt expect them to have as much as when we give them this detailed organizer, I mean, it takes me a while to figure out how to shape the

> organizer. But I thought they would do better after how much better they have been doing in here on writing.

I reminded Julia that the students had three to four weeks to work on a writing task of this magnitude, while this test expected it in 90 minutes, and based on a topic that may or may not be interesting to them or that they may or may not have background knowledge about. She again expressed this frustration in the March interview:

> As they wrote, I guess I feel very accomplished for them. It definitely has proved to me that they can handle a project of this rigor and succeed with it, which is something that I was concerned about in the beginning. But it also... I think one thing that Iôve kind of worried about recently is that they feel completely committed to only writing a persuasive piece that way. We just recently did a prompt and a lot of them kind of completely stonewalled because they were trying to remember what steps they had take on the pieces that we had worked with them on and would just shut down and not write anything. So, I think one thing that I might want to improve upon next time isé I might want to try the project where if they think they can format things on their own, maybe this second go-around, some of my students might not have needed the organizers so I think I might be curious to see, especially the organizers seem to help my lower students, so maybe with the middle and upper group, just to have given some of them the opportunity to turn them loose and see if they can write an introduction as opposed to forcing them to conform to the organizer, the whole organizing process for the rough draft.

Gaining more organization in the chaos of differentiating

As March continued, Julia Landryôs classroom was more organized, with checklists, rubrics, and conferencing. Students began to take more responsibility for their own work. Julia described this new dynamic in her classroom:

> And this go-around, itôs a persuasive piece and it has been much easier than the initial persuasive piece we did. So, itôs a little bit less of a frustration in the actual process itself because the studentsé when there are two adults in here, Iôve noticed they are starting to take a little bit more independence and I feel that Iôm able to get with them and work with them a little bit more this time as opposed to last time. I felt like I never got to anybody. I just felt like I was walking around in circles all the time basically.

Julia discussed the importance of differentiation and incorporating process skills to this change when she continued:

> Before the differentiation and process skills, simply no part of it was organized. But youôve seen the graphic organizers and the checklists and things like that. Differentiation really does kind of cater to individual students and really, I definitely noticed a release of responsibility from me more to them on this second paper but I feel like before, when it wasnôt quite as organized with those different things, from start to completion, there was complete chaos. I feel like they can work at a similar pace now too. There are always students at different levels but I have about half my students that are on one part and half on the other whereas before, it was all over the place, you know?

The need to review

As March ended, the state standardized test was looming. As a new third grade teacher, Ms. Landry was especially feeling this pressure.

> I feel that when you feel the pressure, that you have to get certain things in and you have a certain amount of time to do ité it allows for less process skillsé I feel that projects were the main thing this year where I incorporated Type II process skills. And projects are a long-term commitment but we didnôt have that amount of time. We literallyé there were projects that we were working on and when CRCT review started, we just kind of had to abandon those quite honestly.

Not only Mrs. Landry, but also her students were feeling the pressure and beginning to get anxious as well.

> We try to downplay the big test at school and not really have themé we donôt want to stress them out about a test, but at the same time, they know itôs coming up. They know it affects summer school, they know it affects promotion/retention. So you teach everything during the year but then you want to kind of hit it all again right before, and I think that sometimes I mightôve gotten better results if it had not been such an intense period of time .

Because of the pressure, Julia Landry felt the need to review all the skills in the third grade standards instead of focusing on new concepts during the four weeks before the state standardized test. This did not leave room for much process skill development, but did allow for some differentiation.

April

During the month of April, I enjoyed my maternity leave and did not collect observations. During this month, Julia Landry continued reviewing for the state standardized test with a mix of whole group and small group instruction. The test was given during the last two weeks of April. At an interview in May, Ms. Landry described her classroom instruction in April.

In April, we started CRCT preparation, so Iôve done a lot of centers in the past couple weeks. Iôve done a lot of remediation for the kids that need help with the basics for testing, and then the kids that were ok with whatever concepts we were dealing with, Iôve tried to do more of an extension. I went ahead and talked to fourth grade teachers and things that we could go ahead and be working on for fourth grade, and so basically the month of April up until the test which was at the end of April, we were doing a set of center rotations in the morning focusing on reading, language arts and then a set of centers rotations in the afternoon focusing on math. Thatôs been the big push for me. I did try to differentiate with the centers based on need, but the activities were very much test-taking focused.

Like a mountain

After the test was over, and the year was winding down, Julia Landry reflected on her experience with process skills and differentiation.

I feel that especially becoming more aware of what they were this year definitely helped. I, quite honestly, didnôt take any classes in college that really made me aware. This has really made me more aware of what Iôm doing that I didnôt even know I was doing. Like I said, I was kind of disappointed that looking back, I didnôt get to do as many fun things with them going intoé so as the year progressed, I guess it was kind of like a mountain, like it went up, I increased using more and more and then towards the end of the year, it kind of dropped off.

Well I felt, you know, February/Marché well I guess January/February/early March was really where we were at a peak coming back from Christmas but then going into that

> review and ité that was my call. Nobody made me do that. Just the nature of the beast, it kinda just dropped back off.

When asked why she thought she pushed back from process skill development and as much differentiation Julia responded:

> Well I just think thereôs the pressureé every teacher wants their students to perform well and I think when youôre under presé .I guess the creativity doesnôt necessarily lend itself é itôs very time consuming and what their being tested over is very much the basics. Itôs not a creativity testé I hate to say it so, youôre more concerned with hammering and reviewing the basics as opposed to stretching their minds just because of the nature of the test itself. You literally start to put the pressure on yourself. And you just focus on what mattersé what you perceive that matters and at that moment, itôs the test. And the best way to implement that is very basic teaching and review I guess.

Collaboration

Through the course of the data collection period, Julia talked often about the impact collaborators made on her journey. One thing she thought was important was having collaborating teachers in the room with her to help her implement differentiation and process skill development. This was obvious when she said:

> I think my first go-around attempting projects like this, I think itôs been really supportive to have another adult in the room. Not that I wouldnôt do it by myself, but it definitely is nice to know that somebody has the same questions and same frustrations that you do because sometimes you feel that youôre the only one that has the frustrations.

Julia also discussed the importance in having other collaborative help in the classroom with an individual trained to work with the students and promote independence.

> The more adults in the room, I think, the better. But then again, you have to know when to help them and when to kind of release them and let them go. I had several volunteers in my room at the same time last year and the kids at that point almost become too needy and I remember we talked about it in kindergarten last year how there are things that they sometimes can accomplish on their own but then they really just do the learned helplessness because their just always used to adults, so many adults being present in the room so it has its advantages and itôs disadvantages.

In addition to collaborative support in her room, one thing Julia was adamant about was the impact of her teammates on her teaching. Throughout the data collection period, she constantly brought up the support of the other third grade teachers. Julia would often say things like, ñWhen I get a mental block, and I really canôt think of some way to do something differently, those are the first people that I go to and ask.ò

In another interview, Julia stated:

> I get all kinds of ideas from listening to my teammates and how theyôve tried to present things. Especially if my kids are not grasping a concept, how can I differentiate this to put it on a different level to help them get it? I think planning is excellent for that and discussion with teammates. Iôve really gained more insight into differentiation from experiences that I have with my kids, so I try something and if it works then thatôs great. If not, Iôve got to go find another resource. But the best differentiation Iôve really gotten is from my team this year. Um, I know that sounds cliché that Iôm saying it over and over again buté

Plans for the future

Despite implementing less differentiation and process skills in April and May, overall, Julia Landry believed that she and her students had a meaningful experience as communicated when she explained:

> I had just, as far as I was concerned a homogenous group of students that were kind of all the same, but once I got to know them better, I started realizing as the year progressed and they got more comfortable, that they needed more. And then others started to fall behind so thatôs when I really got into the tiering, thereôs a third grade teacher thatôs really good at that. The centers, I started trying to use centers in differentiating more with that. I didnôt do centers really at all at the beginning of the year except for guided reading and by the end of the year. I could do it for everything which was really nice. I would say those are the two biggest things that I noticed by the end of the year that I was doing.

When asked about her plans for implementing differentiation and process skills in the future, Julia responded:

> You know, number one Iôll use stuff that I used this year as a starting block and then also, itôll help me kind of know the direction that I want to take. Oh, we did something kind of like this last year or it will give me ideas. Iôve already thought of doing centers next year all the time. Things Iôm planning for next year that I didnôt do this year.

Julia described her experience in exploring differentiation and process skill development during this study by focusing on the important aspect of reflection in strengthening her abilities by saying:

> Well I think that reflection is a very important part of teaching and having multiple occasions to reflect upon what Iôve been doing. If you have a one hour session, you kind

> of think about it for the hour and then it kind of goes away whereas this has beené I donôt want to say intensive as Iôve been overwhelmedé but just a longer study at looking at things, and it allows you to be reflective in the long term. And, like I said, with you earlier when I used the mountain analogy, if I had done an hour session, that would have never evené that was a realization that I would have never even have had. But looking at it for the long-term, Iôve been able to see the effects, and itôs really neat to see what you do as a teacher in the long-term and having a study like this and talking about what you do makes you aware. These arenôt really the conversations I have with my students. So I donôt really think or reflect on my teaching until I talk to peers soé I think itôs been very beneficial.

Chapter Summary

This chapter shared narratives of the experiences of each of the three participants studied through this multiple case study. The narratives were created based on significant categories and key events that highlighted each teacherôs experience. The narratives included excerpts from interviews, observations, journal entries, and other artifacts

CHAPTER 5

FINDINGS

This study explored the question: How do teachers experience implementation of differentiation practices and process skill development in the regular education classroom? I spent approximately four months in the classrooms of three third grade teachers at a public elementary charter school in the southeastern United States. These third grade teachers had many experiences in common, but also had different experiences related to process skill development and differentiation. I used inductive analysis to identify codes, which I then organized into categories and themes. I began by completing a within-case analysis by looking for categories and key incidents that highlighted each individualôs experiences. In chapter four, I used these categories and key incidents to create a narrative about each of the participants. This chapter includes a graphic of the within case analysis for each participant, highlighting important categories that shaped each participantôs experience.

Within Case Analysis

Hailey Cason

Chapter four described the experience of Hailey Cason. The following graphic representation also analyzes Haileyôs individual experience at implementing differentiation and process skill development. As I told the story of Hailey Casonôs experience, I envisioned her on a ladder. As a natural at implementing differentiation and process skill development, Hailey Cason began towards the top of the ladder and quickly moved to expert implementation of differentiation and process skill development through the variety of strategies offered for

students, the creative implementation, her efficiency in creating these materials, and her willingness to share with others. Supports as she moved up the ladder included her previous experiences, beliefs, and goals. Additionally, collaboration with her grade level peers and several other collaborators often helped to support her work with differentiation and process skill development. However, as Hailey experienced the implementation process, several doubts existed, which threatened to knock her off the ladder of differentiation and process skill development. These doubts included challenging students, standardized testing and test preparation, and too many collaborators. Foremost in Haileyôs mind were her students, because engaging her students was her most influential reason for implementing differentiation and process skill development.

Pensee Redman

Pensee Redman was a deep thinker and feeler. The following graphic representation analyzes Penseeôs individual experience at implementing differentiation and process skill development. She tried to maintain a balance in her personal life and career. As I wrote her narrative story, I imagined her on a balance beam trying to keep her life together as she implemented differentiation and process skill development based on her beliefs and abilities. Negative ñstorm cloudsò threatened to push her off balance, and sometimes did, including responsibilities, large scale planning, standardized tests, exhaustion, and personal fears. Positive factors however provided her with balanced support including her students, collaboration, manageable implementation, teaching fun, and Enrichment Clusters.

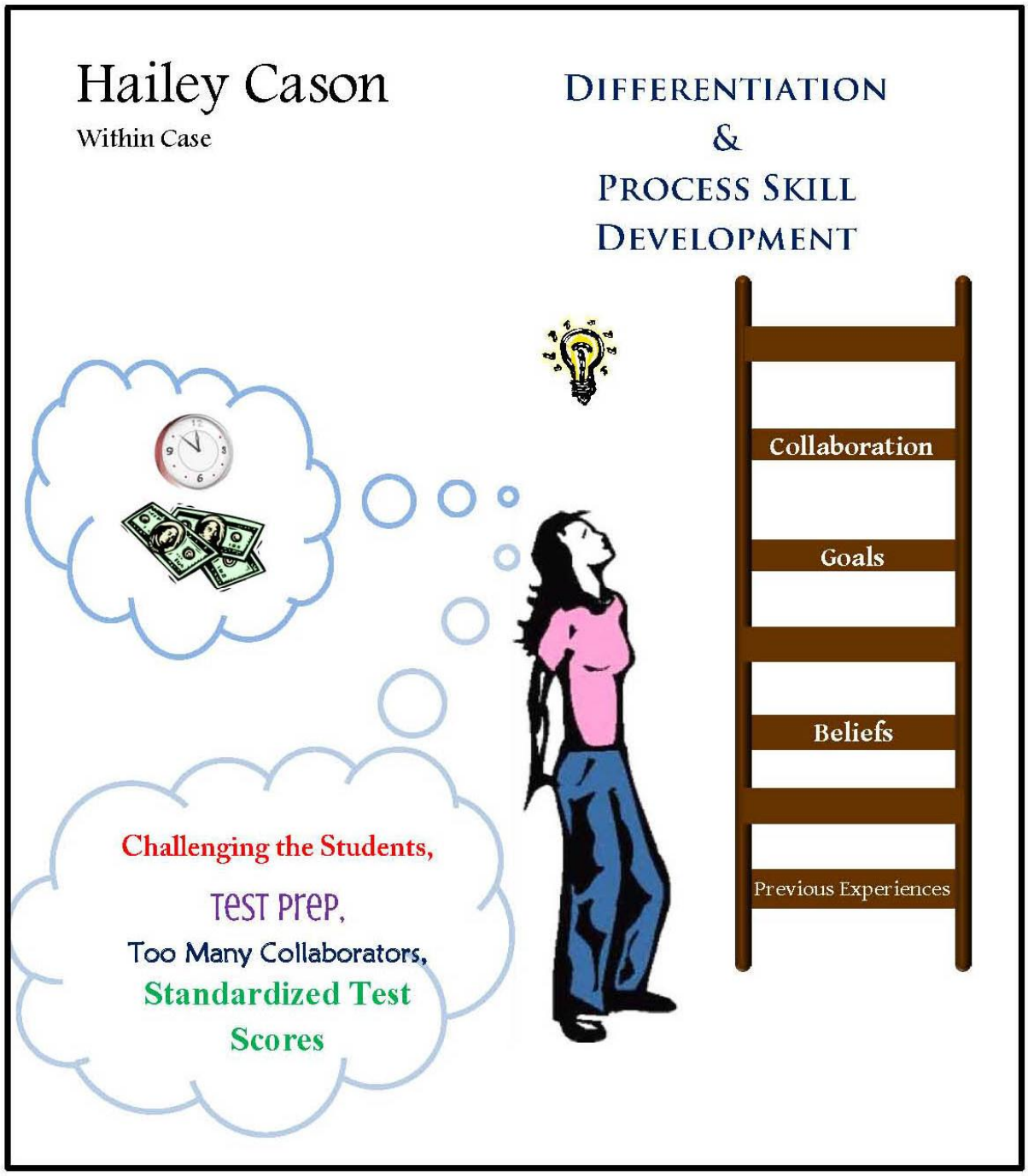


Figure 1 - Within Case Analysis Hailey Cason

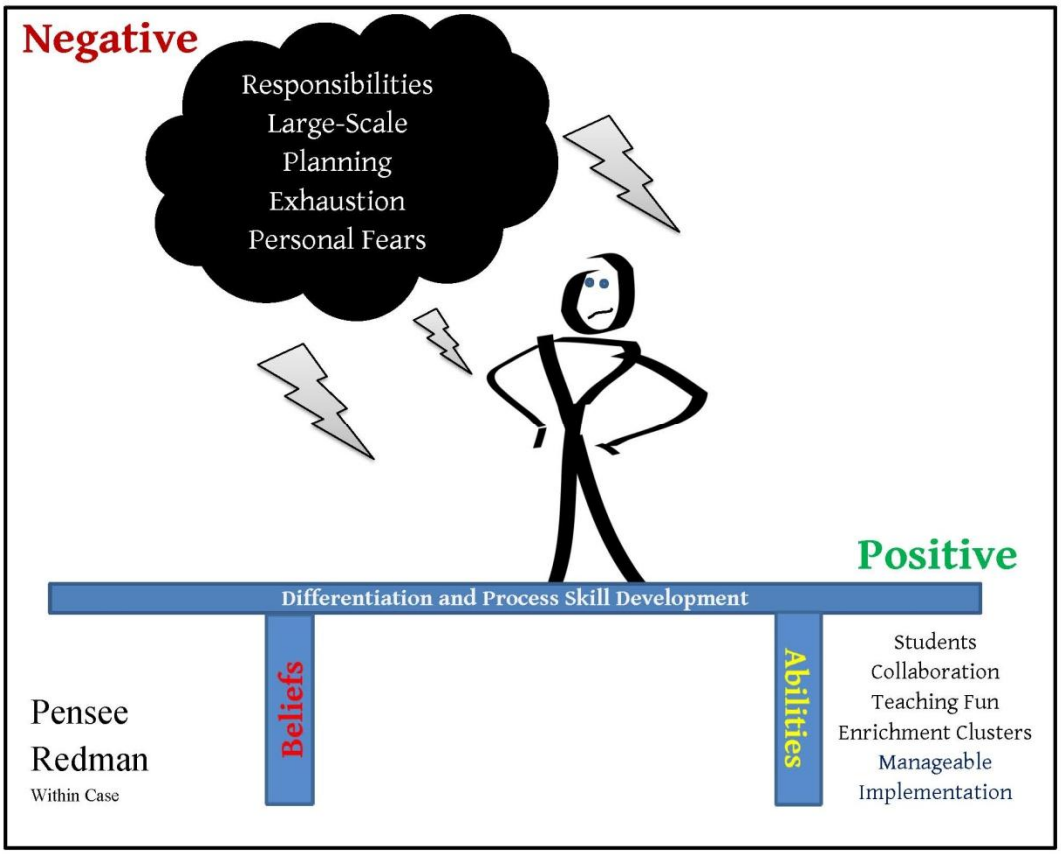


Figure 2 - Within Case Analysis Pensee Redman

Julia Landry

Julia Landry was youthful and hungry to learn about differentiation and process skill development. The following graphic representation analyzes Juliaôs individual experience at implementing differentiation and process skill development. She described her experience in implementation like a mountain, beginning at the bottom of the mountain as she struggled to differentiate and provide process skill development with minimal classroom management. As her abilities strengthened, she climbed up the mountain and continued to flourish in implementing differentiation and process skills with collaboration and excitement from herself and her students. However, pressure from standardized testing and a need to review hindered her

implementation of process skill development and differentiation. After the testing, she felt too tired to implement new things with only a week or two left of school, but looked forward to continuing growth in the future.

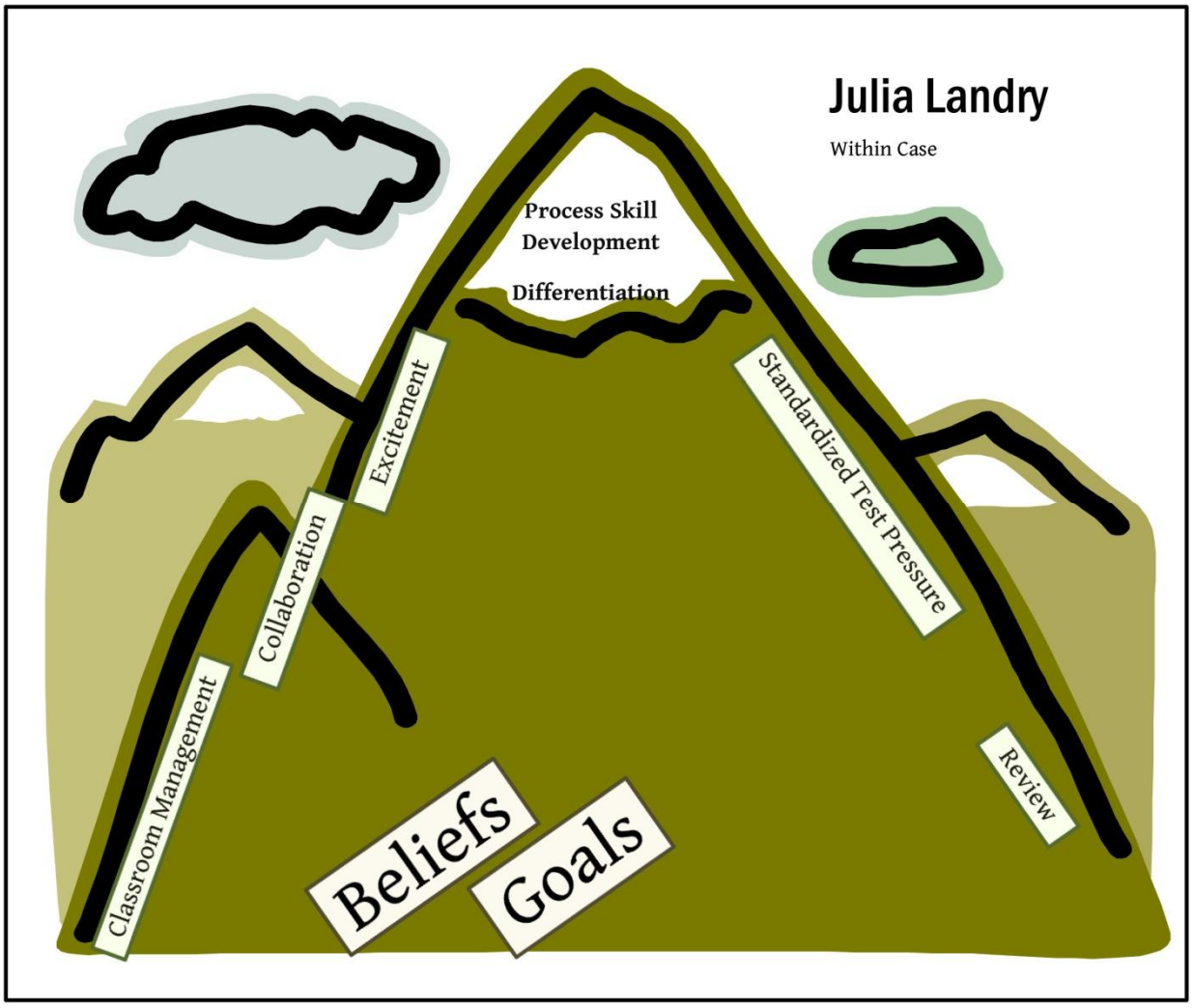


Figure 3 - Within Case Analysis Julia Landry

Across Case Analysis Findings

After completing a within case analysis, I looked at the codes across all cases in reference to my primary research question. In order to better explore the research question across cases, I

focused on three secondary questions to help illustrate important aspects of the participantsô experiences. These secondary questions included:

- What processes do teachers experience as they implement differentiation practices and process skill development?
- What external factors affect teachersô implementation of differentiation practices and process skill development?
- How do teachers perceive the implementation of differentiation practices and process skill development?

This section explores the across case analysis of the three participants with these secondary questions in mind to help create an overall picture of teachersô experience in implementing differentiation and process skill development. Many of the themes for the implementation of differentiation and process skill development were similar, however, some differences occurred. These similarities and differences are illustrated within the discussion of each theme or category. This graphic illustrates the across case findings in the study. These findings will be further explored following the graphic.

Processes

In looking at teachersô experiences when focusing on the secondary question: What processes do teachers experience as they implement differentiation practices and process skill development? Several themes and categories emerged within the planning, implementation, and closing stages of teacher experiences in implementing differentiation and process skill development. The following graphic illustrates the categories and themes which emerged relating to teacher processes. These categories and themes will be discussed following the graphic.

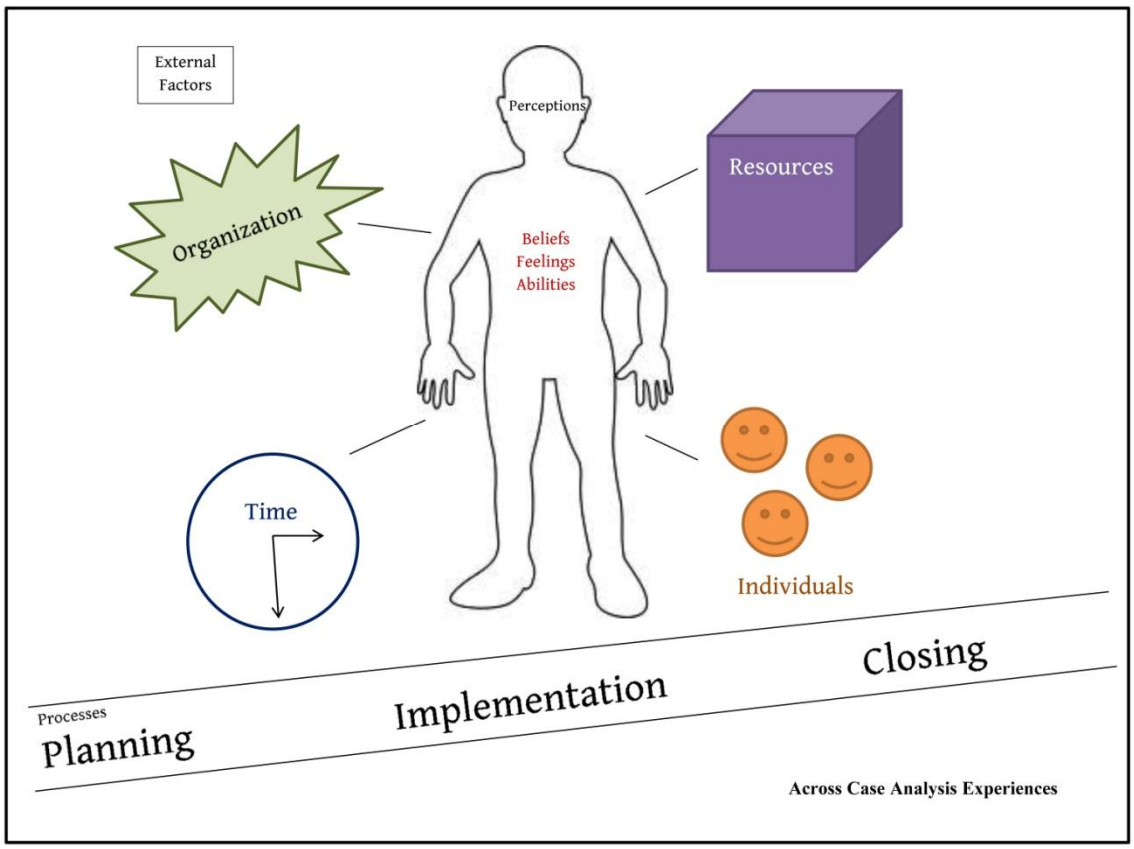


Figure 4 - Across Case Analysis Experiences

Planning. During the planning phase, three categories emerged around the theme of balance: longer planning time, but worth it; explicit versus implicit differentiation; and interest based versus data driven planning. When looking at the first category, all three teachers discussed the issue of a longer planning time when incorporating process skill development and/or differentiation. However, teachers described this more in-depth planning as worth it due to rewards during the lesson. Hailey Cason shared her experience with finding a balance with longer planning in implementing process skill development and differentiation when she said:

> Wellé what makes it easier is knowing that itôs going to be an easier class. Iôm not going to have issues with management and behavior as much as I would if they were just sitting at their desks practicing like multiple-choice questions. [é] It might take longer but itôs going to be better for me because itôll be easier for me to manage them and teach them.

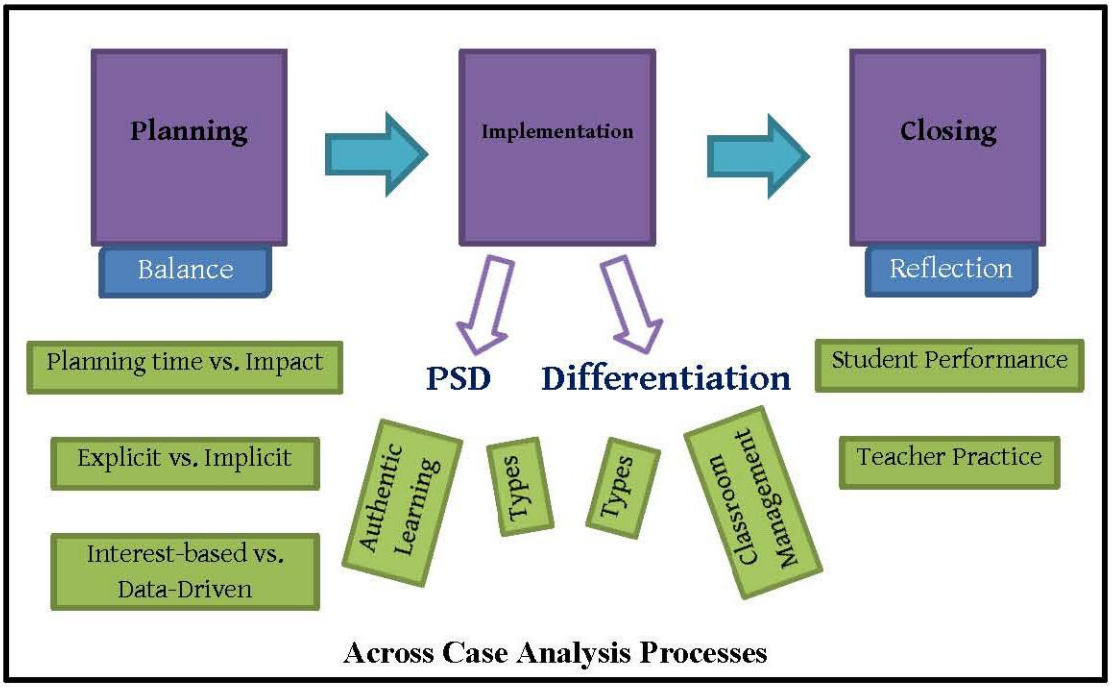


Figure 5 - Across Case Analysis Processes

Planning. During the planning phase, three categories emerged around the theme of balance: longer planning time, but worth it; explicit versus implicit differentiation; and interest based versus data driven planning. When looking at the first category, all three teachers discussed the issue of a longer planning time when incorporating process skill development and/or differentiation. However, teachers described this more in-depth planning as worth it due to rewards during the lesson. Hailey Cason shared her experience with finding a balance with longer planning in implementing process skill development and differentiation when she said:

> Wellé what makes it easier is knowing that itôs going to be an easier class. Iôm not going to have issues with management and behavior as much as I would if they were just sitting at their desks practicing like multiple-choice questions. [é] It might take longer but itôs going to be better for me because itôll be easier for me to manage them and teach them.

Julia Landry agreed when she explained, ñItôs kind of an alternating effect. Itôs either more prep ahead of time and less work during the process or less prep ahead of time and then youôre really stressed out and more work during the process.ò Pensee Redman also believed that although sometimes overwhelming, more preparation could make the lesson run smoother for differentiation and commented:

> I feel like teaching is easier in the moment when you have your differentiated lessons prepared. Beforehand? No. I mean Iôve been pretty vocal about how it can overwhelm me so I think itôs difficult to plan it but itôs definitely worth it for the actual lesson and the actual time that youôre sitting down to work with kids.

A second category teachers discussed focused on the balance between explicit and implicit differentiation and process skill development. Pensee Redman talked about two kinds of differentiation she did in her classroom, explicit differentiation that she would plan for where differentiation was set out in lessons ahead of time, and implicit differentiation where you are just questioning and differentiating for students in the moment.

Teachers also described planning for explicit process skill development or being open to implicit process skill development. When Julia Landry designed a persuasive unit incorporating creative problem solving, she discussed the planning process and how she liked to plan the incorporation of these skills ahead of time but also kept in mind that she must remain flexible for implicit development and the alterations of her lessons. She shared, ñI like to be very organized so it was really great that we sat down and mapped it out but Iôve also learned that you guess that certain parts are going to happen at certain times and it never sticks to that plan. So I guess Iôve learned that you have to be flexible in that.ò She went on to say, ñI knew they [process skills]

existed and that was pretty much the extent. Now that Iôve, you know, Iôve been given an actual list, obviously my mind tends to go like outlining just because thatôs how my brain functions.ò

Hailey Cason also discussed her implicit implementation of process skills and how she hoped to make her implementation more explicit in the future:

> You know, I wish I would have tracked it more deliberately but I think just being more aware of it and trying to do more differentiated things led to it being more of a part of their work anyway. So, Iôm sure that I got to a lot more process skill development that I just couldnôt see on paper if I didnôt track it. But Iôm sure that it has.

A third balance in planning for differentiation and process skill development involved using data and student interests to plan. All three teachers talked about using data and student interests when planning their lessons for both differentiation and process skill development. Following a lesson on multiple intelligences, which implemented both differentiation and process skills with Pensee Redmanôs class, Pensee and I discussed with each of her students what they believed to be their intelligence. We then used these interests and strengths of the students to design subsequent lessons. When planning a persuasive writing unit incorporating creative problem solving, Julia Landry and I spent a mini-lesson brainstorming with students about their interests before developing the fuzzy situations. Hailey Cason also discussed her planning process and thinking about her students as she designed choice-based learning menus saying,

ñWhen I do lessons that I know are gonna be student-choice, and theyôre gonna get to pick their way to show what they know, I picture specific kids and I guess whoôs gonna pick what and I kinda like it.ò

All three teachers also discussed using data from informal and formal assessments to plan for differentiation. Pensee Redman and Hailey Cason discussed the data team process used by the third grade team to plan appropriate lessons for students. As one example, Julia Landry shared how she used test results to develop tiered lessons, ñI went through student tests and made notes of the questions they had difficulty with. Each lesson that I did, I made sure to tier the group work assignment so that I was providing work at all studentsô ability levels.ò

Throughout the process of planning, teachers reflected on the importance of maintaining a balance between developing lessons based on student interests and testing data, planning explicit differentiation and process skill development or allowing implicit skills to occur naturally. They also discussed balancing the amount of planning it takes to develop lessons with explicit differentiation and process skill development with the satisfaction that occurs during the lessons that have implemented these skills.

Implementation. During the implementation process, teachers worked to implement process skill development and differentiation. In addition to the types of skills implemented, other significant themes related to the implementation of differentiation and process skill development were highlighted.

Process Skill Development. When implementing process skill development, teachers focused on the theme of authentic learning. They believed it was important to go beyond the state-mandated standards to develop well-rounded students. Pensee commented, ñI mean it really makes you think about creating. Not creating, but helping a student become a really well-rounded kid and having lots of different coping strategies and lots of different ways that they can work with other people and learn from other people.ò

Throughout the study, Hailey Cason designed many performance tasks, which allowed the students to work with content in an authentic way. From students surveying other children at school to designing functional graphs, creating advertisements when working on persuasive writing, or pretending to be cake bakers working with fondant when studying area, Hailey attempted to make all of her lessons meaningful for students. Julia Landry also believed it was important to make learning authentic for students. In addition to trying to bring in real-world learning experiences in math, science, and social studies, Julia sought to make learning authentic through incorporating creative problem solving in writing. Julia explained, ñInitially we presented the students with a problem that directly impacted our studentsé well not our students but directly impacted our community, our world.ò Pensee Redman talked about how when she planned an authentic learning experience, process skills naturally fit into the lesson when she said:

> I think that itôs also been helpful that at first, you know, you feel like youôve got to incorporate all types of process skills. Youôve got to really look at it and really figure out what all are you going to includeé but you donôt. You can pick two or three and youôll realize that really like fifteen got implemented in a lesson.

The types of process skill development implemented by teachers varied in each classroom, but based on an analysis of codes, process skills related to organization, communication, creativity, research, inter/intrapersonal skills, analysis skills, and critical thinking were most commonly incorporated. Pensee Redman and Julia Landry, who were less comfortable with process skill development in the beginning, felt most comfortable implementing communication and organization skills. Implementing these skills was already a

requirement of the state standards, so teachers had familiarity in this area. All three teachers expressed enjoyment in implementing creativity because of its entertainment value for both teachers and students.

Julia Landry expressed the fun her students have with creativity by saying, ñIôve noticed lately that my students get a lot more engaged when I give them some kind of fun little creative task with whatever we are talking about.ò Hailey Cason also described this when she said:

> Creativity. Theyôre the most fun for me. The rest Iôm sure that Iôm really comfortable with predicting, finding patterns, things with reading, a lot of the analysis ones, really comfortable with them but most excited about creativity ones because I feel like that leads to a lot of other skills.

Differentiation. When implementing differentiation, classroom management played a big part in the successful follow through of differentiated plans. Hailey Cason and Pensee Redman already had solid structures and routines in place. On the other hand, Julia Landry struggled in the beginning of the study when she tried to differentiate without solid routines and procedures, however, gained more confidence as students learned classroom routines and gained more independence. She expressed this confidence:

> Iôve noticed they are starting to take a little bit more independence, and I feel that Iôm able to get with them and work with them a little bit more this time as opposed to last time. I felt like I never got to anybody. I just felt like I was walking around in circles all the time basically.

The types of differentiation implemented varied by teacher, but based on the number of codes in observations, interviews, and reflective journals, the three teachers at Lincoln Elementary School most commonly implemented tiered lessons, flexible ability grouping, open-

ended activities, and student choice/learning menus. Tiered lessons were implemented most often because the three teachers collaborated, and tiered lessons were easy to share between the three of them. Hailey Cason created many tiered lessons that she shared with the group through email and at grade level meetings. ñI always email everything that we do. I always share it with people because I know that it can be hard too...not everyone can sit there and make 3-leveled worksheets for a basic skill,ò she said. Other differentiation strategies used by the teachers included questioning, independent learning opportunities, differentiated rubrics and checklists, and lesson extensions.

Closing. At the conclusion of lessons, the theme of reflection emerged. Teachers reflected both on their own practice and on the work of their students. When reflecting on the work of their students, teachers thought about their studentsô development and how to help them to continue to grow as individuals. This was obvious when Pensee Redman said, ñYeah and you really start thinking about what they can do, and it makes you more aware of the kind of student that you want to produce by the end of the year.ò Hailey Cason talked about paying close attention to her students during lessons and reflecting on their progress after to plan subsequent lessons; ñWell, talking to them. I mean, really, those informal things where I could hear somebody say something about a topic that they didnôt understand or I hear them mix it up, and I donôt forget. Iôm like oh, I have to make sure that Lydia does that again.ò

When thinking about their own practice, all three teachers discussed at some point the importance of reflection. Pensee Redman talked about her own reflection through a journal she kept at work where she reflected on her practice that day, ñI already have my little like cheesy reflection journal for each day at work.ò Julia Landry and Hailey Cason talked about the benefits of having someone to listen to their reflections about their own implementation with

differentiation and process skill development either with grade level peers or with the Enrichment specialist. Julia Landry made this clear when she said, ñWell I think that reflection is a very important part of teaching and having multiple occasions to reflect upon what Iôve been doing [é] I donôt really think or reflect on my teaching until I talk to peers.ò Hailey Cason talked about the importance of having someone to reflect on the positives she was experiencing:

> And when you do this type of stuff, you feel really proud about it so you want to tell somebody about it and I donôt want to tell people who arenôt interested in it. So it was fun to have you to talk to and show you the things, and it made me more motivated to do it more often, for sure.

External Factors

Another important part of teachersô experiences with differentiation and process skill development revolved around external factors that affected teachersô implementation. These external factors can be defined as anything outside of the case that had an effect on the teachersô ability to implement differentiation and process skill development. The following sub-question was explored: What external factors affect teachersô implementation of differentiation practices and process skill development? In looking at this question, the following themes emerged: time, resources, organizations, and people as shown by the graphic analysis. Each theme will be discussed following the graphic.

Time. All three teachers discussed the issue of time as an external factor that affected both the planning and teaching stages of differentiation and process skill development. When keying in on the planning stage of differentiation, Pensee Redman and Julia Landry repeatedly expressed their frustration over not having enough time to plan. Pensee explained:

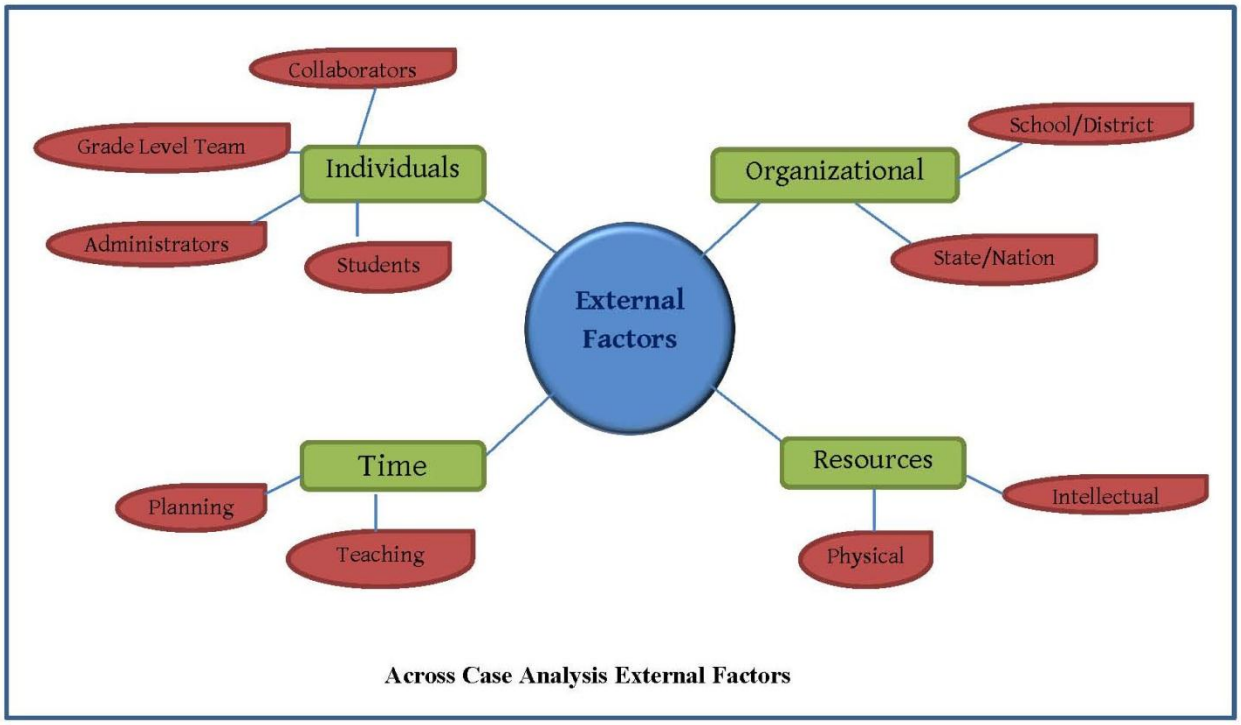


Figure 6 - Across Case Analysis External Factors

> Yes we have all of the data. We have all of the assessments that tell us what kids need help on but when do you really have the time to sit down and go through all of that? And group them based on that, and then plan an activity for each group based on that?

Julia Landry added, ñAlso it is lack of time. It becomes a prioritizing. Ok, I really would like to create three different assignments for social studies but I need to plan something for math.ò Hailey Cason did not express concern over lack of planning time with differentiation, however by the middle of February, she had gotten very quick at creating differentiated materials, often being able to create them in five or ten minutes, as I witnessed at a third grade planning meeting. She also had time to work on planning lessons during some school days while her student teacher needed independent work time with students.

Instead, Haley Cason discussed the issue of not having enough time to carry out meaningful lessons involving differentiation and process skill development. When looking at differentiation, Cason wished for, ñmore time for everything really and that it could really be all student choice and they could get through all those skills on their own as they needed them every day.ò

She also argued that she did not think that process skill development took too much time. She just unfortunately did not have enough time to truly explore the material through process skills because students needed to show mastery by the standardized test in April. Haley Cason argued, ñI donôt think itôs too much time to give somebody three weeks to do something that productive.ò

Resources. Another theme that emerged from the data related to external factors involved resources. Teachers discussed issues with both physical and intellectual resources influencing their experience with differentiation and process skill development. All three teachers discussed intellectual resources as necessary for implementing differentiation and process skill development. They discussed how intellectual resources they gained from professional learning, reading materials, and working with peers helped them to develop more knowledge about these strategies. Julia Landry discussed her experience with process skill development when she explained:

> Once again probably a lot of times, itôs lack of knowledge on the teacherôs part. I know for myself, like I said before I started working here, I was not familiar with process skills at all. I guess, for my part, a lack of background information about how to kind of change those approaches. And make things different. I guess and also resources about where to get that type of information.

Pensee Redman shared her belief in the importance of professional learning opportunities when she said, ñI feel like as much as people roll their eyes at differentiation training, I feel like we need that every year. I think we need to have some professional development for that because thereôs always new things.ò She also discussed how both intellectual and physical resources would help her with planning for differentiation in the future:

> I have a resource now so it might not be that I sit down to differentiate math but I have experience doing that and I have resources to look at the activities, so it will help me with other subjects to pull those files and kind of look at well this is how you did it for mathé so now letôs think about how you can do that for science.

Haley Cason and Julia Landry also talked about being able to reuse resources that they developed this year with differentiation and process skill development. Hailey Cason was excited to reuse materials she had worked to develop this year and said, ñlast year I wasnôt making three worksheets per day but this year I did do that and that helped a lot. So now Iôll have them for next year. I made performance tasks later in the year that I wasnôt doing earlier.ò She continued, ñThen I have it done. I wonôt be doing it every single year.ò

When looking at only physical resources for differentiation development, the three teachers tended to create their own materials rather than using ready-made resources because of the nature of the materials. Most of the books and workbooks did not differentiate or would do so very simply. The teachers would often begin by using a textbook or worksheets they found online, but would alter them to fit their needs. Because the teachers chose to make much of the materials themselves, all three classrooms had an issue at one point involving the copier. Either the teacher ran out of copies or the copier was broken, which resulted in a negative impact on the lesson that day.

When focusing on physical resources related to process skill development, Pensee Redman did not feel that a great deal of materials was needed to effectively incorporate process skills into a lesson and communicated:

> I feel like with the process skills, weôve got the materials because basically to implement a process skill, with the exception of some technology ones, all you need is a kid thatôs willing to be there and you can figure out a way to do it.

Organizational Procedures. A theme that arose which made a big impact on the teachersô experience with differentiation and process skill development was procedures put forth by the school, district, state, and national organizations which made decisions that impacted the school.

School/District. The teachers at Lincoln Elementary School described factors related to the school and district that affected their implementation of differentiation and process skill development. Most commonly, teachers described the decision of the district and school for Lincoln Elementary to implement the School-wide Enrichment Model as an impact. All three teachers brought up components of the models as factors affecting their abilities to implement these skills. Hailey Cason talked about how her views changed about process skill development when Lincoln Elementary first opened when she read part of the Schoolwide Enrichment Model book that mentioned a deficit in creativity in the United States.

Pensee Redman discussed Enrichment Clusters as a strategy that could help with teacher development of their abilities with process skill development and differentiation when she said, ñUm, I think your school setting kind of can too because you know, we have clusters at our school, which really probably help a lot with that.ò Julia Landry, Hailey Cason, and Pensee

Redman also used Type III projects as a means to differentiate for students when they finished their work. The students working on these projects knew how to work independently on these tasks, so the teachers could send them to a computer after completing a basic task and allow them to work on a meaningful enrichment investigation. Julia Landry also related the Creative Problem Solving to the process used in clusters to help students connect with what they would be doing in the persuasive writing unit.

State/National. When looking at state and national mandates, the one that most affected teachersô implementation of differentiation and process skill development was the emphasis placed on standardized testing. Such mandates affected the tone put forth from the district and school, which then trickled down into these third grade teachersô classrooms. Even with no direct questions in interviews relating to standardized testing, the data from all three teachers strongly communicated the negative effects that standardized testing had on process skill development and meaningful learning with differentiation. These negative effects revolved around testing pressure, requirements for students to have mastered specific standards in a quick time frame, and the question of whether standardized tests were an accurate measure of process skills. Testing pressure affected everyone from the administrators and teachers to the students. All three teachers spoke of their frustration towards the pressure that stems from the standardized test.

Pensee Redman discussed the pressure she herself felt to stick to the standards and prepare kids for the test versus differentiating for student interests when she said:

> Well I feel like really inhibits the ability to differentiate based on what the kids want to learn, you know? And based on what theyôre interested in and what, you know, I meané naturally the students when they are really good at something, they want to

> continue to work on that and we have to say, you know, our four weeks for multiplication are up so weôre gonna move on.

Julia Landry discussed the pressure her students were under and how this affected their learning as well as her teaching when she said, ñI think that the students are definitely aware of the pressure of testing and that comes from lots of different places.ò Hailey Cason also talked about the pressure that students felt towards the test by saying:

> They had their parents pressuring too and everybody knows if you donôt pass, you donôt go to fourth grade without going to summer school so it became a bigger deal than I would have wanted which just affected the ability to do different differentiationsé like other types of things.

Some of this pressure stemmed from the question of whether the test measured studentsô abilities, especially in regards to process skills. Hailey Cason spoke of an advanced student who could describe how to solve a certain problem, tell his thinking, yet on a standardized multiple-choice test, he missed every question related to that concept. She questioned whether the test was an accurate measure of what this young man clearly knew as a real-world application of the skill. Julia Landry had a similar experience when students were working on a timed writing test. While in class, students were able to write a persuasive piece on a meaningful topic, they were unable to produce similar results when given a random prompt and told they had to complete a persuasive piece in ninety minutes. Hailey described the tension between process skills and testing as, ñthe bird on each shoulder thatôs like the test and then process skills, and you donôt know é itôs really hard to make sure you do both things.ò

The three participants mentioned that standards in organization and communication promoted teachers to incorporate process skills, however, it was more difficult for teachers to

incorporate other skills that were not part of the standards. Hailey Cason felt this frustration over feeling as if she had to teach only the standards and teach to the test. She explained:

> I would do more of the open-ended things that Iôm getting to give to just the kids who have mastered those performance tasks or little like challenges where they have to come up with things on their own. I would do that for everybody every day if I didnôt feel like I had to make sure that they understood that they know how to take a test better

Julia Landry shared her experience by saying, ñthere were certain things that I hadé .an agenda that I was trying to accomplish.ò She went on to describe this agenda and how it affected her ability to incorporate process skills with the statement. ñWhen you feel the pressure, that you have to get certain things in and you have a certain amount of time to do ité it allows for less proé I feel that projects were the main thing this year where I incorporated type II process skills.ò

Pensee Redman admitted that with testing coming up, she felt she had to focus on preparing students for the test whether she wanted to or not and needed to limit process skill development. After all the pressure of the test, Pensee and Hailey pondered the question, ñWhat would it be like if we just learned?ò

Individuals. Another theme that emerged in the data included the effect of individuals. Several people affected teachersô implementation of differentiation and process skill development including, students, the grade level team, administrators, and collaborators.

Students. Most prominent were the students themselves. All three teachers talked about students and the impact they made on their willingness to differentiate and incorporate process skills. They all talked about the importance of addressing student abilities and engaging students.

When discussing planning for student abilities, Pensee Redman discussed the importance in meeting the needs of all students through differentiation, including high-ability students and said:

> I know school is frustrating for a below-level kids but on the flip side, it can be very frustrating Iôm sure, to be a kid that gets everything and already knows what the teacher is about to teach and you have to sit there and finish in five minutes. Then the teacher probably will say, ñWell then, why donôt you help a friend?ò Iôm sure thatôs frustrating for a child. So for those kids I thinké for them to reach the potential that they probably have later in life, you have to differentiate and push those kids to see new experiences and to work at a higher level. That way they donôt get bored with school and feel like well whatôs the point? I donôt need to be in this class. I already know everything.

Julia Landry talked about thinking of her students as individuals when planning and not expecting them to all need the same thing when she said, ñI had to learn that everybody is not a cookie cutter student in this classroom so expecting students that struggle to hold up to the same expectations as students who are breezing through it is just not reasonable.ò Julia also realized that she was unintentionally holding some students back and was determined to provide all students with opportunities to excel at a high level after implementing several higher-level process skills. ñIt definitely has proved to me that, they can handle a project of this rigor and succeed with it which is something that I was concerned about in the beginning,ò she stated.

Hailey Cason was also encouraged by her students to meet their needs when she explained:

> I still feel like itôs completely necessary because if I didnôt do it, if I taught to just the gifted kids, the low guys would be lost. If I taught to the low guys, the gifted and anyone

> would be like stopped. I donôt know how to say that. They would beé capped. If I didnôt give them chances to do harder things and show things in their own way, then I might not know what they know, and they wouldnôt learn as much.

All three teachers talked about student engagement and how it encouraged them to continue to put forth the effort to incorporate differentiation and process skills. Hailey Cason fed off of studentsô engagement during the performance tasks. When Pensee Redman designed learning centers, she wrote about the student engagement in her classroom. She explained that students had been talking about the centers all week and discussing which activities they would want to choose the next week. Her student teacher was even so motivated by the studentsô excitement that she decided she would like to utilize choice centers in her planning. The engagement in Julia Landryôs classroom peaked because of lessons planned with process skill development and differentiation in mind. This impressed her, and she continuously expressed her happiness in her studentsô engagement.

Administrators. Administrators made an impact on the differentiation and process skill development implemented by two of the three teachers. Pensee Redman discussed how an administrator was the first to encourage her to differentiate and incorporate communication process skills by telling her to rearrange her desks, which were in separated rows, into small groups so students could work together.

While administrators at Lincoln Elementary School claimed to encourage differentiation and process skill development, sometimes their actions countered these claims. Pensee Redman and Hailey Cason both shared a struggle to implement process skills and differentiation because of pressure by administrators to use review resources.

Grade Level Team. The three third grade teachers were great at collaborating with one another. All three teachers shared their ideas and materials with both process skills and differentiation. As discussed earlier, Hailey Cason would email all the tiered lessons and performance tasks she created to the other members of her team. Pensee Redman also discussed sharing when she explained:

> It was interesting to talk back and forth with each other and like when you worked on persuasive with Julia, it was like you know what? Next year, I want to borrow that stuff, you know? And so itôs like we can go to each other now and we might not all have done the same type of differentiation and process skills, but we have resources.

As a new third grade teacher, Julia Landry depended greatly on her team membersô collaboration. She constantly complimented her team for sharing intellectual and physical resources with her. ñCollaboration is a big one. And not just with another teacher in the room but also with the team itself has also helped,ò she commented.

Collaborators. The teachers described the impact that other collaborators could have on differentiation. While Hailey Cason and Pensee Redman enjoyed their student teachers and having additional adult support in the room, they both talked about the negative impact the other teachers could sometimes have on differentiation and process skill development with students, due to their minimal training. After a lesson one day, Hailey Cason asked me to stay and talk with her, where she expressed her concern at her student teachersô inability to manage the class and question students effectively. She wondered aloud if this learning experience for the student teacher was worth her students receiving ñless than perfectò differentiation and process skill development. Pensee Redman also expressed issues that may arise with student teachers when she said:

> I mean, I think that itôs hard to let them take over lessons too because thereôs thing that you know that they should be hitting but you know, you sometimes have to wait until they finish with their lesson to tell them. And see if they can figure it out. Um, because I mean, a lot of times they do and you want them to have that success on their own but thatôs definitely something.

All three teachers also talked about other collaborators including the Enrichment specialist, Special Education teachers, ESOL teachers, and EIP teachers. Julia Landry had no collaborators in her room and wished for collaborators to help her better differentiate and incorporate process skills. She was incredibly thankful for my presence in her classroom and thanked me almost daily for the help I gave her. This appreciation was illustrated when she said to me in the hallway:

> You know, I wouldnôt just tell this to anybody, and Iôm not just saying this really. But, you have no idea how much you have helped me this year. I was really nervous in the beginning and really did not have a whole lot of support, but you collaborating with me has made such a big difference. I feel like we plan everything out even if you arenôt going to be in here. I used to hate writing, and now it is one of my favorite parts of the day.

Pensee Redman and Hailey Cason discussed positives of quality collaborators but the frustration that poor collaborators could cause within the classroom. Pensee described this well when she said:

> I think that the more collab teachers you have, the harder it is to plan anywayé so I mean, itôs almost like one person just takes the responsibility of planning it seems like normally. And so whoever takes the initiative to plan is probably the person that would take initiative to differentiate and it would probably be the homeroom teacher because

> pretty much everything falls on the homeroom teacher you know?...I mean unless you have, I mean we have some support in the school that would care enough but I mean I think about.

Hailey Cason also had concerns about differentiation with different types of collaborators:

> Well it helps me to differentiate that thereôs collaborators that I can work with but that same collaborating also hinders because I feel like I canôt make spur-of-the-moment changes or classroom team changes. I have to go by the schedule of the collaborators and I donôt necessarilyé I mean, we donôt choose who we collaborate. No one decided letôs work together on this so sometimes thereôs not the equal motivation for differentiating.

Perceptions

In looking at teachersô experiences with differentiation, this study also wanted to examine at teacher perceptions by asking the question: How do teachers perceive the implementation of differentiation practices and process skill development? In examining teacher perceptions, the participantôs perceptions of the implementation of differentiation and process skill development were shaped through the themes of beliefs, feelings, and abilities.

Beliefs. Teachersô perceptions of the implementation of differentiation and process skill development were shaped by three core beliefs that remained consistent throughout the study. The three teachers in the study all believed that differentiation and process skill development were important for all students, valued students, and were aware of student differences.

Important for all students. All three teachers discussed the importance of both differentiation and process skill development for all learners. When talking about process skill development, Hailey Cason said, ñI think itôs good for everybody. [é] I think they can all get some sort of training with process skills. I think everyone can benefit from it.ò The three teachers

each expressed the belief that process skill development may come more naturally with advanced learners but that it was important that all students be trained to use these skills in school. Pensee Redman described this belief when she said:

> You obviously start to think about your higher students that are more independent but I think itôs almost more important because your higher students normally are your good communicators. They really are the kids that already can organize information and show the data in multiple ways. I feel like as uncomfortable as it is to try to explain some of the process skills to your lower students, itôs more important. Itôs most important for them, you know, to have that exposure.

All three teachers designed differentiated opportunities for all students in their classrooms. Observations provided evidence of the implementation of various differentiation strategies that were used with all students. The three teachers talked about the importance of using differentiation with all students.

Valued students. All three teachers discussed valuing each of their students and treating them with respect. Pensee Redman argued the value of each student when she said, ñEvery kid is good at something.ò The teachers demonstrated this in the classroom through the relationships they built with their students and their response to the studentsô actions. Julia Landry allowed one of her students to stay at her seat regularly during mini-lessons rather than making her come down to the carpet as long as she continued to pay attention. Pensee Redman often gave her students individual notes with words of encouragement or special quotes that she thought would inspire them. Hailey Cason showed that she valued her students by encouraging them to feel comfortable with mistakes and allowing them time to learn from their mistakes before she corrected them. Julia Landry also argued the importance of valuing her studentsô ability to judge

their needs when she said, ñAnother approach I have tried lately is too asking my kids. What is confusing about this for you? What do you not understand?ò

Aware of student differences. The teachersô perceptions of differentiation and process skill development in their classrooms revolved around an awareness of student differences. All three teachers did progress monitoring through testing data and observations. The teachers also had students complete learning profiles using Renzulli Learning at the beginning of the year to understand studentôs individual strengths and interests. Teachers realized the importance in planning lessons with differentiation and process skill development based on studentsô differences. Pensee Redman described this when she said, ñI feel like itôs very important that kids have chances to be successful that might not be the same as their neighbors sitting at the other desk.ò

Feelings. Teachersô perceptions about differentiation were shaped by their feelings throughout the implementation process. Although teacher beliefs about differentiation and process skill development remained consistent throughout the experience, their feelings changed from the beginning to the end.

In the beginning, two of the teachers described the experience with words like *overwhelmed*, *initial panic*, and *frustration*. ñUm, in the beginning, it was initial panic and being scared and just um Iôve never done this, you know?ò explained Julia Landry. Pensee Redman also felt overwhelmed, specifically with differentiation, eventually deciding she needed to cut back on the skills she was implementing in her classroom.

Hailey Cason did not express feelings of being overwhelmed or even frustration in the beginning of implementation however, admitted to being confident in these skills, specifically differentiation at the start. Instead, she expressed excitement. ñI kinda think its fun,ò she declared.

Late in the study, testing began to affect the feelings of all three women in the study. They each described feelings of pressure related to expectations regarding teaching methods. Julia Landry described this when she said:

> You literally start to put the pressure on yourself, you know? And you just focus on what mattersé what you perceive that matters and at that moment, itôs the test. And the best way to implement that is very basic teaching and review I guess.

Rather than feeling like they could spend time incorporating process skills, the teachers felt pressure to teach to the test. ñUnfortunately the pressure was there that it was necessary,ò explained Pensee Redman. This also inhibited the type of differentiation they felt they were able to do. Hailey Cason described having to differentiate only using skill based review centers rather than allowing students chances to explore with learning menus on topics of interest.

Eventually Julia Landry began to express feelings of confidence and excitement related to differentiation and process skill development when she said, ñSo I guess the beginning it starts as a frustration and by the end, youôve gone through a like realm of emotions all the way up to you know, complete happiness.ò Although Pensee Redman did not express a transition of ease in the planning of differentiation and process skill development, she did admit an ease in the actual teaching of the lesson when she planned these types of activities. Julia Landry also agreed with this point. At the end of the final interview for the study when asked if there was anything else she would like to say that I had not asked, Julia responded:

> Well I definitely think the one thing I would point out is that differentiating and type II process skillsé it starts out very overwhelming trying to incorporate either because like I said, the biggest thing is that it definitely requires more time. Thatôs the one thing Iôve learned. But like I said, in the end, the one thing that I would like people to understand is that it is well worth it when you see the results that you get with your students because it really does put things more on their level. So in turn, it really does make it easier on you in the long runé you know, if you can go through the initial struggle structuring things and laying them out. Towards the end it eases up and gets a lot better. So I guess thatôs my main take-home message for people is that the time is worth it.

Abilities. Like feelings towards differentiation and process skill development, teachersô abilities in implementing differentiation and process skill development changed. This change in abilities shaped teachersôperceptions of these skills. Initially, teachers had to think consciously about the planning process, but their abilities strengthened as they became more aware of process skill development and got faster at the development of differentiated lessons.

In the beginning, all three teachers talked about not differentiating their first year teaching. Both Hailey Cason and Julia Landry taught Kindergarten their first year teaching and said that they did not feel like differentiation was as necessary for Kindergarten students. Although they stated that it was not as necessary, I wonder if they would feel this way teaching Kindergarten after experience with differentiation. Julia Landry alluded to this when she said, ñI rarely got the opportunity to differentiate last year. Itôs just very difficult when youôre a first-year teacher and youôre just trying to tread and stay above. Where I really started trying to do this was this year.ò Pensee Redman also talked about the difficulty differentiating during oneôs first year teaching when she said, ñIf I hadnôt been so new to teaching, I probably would have felt the same

way, but being new, thereôs so much thrown at youé differentiation wasnôt high on my radar like it is now.ò As teachers gained more experience in teaching and in the development of differentiated lessons, they talked about their abilities strengthening. Pensee Redman said, ñI did notice that the differentiated problems and tiered sheets, thatôs a lot easier.ò Julia Landry agreed and stated, ñI can easily do it three or four times a week.ò Hailey Cason also quickly got good at differentiation, being able to develop a tiered lesson in about ten minutes, as I observed in a planning meeting.

Teachers talked about their lack of awareness regarding process skill development as an obstacle to their abilities in the beginning of the experience. All three teachers admitted knowing very little about implementing process skills but did recognize that they became more aware of them by the end of the experience. They all pointed out that awareness increased their ability to implement these skills. ñI think having just being more aware of it and trying to do more differentiated things led to it being more of a part of their work anyway,ò explained Hailey Cason. Pensee Redman pointed out that this awareness changed the way she planned, ñIt made me more aware. So, I started to realize that, you know, it changes the way you plan.ò Julia Landry discussed her increased abilities in implementing process skills by saying:

> Before, you implement process skills but youôre not aware of what they are, you know? [é] In the beginning, I was just like what are these? I have no clue, am I doing this? So I guess itôs being more informed about them and then also like I said, just having the list in the first place and noticing here are other options of things that I could do, you know, that you werenôt even aware of. So I guess itôs gone initially it was definitely more negative but now, I feel more competent in that I actually can do this on my own.

Chapter Summary

This chapter shared a graphic display of the within-case analysis for each participant as described through the narratives in chapter four. This chapter also discussed the across case analysis themes that emerged for each of the secondary questions in order to answer the overall question: How do teachers experience implementation of differentiation practices and process skill development in the regular education classroom? When examining teacher processes, themes emerged regarding the planning, implementation, and closing of the lesson. Within the planning section, balance resonated while the closing of the lesson focused on reflection. The implementation of the lesson was described based on types of differentiation and process skill development. Themes were also evident when examining external factors that affected teachersô experiences including time, resources, organizational mandates, and individuals. Finally, teacher perceptions were described through the beliefs, feelings, and abilities that shaped these perceptions.

CHAPTER 6

CONCLUSION

This study answered the question: How do teachers experience implementation of differentiation practices and process skill development in the regular education classroom? In order to answer this question thoroughly, the following secondary questions were explored:

- What processes do teachers experience as they implement differentiation practices and process skill development?
- What external factors affect teachersô implementation of differentiation practices and process skill development?
- How do teachers perceive the implementation of differentiation practices and process skill development?

In exploring teacher processes, themes were found regarding the planning, implementation, and closing of the lesson. Balance emerged as a theme in the planning section, while the closing of the lesson focused on reflection. During the implementation phase of the lesson, the study investigated the types of differentiation and process skill development implemented. When examining external factors that affected teachersô experiences, themes including time, resources, organizational mandates, and individuals were uncovered. Finally, themes of beliefs, feelings, and abilities were explored, shaping teachersô perceptions.

This chapter frames these findings within the context of existing literature, addressing empirical studies and theoretical literature. Deweyan pragmatism is also discussed in relation to several findings of the study. Implications for future studies are highlighted and

recommendations are offered for teachers, administrators, policy makers, and individuals in higher education. Finally, limitations of the study are discussed.

Processes

Planning

During the planning phase, three categories emerged around the theme of balance. Teachers sought to create a balance between the length of planning time and the benefits in the lesson for both process skill development and differentiation, planning explicit versus allowing for implicit differentiation, and designing experiences based on student interests or student data. Pappas (2008) argued that Deweyôs writing holds two truths about balance:

> 1) Balance is a relation between forces in opposition or tension.
>
> 2) Balance is an interactive process where these forces are transformed in a tension-filled but reinforcing relation (p. 173)

The teachers in this study experienced this tension between keeping several factors related to differentiation and process skill development in balance during the planning phase. Pappas (2008) asserted, ñIn the shift from imbalance to balance, there is a transformation of the factors in oppositionò (p. 173). In this way, the balance that teachers struggled for when planning for differentiation and process skill development strengthened their overall implementation.

Implementation

In implementing process skill development, teachers focused on creating lessons that allowed for authentic learning. Dewey (1902/2001) supported authentic learning for students when he said, ñWe cannot overlook the importance for educational purposes of the close and intimate acquaintance got with nature at first hand, with real things and materials, with the actual processes of their manipulation, and the knowledge of their social necessities and usesò (p. 8).

While Dewey (1902/2001) suggested a learning environment to be completely authentic, teachers at Lincoln Elementary School did not build their classroom solely on authentic experience. Teachers also included non-authentic experiences due to pressures to implement a standardized curriculum and prepare students for the upcoming state standardized assessment using materials of a similar format. In fact, teachers were more likely to implement process skills that were also a part of the mandated standards such as organization, communication, and research skills. The exception to this was creativity due to teachersô individual interests in this skill. A previous study demonstrated that teachers changing their practice were more likely to make conservational changes initially, keeping their core structures of practice (Johnsen et al., 2002).

Effective classroom management played an important part in successful differentiation. Some researchers suggest that teachers must reach a certain level of competency in classroom management before they are able to develop in other areas (Berliner, 1988, Tomlinson & Allan, 2000). Research on pre-service teachers and differentiation also suggested that young teachers were often discouraged from providing academic diversity when they were uncomfortable with classroom management skills (Tomlinson et al., 1994). The types of differentiation implemented varied by teacher, but based on the number of codes in observations, interviews, and reflective journals, the three teachers at Lincoln Elementary School most commonly implemented tiered lessons, flexible ability grouping, open-ended activities, and student choice/learning menus. The implementation of these strategies was likely due to collaboration. Collaboration that occurred among the third grade teachers influenced the amount of tiered lessons and learning menus utilized. As teachers became competent in using creating these materials and using these strategies, they shared them with one another. Additionally, many teachers had multiple

collaborators in the room and therefore could have students work in small groups based on ability with a teacher. Previous studies on the implementation of differentiation cite collaboration as a factor that supports differentiation (Westberg & Archambault, 1997; Purcell & Leppien, 1998).

Closing

At the conclusion of lessons, the theme of reflection emerged. Teachers reflected both on their own practice and on the work of their students. Framed by Deweyan Pragmatism, reflection is an important part of continued growth for both teachers and their students. Rodgers (2002) discussed four criteria for reflection based on Deweyôs work. First, he argued that, ñReflection is a meaning-making process that moves a learner from one experience into the next with deeper understanding of its relationships with and connections to other experiences and ideasò (Rodgers, 2002, p. 845). Teachers in the study reflected on their practice in connection with the world around them, including their own professional growth and that of their students. Rodgers (2002) shared that, ñreflection is a systematic, rigorous, disciplined way of thinking with its roots in scientific inquiry,ò and ñreflection needs to happen in community with interaction from othersò (p. 845). Through the reflective journals, interviews, and teacher participation in data teams, the reflection occurred often, systematically, and with other members of the learning community. Finally, Rodgers (2002) argued that Deweyôs views on reflection, ñrequires attitudes that value the personal and intellectual growth of oneself and of othersò (p. 845). The three teachers in the study were open to growth for both their students and themselves.

Through reflection, teachers demonstrated their desire for personal and professional growth. A desire for personal and professional growth is just one of the dispositions for educators encouraged by Dewey and other scholars (Dewey, 1902/2001; Garrison, 1997; Vagle,

2008). In the United States today, *The National Council for the Accreditation of Teacher Education* (2010) presented dispositions that teachers should demonstrate in their personal and professional lives. These dispositions are the morals, values, and philosophical commitments that influence behaviors towards students, families, peers, and communities. These behaviors have an effect on the professional growth of educators and the development and growth of their students, which encourage a responsive environment in the classroom (National Council for the Accreditation of Teacher Education, 2010). A responsive environment is important to providing students with a differentiated classroom which incorporates process skill development, in which children are ñpropelled through their curiosity,ò and teachers design instruction in response to the students and their needs and interests (Torrance, 1965, p. 44).

External Factors

Time

One external factor that affected differentiation and process skill development was time. Two teachers experienced frustration with lack of time to plan for differentiation and process skill development while a third teacher needed more time during the lesson to carry out rich experiences with these strategies. Prior research supports teachers need for daily and weekly planning times (VanTassel-Baska & Stambaugh, 2005). When looking at issues regarding time to carry out process skill development within lessons, this was also an issue discussed by Noddings (2007) in her concern over the movement to one standard curriculum for all students. She questioned how a standard curriculum could serve the interests and needs of all students and argued that this would discourage the growth of creativity and imagination. Due to the quantity of standards at each grade level, teachers would be limited in their ability to encourage students to follow different interests, which may or may not be listed among that grade levelôs standards

(Noddings, 2007). One teacher in the study noticed these same issues with minimal time to explore process skills and students interests. While teachers thought many of the process skills were valuable and worth extended time, they simply did not have the time to devote to enhanced process skill development or enrichment tasks because of the mandated curriculum standards. Jacobs (2010) proposed, ñWhat if schools gave classroom teachers and teaching teams the option of three or four full weeks to go into depth on their personal projects, research investigations, creative generation of digital products, and onsite visits?ò (p. 66).

Resources

Teachers also needed additional resources to implement differentiation and process skill development. In defining resources, this included both intellectual and physical resources. When looking at physical resources, VanTassel-Baska and Stambaugh (2005) stated, ñEducators must seek sources beyond the prescribed curriculum to provide accelerated and enriched content experiences for gifted learnersò (p. 214). However, teachers in this study saw resources for differentiation and process skill development as a major roadblock in implementing these strategies. Related to these findings, VanTassel Baska and Stambaugh (2006) placed a great deal of emphasis on the role of the teacher in creating differentiated materials for students. In contrast to the district curriculum offering differentiated scripts or students individualizing their own learning, VanTassel Baska and Stambaugh (2006) maintained, ñit is the role of the teacher to intensify or slacken the curriculum experience that has been planned in order to accommodate for individual differencesò (p. 19). In order to take on the role as the primary creator of differentiated lessons and process skill development (VanTassel Baska & Stambaugh, 2006), the data in this study demonstrated that teachers must first build their intellectual resources. As teachers build intellectual resources, Torrance (1965) believed that they should have the ability

to implement process skill development with little prior planning. He believed that students should be allowed to learn on their own and discover knowledge rather than always being told the answer. He stated, ñThere are times when the teacher would be wise to leave most of the planning of an activity to students. Let them plan in advance and make their own decisionsò (Torrance, 1965, p. 43).

Organizational Procedures

When considering the school and district procedures that affected teachersô abilities to differentiate, the mission and beliefs of Lincoln Elementary School that the district and school set from the beginning, in cooperation with the teachers, made a positive impact on the teachersô implementation of differentiation and process skill development. Jacobs (2010) discussed the negative impact that a mission statement with dated educational terminology could have on teachersô implementation of process skills. However, the mission statement and beliefs held by Lincoln Elementary School supported teachersô implementation of process skills. (See Appendix K for the Lincoln Elementary mission statement).

State and national procedures, on the other hand, limited teachersô abilities to differentiate and implement process skill development mostly due to standardized testing. Scholars have published work discussing the implications of mandates from the No Child Left Behind Act of 2001 and how this legislation negatively impacts the implementation of Deweyan philosophies (Darling-Hammond, 1998; Breault & Breault, 2005; Noddings, 2007). Although educators throughout the United States have verbally encouraged educational practices that hold true to Deweyôs key philosophical commitments over the past few decades, the regulations and standardized testing included in No Child Left Behind scare many teachers into putting these practices aside in favor of drilling facts and information that will be tested (Noddings, 2007).

This practice was evident among the three teachers in the study as they approached standardized testing. Garrison (2001) pointed out the impact of outside forces on individual classrooms when he said, ñUltimate decision making power lies outside the classroomò (p. 30). He indicated few teachers were able to ignore the pressures that surround standardized testing and find ways to develop authenticity among the many standards that teachers must cover at each grade level. However, many more teachers resort to spending long hours preparing for the tests. While students may memorize the skills temporarily, this method of teaching is not likely to foster a deep understanding of the material and help students connect how it can be applied to life beyond school (Darling-Hammond, 1998).

Individuals

Finally, several individuals affected teachersô experience in implementing differentiation and process skill development. The individuals included students, grade level team, administrators, and special area collaborators. Previous studies showed the positive effect that supportive administrators had on teachersô ability to implement differentiation (Johnsen et al., 2002; Westberg & Archambault, 1997). Studies also linked collaborative relationships with peers as positive for the implementation of differentiation (Johnsen et al., 2002; Westberg & Archambault, 1997; Purcell & Leppien, 1998). By working with administrators and collaborating teachers to more deeply explore process skills, teachers were able to determine ways to apply them to real-world practice. Jacobs argued, ñIf educators work only with the general skills and do not revise and focus them, it is difficult to apply them to real-world practiceò (Jacobs, 2010, p. 27). Most importantly, students made an impact on teachersô ability to implement

differentiation and process skill development. Prior research demonstrated that teachers were more likely to implement a practice if they could identify the positive benefits for students (Johnsen et al., 2002).

Perceptions

Beliefs

Teacher beliefs regarding the value of students, importance of differentiation and process skill development for all students, and an awareness of student differences were an important part of their perception on the process of implementing differentiation practices and process skill development. Early differentiation studies demonstrated that teachers did not recognize student differences or the importance of differentiation therefore did not differentiate (Westberg et al., 1993). Another study of pre-service teachers demonstrated that novice teachers recognized the presence of student differences but began to believe it was impossible to respond to those differences (Tomlinson et al., 1994). Another study looking at successful classroom practices cited teacher awareness of student differences as a factor for successful classroom practices with high ability students (Westberg &Archambault, 1997). In the study at Lincoln Elementary, teachers did not believe that it was impossible to respond to student differences because they quickly saw success in their classrooms. Additionally, a study suggested that teachers believed that students were performing ñwell enoughò without attending to individual differences, thus limiting the differentiation they implemented (Tomlinson, 1995). The three teachers at Lincoln Elementary School initially had very strong beliefs about the necessity of differentiation, which supported their implementation of these strategies. After gaining an understanding of process

skill development, teachers had strong opinions about the benefits that this development had among their students, which continued their desire to implement these skills in the regular classroom.

Moral perception is a disposition that Deweyan scholars believe teachers must have in order to best serve their students. Teachers with moral perceptiveness are able to, ñsee the unique needs, desires, and interests of our students, in unique contexts and to respond to them with our own unique style so as to secure our and our studentsô best possibilitiesò (Garrison, 1998, p. 19). These teachers respond to the differing needs of students and perceive the best possibilities for all of their students. As Garrison (1998) stated, ñWe are free if we can perceive the best possibility for our studentsôand ourselves in any given situation, and if we act intelligently to obtain itò (p. 169). In the same way, by perceiving the best possibility for our students, we free them as well.

Feelings

The three teachers were very open about their feelings during the process of implementing differentiation and process skill development. Two of the teachers shared that they were overwhelmed at the beginning of the implementation; however, felt happiness after becoming more comfortable with differentiation and process skill development. Both teachers believed that the anxiety felt in the beginning was worth the growth in practice. Dewey (1916/1944) said, ñthe most notable distinction between living and inanimate things is that the former maintain themselves by renewalò (p. 1). He continued on to say that, ñAs long as it endures, it struggles to use surrounding energies in its own behalfò (Dewey, 1916/1944, p. 1). This struggle, like what teachers felt at the beginning of the implementation process, is a vital part of the experience of growth.

All three teachers also discussed feelings of stress related to standardized testing. Noddings argued,ñThe tests mandated by NCLB involve high stakes not only for students but also for teachers, administrators, and whole schoolsò (Noddings, 2007, p. 69). Weeks before the actual event, feelings of stress caused by the upcoming standardized test took the teachersô focus away from the implementation of differentiation and process skill development and secured attention to test preparation.

Abilities

Teachers progressed in their abilities to implement differentiation practices and process skill development. Initially, teachers had a limited awareness of process skills. Additionally, two of the teachers in the study had little experience planning differentiated lessons. As the semester progressed, all teachers grew in their abilities to implement process skills and differentiation, but the growth was not complete at the end of the data collection period. Like Dewey (1916/1944) stated, ñSince growth is the characteristic of life, education is all one with growing; it has no end beyond itselfò (p. 53). While teachers increased their abilities to differentiate and incorporate process skill development, this growth will continue as teachers have new experiences and reflect on their practice each year.

Additionally, when looking at growth among teachers, one cannot ignore the similarities in Vygotskyôs research with children regarding the zone of proximal development. Vygotsky (1978) explained:

> We propose that an essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people within his environment

> and in cooperation with his peers. Once these processes are internalized, they become part of the childôs independent developmental achievement. (p. 90).

The zone of proximal development proved to be true among teachers as Pensee Redman became overwhelmed because the implementation was outside of her zone, even with support.

Implications for Practice

This research has important implications for teachers, administrators, individuals involved in the training of pre-service teachers, and policy makers.

For Teachers

Teachers looking to incorporate differentiation or process skill development should take advice from Julia Landry who argued that the time and hardwork required in implementing differentiation and process skill development is well worth it when one sees the results first hand with students. Regardless of the initial struggle, teachers should continue to work with the process of implementation and give it time. Teachers should not expect immediate results, but should seek long-term growth from both themselves and their students.

Another important implication was the strong impact of collaboration on the teachersô ability to differentiate and implement process skills. Teachers should seek out this collaboration among their peers both within the same grade level and across special areas to find an individual that will support them both with materials and emotionally.

For Administrators

Based on the findings of this study, administrators should note the importance of professional learning opportunities that extend from offering whole group, one-time workshops, to personal one-on-one or small group support from an Enrichment specialist or Instructional Coach. In these cases, the individual can support teachers at their zone of proximal development

through the planning, implementation, and closing stages when implementing differentiation and process skill development. Administrators must be aware that like students, teachers need support within their zone of proximal development when implementing new skills in order to avoid extreme frustration and receive gradual support in meaningful learning situations.

Administrators must attempt to provide teachers teaching tools which already offer some differentiation and support the development of real-world tasks that incorporate process skills. Administrators should also secure time for teachers to work collaboratively to create differentiated materials or materials that promote the development of process skills for their particular student population.

For Higher Education

Pre-service teachers must be exposed to multiple opportunities for differentiation and process skill development, including how to implement these strategies with advanced students. When teaching pre-service teachers about differentiation and process skill development, strategies for implementation should be modeled for students, versus students simply being required to include a section for differentiation in the lesson plan. Additionally, professors should provide differentiation in their own classes for pre-service teachers based on their individual needs, as well as allow learning opportunities designed around process development.

For Policymakers

As policymakers reflect on changes that need to be made in the field of education, they must look at the instruction they are promoting through standardized testing. Ward (1961) acknowledged that if we expect students with gifts and talents to excel in the areas of their strength in future social roles, we must provide them with, ñan educational program whose substance and method are peculiarly adapted to exercising the capacity and preparing for the

roleò (p. 87). He believed that education should be designed around the students themselves, focusing on their personality characteristics and cognitive abilities in order to keep schooling from becoming ñmere instruction and never educationò (Ward, 1961, p. 109). Policymakers must pay close attention to the effects of standardized testing and single measure accountability systems on the implementation of differentiation and process skill development. Standards and accountability systems should allow for and encourage the implementation of differentiation and process skill development.

Directions for Future Research

This study suggests several directions for future research. While this research looked at the implementation of differentiation and process skill development simultaneously, it may be of interest to future researchers to focus a study specifically on the implementation of process skill development. Additionally, a structured training and mentoring program focusing on teacher implementation of process skills could be developed and studied over its implementation period.

Although the negative effect of standardized testing naturally emerged in this study, it may be of interest to study specifically both the effects of standardized testing on process skill development and the effects of process skill development on the achievement of students on standardized tests.

This study also looked at the implementation of differentiation and process skill development over a five-month period during the spring. The results of a longitudinal study focusing on teachersô experience implementing these skills over time would be beneficial. Studies should also focus on middle school and high school teachers implementing differentiation and process skill development.

Limitations

As a participant observer, I served as the researcher and enrichment specialist at Lincoln Elementary School. Serving in dual roles brought both strengths and limitations to the research study. Because of my position, I had a great understanding of the school mission statement, beliefs, and programs which gave me knowledge to ask probing questions during interviews and planning meetings. Teachers also demonstrated comfort working with me because of past collaboration. They were more likely to be honest with me about their feelings and experiences. Serving in these dual roles also brought forth limitations. As I balanced teaching and making observations, it was difficult to catch every incident in which teachers were differentiating and implementing process skills during the observation period. I also had to evaluate teachersô experiences as they implemented strategies that I was helping develop for their classrooms. In order to address these limitations, I kept a very detailed research journal, which I used to document my feelings, beliefs, and observations as I collected data.

Because all teachers taught at the same school, the mission statement and beliefs of the school likely played a role in the mission and beliefs of the three teachers as supporters of differentiation and process skill development. Additionally, the three teachers were all Caucasian female teachers in their first five years of teaching, which could have had an effect on their experiences.

Another limitation included the participants discontinuing the reflective journals as one of the data collection methods mid-way through data collection. Without the reflective journals the last two months of data collection, descriptions of the participantsô experiences were not shared weekly as the incidents occurred, but discussed only during the final interview. Although the findings of the study would have been strengthened with the analysis of additional reflective

journals, due to overwhelming feelings from the teachers, the reflective journals needed to be discontinued, or I felt I would lose the teachers as participants in the study. Another data collection method that changed during the data collection period was the number of observations completed. Due to medical leave, I only completed one observation in April and one observation in May. While these observations provided valuable insight into teacher experiences, one more observation each month as planned may have added meaningful data to the study.

A final limitation to the study was its timing and length. Due to personal constraints, this study lasted five months and had to be conducted during the spring semester. Lincoln Elementary School students were required to take the state standardized assessment towards the end of the spring semester. The timing of the study and length may have limited the diversity of teacher experiences explored through the study.

Chapter Summary

This chapter discussed the findings of the study and linked these findings to Deweyan pragmatism and previous research. Implications were suggested for teachers, administrators, higher education, and policy makers, as well as future directions of research. Finally, limitations of the study were discussed.

REFERENCES

Abdal-Haqq, I. (1996). Making time for teacher professional development. *ERIC Digest*, ED 400259.

Adams-Byers, J., Whitesell, S.S., & Moon, S.M. (2004). Gifted students perceptions of the academic and social/emotional effects of homogeneous and heterogeneous grouping. *Gifted Child Quarterly*, 48(1), 7-20.

Adams, C. & Pierce, R. (2007). Effects of tiered instruction on academic performance in a secondary science course. *Journal of Advanced Academics,* 18(3), 424-453.

Archambault, F. A., Jr., Westberg, K. L., Brown, S. W., Hallmark, B. W., Emmons, C. L., & Zhang, W. (1993). *Regular classroom practices with gifted students: Results of a national survey of classroom teachers* (Research Monograph 93102). Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.

Baum, S. M., Renzulli, J. S., & Hébert, T.P. (1999). Reversing underachievement: Creative productivity as a systematic intervention. *Gifted Child Quarterly, 39,* 224-235.

Berg, B.L. (2009). *Qualitative research methods for the social sciences* (7th ed.). Boston: Allyn & Bacon.

Berliner, D.C. (1988). Implications of studies on expertise in pedagogy for teacher education and evaluation. In *New Directions for Teacher Assessment* (pp.39-68). Princeton, NJ: Educational Testing Service.

Betts, G. (1985). Autonomous learner model for the gifted and talented learner. Greeley, CO: ALPS.

Betts, G. (2004). Fostering autonomous learners through levels of differentiation. *Roeper Review,* 26, 190-191.

Betts, G.T., & Kercher, J.K. (1999). *Autonomous learner model: Optimizing ability.* Greeley, CO: ALPS.

Breault, D. A. & Breault, R. (Eds.). (2005). *Experiencing Dewey: Insights for today's classroom.* Indianapolis, IN: Kappa Delta Pi.

Burns, D.E. (1987). *The effects of group training activities on students' creative productivity.* Storrs, CT: Unpublished doctoral dissertation.

Bronson, P. & Merryman, A. (2010, July 19). Creativity in America: The science of innovation and how to reignite our imaginations. *Newsweek,* pp. 44-50.

Carnes, E. R., Lindbeck, J. S., & Griffin, C. F. (1987). Effects of group size and advance organizers on learning parameters when using microcomputer tutorials in kinematics. *Journal of Research in Science Teaching*, 24(9), 781-789.

Charmaz, K. (2009). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage Publications.

Clements-Davis, G. L., & Ley, T. C. (1991). Thematic preorganizers and the reading comprehension of tenth-grade world literature students. *Reading Research & Instruction*, 31(1), 43-53.

Cramond, B. (2005). Developing creative thinking. In F.A. Karnes & Bean (Eds.), *Methods and materials for teaching the gifted*, 2nd (pp.313-353). Waco, TX: Prufrock.

Cramond, B. (2002). The study of creativity in the future. In A.G. Alienikov (Ed.), *The future of creativity* (pp. 83-86). Bensenville, IL: Scholastic Testing Service.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process.* London, England: Sage.

DallôAlba, G. & Sandberg, J. (2006). Unveiling professional development: A critical review of stage models. *Review of Educational Research,* 76, 383-412.

Davies, C. A. (2008). *Reflexive ethnography* (2nd ed.). New York, NY: Routledge.

Davis, O.L. (1998). An invitation to think. In Dewey, J. *Experience and education* (pp. 168-175). West Lafayette, IN: Kappa Delta Pi.

Davis, G. A., & Rimm, S. B. (2004). *Education of the gifted and talented* (5th ed.). Boston: Pearson.

Dewey, J. (1933). *How we think.* Boston, MA: D.C. Heath and Company.

Dewey, J. (1938). *Logic: The theory of inquiry.* New York, NY: Henry Holt and Company.

Dewey, J. (1944). *Democracy and education*. New York, NY: The Free Press. (Original work published 1916).

Dewey, J. (1959). *Dewey on education.* New York, NY: Teachers College Press.

Dewey, J. (1998). *Experience and education*. West Lafayette, IN: Kappa Delta Pi. (Original work published 1938).

Dewey, J. (2001). *The child and the curriculum.* Mineola, NY: Dover. (Original work published 1902).

Dewey, J. (2001). *The school and society.* Mineola, NY: Dover. (Original work published 1915).

Emerick, L. (1988). *Academic underachievement among the gifted: Students' perceptions of factors relating to the reversal of the underachievement pattern.* (Unpublished doctoral dissertation). University of Connecticut, Storrs. In J. Renzulli & S. Reis (2008). *Enriching Curriculum for all students* (2nd ed., p. 152). Thousand Oakes, California: Corwin Press.

Eyre, D. & McClure, L. (2001). *Curriculum provisions for the gifted and talented in the primary school.* London: David Fulton Publishers.

Fishman, S.M. & McCarthy, L. (1998). *John Dewey and the challenge of classroom practice.* New York, NY: Teachers College Press.

Fletcher, R. & Portalupe, J. A. (2001). *Writing workshop: The essential guide.* Portsmouth, NH: Heinemann

Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the twenty-first century.* New York: Basic Books.

Garet, M., Porter, A., Desimone, L., Birman, B., & Yoon, K.S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal,* 38(4), 915-945.

Garrison, J. (1997). *Dewey and Eros: Wisdom and desire in the art of teaching.* New York, NY: Teachers College Press.

Gerring, J. (2007). *Case study research: Principles and practices.* New York, NY: Cambridge University Press.

Hertzog, N. B. (1998). Open-ended activities: Differentiation through learner responses. In C.A. Tomlinson (Ed.), *Differentiation for gifted and talented students.* (pp. 77-104). Thousand Oakes, CA: Corwin Press.

Hord, S.M., Rutherford, W.L., Huling-Austin, L., & Hall, G.E. (1987). *Taking charge of change.* Alexandria, VA: Association for Supervision & Curriculum.

Hudson, P., Lignugaris-Kraft, B., & Miller, T. (1993). Using content enhancements to improve the performance of adolescents with learning disabilities in content classes. *Learning Disabilities Research & Practice,* 8 (2), 106-126.

Jacobs, H.H. (2010). *Curriculum 21: Essential education for a changing world.* Alexandria, VA: ASCD.

Johnsen, S. K., Haensly, P. A., Ryser, G. R., & Ford, R. F. (2002). Changing general education classroom practices to adapt for gifted students. In C.A. Tomlinson (Ed.), *Differentiation for gifted and talented students*. (pp. 133-164). Thousand Oakes, CA: Corwin Press.

Kim, K. (2010). Explaining the decline of creativity in American children: A reply to readers. *Encyclopedia Britannica Blog.* Retrieved from http://www.britannica.com/blogs/2010/12/explaining-the-decline-of-creativity-in-american-children-a-reply-to-readers/.

Kulik, J. A. (2003). Grouping and tracking. In N. Colangelo, & G.A. Davis (Eds.). *Handbook of gifted education* (2nd ed., pp.268-281). Boston: Allyn & Bacon.

Kulik, J. A. & Kulik, C., -L. C.(1982). Highlights from research on ability grouping. *Educational Leadership*, 39, 619-621.

Kohlberg, L. (1976). Moral states and moralization: The cognitive developmental approach. In T. Lockona (Ed.), *Moral development and behavior*. New York: Holt, Rinehart, & Winston.

Latz, A. O., Neumeister, C. S., Adams, C. M., & Pierce, R. L. (2009).Peer coaching to improve classroom differentiation: Perspectives from project CLUE. *Roeper Review,* 31, 27-39.

Lieberman, A. & Miller, L. (Eds.). (2001). *Teachers caught in the action: Professional development that matters*. New York: Teachers College Press.

Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic inquiry*. Thousand Oakes, CA: Sage.

Marland, S. P. (1971). *Education of the gifted and talented: Vol. 1.* Washington, D.C.: U.S. Government Printing Office.

Maker, C. (1988). Curricula and teaching strategies for gifted students. Monograph prepared for the Leadership Accessing Program. (ERIC Document Reproduction Service No. ED318135).

Maker, C. J. & Nielson, A. B. (1996). *Curriculum development and teaching strategies for gifted learners (*2nd ed.).Austin, TX: PRO-ED.

Maker, J. (2005). *The DISCOVER project: Improving assessment and curriculum for diverse gifted learners.* National Research Center on the Gifted and Talented.

Murphy, J. (1990). *Pragmatism: From Pierce to Davidson*. Boulder, CO: Westview Press.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, D.C.: U.S. Department of Education.

National Academy of Sciences. (1996). *National science education standards.* Washington, DC: National Academy Press.

National Council of Teachers of Mathematics [NCTM]. (2000). *Principles and standards for school mathematics: An overview.* Reston, VA: Author.

Noble, T. (2002). Blooming with multiple intelligences. A planning tool for curriculum differentiation. *Learning Matters*, 8(2), 8-12.

Noble, T. (2004). Integrating the revised bloomôs taxonomy with multiple intelligences: A planning tool for curriculum differentiation. *Teachers College Record*, 106, 193-211.

Noddings, N. (2007). *When school reform goes wrong.* New York, NY: Teachers College Press.

Nugent, S.A. (2005). Affective education: Addressing the social and emotional needs of gifted students in the classroom. In F.A. Karnes & Bean (Eds.), *Methods and materials for teaching the gifted*, 2nd (pp.409-439). Waco, TX: Prufrock.

Pappas, G. (2008). *John Dewey's ethics: Democracy as experience.* Bloomington,IN: Indiana University Press.

Partnership for Twenty-First Century Skills (2009). *P21 framework definitions.* Retrieved from http://www.p21.org/documents/P21_Framework_Definitions.pdf

Patton, M.Q. (2002). *Qualitative research and evaluation methods* (3rd Ed.). Thousand Oakes, CA: Sage.

Pring, R. (2007). *John Dewey: A philosopher of education for our time?* London, England: Continuum International.

Pryor, L. A. (1994). *Teaching strategies designed to meet the cognitive needs of the gifted and talented in the regular classroom.* Unpublished practicum report, Nova University, Fort Lauderdale, Florida.

Purcell, J. H., & Leppien, J. H. (1998). Building bridges between general practitioners and educators of the gifted: A study of collaboration. In C. A. Tomlinson (Ed.), *Differentiation for gifted and talented students*. (pp. 117-132). Thousand Oakes, CA: Corwin Press.

Purcell, J.H. & Leppien, J.H. (2002). The Parallel Curriculum Model (PCM): The whole story. *Teaching for High Potential.* 4(1), 1-4.

Rappoport, A. L. (2010). How schools group by ability. *Metrokids*. Retrieved from http://www.metrokids.com/MetroKids/January-2010/Ability-Grouping-Beyond-Labels/.

Reis, S. M., Burns, D. E., & Renzulli, J. S. (1992). *Curriculum compacting: The complete guide to modifying the regular curriculum for high ability students.* Mansfield Center, CT: Creative Learning Press.

Reis, S. M., Schader, R., Milne, H., & Stephens, R. (2003). Music & minds: Using a talent development approach for young adults with Williamsôsyndrome. In J. Renzulli & S. Reis (2008). *Enriching Curriculum for all students* (2nd ed., p. 153). Thousand Oakes, California: Corwin Press.

Reis, S. M. & Westberg, K. L. (1994). The impact of staff development on teachersôability to modify curriculum for gifted and talented students. In C. A. Tomlinson (Ed.), *Differentiation for gifted and talented students*. (pp. 39-58). Thousand Oakes, CA: Corwin Press.

Reis, S. M., Westberg, K. L., Kulikowich, J., Caillard, F., Hébert, T., Plucker, J., et al. (1993). *Why not let high ability students start school in January? The curriculum compacting study* (Research Monograph 93106). Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.

Renzulli, J.S. (1977). *Enrichment triad model: A guide for developing defensible programs for the gifted and talented.* Mansfield Center, CT: Creative Learning Press.

Renzulli, J.S. & Reis, S.M. (2008). *Enriching curriculum for all students (2nd Ed.).* Thousand Oakes, CA: Corwin Press.

Roeper, A. (1995). How the gifted cope with their emotions. In *Annemarie Roeper: Selected writings and speeches* (p. 74-84). Minneaplois, MN: Free Spirit.

Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teachers College Record,* 104(4), 842-866.

Rogers, K.B. (1991). *The relationship of grouping practices to the education of the gifted and talented learner.* Storrs, CT: National Research Center on the Gifted and Talented.

Salanda, J. (2009). An introduction into codes and coding. In J. Salanda (Ed.), *The coding manual for qualitative researchers* (pp.1-31). Los Angeles, CA: Sage Publications.

Shaunessey, E. (2000). Questioning techniques in the gifted classroom. *Gifted Child Today*, 23, 14-21.

Stake, R. E. (1995). *The art of case study research.* Thousand Oakes, CA: Sage Publications.

Stake, R. E. (2006). *Multiple case study analysis.* New York, NY: The Guilford Press.

Stamps, L. S. (2004). The effectiveness of curriculum compacting in first grade classrooms. *Roeper Review,* 27, 31.

Sebranek, P., Meyer, V., & Kemper, D. (1990). *Write source 2000*. Burlington, WS: Write Source Education.

Seney, R.W. (2005). Process skills and the gifted learner. In F.A. Karnes & Bean (Eds.), *Methods and materials for teaching the gifted*, 2nd (pp.133-149). Waco, TX: Prufrock.

Sisk, D. (1982). *Caring and sharing: Moral development of gifted students.* Elementary School Journal, 82, 221-229.

Stephens, K.R. & Karnes, F.A. (2005). Product development for gifted students. In F.A. Karnes & Bean (Eds.), *Methods and materials for teaching the gifted*, 2nd (pp.151-178). Waco, TX: Prufrock.

Struck, J.M. (2003). Incorporating higher order process skills into content. In Joyce VanTassel-Baska & Catherine A. Little (Eds). *Content based curriculum for high-ability learners.* Waco, TX: Prufrock Press.

Tchudi, S. & Mitchell, D. (1999). Exploring and teaching the English language arts (4th ed.). New York: Addison-Wesley.

Tomlinson, C.A. (1995). Deciding to differentiate in middle school. One schoolôs journey. *Gifted Child Quarterly*, 39(2), 77-87.

Tomlinson, C. A. (1999). *The differentiated classroom: Responding to the needs of all learners.* Alexandria, VA: Association for Supervision and Curriculum Development. In Pierce, R. L. & Adams, C. M. (2004). Tiered lessons: One way to differentiate mathematics instruction. *Gifted Child Today,* 27, p.58-66.

Tomlinson, C. A. (2003a.). Tiered lessons: What are their benefits and application? *Illinois Association for the Gifted Journal*, p.6-8.

Tomlinson, C.A. (2003b.). *Fulfilling the promise of the differentiated classroom: Strategies and tools for responsive teaching.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A., & Allan, S. D. (2000). *Leadership for differentiating schools and classrooms.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A., Coleman, M. R., Allan, S., Udall, A., & Landrum, M. (1996). Interface between gifted education and general education: Toward communication, cooperation, and collaboration. In C. A. Tomlinson (Ed.), *Differentiation for gifted and talented students*. (pp. 39-58). Thousand Oakes, CA: Corwin Press.

Tomlinson, C.A., Kaplan, S.N., Renzulli, J.S., Purcell, J., Leppien, J., Burns, D. (2002). *The parallel curriculum: A design to develop high potential and challenge high-ability learners.* Thousand Oakes, CA: Corwin.

Tomlinson, C.A., Tomchin, E.M., Callahan, C.M., Adams, C.M., Pizzat-Tinnin, P., Cunningham, C.M., Moore, B., Lutz, L., Roberson, C., Eiss, N., Landrum, M., Hunsaker, S., & Imbeau, M. (1994). Practices of preservice teachers related to gifted and other academically diverse learners. *Gifted Child Quarterly*, 38(3), 106-114.

Torrance, E. P. (1965). *Gifted children in the classroom.* New York: The Macmillan Co.

Vagle, M. (2008). Searching for a prophetic, tactful pedagogy: An attempt to deepen the knowledge, skills, and dispositions discourse around good teaching. *Education and Culture*, 24(1), 49-65.

Van Manen, M. (1991). Reflectivity and the pedagogical moment: The normativity of pedagogical thinking and acting. *Curriculum Studies, 23*(6), 507-536.

Van Tassel-Baska, J. (1994). *Comprehensive curriculum for gifted learners.* Boston: Allyn and Bacon.

VanTassel Baska, J. & Stambaugh, T. (2005). Challenges and possibilities for serving gifted learners in the regular education classroom*. Theory into Practice, 44(3), p.211-217.*

VanTassel Baska, J. & Stambaugh, T. (2006). *Comprehensive curriculum for gifted learners* (3rd ed.). Boston: Pearson.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wang, M. C. & Walberg, H. J. (1985). *Adapting instruction to individual differences.* Berkley, CA: McCutchan Publishing.

Ward, V. S. (1961). *Educating the gifted: An axiomatic approach.* Columbus, OH: Charles E. Merrill Books.

Webster-Wright, A. (2009). Reframing professional development through understanding authentic professional learning. *Review of Educational Research*, 79, 702-739.

Westberg, K. L, & Archambault, F. X. (1995). Profiles of successful practices for high ability students in elementary classrooms. (Research Monograph 95122) Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.

Westburg, K. L., & Archambault, F. X. (1997). A multi-site case study of successful classroom practices for high-ability students. In C. A. Tomlinson (Ed.), *Differentiation for gifted and talented students*. (pp. 59-76). Thousand Oakes, CA: Corwin Press.

Westberg, K. L., Archambault, F. X., Jr., Dobyns, S. M., & Salvin, T. (1993). *An observational study of instructional and curricular practices used with gifted and talented students in regular classrooms* (Research Monograph 93104). Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.

Westberg, K. L., & Daoust, M. E. (2003). The results of the replication of the classroom practices survey in two states. *The National Research Center on Gifted and Talented Newsletter*, 3-8.

Wilson, S. M. & Berne, J. (1999). Teacher learning and the acquisition of professional knowledge: An examination of research on contemporary professional development. *Review of Research in Education*, 24, 173-210.

Zaremba, A. (1990). Teaching communication skills effectively: Can it be accomplished in the elementary schools? *Educational Resources Information Center*, United States Department of Education.

APPENDIX A

TYPE II TWENTY FIRST CENTURY PROCESS SKILLS

COGNITIVE TRAINING

- **Analysis Skills**
  - Identifying characteristics
  - Recognizing attributes
  - Making an observation
  - Discriminating between same and different
  - Comparing and contrasting
  - Categorizing
  - Classifying
  - Criteria setting
  - Ranking, prioritizing, and sequencing
  - Seeing relationships
  - Determining cause and effect
  - Pattern finding
  - Predicting
  - Making analogies
- **Organization Skills**
  - Memorizing
  - Summarizing
  - Metacognition
  - Goal setting
  - Formulating questions
  - Developing hypotheses
  - Generalizing
  - Problem solving
  - Decision making
  - Planning

- **Critical Thinking Skills**
  - Inductive thinking
  - Deductive thinking
  - Logical thinking and reasoning
  - Determining reality and fantasy
  - Determining benefits and drawbacks
  - Identifying value statements
  - Identifying points of view
  - Determining bias
  - Identifying fact and opinion
  - Determining the accuracy of presented information
  - Judging essential and incidental evidence
  - Determining relevance
  - Identifying missing information
  - Judging the credibility of a source
  - Determining warranted and unwarranted claims
  - Recognizing assumptions
  - Recognizing fallacies
  - Detecting inconsistencies in an argument
  - Identifying ambiguity
  - Identifying exaggeration
  - Determining the strength of an argument
  - Solve complex problems
- **Creativity Skills**
  - Fluent thinking
  - Flexible thinking
  - Original thinking
  - Elaborational thinking
  - Developing imagery
  - SCAMPER modification techniques
  - Attribute Listing
  - Random Input
  - Brainstorming
  - Creative problem solving
  - Synectics

AFFECTIVE TRAINING

- **Intrapersonal Skills**
  - Analyzing strengths
  - Clarifying values
  - Developing a personal framework for activism
  - Developing a sense of humor
  - Developing an ethical framework
  - Developing moral reasoning
  - Developing resiliency
  - Developing responsibility
  - Developing self-efficacy
  - Developing self-esteem
  - Developing self-reliance
  - Developing task commitment
  - Understanding integrity
  - Understanding self-management
  - Understanding image management
  - Understanding learning styles
  - Ability to adjust and adapt to changing environments
  - Curiosity about the world and how it works
- **Interpersonal Skills**
  - Developing environmental awareness
  - Developing etiquette and courtesy
  - Developing multicultural awareness
  - Developing social skills
  - Understanding assertiveness
  - Understanding and developing leadership skills
  - Understanding conflict resolution
  - Understanding cooperation and collaboration
  - Understanding nonverbal communication
  - Understanding stereotypes
  - Understanding tolerance, empathy, and compassion
- **Dealing With Critical Life Incidents**

- Coping with loss
- Dealing with change
- Dealing with dependency
- Dealing with failure
- Dealing with stress
- Dealing with success
- Making choices
- Planning for the future
- Understanding perfectionism
- Understanding risk-taking

LEARNING HOW-TO-LEARN SKILLS

- **Listening, Observing, and Perceiving Skills**
  - Following directions
  - Noting specific details
  - Understanding main points, themes, and sequences
  - Separating relevant from irrelevant information
  - Paying attention to whole-part relationships
  - Scanning for the "big picture"
  - Focusing on specifics
  - Asking for clarification
  - Asking appropriate questions
  - Making inferences
  - Noting subtleties
  - Predicting outcomes
  - Evaluating a speaker's point of view
- **Notetaking and Outlining Skills**
  - *Notetaking Skills*
    - Selecting key terms, concepts, and ideas
    - Disregarding unimportant information
    - Noting what needs to be remembered
    - Recording words, dates and figures to aid in recall
    - Reviewing notes and highlighting the most important

items
        - Categorizing notes in a logical order
        - Organizing notes so that information from various sources can be added later
    - *Outlining and webbing*
        - Using outlining skills to write material that has unity and coherence
        - Selecting and using a system of notation (e.g., Roman numerals)
        - Deciding whether to write topic outlines or sentence outlines
        - Stating each topic or point clearly
        - Developing each topic sufficiently
    - Graphic Organizers
        - Selecting appropriate graphic features to organize information (ex. bubble map, venn diagram, tree map, freyer diagram, flow map)
        - Designing organizers by hand or using technology
- **Interviewing and Surveying—Developing and Practicing the Use of:**
    - Identifying information being sought
    - Deciding on appropriate instruments
    - Identifying sources of existing instruments
    - Designing instruments (e.g., check-lists, rating scales, interview schedules)
    - Developing question wording skills (e.g., factual, attitudinal, probing, follow-up)
    - Sequencing questions
    - Identifying representative samples
    - Field testing and revising instruments
    - Developing rapport with subjects
    - Preparing a data-gathering matrix and schedule
    - Using follow-up techniques
- **Analyzing and Organizing Data—Developing and Practicing the Use of:**

- Identifying types and sources of data
- Identifying and developing data gathering instruments and techniques
- Identifying appropriate sampling techniques
- Developing data-recording and coding techniques
- Classifying and tabulating data
- Preparing descriptive (statistical) summaries of data (e.g., percentages, means, modes, etc.)
- Analyzing data with inferential statistics
- Preparing tables, graphs, and diagrams
- Drawing conclusions and making generalizations
- Writing up and reporting results

USING ADVANCED RESEARCH AND REFERENCE MATERIALS

- **Preparing for Type III Investigations:**
  - Developing problem finding and focusing skills
  - Identifying variables
  - Stating hypotheses and research questions
  - Identifying human and material resources
  - Developing a management plan
  - Developing time management skills
  - Selecting appropriate product formats
  - Obtaining feedback and making revisions
  - Identifying appropriate outlets and audiences
  - Developing an assessment plan
  - Know what, Know how, Know who
- **Library Skills:**
  - Understanding library organizational systems
  - Using information retrieval systems
  - Using interlibrary loan procedures
  - Understanding specialized types of information in reference books, such as: abstracts, almanacs, annuals,

anthologies, atlases, bibliographies, books of quotations, proverbs, concordances, data tables, diaries, dictionaries, glossaries, digests, directories, registers, encyclopedias, handbooks, histories, chronicles of particular fields, organizations, indexes, manuals, periodicals, reader's guides, reviews, source, books, surveys.
    - Understanding the specific types of information in nonbook reference materials, such as: art, artifacts, prints, audio books, charts, data tapes, CD Roms, digital media, DVDs, film loops, filmstrips, flashcards, globes, maps, microforms, model, photos, pictures, realia, records, slides, study, prints, transparencies, video tapes, USB storage devices, and websites.
- **Community Resources:**
    - Identifying community resources, such as: art and theater groups, clubs, hobby, and special interest groups, college and university services, governmental and social service agencies, museums, galleries, science centers, parks and recreation organizations, places of special interest or function, private and community colleges, private business and individuals, professional societies and associations, senior citizen groups, service clubs, and support groups.

DEVELOPING WRITTEN, ORAL, AND VISUAL COMMUNICATION TECHNIQUES

- **Visual Communication—Developing Skills in the Preparation of:**
    - Blogs and Wikis
    - CD and DVD recordings
    - Motion pictures
    - Multimedia images
    - Overhead transparencies
    - Photographic print series

- Photo essay
- Presentation materials
- Websites

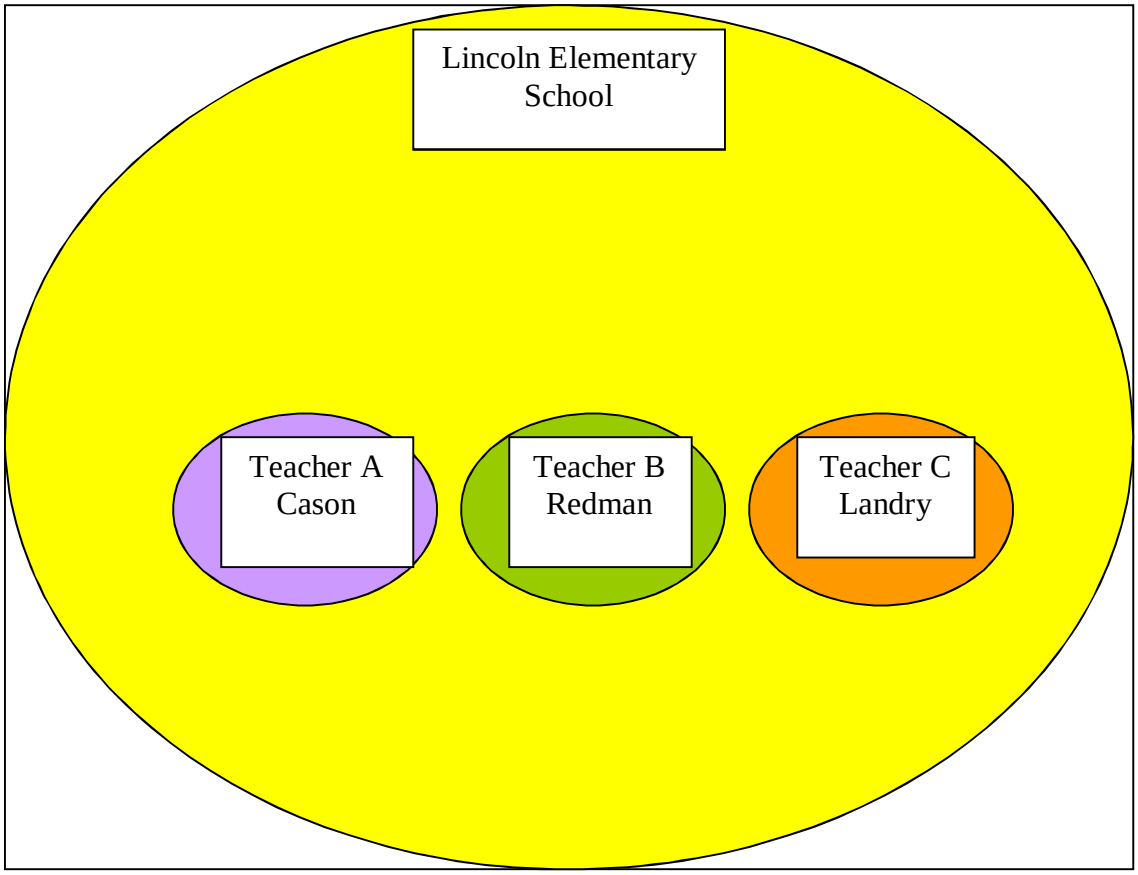
- **Oral Communication—Developing and Practicing the Use of:**
  - Organizing material for an oral presentation
  - Vocal delivery
  - Appropriate gestures, eye movement, facial expression, and body movement
  - Acceptance of the ideas and feelings of others
  - Appropriate words, quotations, anecdotes, personal experiences, illustrative examples, and relevant information
  - Appropriate use of the latest technology
  - Obtaining and evaluating feedback
- **Written Communication:**
  - Planning the written document (e.g., subject, audience, purpose, thesis, tone, outline, title)
  - Choosing appropriate and imaginative words
  - Developing paragraphs with unity, coherence, and emphasis
  - Developing "technique" (e.g., metaphor, comparison, hyperbole, personal experience)
  - Writing powerful introductions and conclusions
  - Practicing the four basic forms of writing (exposition, persuasion, description, and narration)
  - Applying the basic forms to a variety of genre (i.e., short stories, book reviews, research papers, etc.)
  - Developing technical skills (e.g., proofreading, editing, revising, footnoting, preparing bibliographies, writing summaries, and abstracts)

Adapted from Deborah E. Burns, 1994

APPENDIX B

RESEARCH DESIGN

Multiple Case Study Design



APPENDIX C

PARTICIPANT CONSENT FORM

I, _____, agree to participate in a research study titled *"Exploring Professional Learning: Teacher Implementation of Differentiation Practices and Process Skill Development for Advanced Learners"* conducted by Katherine B. Brown from the Department of Educational Psychology and Instructional Technology at the University of Georgia (706-254-9209) under the direction of Dr. Thomas P. Hebert, Department of Educational Psychology and Instructional Technology, University of Georgia (706-542-4248).

I understand that my participation is voluntary. I can refuse to participate or stop taking part at anytime without giving any reason, and without penalty or loss of benefits to which I am otherwise entitled. I can ask to have all of the information about me returned to me, removed from the research records, or destroyed.

The reason for this study is to examine teachers' perceptions and practices of differentiation and process skill development through receiving professional learning experiences as part of a dissertation study. If I decide to take part, I may be asked to participate in these evaluation activities:

- Eight classroom observations, with the researcher as a participant observer, each lasting approximately 60 minutes which will focus on the implementation of differentiation practices and process skill development in my regular education classroom.
- Three audiorecorded 60 minute interviews on my perceptions and practices of differentiated instruction and process skill development; audio files will be destroyed no later than January 31, 2013.
- Weekly one page, double-spaced, journal entries in which I write about my experiences and perceptions in implementing differentiation practices and process skill development.
- Weekly lesson plans made available to the researcher, documenting differentiation practices and process skill development.

Risk from participating in the study is minimal and consists of possible discomfort discussing personal beliefs about teaching and learning. I understand that I can skip questions that make me feel uncomfortable and that audio-recordings of the interviews will not be publicly disseminated. I may also experience discomfort in implementing new strategies in the classroom. I understand that I may stop participating at any time I wish to do so. Benefits from participating in the study may include growth in my teaching pedagogy, specifically related to implementing differentiation practices and process skill development. The researcher also hopes to be able to make recommendations in providing professional learning opportunities to teachers regarding differentiation and process skill development.

I understand that the researcher is asking for my permission to use my information for research and possible publication.

Any individually identifiable information I provide will be kept confidential. My real name will not be used in any reports, and the information from my participation will not be reported in any individually identifiable form. All contact information and data that include identifiable information will be stored in a locked cabinet and destroyed after three years.

The researcher will answer any questions I have about the study now or during the semester.

I understand the project described above. My signature indicates that I agree to participate in this project. I understand that I may stop participating at any time if I wish to do so. I have received a copy of this form.

_____

Name of the Participant Signature Date

_____

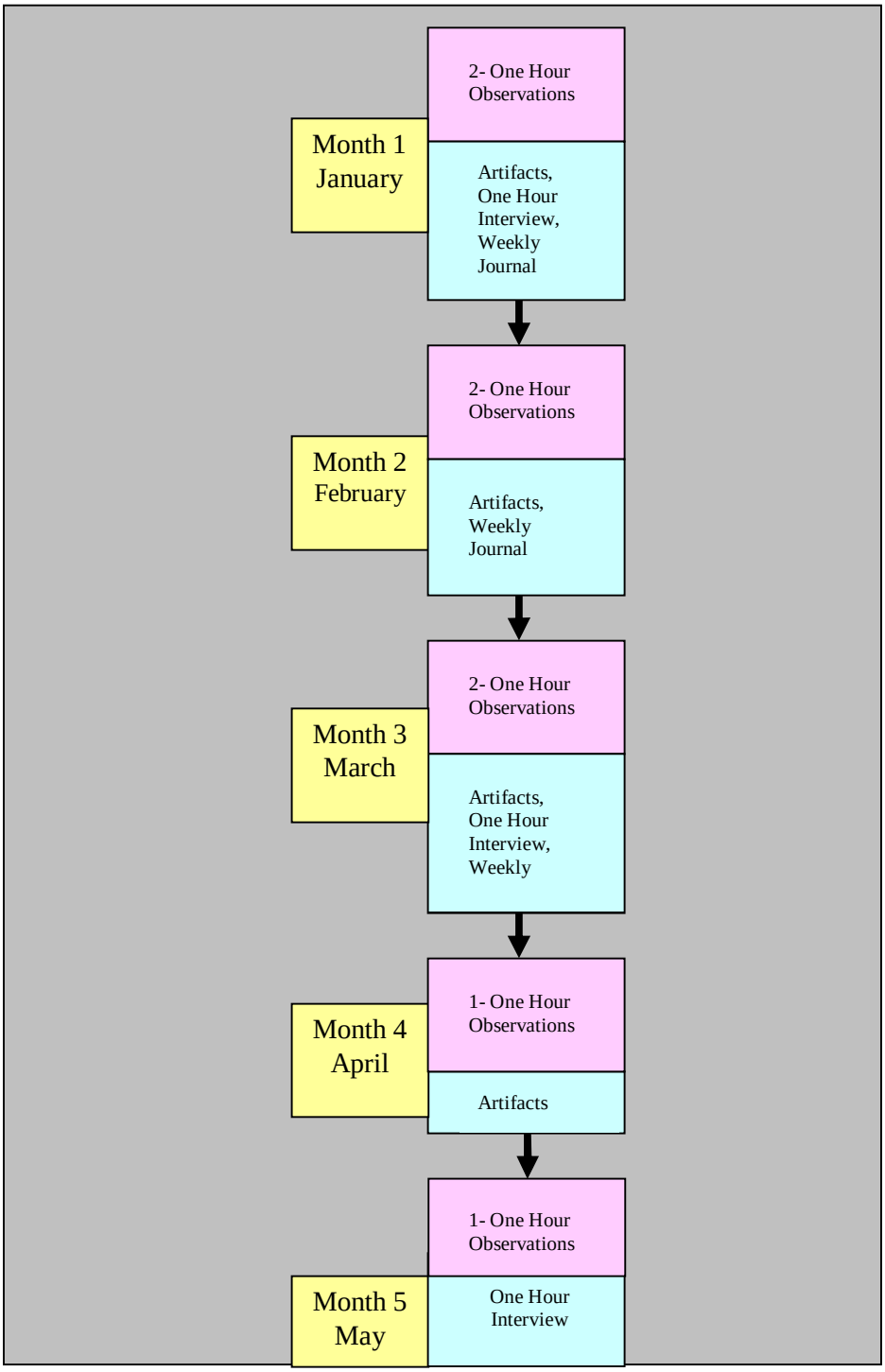
Name of the Researcher Signature Date

Please sign both copies, keep one and return one to the researcher

Additional questions or problems regarding your rights as a participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

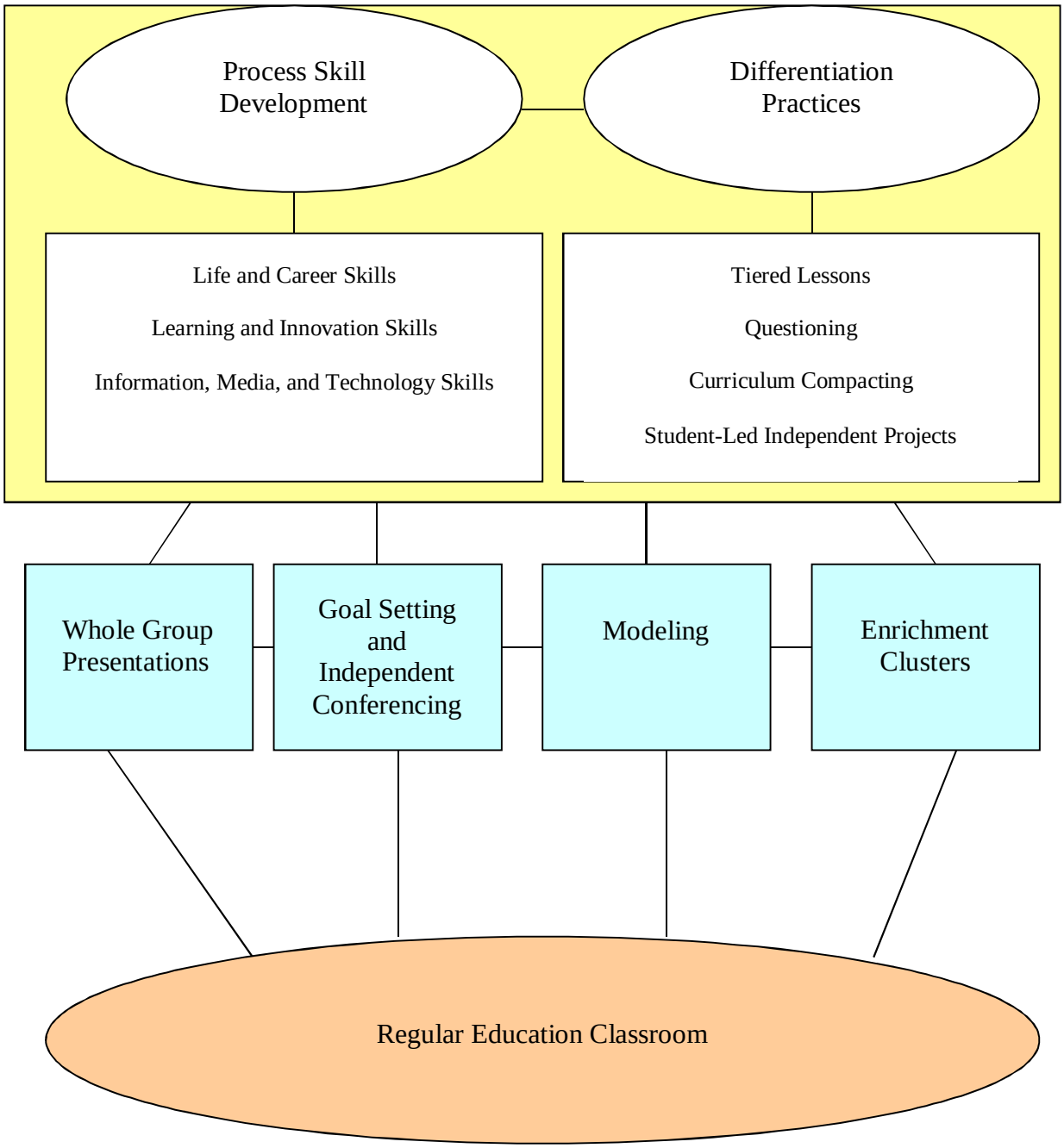
APPENDIX D

DATA COLLECTION PROCEDURES



APPENDIX E

PROFESSIONAL DEVELOPMENT OPPORTUNITIES



APPENDIX F

OBSERVATION PROTOCOL

This protocol is designed to be used to describe the occurrences during the observation which relate to the research questions. The researcher will act as a participant during the observation, taking notes when able, but will write down extensive field notes immediately upon leaving the classroom. The observation write-up will be in narrative form, but will pay special attention to:

- The setting.
- Any differentiation that occurred during the observation time.
- Any process skill development that occurred during the observation time.
- The teacherôs role during the observation time.
- Any teacher discussions related to differentiation.
- Any teacher discussions related to process skill development.
- The teacherôs attitude, appearance, and perceived level of comfort in differentiating for students.
- The teacherôs attitude, appearance, and perceived level of comfort in providing process skill development for students.

APPENDIX G

SEMI-STRUCTURED INITIAL INTERVIEW GUIDE

Can you share about your background in education. (Ex. degrees, grades taught, courses taught, etc.)

What does differentiation mean to you?

What is your opinion about differentiation? Where do you believe this belief comes from?

Please describe the students you believe need differentiation?

What is your understanding of Type II process skills?

What is your opinion about implementing Type II process skills? Where do you believe this belief comes from?

Please describe the students you believe need to be exposed to Type II process skills?

If I followed you through a typical day, what would I see your students doing?

Tell me about how you have differentiated for your students in past situations.

Describe the Type II process skills you have implemented in your regular classroom in the past.

How do you feel about differentiating for students with gifted abilities in an academic area? Why do you feel this way?

What do you believe a ñmodelò classroom would look like? Do you believe this is realistic for teachers to implement? Why or why not?

What resources/materials would be needed to in order to implement this ñmodelò classroom?

What factors do you believe exist in your school that may hinder differentiation?

What type of support do you feel best contributes to your ability to differentiate?

What factors do you believe exist in your school that may hinder Type II process skill development?

What type of support do you feel best contributes to your ability to provide Type II process skill training?

How has your perspective on differentiation changed over time?

What has evoked this change?

What are your goals for differentiation over the next few months?

What are your goals for implementing Type II process skill development?

What initial support do you feel you would need to implement?

Is there anything you would like to tell me that I have not asked?

APPENDIX H

SEMI-STRUCTURED SECOND INTERVIEW GUIDE

Describe your recent implementation of differentiation practices.

How do you feel now about differentiation? What makes you feel this way?

Has your implementation of differentiation practices changed? In what ways?

Describe your experiences during a situation in which you implemented differentiation from planning, to implementation, to final reflection.

What were you feeling during each of these stages?

What factors have affected your ability to differentiate?

Which students do you feel most comfortable differentiating for? Describe specific examples.

Which differentiation strategies do you feel most comfortable implementing? Why do you think this is the case?

Which differentiation strategies do you feel least comfortable implementing? Why do you think this is the case?

How will you continue to implement differentiation practices? What additional professional learning support will you need?

Describe your recent implementation of process skill development.

How do you feel now about implementing process skill development? What makes you feel this way?

Has your implementation of process skill development changed? In what ways?

Describe your experiences during a situation in which you implemented process skill development from planning, to implementation, to final reflection.

What were you feeling during each of these stages?

What factors have affected your ability to implement process skill development?

Which students do you feel most comfortable providing opportunities for process skill development? Describe specific examples.

Which process skills do you feel most comfortable implementing? Why do you think this is the case?

Which process skills do you feel least comfortable implementing? Why do you think this is the case?

How will you continue to implement process skill development? What additional professional learning support will you need?

Is there anything you would like to tell me that I have not asked?

APPENDIX I

SEMI-STRUCTURED FINAL INTERVIEW GUIDE

Describe your recent implementation of differentiation practices since the beginning of April.

How do you feel now about differentiation? What makes you feel this way?

Has your implementation of differentiation practices changed? In what ways?

Describe your experiences during a situation in which you implemented differentiation from planning, to implementation, to final reflection.

What were you feeling during each of these stages?

What factors have affected your ability to differentiate?

Describe your recent implementation of process skill development since the beginning of April.

How do you feel now about implementing process skill development? What makes you feel this way?

Has your implementation of process skill development changed? In what ways?

Describe your experiences during a situation in which you implemented process skill development from planning, to implementation, to final reflection.

What were you feeling during each of these stages?

What factors have affected your ability to implement process skill development?

Do you feel that you will implement process skill development in the future? How will you carry out this plan?

Do you feel that you will plan to differentiate in the future? How will you carry out this plan?

What additional professional learning support will you need?

Which experience do you feel was most meaningful throughout this process?

Do you think your teaching pedagogy has changed over the past semester in relation to differentiation and process skill development?

In what ways?

Why do you think this change occurred?

How do you feel this experience compared to a one hour training on differentiation or process skill development?

Is there anything you would like to tell me that I have not asked?

APPENDIX J

TEACHER JOURNAL PROMPT

Please write approximately one page (double spaced) journal entry each week and discuss one or more of the following questions. Be sure to date each entry:

- Describe the differentiation practices you implemented this week. Discuss all stages of implementation, including planning and creating materials, the lesson itself, and assessment of the lesson.
- How do you feel about the implementation of the differentiation practices in your classroom?
- Describe the process skill development practices you implemented this week. Discuss all stages of implementation, including planning and creating materials, the lesson itself, and assessment of the lesson.
- How do you feel about the implementation of the process skill development in your classroom?
- Take one moment from the week in which you implemented differentiation practices or process skill development, and explore that moment in depth. Consider the following: What did you experience? What did the students experience? What were you thinking? What were you feeling? How did you and the students interact with one another throughout the lesson?
- What challenges did you face this week?
- What successes occurred this week?
- Discuss anything else you wish to explore related to differentiation and process skill development.

APPENDIX K

LINCOLN ELEMENTARY MISSION STATEMENT

Lincoln Elementary School Signature

Lincoln Elementary graduates will be critical thinkers, self-directed learners, and creative problem solvers who excel academically, embrace the value of diversity, and collaborate with others to make a positive difference in their community and thrive in a global society.

Teaching and Learning at Lincoln Elementary School

Our students are surrounded by teachers, parents, and adults from across the community and university who work together to create a life-changing climate of collaboration, caring, and high expectations. In order to impart this signature on our students we are committed to teaching practices that have the following basic characteristics:

- Students frequently collaborate in pairs, and small groups that require them to think and work together to create a product or solve a problem.
- Studentsô understanding of their learning styles and preferences, culture, and interest, both individually and collectively, are the foundation as they work with teachers to identify standards-based learning goals and instructional activities to reach those goals.
- Students are engaged in real-world tasks that require them to gain and use academic, social, or emotional skills and dispositions. Often this will involve community members coming to the school and students reaching out to the community.