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Differentiated Instruction For Responsive Teaching In Elementary Education Student Teachers' Classrooms

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DIFFERENTIATED INSTRUCTION FOR RESPONSIVE
TEACHING IN ELEMENTARY EDUCATION
STUDENT TEACHERS' CLASSROOMS

by

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A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

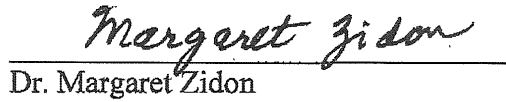
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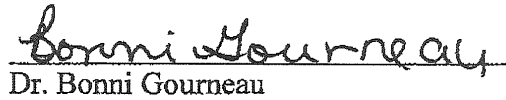
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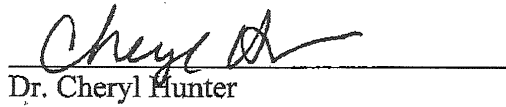
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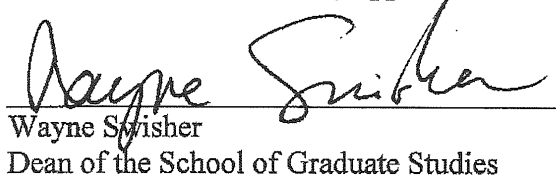

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Laurie Dillon Guy
November 20, 2014

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“I am one, but I am one. I cannot do everything, but I can do something.
The something I ought to do I can do. And by the Grace of God, I will.”
– Edward Everett Hale

“Success is never so interesting as a struggle.”
– Willa Cather

To Dorothy, Joye, Joan, and Mavis
Inspirational Teachers

ABSTRACT

The purpose of this qualitative case study was to explore what differentiated instruction looked like in three student teachers' classrooms. I sought to understand the challenges and successes these student teachers experienced with differentiation, the conditions they were able to control or not control, and how the relationship with the cooperating teacher impacted their capacities to practice differentiation as a method for responsive teaching. Methods included observation, interviews, and collecting student teaching artifacts. Data analyses were completed through Atlas.ti, a computer program that supports qualitative research synthesis.

The theoretical framework underpinning this study was Tharp and Gallimore's neo-Vygotskian learning theory called the Process of Internalization. This theory supported describing how student teachers' experiences differed as they responded to learner variance. Four themes emerged from the analysis: Kaleidoscopic Viewpoints; Getting Focused: Taking Risks to Build Confidence; Collaborative Partnerships: Shifting Patterns, Changing Scenes; and Pathways to Responsive Teaching: A Developmental Process. They lead to two assertions.

The first assertion was "Student teachers' capacity to respond to learner variance was most dependent on the collaborative partnerships between themselves and their cooperating teachers." Viewpoints of differentiated instruction by participants influenced how early they responded to learner variance, the risks they were willing to

take, and the successes they experienced to help build confidence with differentiated instruction.

The second assertion was “Student teachers’ pathways to transform from dependent to independent teachers varied based on what they could control or not control while responding to learner variance with differentiation.” Pathways to successful practice with differentiated instruction happened at different intervals for each student teacher based on collaborative relationships with the cooperating teacher.

Recommendations for teacher education include (1) the development of teacher education programs that provide teachers with the pedagogy and skills to respond to the differences in learning needs; (2) methods to effectively link standards with conceptual models of differentiated instruction as a method for responsive teaching; and (3) extended field experiences where pre-service teachers are placed with expert teachers who are trained in differentiation, practice collaborative teaching, and provide classroom settings with intentional practicum experiences.

CHAPTER I

INTRODUCTION

“Education is not the filling of a pail, but the lighting of a fire.”

– William Butler Yeats

One of the major issues regarding the increased diversity in education is whether educators are adequately meeting the needs of their diverse students (Pliner & Johnson, 2004; Santangelo & Tomlinson, 2012). Wormeli (2007) states that today’s students are more diverse than ever – culturally, emotionally, economically, physically, linguistically, and intellectually (p. 3). This is not a new concern. In 1999, the National Center for Education Statistics (NCES) report revealed,

At the core of educational reforms to raise standards, reshape curricula, and restructure the way schools operate is the call to reconceptualize the practice of teaching. Teachers are being asked to learn new methods of teaching, while at the same time they are facing the greater challenges of rapidly increasing technological changes and greater diversity in the classroom. (Lewis et al., 1999, p. iii)

Several researchers (Darling-Hammond, 1999; King & Watson, 2010; Tomlinson, 2014; VanTassel-Baska et al., 2008) concur that meeting diverse students’ needs requires teachers who are able to show commitment, persistence, consistency, creativity, and

effort. For many educators, these characteristics are an intrinsic part of professional practice.

Darling-Hammond (2006) claims that quality teachers must be increasingly effective in enabling a diverse group of students to learn complex material (p. 300). Teachers must engage in classroom practices where students, teachers, and schools have one focus – to coach and educate each student to become the best educated and most productive person possible (Tomlinson & Allan, 2000). Unfortunately, too many students encounter teachers enmeshed in classrooms where learners are treated as if they were essentially alike with a *one size fits all* mentality rather than acknowledging learners' individual needs (Tomlinson, 1998, 2014; Tomlinson & Imbeau, 2010). Challenges arise when teachers are missing essential pedagogy to know how to uncover and respond to the academic gaps present in the student populations in their classrooms (D. Anderson, 2007; Brimijoin, 2005; Santangelo & Tomlinson, 2012; Tomlinson & Imbeau, 2010). Tomlinson and Allan (2000) add that this isn't just the classroom teacher's problem, but systemic in today's educational settings where many school districts struggle to respond to the varied learning needs of their students.

Today's Schools Require Responsive Teachers

In a nation where states are centered on high standards, public schools across the country are now being held accountable for the education of *every child* and classroom teachers are expected to respond to those individual children's needs (Darling-Hammond, 2006; King & Watson, 2010; Tomlinson & Allan, 2000). While school reform advocates for student achievement outcomes, it *does not* address the profound socioeconomic and educational inequalities that are reflected in many of American schools, nor provide

resources to assist educators with these challenges. In addition, standards-based accountability of the past 20 years has not closed the achievement gap or improved student learning (Darling-Hammond & Berry, 2006; Wolk, 2010). Darling-Hammond (2006) states that today's teachers are confronted with complex problems that require different kinds of knowledge and decision-making, which can greatly impact students' learning outcomes (p. 301). These decisions are multifaceted by the diversity of students and the ways teachers individually and collectively choose to respond to students' academic needs (Hargreaves & Fullan, 2013). Teachers must be attentive to the learning differences or variance in order to know how to respond to learning needs (Tomlinson, 2014).

Learner Variance

Students are and always have been different from each other in a variety of ways. Tomlinson et al. (2003) suggest that today's classrooms feature more variance in student populations, including what they need to be successful and how they like to learn. For example, one classroom may have learners who vary in academic abilities, students whose first language isn't English, learners from diverse cultures, economic backgrounds or both; students of both sexes; learners who are motivated and unmotivated; learners who fit two or three of these categories; learners who are on grade-level, above or below; and students of widely varying interests and preferred modes of learning (pp. 119-120).

Responsive Teachers

Classroom teachers respond to these forms of academic variance according to learner readiness, or entry point relative to particular knowledge, understandings, and skills; interests or a learner's affinity, curiosity, or passion for a particular topic or skill;

and learning profiles or the ways in which a learner likes to learn (Tomlinson & Allan, 2000; Tomlinson, 2014). Literature however, indicates that when teachers are left on their own to address academic variance in the regular classroom, they struggle to prepare and teach different experiences for the range of students' needs (Banks et al., 2005; Tomlinson, 2003, 2014; Tomlinson & Allan, 2000; Tomlinson et al., 2003). Regrettably, the realities of what it takes to teach children in some U.S. schools are overshadowed by the lack of time and resources to create these types of relationships causing inconsistency in how teachers respond to learner differences (Bransford, Darling-Hammond, & LePage, 2005; Darling-Hammond, 2006; Tomlinson & Imbeau, 2010).

Responsive Practice

Most beginning teachers will enter classrooms with at least 25% of the students living in poverty and many of them lack basic food, shelter, and health care; 10% to 20% have identified learning differences; and 15% speak a language other than English as their primary language (Darling-Hammond, 2006, p. 301; Lewis et al., 1999). The struggle to respond to learner variance by building on what students know and what interests them can be more than difficult, and can challenge the abilities of even the most expert teachers (Tomlinson, 2003b). While many teachers acknowledge academic diversity in their classrooms and often affirm the need to address learner variance, their practice tends to be misaligned with those beliefs (Tomlinson et al., 2003).

Responsive teachers create learning environments or classrooms that respond to learner variance. Responsive teachers are intentional with their methods by adjusting curriculum, materials, and support to ensure that each student has equity of access to high-quality learning (Darling-Hammond, 1999). Notably, responsive teaching involves

a daily awareness of learning needs and what impacts how students construct content knowledge, how they process ideas independently and with others, and how they demonstrate competency in learning (Gardner, 1983; Gregory & Chapman, 2013; Kaufeldt, 2005; McTighe, Seif, & Wiggins, 2004; Tomlinson & Imbeau, 2010; Wormeli, 2007). Tomlinson (2014) adds that responsive teaching fosters individual student growth for sustained and transformed learning outcomes.

VanTassel-Baska et al. (2008) state that there is a positive relationship between teachers' confidence to respond to learner variance and how students perform in the classroom. Siwatu, Polydore, and Starker (2009) suggest that this is true for pre-service teachers as well and can impact their success or failure when using research-based pedagogy learned in teacher education programs. With the focus on educational reform in the United States and other countries, learning outcomes hinge on positive teacher change in the use of research-based pedagogy that acknowledges quality teaching and learning (Banks et al., 2005). Responsive teaching requires instructional strategies that are used on a daily basis, with a range of techniques that are innovative and continuously adapted to student needs and situations (Kaufeldt, 2005). These techniques are identified as methods of differentiated instruction.

Differentiated Instruction

Tomlinson (1999) defines differentiated instruction as a way of thinking about teaching and learning that advocates beginning where individuals are rather than with a prescribed plan of action, which ignores student readiness, interest, and learning profile (p. 18). Differentiated instruction is an educational reform focused on classroom instruction that is responsive to academic variance in the classroom. It seeks to maximize

individual student growth where teachers respond to learners' needs to help them progress in the learning environment (Kaufeldt, 2005; Santangelo & Tomlinson, 2012; Tomlinson et al., 2003; Tomlinson & Allan, 2000).

Tomlinson (2014), a central figure in the differentiated instruction literature, suggests teachers follow key principles of a differentiated classroom to avoid confusion about how to use differentiated instruction to respond to learning needs. Table 1 presents her key principles for thinking about and planning for effectively differentiated classrooms. According to Tomlinson, these principles can be used to guide classroom teachers in their efforts to respond to learning needs by recommending positive learning environments, quality curriculum, formative assessment, strategic use of assessment data to teach to learner variance, and flexible learning environments (individual, group, and whole classroom). Tomlinson (2014) asserts that each principle and the combination of principles used by teachers with intentionality anchors differentiated instruction to student learning.

Using principles 1, 2, and 5 (Table 1), responsive teachers use instructional methods that effectively teach mastery of content knowledge *and* use pedagogical skills because student differences are expected, appreciated, and studied as a basis for instructional planning. They also provide a wide variety of learning opportunities and arrangements (Tomlinson & Allan, 2000). Using principles 3 and 4 (Table 1), responsive teachers use formative assessment data to differentiate for students' intellectual and academic readiness to particular ideas and skills, as well as their interests and preference for learning. Using principles 3, 4, and 5 (Table 1), teachers can develop highly nuanced

Table 1. Key Principles of Differentiated Instruction.

Key Principles of a Differentiated Classroom
1. An invitational learning environment is pivotal in student achievement.
2. Quality curriculum provides the foundation for powerful differentiation.
3. Formative assessment informs teaching and learning.
4. Instruction is based on formative assessment information and responds to readiness, interest, and learning profile needs.
5. Teacher leadership and flexible classroom routines prepare students to understand, contribute to, and succeed in a differentiated environment.

Note. Adapted from Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners*. Alexandria, VA: ASCD.

teaching methods to scaffold or support learner readiness while engaging students in explorations that support the different ways in which they prefer to learn (Gardner, 2006; Sternberg & Zhang, 2008).

When a teacher cannot create tasks that engage students at their developmental level, the result is a chaotic classroom environment where little learning can go on, and little success is achieved (Horowitz et al., 2005).

Teacher Education

Tomlinson et al. (2003) suggest that teacher education programs too often fall short of preparing pre-service teachers for the inevitability of academically diverse classrooms. Although teacher education programs use standards to set professional expectations for new teachers and to help them develop in their understanding of

responsive teaching and learning, experiences with differentiation are rare. Interestingly, the Interstate New Teacher Assessment and Support Consortium (InTASC) standards address student differences at multiple levels, from how to assess and design instruction for appropriate stages of learner development to adjusting instruction to differentiate for those learning needs (Tomlinson & Imbeau, 2010). But, teacher education coursework in differentiated instruction is sporadic, and courses are isolated and open to interpretation (Tomlinson et al., 2003).

Some teacher education programs see differentiated instruction as another way to accommodate or modify for learners' needs, and although these words are used interchangeably, differentiation is not isolated as an accommodation. Accommodations are intended to reduce or eliminate the effects of a student's disability and are part of responsive teaching for *some students*. Differentiation is the process of teaching in a way to meet the needs of *all students* with differing abilities (Kaufeldt, 2005; Santangelo & Tomlinson, 2012; Tomlinson, 2014; Tomlinson et al., 2003; Tomlinson & Allan, 2000). Viewing differentiation inconsistently causes confusion and misunderstandings for pre-service teachers' pedagogical development.

Experiences with differentiation for pre-service teachers in teacher preparation classes vary. Pre-service teachers are taught to be effective teachers for all students but what that means is vague and abstract. Many novice teachers come from learning experiences that do not reflect differentiation as a common method of instruction; they do not even know how it feels to be a learner in a differentiated classroom, let alone teach in one (Dee, 2010; Tomlinson & Imbeau, 2010). Tomlinson (1999) shared that “[pre-service teachers have] ... few instructional strategies with which they ... [feel]

comfortable. Thus, they ... [have] a shallow well of options for addressing students' diverse needs" (p. 115). To complicate this further, teacher education courses tend to be subject oriented or discipline specific, which does not reflect the integrated learning in today's elementary classrooms. For example, often methods coursework is divided by subject area with science methods and math methods as separate courses. Methods for effective teaching are isolated subject-by-subject, and level-by-level. Pre-service teachers require deeper substantial knowledge of why differentiated instruction is important in those methods courses prior to entering their future classrooms.

Student Teaching

Pre-service teachers begin student teaching practicum experiences in classrooms that are more diverse than ever, but are ill equipped to deal with the wide range of student needs (Schlechty, 1997; Tomlinson et al., 2003). Darling-Hammond (2006) suggests teacher education programs design methods that help teacher candidates to understand the wide variance of learning needs and social and cultural contexts, to "be able to enact these understandings in complex classrooms serving increasingly diverse students" (p. 302).

Literature clearly defines what student teachers need to be successful in meeting diverse learners' academic needs during the student teaching experience. When student teachers begin their student teaching experience, differentiated instruction principles and practices are a part of the daily routine of responsive instruction, and differentiation is considered a *professional responsibility* (Tomlinson, 1999, 2014). Student teachers are immersed in classrooms where student learners are the center of teaching and learning. The student teachers are nurtured and mentored in differentiation through

partnership or co-teaching with cooperating teachers where they learn to nuance for learners' academic needs (Tomlinson, 1999; Tomlinson & Imbeau, 2010).

Literature indicates that studies in this field are rare. It seems clear that further investigation needs to be conducted on the qualitative aspects of differentiated instruction during the student teaching experience. I see the need for a case study that seeks to find out what differentiated instruction looks like in student teachers' classrooms and how student teachers describe this as a method for responsive teaching to academic variance. I want to understand the successes and challenges these student teachers experience with the differentiation process, what conditions they can or cannot control with differentiated instruction, and how their relationship with the cooperating teacher impacts the student teachers' description of differentiated instruction as a method for meeting elementary students' diverse learning needs.

For this to occur, this chapter provides the need for the study, the conceptual model that frames an approach to differentiating instruction for learner variance, a theoretical framework that supports the rationale and purpose for this research, the research questions, my background in differentiation instruction, and the assumptions and delimitations of the study along with the possible significant contribution to the field of education.

Need for the Study

Gaps in teacher education literature suggest that student teachers have limited experience in differentiated instruction and require continuous support throughout their student teaching practicum as they try out ways to differentiate their teaching in a classroom environment (Moon, Callahan, & Tomlinson, 1999; Santamaria & Thousand,

2004; Santangelo & Tomlinson, 2012; Valencia, Martin, Place, & Grossman, 2009). Much of the literature in the field of differentiation is focused towards professional teachers rather than student teachers. Journal articles, books, and other literature refer to novice teachers in their recommendations or final statements rather than the actual focus for topic. Literature addresses the relationship between the student teacher and cooperating teacher in great depth (Banks et al., 2005; Casey & Gable, 2011; Darling-Hammond & Berry, 2006; Hammerness et al., 2005; Tomlinson & Imbeau, 2010) but not specifically about cooperating teachers' and student teachers' partnerships using differentiation for responsive teaching to academic diversity. Further, student teachers need to become expert teachers who can diagnose, plan, and teach in a reciprocal relationship to their students' learning.

For these reasons, I see the need for a study that describes what it means to differentiate instruction in student teachers' classrooms as a method to meet the needs of learner variance. In using the term learner variance, I am referring to children who are the same age, yet differ in their readiness, in their interests, their styles of learning, their experiences, and their life circumstances (Gardner, 1983; Tomlinson, 1999, 2014; Vygotsky, 1978).

Because this proposed research is exploratory and qualitative in nature, with little precedence, there is potential to chart new ground for understanding student teachers and their implementation of differentiated instruction for responsive teaching. This study will illuminate how student teachers conceptually understand, process, and implement differentiated instruction as it impacts their understanding of meeting the academic needs of learners in today's classrooms.

Conceptual Model of Differentiated Instruction

Differentiated instruction begins with a clear understanding that learners enter school with many commonalities, but they also bring the essential differences that make them individuals (Tomlinson, 2014). Tomlinson and Allan (2000) developed a conceptual model for differentiated instruction that guides teachers' practice for responsive teaching, including general principles of differentiation, what teachers can differentiate, and how teachers respond to academic variance. Literature shares that, on a daily basis, teachers must be aware of the many ways in which student learning can unfold in the context of development, academic differences, language and cultural influences, individual temperaments, interests, and approaches to learning (Bransford et al., 2005; Heacox, 2002; Tomlinson, 1999, 2003a, 2014). Tomlinson (2014) adds that with these diverse needs, some teachers feel isolated and lonely when trying to create learning experiences that respond to academic variance.

Theoretical Framework for This Study

The theory that frames this study comes from Vygotsky's (1978) Process of Internalization theory.

Vygotsky's sociocultural theory of learning (1978) proposes that higher levels of cognitive functioning develop in learners who are immersed in active, social constructivist learning environments, where a learner's proximity to the desired educational outcome is based on background knowledge, past experiences, opportunities for learning, and skill level. Learning conditions begin on an "interpersonal plane" through highly social and influential activities within which learners participate, then moves to the "intrapersonal plane," as concepts are

internalized by the individual learner (Lake, 2012, p. 20). Tharp and Gallimore (1988) referred to internalization as “the process in which this plane is *formed* ... where transformations in structure and function occur” (p. 29).

As a learner-centered approach, differentiated instruction takes into consideration the learning environment, and the multiple aspects of how teachers respond to a learner’s needs, including student readiness or zone of proximal development (Tomlinson, 2000). Tharp and Gallimore (1988) suggested that the learner is not merely a “passive recipient of adult guidance” (p. 29), but actively engaged with assisted performance. Assisted performance is what a learner can do with help, with the support of the environment, of others, and individually as noted in Figure 1. Further, the

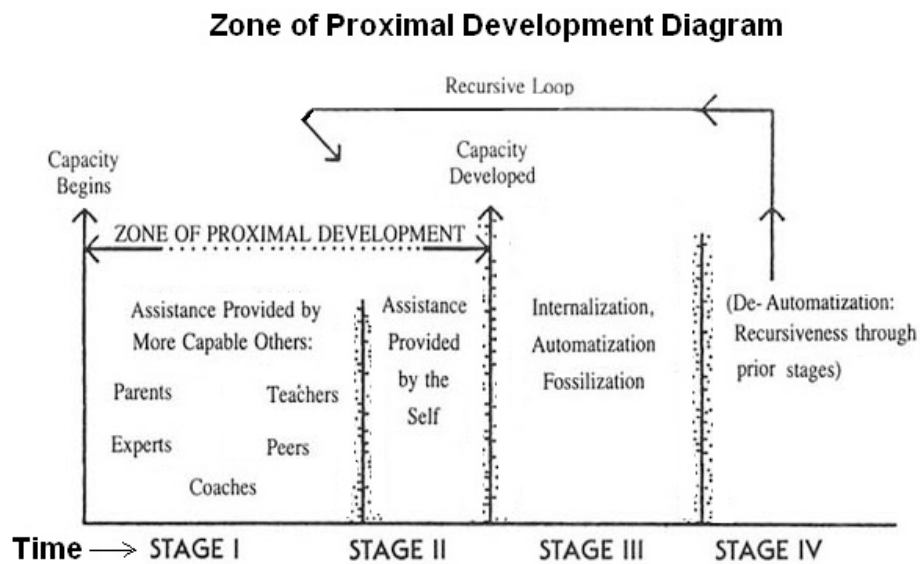


Figure 1. A diagram of the four stages of Vygotsky’s ZPD or process of internalization. (Exacted from Tharp & Gallimore, 1988)

contrast between assisted performance and unassisted performance identifies the fundamental connection of development and learning that is described as the zone of proximal development (ZPD) (Tharp & Gallimore, 1988; Vygotsky, 1978).

Dunphy and Dunphy (2003) describe the four stages in this manner:

- Stage One: Performance is assisted by more capable others. The amount of outside regulation depends upon the nature of the task and the characteristics of the learner.
- Stage Two: Performance is assisted by itself. The learner carries out a task without assistance from others. However, this does not mean that the performance is full developed or automatized.
- Stage Three: Performance is developed, and automatized. Once all evidence of self-regulation has vanished, the learner has emerged from the ... ZPD into the developmental stage for the task.
- Stage Four: De-automatization of performance leads to recursion back through the ZPD. The lifelong learning by an individual is made up of these same regulated ZPD sequences, from other-assistance to self-assistance, recurring over and over again for the development of new capacities.

(pp. 49-50)

In a differentiated classroom, the learner is always kept in his zone of proximal development, a position where with guidance the student is capable of *learning* new material (Lake, 2012; Tomlinson & Allan, 2000). Vygotsky (1978) suggests that the teacher's job is to assess the student's understanding to locate the point in the zone of proximal development (ZPD) where the learner needs the assistance. Once this is done, *teaching* occurs through modeling or demonstrating, by asking questions or coaching, by creating a group task in which peer assistance can occur, or by providing readings or hands-on materials that support the next stage of learning (Bransford et al., 2005). To

ensure that learners remain within their challenging range, teachers *scaffold* novel concepts onto preexisting knowledge obtained by each learner. Tomlinson (2003a) explains that “placing work a bit out of the reach of a learner and then ensuring that the learner extends his reach and succeeds at the new level is at the heart of high-quality teaching” (pp. 64-65). Further, knowing what has been learned or mastered and what has yet to be learned or mastered are key to effective scaffolding (Hammerness et al., 2005; Tomlinson, 1999, 2003a, 2014).

Scaffolding is equally beneficial for the development of the student teacher as she begins her practicum experience, and the cooperating teacher is the capable other who scaffolds and assists the student teacher’s process of internalization from novice to capable teachers. Valencia et al. (2009) discovered that without the assisted support of a cooperating teacher, many student teachers get lost in the shuffle and end up negotiating how to manage classrooms, stay on the given instructional/curriculum track, receive a good evaluation, and get along – “all of which conspired against learning to teach as a practice of inquiry and experimentation” (p. 319). Santamaria and Thousand (2004) state that the success of student teachers’ abilities to respond to academic variance requires cooperating teachers who assist and model differentiated instruction for responsive teaching. Valencia et al. (2009) add that student teachers require collaboration and constructive feedback from cooperating teachers to help them develop conceptual and practical pedagogical tools for teaching academic diversity in future classrooms. Within this theoretical framework, I see the need for a case study that describes what it looks like to differentiate instruction in student teachers’ classrooms as a method for responsive teaching to academic variance.

Purpose of the Study

The purpose of this study is to explore what differentiated instruction looks like in student teachers' classrooms and examine how they use differentiated instruction as a method for meeting elementary students' academic learning needs. I seek to understand the successes and challenges these student teachers experience with the differentiation process, and what conditions they can or cannot control about differentiated instruction when they respond to learner variance. Further, I want to describe how the relationship of the cooperating teacher impacts the student teacher's practice of differentiation for responsive teaching. The literature review in this study illustrates the myriad of complex factors that may affect student teachers' pedagogical and conceptual understandings of differentiated instruction techniques.

Research Questions

The research questions guiding this case study are:

1. How do student and cooperating teachers describe differentiated instruction as a method for meeting elementary students' diverse learning needs?
2. What challenges and successes do these student teachers experience with implementing differentiated instruction?
3. What can the student teachers control or not control about differentiated instruction?
4. How does the relationship with the cooperating classroom teacher impact how student teachers differentiate instruction?

Assumptions

My study is based on these assumptions.

- Differentiated instruction is good; it benefits students.
- I assumed my presence would impact the study because the student teachers and cooperating teachers knew the topic of the study and that at some level, I would expect to see differentiated instruction in practice in the classroom. While I would apply methods to protect against excessive impact (e.g., advocacy of differentiated instruction), the student teachers knew they were selected as participants due to their knowledge of differentiated instruction. Thus, I had to assume interviews and observations would heighten participants' attention to whether or not they were using differentiated instruction practices in their teaching.
- Despite my impact on the study, I assumed the student and cooperating teachers would accommodate my role and perform in authentic ways as teachers during observations. For example, I assumed student teachers would teach using differentiated methods on all days of their teaching, not just days I was scheduled to observe.
- Despite my impact on the study, student and cooperating teachers would accommodate my role and perform in authentic ways as teachers.
- I assumed student and cooperating teachers would answer interview questions honestly despite my history being their teacher on the topic of differentiated instruction.

Delimitations

The delimitations for this study are defined by boundaries of this case study. My first delimitation is the choice of my topic. There are many areas that I can research; however, my intent is to explore what differentiated instruction looks like in student teachers' classrooms and examine how they use differentiated instruction as a method for meeting elementary students' academic learning needs. A second delimitation is the number of participants in this study. The design of my study limits the number of participants to three student teachers and three cooperating teachers in three elementary schools during the student teachers' practicum experience in the Upper Plains area of the United States. A third delimiting factor is the type of research questions I have designed to guide this case study. These research questions focus on student teachers' and cooperating teachers' descriptions of differentiated instruction and are not to be generalized for larger teaching populations. Finally, the three student teachers selected for the study have some prior knowledge with differentiation based on their university coursework. They have been selected to participate in the study while other student teachers without this background were excluded. These factors in my study set a boundary on what my findings can ascertain.

Contextual Factor

Differentiated instruction is an important part of my continued development as a practicing teacher and is a teaching method that I used in my university courses as an instructor. The three student teachers selected for this study were students in one of my differentiated instruction courses and have prior knowledge that would enable them to be the strongest candidates for this study. In the courses I have taught on differentiated

instruction, I use instructional methods such as Tomlinson and Allan's (2000) conceptual model, and pre-service teachers practice doing differentiation through active learning experiences and in written lesson plans.

Given this context, it has been essential that as the participants' former instructor for a course on differentiated instruction, I bracketed my expectations for student teachers' ability to implement differentiated instructional practices. By this, I mean that while I expected the student teachers to possess a basic set of knowledge about differentiation, I withheld expectations to observe specific practices or instructional behaviors. Instead, while observing and interviewing, I created a context of openness to behaviors that were performed rather than what I expected or "wanted." I "picked up on" what the student teachers were doing rather than introduced or suggested differentiated practice.

Additionally, because of this context, I was vigilant about being aware that the topic of my study would impact student teachers' experience in their classroom. The participants were aware of the topic of the study. Given this and that participants knew I expected, on some level, to see differentiation in practice, I knew this study had an ongoing impact on the student teachers' experience.

Definitions

Constructivism: the way a learner learns when he/she is actively engaged in individual mental construction, whereby the student is able to match new ideas against given information and establish meaningful connections (Dewey, 1938).

Cooperating Teachers: experienced and practicing professionals in the field who are eligible to work with and guide the student teacher (Tomlinson & Imbeau, 2010).

Differentiated Instruction: an instructional mindset of responding to the varied academic needs of learners (i.e., readiness, interest, and learning preference) through differentiation of content, process, products, or the learning environment, along with the use of ongoing assessment and flexible grouping (Tomlinson, 2014).

Instructional Strategy: the teacher's mode of presentation, such as the range of instructional and management differentiation techniques that includes consistent and vigorous adjustments to curriculum and instruction in response to student readiness, interest, and learning profile (Tomlinson & Moon, 2013).

Interests: an area of learner variance that is differentiated and refers to a topic or skill that taps into a student's talents, experiences, dreams, or another area of current passion (Tomlinson & Moon, 2013).

Learning Preference: an area of learner variance that is differentiated that includes a preferred mode of learning, exploring, or expressing content that can be affected by a number of factors, including learning style, intelligence preference, gender, and culture (Tomlinson & Moon, 2013).

Learner Variance: students with varied academic abilities, interests, learning profiles and preferences, as well as different genders, cultures, and socioeconomic backgrounds (Tomlinson & Imbeau, 2010).

Process of Internalization: the process by which the social becomes the psychological is called internalization – where a learner's "plane of consciousness" is formed in structures that are transmitted to the individual by others in speech, social interactions, and the processes of cooperative activity (Tharp & Gallimore, 1988; Vygotsky, 1978).

Readiness: an area of learner variance that is differentiated based on a student's entry point relative to a particular understanding or skill (Tomlinson, 2014).

Responsive Teaching: teachers who respond to learning needs by differentiating content, process, and product according to students' readiness, interests, and learning profile (Tomlinson & Allan, 2000).

Scaffolding: teachers' response to students' learning needs by introducing new material in a specific order with enough challenge to move learning up during the differentiated instruction process (Tomlinson, 2014).

Student Teachers: undergraduate students who are ready to go into a teaching practicum having been accepted into the teaching program and completed all coursework towards a degree in education.

CHAPTER II

REVIEW OF LITERATURE

The purpose of the current study is to explore what differentiated instruction looks like in student teaching classrooms and examine how student teachers describe differentiation as a method for meeting elementary students' diverse learning needs. I am interested in the successes and challenges these student teachers experience with the differentiation process and what conditions they can or cannot control about differentiation in the classroom. In addition, I want to describe how the relationship of the cooperating classroom teacher impacts the student teachers' description of differentiated instruction as a method for meeting elementary students' diverse learning needs.

Chapter II examines the literature related to the research questions in this study. This chapter provides a definition for differentiated instruction including historical context and what differentiation is and is not, so that describing how student teachers practice differentiated instruction as a method for responsive teaching can be understood. It includes the conceptual model for this study that frames how teachers practice responsive teaching using differentiated instruction. Next, a review of educational theories that are underpinnings for differentiation and teachers' response to learners' needs, including readiness, interest, and learning profile, will follow. Finally, a review of

the findings in research linking differentiated instruction with student teacher preparation will provide a foundation for why this research is critical in teacher education.

The studies that I have explored in teacher education thus far are qualitative. Both quantitative and qualitative research looking at the idea of differentiation in student teacher preparation programs is rare. I have read numerous books, journal articles, and dissertations without finding a large amount of data addressing my research topic. My literature review strategies have included searching numerous databases such as Academic Search Premier, ERIC (EBSCO), JSTOR, ProQuest, and Sage Journals Online.

Differentiated Instruction Defined

To understand the rationale for differentiated instruction, it is important to consider its definition by experts in the field. Tomlinson (2014) defines differentiation or differentiated instruction as responsive teaching where “teachers work daily to find ways to reach out to individual learners at their varied points of readiness, interest, and preferred approaches to learning” (p. 5). Gregory and Chapman (2013) add that teachers respond to learners’ academic needs, interests, and learning preferences by differentiating content, learning process, and learning products. Tomlinson and Allan (2000) claim that “differentiation is simply attending to the learning needs of a particular student or small group of students rather than the more typical pattern of teaching the class as though all individuals in it were basically alike” (p. 4).

Historical Context

Differentiated instruction is not a new concept. During the 1980s, a number of scholars’ beliefs regarding differentiation were shaped by *organic* techniques designed to help teachers meet the academic needs of gifted students in the regular classroom

(Heacox, 2002; Moon et al., 1999; Tomlinson et al., 2003). The majority of these 1980s students were highly gifted, academically superior to their peers, and students for whom regular curricular programming was inferior. Moon et al. (1999) shared that as educators saw classrooms become more heterogeneous with greater learning needs, teachers assumed more of the responsibilities to respond to those learning differences. Differentiation allowed teachers to construct different avenues for learners to acquire content information while modifying teaching materials regardless of ability differences (Moon et al., 1999; Tomlinson & Imbeau, 2010).

Early literature claims that, in addition to studies on inclusionary practices, influential works informing differentiated instruction include scholarship on multiple intelligence theories, brain research, and in some respects bilingual and multicultural education (Banks et al., 2005, Gardner, 1983; Gay, 2002; Santamaria, 2009; Sternberg & Zhang, 2008; VanTassel-Baska et al., 2008). Tomlinson and Allan (2000) recommended “bringing those theories and practices together to help teachers address their classroom activity in a manner that is more holistic than fragmented” (p. 16).

Contemporary Viewpoints

Current literature defines differentiated instruction as a principle-guided method to approach teaching and learning in today’s 21st-century classrooms where educators integrate what they know about constructivist learning theory, learning styles, and brain development with empirical research on learner readiness, interest, and intelligence preference toward students’ motivation, engagement, and academic growth (Heacox, 2002; Tomlinson, 2003a; Tomlinson & Imbeau, 2010). Tomlinson and Allan (2000) add that the goal of a differentiated classroom is maximum student growth and

individual success. Tomlinson (2001) indicates that in order for teachers to successfully implement differentiated instruction, they must recognize what differentiated instruction is and is not (Table 2). She suggests that some educators dismiss differentiation as merely regrouping students or making on-the-spot idiosyncratic changes to a worksheet. She notes that, at times, differentiated instruction is viewed as simply an updated term for “individualized instruction” which was popular in the 1970s. Tomlinson, however, characterizes differentiation as systematic rather than idiosyncratic. Effective differentiated pedagogy is organic to the learners’ needs rather than packets of curriculum that often promoted nonsocial learning situations (Tomlinson, 2014).

Table 2. What Differentiation Is and What It Is Not.

Differentiation is...	Differentiation is not...
Organic	The “individualized instruction” of the 1970s
More qualitative than quantitative	A “one size fits all” mindset
Student centered and rooted in assessment	Just another way to provide homogeneous grouping
Proactive with multiple approaches to content, process, and product	Tailoring the “same suit of clothes”
A blend of whole-class, group, and individual instruction	Chaotic

Note. Adapted from Tomlinson, C. A. (2001). *How to differentiate instruction in mixed-ability classrooms*. Alexandria, VA: ASCD.

Differentiated Instruction Conceptual Model

Tomlinson et al. (2003) state, “As a transformation in ... schools evolves, effective teachers in contemporary classrooms will have to learn to develop classroom routines that attend to, rather than ignore, learner variance in readiness, interest, and learning profile” (p. 121). Hargreaves and Fullan (2013) suggest that beyond commitment to the profession, responsive teachers must be capable in their role of management of kids and the practice of differentiation (p. 38) where *one size doesn't fit all* (Gregory & Chapman, 2013). In this study, differentiated instruction is a response to learner variance in today's classrooms and evolves from a conceptual model (Figure 2) designed by Tomlinson and Allan (2000).

Tomlinson and Allan (2000) advocate that differentiated instruction begins with an attentive teacher. Their model (Figure 2) provides teachers with a differentiation framework to guide their practice for responsive teaching, including general principles of differentiation (respectful tasks, flexible grouping, and ongoing assessment), what teachers can differentiate (content, process, product), how they respond to academic variance (readiness, interests, and learning preference). The model includes broad examples of instructional and management strategies that represent possible ways to differentiate. It does not include a complete list nor provide intentional methods for specific content areas.

The following literature will address each area of the conceptual model and identify how teachers use differentiation for responsive teaching.

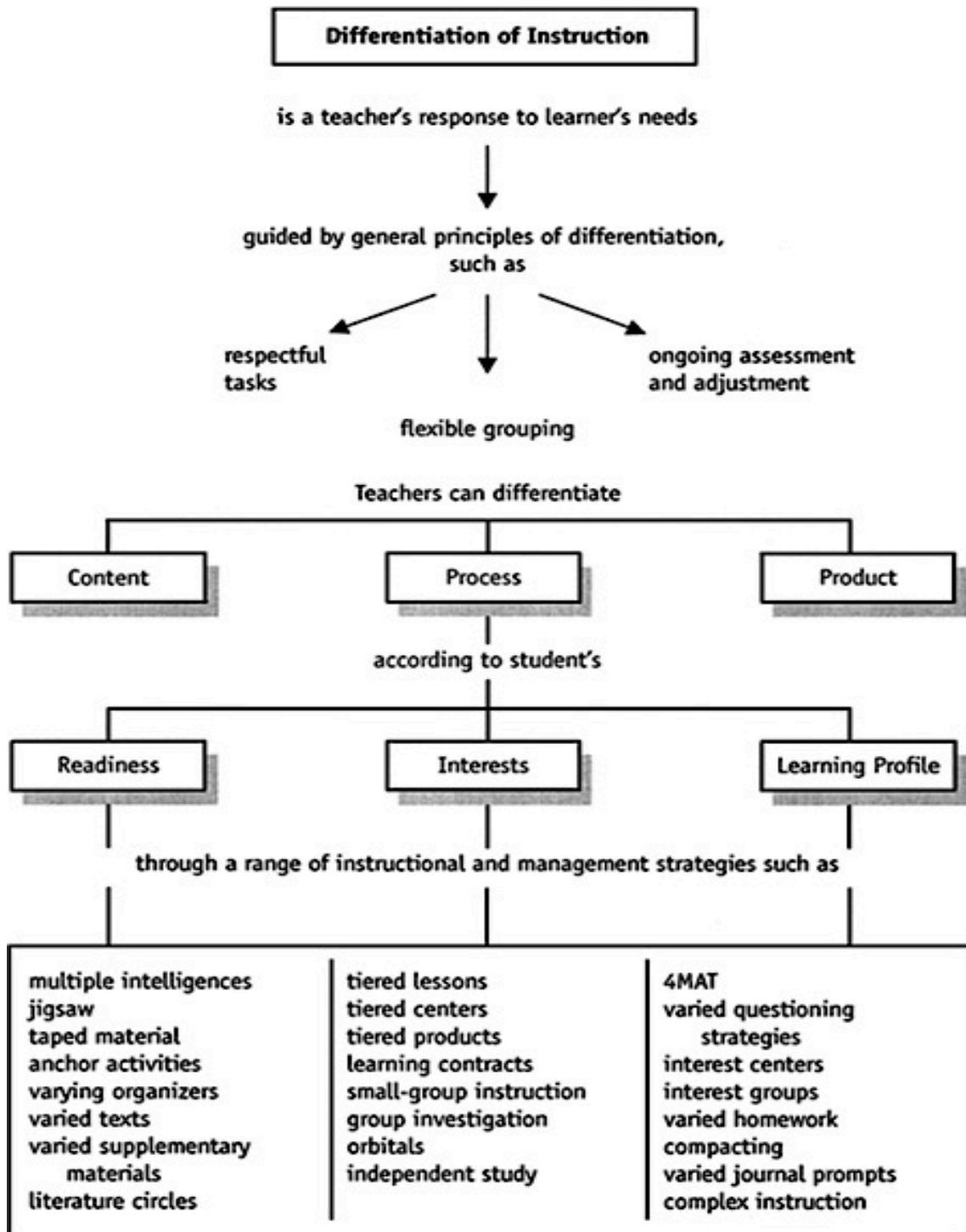


Figure 2. A conceptual model for thinking about and responding to learner variance in differentiated classrooms. (Exacted from Tomlinson & Allan, 2000)

Teachers respond to learners' needs. Throughout the literature of current school reform, teachers are being asked to adjust curriculum, materials, and support to ensure that each student has equity of access to high-quality learning while being the primary individual responsible for attending to the academic needs (Darling-Hammond, 1999, 2006; Tomlinson, 2014; Tomlinson et al., 2003; Tomlinson & Allan, 2000).

Researchers argue that some teachers do very little to adjust their instruction in ways that effectively reach out to academically diverse needs indicating that

what is “broken” in classrooms ... is ... systemic ... [and] unless we understand and address the systemic issues, it appears unlikely that *any* students with learning needs shaped by readiness, interest, or learning profile will be well served on a consistent basis in today's schools. (Tomlinson et al., 2003, p. 125)

A transformation in teaching and learning is imperative in today's classrooms and the focus of school change must be classroom practice (Darling-Hammond, 2006; Tomlinson & Allan, 2000). To foster classrooms where excellent teaching targets learner variance, Tomlinson (2014) recommends beginning with a shared sense of direction or systemic view of teaching and learning where stakeholders share a vision for responsive teaching using differentiation principles (Figure 2) for guidance.

Teachers follow guiding principles for differentiation. In the conceptual model, Tomlinson and Allan (2000) identify three guiding principles to support teachers' practice of differentiation as they respond to learner variance in the classroom. To better align with the spirit of the key principles of differentiated instruction presented in Chapter I (Table 1), I provide five guiding principles: respectful tasks, flexible grouping,

ongoing assessment, adjustment of learning opportunities, and teacher-student collaboration:

1. Respectful tasks: Every learner must have tasks that are equally interesting and equally engaging, and which provide equal access to essential understandings and skills.
2. Flexible grouping: Through clear learning goals, teachers and students understand time, materials, modes of teaching, ways of grouping students, ways of assessing learning, and other classroom elements are tools that can be used in a variety of ways to promote individual and whole-classroom success.
3. Effective and ongoing assessment: Student differences are expected, appreciated, and studied as a basis for instructional planning.
4. Effective adjustment of learning opportunities: In a flexibly grouped classroom, a teacher plans student-working arrangements that vary widely and purposefully over a relatively short period of time. Such classrooms utilize whole-class, small-group, and individual explorations.
5. Students and teachers as collaborators in learning: While the teacher is clearly a professional who diagnoses and prescribes for learning needs, facilitates learning, and crafts effective curriculum, students in differentiated classrooms are critical partners in classroom success (Tomlinson & Allan, 2000, pp. 5-7).

Literature suggests that teachers use these guidelines as boundaries when they begin considering how they intend to differentiate for learner variance in their

classrooms. Tomlinson (2014) and Tomlinson and Allan (2000) both identify assessment as being a key principle (Table 1) where formative assessment informs teaching and learning, and a guiding principle, where effective and ongoing assessment focuses on responding to student differences. For example, prior to beginning a unit in social studies on the Civil Rights movement, the classroom teacher can pre-assess her students to determine their prior knowledge and understandings of Civil Rights activists' roles in advancing the ideas of liberty, equality, and opportunity for African Americans. The teacher can use the assessment data to construct different avenues for learning based on what students know, understand, and are able to do (Heacox, 2002; Kaufeldt, 2005; Tomlinson & Allan, 2000; Wormeli, 2007).

The conceptual model (Figure 2) indicates teachers have options for differentiation based on the guiding principles, including respectful tasks, flexible grouping, and ongoing assessment and adjustment of instruction. In the model, adjustments of instruction require teachers to understand what experiences might engage the natural curiosity of students while guiding them in learning conditions that motivate them to learn material at a deeper level (Tomlinson, 2003b; Tomlinson & Allan, 2000; Wormeli, 2007). Tomlinson and Allan (2000) add that teachers know how to adjust their instruction based on an awareness of the students' needs and interests. For example, during the Civil Rights lesson, the classroom teacher can place students in flexible groups where they are able to build essential understandings about six important Civil Rights events from 1955 to 1965 using primary source images. The learners are engaged in inquiry and meaningful collaboration while discovering what happened during the Montgomery Bus Boycott. Learning is coherent and organized,

and students identify what they think is interesting and important based on their own curiosity about the events that occurred.

Differentiation becomes the core of classroom practice where teachers who create learning communities that respect academic variance (Gregory & Chapman, 2013; Tomlinson & Imbeau, 2010) engage learners in active, student-centered, inquiry-based experiences while modifying the curriculum-related elements of content, process, product, and affect in accordance to those individual needs (Tomlinson & Allan, 2000; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006). The conceptual model (Figure 2) indicates that teachers can choose how they differentiate curriculum and instruction. They can differentiate the content, the learning process, or the learning outcome or product.

Teachers differentiate content, process, and product to respond to learners' academic needs. The next six segments identify the different methods for differentiation when responding to learner variance. Tomlinson and Allan (2000) recommend differentiating content, process, and product according to learners' readiness, interests, and learning profile.

Teachers differentiate content. Content refers to what students need to learn. This requires teaching major concepts, principles, and skills to all learners (Tomlinson & Allan, 2000; Tomlinson & McTighe, 2006). Teachers first decide the most important content knowledge that students need to know then adjust or differentiate the degree of complexity so that all students learn the same concepts but through different avenues (Tomlinson & McTighe, 2006). For example, all students are able to learn content about the American Civil Rights movement when the teacher differentiates the content to

accommodate varied reading levels. Pre-assessments allow the teacher to break down assignments and activities into smaller, more manageable parts, while providing more structured directions for each part (Tomlinson & Allan, 2000). Another example of content differentiation includes providing learners with different tools and sources to build background knowledge (i.e., books on the Civil Rights movement, technology research sites, primary documents or artifacts, interviews). Adjusting the degree of complexity within the content allows students to learn the same concepts but in different ways (Tomlinson & Imbeau, 2010).

Teachers differentiate process. Process refers to ways in which the content is taught and includes the experiences that help students understand and eventually gain ownership of the concepts and skills. Process is the teaching approach or method that allows all students to be successful as learners in the classroom. Tomlinson and Allan (2000) suggest using the word *activity* to define process. One example of differentiating for process includes teachers setting up stations about the Civil Rights movement in their classrooms, where students with different academic abilities work simultaneously on varied tasks while building their conceptual understandings. This is done through tiered activities, which allows learners to work on the same concepts but with varying degrees of complexity, abstractness, and open-endedness. With this in mind, Tomlinson (1999) recommends using “flexible pacing” to allow for differences in students’ ability as they work to master the key concepts (p. 13).

Tomlinson and Imbeau (2010) suggest that process allows students choice in their learning. For example, classroom teachers can provide learners with choice boards based on multiple intelligences and students select one of several assignments about the

American Civil Rights movement based on their intellectual strengths. Students who need independent assignments can collaborate with the teacher to create personal agendas that are built on student interest where support is provided. Learning is engaging and respectful.

Teachers differentiate product. The product is how students demonstrate their learning of the content. Products allow students to share what they have come to know, understand, and are able to do after an extended period of learning. Tomlinson (2001) suggests allowing students to create different products based on their own readiness levels, interest, and learning preferences. Product is of great importance because varied demonstrations of learning allow the teacher to determine the students who have mastered the material and those who may need more time and continued instruction (Tomlinson, 2001, 2014; Tomlinson & Imbeau, 2010; Wormeli, 2007).

A product can be, for example, a portfolio of student work. Students can share their perspectives regarding the Civil Rights movement by writing a traditional research paper or constructing a debate regarding a controversial issue. Students might work on a problem-based learning (PBL) scenario or create a game centered on significant historical persons. Learners could also examine real-world problems regarding the Civil Rights in present-day society. Tomlinson and Allan (2000) indicate that a good product causes students to rethink what they have learned, apply what they can do, extend their understandings and skills, and become involved in both critical and creative thinking. Most importantly, students do authentic tasks that are purposeful and allow them to transfer or use what they know to new situations (King & Watson, 2010; Tomlinson & McTighe, 2006).

Literature suggests that teachers' clarity in creating understanding-based teaching through content, process, and product include many implications for differentiation (McTighe et al., 2004; Tomlinson & McTighe 2006). King and Watson (2010) ascertain that accomplished teachers who have a strong curricular vision grounded in knowledge of subject matter and demonstrate a level of confidence in knowing student diversity are more successful in connecting students with subject matter (p. 179). Tomlinson and Imbeau (2010) suggest that teachers who want students to develop stronger content knowledge, process skills, and deeper understandings provide students with differentiated products to respond to their learners' interest (choice) through tiered lessons as shown in Table 3.

For example, classroom teachers can differentiate for readiness by providing spelling lists for students that are tiered for their academic proficiency level. The teachers could then place students in interest centers where they process as a group with their spelling words to create or write a product within their learning profile-intelligence area (i.e., poem, musical melody, skit, or graphic design). According to Tomlinson and Allan (2000), knowing individual learners' academic needs means a teacher is responsive and sensitive to every child prior, during, and beyond the differentiated experience. They explain that to differentiate content, process, and product according to students' readiness, interests, and learning profiles, teachers need to know what each of those mean as they strategically select from the range of instructional and management techniques (Tomlinson & Allan, 2000).

Teachers respond to learner readiness. The conceptual model for this study (Figure 2) recommends teachers be attuned to their learners' academic readiness needs.

Table 3. Examples of Differentiated Products Tiered to Respond to Learners' Interest (Choice).

	Readiness	Interest	Learning Profile
Content	Materials at varied reading levels	Range of materials that apply key ideas and skills	Varied ways to acquire content (texts, technology, research sites, primary documents, interviews, artifacts)
	Spelling assigned by proficiency	Teacher links content information to students' interests or passions (choice)	
	Front-loading vocabulary		
Process	Tiered activities	Expert groups	Choice of working conditions (alone, with a partner, in a group)
	Mini-workshops	Interest centers	
	Targeted small-group instruction	Supplementary materials based on student interests Jigsaw	
	Modeling or Demonstrations	Independent studies Interest-based application options	Tasks designed around intelligence preferences
	Learning contracts		
Product	Tiered products	Use of student interest in designing products	Varied formats for expressing key content (multiple intelligences)
	Varied resource options	Use of contemporary technologies for student expression	
	Check-in requirements based on student independence		Varied working arrangements (individual, small group, whole class)
	Provide samples of quality work at varied levels of complexity	Personal connections that reflect conceptual understandings	

Note. Adapted from Tomlinson, C. A., & Imbeau, M. B. (2010). *Leading and managing a differentiated classroom*. Alexandria, VA: ASCD.

Literature refers to student readiness as the learner's proximity to the desired educational outcome based on background foundational knowledge, past experiences,

opportunities for learning, and skill level (Darling-Hammond, 1999; Tomlinson & Allan, 2000; Tomlinson & Imbeau, 2010; Vygotsky, 1978; Wormeli, 2007). The Russian psychologist Lev Vygotsky (1978) describes “readiness” as a personal setting in which learning takes place, where the individual learns in his or her zone of proximal development (ZPD) or point of mastery where they cannot successfully function alone but can succeed with scaffolding or support (Lake, 2012).

Subban (2006) suggests that a student can only progress within the stages of internalization to become an independent learner if she is first guided by a teacher or expert (p. 937). New learning occurs when teachers differentiate instruction for the child in his ZPD while coaching for success with a task slightly more complex than the child can manage alone. Tomlinson et al. (2003) agreed, stating, “It is through repetition of such cycles that learners grasp new ideas, master new skills, and become increasingly independent thinkers and problem solvers” (p. 126). Attending to student readiness (through ongoing assessment practices) allows for academic growth and enlists students in learning conditions that recognize their interests and learning preference (Sleeter, 2008; Tomlinson & McTighe, 2006).

Teachers respond to student interest. Tomlinson and Allan’s (2000) conceptual model (Figure 2) indicates that student interest can be a compelling factor for differentiation because interest makes tasks more engaging, satisfying, and personally challenging. Tomlinson (2014) describes interest as a learner’s curiosity or passion for a particular topic or skill. Gregory and Chapman (2013) state that students bring their interests, personal experiences, and attitudes to school on a daily basis, adding that teachers who spend time getting to know their students (personal meetings, conferences,

or inventories) will respond to those interests with differentiation. Researchers such as Bruner (1961) and Csikszentmihalyi (1996) argue that learning is more likely to be rewarding when students are allowed to engage in learning conditions built on interest and creativity.

Watts-Taffe et al. (2012) found that students in a third grade classroom made greater gains in word reading and reading comprehension when their teacher differentiated instruction using small, flexible learning groups during a center or station time. The researchers claimed that teachers who knew their students' reading needs were more successful with ongoing assessment of students' progress when placement of learners was based on student interest (p. 308).

Wu (2013) discovered that teachers who honored interests sustained students' desires to learn and explore topics of particular personal passion or choice. This meant "connecting ... [the curriculum] to what kids care about" (p. 128). Tomlinson and McTighe (2006) suggest that there are many ways responsive teachers can differentiate instruction when connecting student interest, curriculum content, and skills to the real-world problems. Tomlinson and Imbeau (2010) recommend teachers create learning conditions based on interest to connect to students' strengths, cultural context, personal experiences, inquiry, and learning profile.

Teachers respond to student learning profile. In their conceptual model (Figure 2), Tomlinson and Allan (2000) recommend differentiating for students' learning profiles or preference, where teachers try different teaching methods to increase and motivate student-centered learning explorations based on the different ways students like to learn. These can be shaped by intelligence strengths, gender,

culture, and learning preferences (Gardner, 1983, 2006; Sternberg & Grigorenko, 2000; Sternberg & Zhang, 2008; Tomlinson, 2014).

Tomlinson (2014) encourages teachers to observe how their students like to learn. She recommends using inventories to find out whether students like to learn alone, with partners, in small groups, or in larger settings. Gardner (1983, 2006) proposed that learning profiles include multiple intelligences. He argues that human intelligence is displayed in different ways and teachers should acknowledge those differences when responding to learner variance in the classroom. Additional literature suggests that multiple intelligences are a critical part of a responding to learners' needs where can teachers differentiate by offering more ways to explore and express learning (Heacox, 2002; Kaufeldt, 2005; Tomlinson & Allan, 2000; Wormeli, 2007). Sternberg and Zhang (2008) recommend a balanced variety of intelligences to reach all students' learning needs.

Tomlinson (2014) suggests teachers differentiate curriculum for learning profiles or preference by responding to students' social needs (i.e., individual, partner, small groups, or large groups) or classroom conditions (i.e., quiet and structured environments, or noisy and less structured environments). Tomlinson and McTighe (2006) add that many learners would benefit from assignments that allow them to “express their learning in ways that best suit their strengths *and* [emphasis added] interests through varied products and performances” (p. 21). K. M. Anderson (2007) discovered that teachers who started the differentiation process with learning profiles (e.g., family structures, hobbies, and interests) are more capable in “planning engaging, student-centered differentiated lessons and instructional activities” (p. 51).

Teachers respond with instructional and management techniques. The conceptual model (Figure 2) indicates that teachers differentiate for learner variance by selecting instructional and management techniques to allow for the variety of needs in the classroom. Tomlinson (2014) adds that there are many avenues to creating an instructionally responsive classroom and defines management as “[an emphasis on the] ... organization or arrangement of students for learning ... [or] on the nature of instruction itself” (p. 103). Heacox (2002) shares that differentiated management techniques are challenging for some teachers when they attempt to connect curriculum to the broad spectrum of student interests, readiness, and learning preferences, and monitor the students’ academic progress. Additional literature suggests that when teachers lack the administrative support to implement differentiation methods (i.e., linking students’ academic needs to the learning environments, standards, content, and instruction), they become overwhelmed and stop differentiating, which diminishes the quality of responsive teaching (Tomlinson, 2000; Tomlinson & Allan, 2000; Wormeli, 2007).

Tomlinson and Allan (2000) and Hargreaves and Fullan (2013) argue that teachers need to be involved in the comprehensive planning that is required for implementing differentiated instruction. This includes both systemic and classroom methods when responding to learners with varying needs. Schools that expect their teachers to be intentional in their capacities to manage classrooms and differentiate for varied learners needs (Hargreaves & Fullan, 2013) must provide the research and foundational underpinnings about differentiated instruction that are needed to move teachers *and* students forward in today’s classrooms.

Differentiated Instruction Research Perspectives

Tomlinson and Allan (2000) state that teachers can create differentiated, personalized, or responsive classrooms in a number of ways (p. 2), and the conceptual model (Figure 2) is one of the most prominent perspectives for how teachers can respond to the learning needs in their classrooms. However, as research grows in the field of differentiated instruction, so do the perspectives regarding its effectiveness for responsive teaching.

Responsive teaching differentiates curricular design. Wiggins and McTighe (2011) designed a curricular model called *Understanding by Design (UbD)* to assist teachers as they organize curriculum to respond to learners with varied instructional methods. Also called a “backward design model,” the UbD framework evolves from theoretical research in cognitive psychology and neuroscience, and is guided by the most current understandings about the learning process (McTighe & Seif, 2010, p. 151). Classroom teachers who utilize the UbD framework respond to learner variance by differentiating standards-based curriculum in ways that supports the learners’ readiness, interest, and learning profile (Tomlinson & McTighe, 2006). This is done in three stages. The first stage reflects standards, understandings, and essential questions. Standards cannot be differentiated, but understanding and essential questions allow teachers to “uncover” the content and differentiate for richer contextualization that responds to learners’ varied levels of thinking. Questioning is open-ended and builds on perspective, interpretation, and interest. The second stage is more intentional for responsive teaching, allowing teachers to determine the acceptable assessment practice they wish to employ that responds to learner readiness. Assessment can be

differentiated to evaluate content knowledge, the process of understanding, and student outcomes developed through products. Stage three allows teachers to develop learning experiences and instruction that respond not only to the learners' academic variance, but their affective needs as well (Tomlinson & McTighe, 2006).

Nearly all scholars in the field of differentiation recommend teachers differentiate instruction using these three stages to intentionally create learning experiences that incorporate small-group learning, rigor and relevancy, opportunities for informal assessment to monitor student understanding, multiple ways to learning, literacy strategies throughout the curriculum, student collaboration or autonomy, provide clear rubrics that coach for quality, and structure learning to support diversity (K. M. Anderson, 2007; Dee, 2010; Gregory & Chapman, 2013; Tomlinson, 2000; Tomlinson & McTighe, 2006). Tomlinson and Moon (2013) add that teachers who differentiate recognize that understanding-focused curriculum engages students at varied levels with different support systems in place to increase their [the students'] current level of understanding of any principle as it relates to their life experiences (p. 7). With instruction as the core of differentiation, the ultimate goal is to ensure that each student has the best possible learning experience in order to maximize academic growth (Tomlinson & Allan, 2000; Tomlinson & McTighe, 2006; Tomlinson & Moon, 2013).

Critiques of the differentiation model. While differentiated instruction is acknowledged by scholars to be a compelling and effectual means of meeting learner variance in readiness, interests, and learning preferences, the empirical research linking quality teaching and the concept of differentiation is not without controversy. Subban

(2006) noted, “The philosophy [of differentiated instruction] is lacking in empirical validation ... with a decided gap in the literature regarding the use and effectiveness of the differentiated model in practice” (p. 936). Additional literature questions the effectiveness of differentiation based on the complexities of theory, strategies, and processes that confuse teachers as they attempt to create lessons (Schmoker, 2010). For some teachers, to teach each student from his or her point of entry into the curriculum and perspective as a learner is more than difficult where differentiation is too demanding for individual teachers to successfully implement (Tomlinson, 2003b). Even experts in the field of differentiation argue that researchers and theorists have provided ample frameworks for what teachers should *know* and *do* in the classroom, but fewer studies examine how to respond and teach to the academically diverse learners (Moon et al., 1999).

Literature also indicates limitations in how teachers differentiate curriculum to respond to learners’ cultural needs. Gay (2002) and Ladson-Billings (1995) argue that there is a need to bridge the literature in the field of differentiation with culturally responsive teaching because both areas seek to encourage teachers to meet the needs of diverse students in today’s classrooms in ways that overlap yet are distinct (Gay, 2002). Culture in most of the differentiation literature is positioned in the learning profile, and is weakly defined as “approaches to learning that may be strongly shaped by the context in which an individual lives and by the unique ways in which people in that context make sense of and live their lives” (Tomlinson & Imbeau, 2010, p. 17). How students communicate, interact with one another, envision classroom power, practice religious celebrations, and show respect are shaped by culture (Bransford et al., 2005; Gregory &

Chapman, 2013; Tomlinson, 2003a; Tomlinson & Imbeau, 2010). Although a significant part of teaching, culture is still being studied in the field of differentiated instruction.

Novice Teachers' Understandings of Differentiation and Responsive Teaching

Differentiation for achieving responsive teaching is important. Literature claims that understanding how to teach requires novice teachers to respond and differentiate for students who learn in very different ways (Bransford et al., 2005; Darling-Hammond, 1999; Tomlinson & Imbeau, 2010). This includes core knowledge coursework *and* pedagogical experiences that provide pre-service teachers with the skills they need to do the daily work of motivating themselves to plan and implement student-centered instruction that responds to varied learning needs (Darling-Hammond & Berry, 2006; Tomlinson & Imbeau, 2010). InTASC standards also require teacher candidates to develop skills in differentiation, higher order thinking, cross-disciplinary approaches, and collaboration (Council of Chief State School Officers, 2013), as they prepare for future classrooms in response to learner variance.

Tomlinson (2014) maintains that novice teachers enter practicum experiences that are more diverse than ever; however, they are unprepared to deal with the wide range of academic diversity. This is evident in the limited empirical research linking teacher education programs, praxis, and the concept of differentiation. Dee (2010) acknowledges that “the unique junction where legislation, literature, and praxis meet often reveals overlapping definitions of terms [which affect differentiation]” (p. 56). Whereas much of the literature on differentiation focuses on practicing classroom

teachers, very little research emphasizes the need to consider praxis and/or experiences with differentiation with student teaching.

Literature claim that there are gaps in teacher education programs regarding how to prepare novice teachers to practice differentiation for responsive teaching (Holloway, 2001; Schlechty, 1997; Tomlinson et al., 2003; Tomlinson & Allan, 2000). These gaps include pedagogical and conceptual (Figure 2) development regarding differentiation for responsive teaching and practicum experiences where pre-service teachers collaborate with professional teachers who respond to learner variance using differentiated instruction (Tomlinson, 2000; Tomlinson & Moon, 2013).

Teacher candidates' development of differentiation for responsive teaching.

Hammerness et al. (2005) indicate that assisting pre-service teachers to become “adaptive experts” (p. 360) with differentiated instruction for responsive teaching is not something that can be accomplished by simply telling them the information.

Hammerness et al. (2005) noted that some pre-service teachers struggle with their preconceptions about how to respond to academic variance and require scaffolding in their understandings of how learners differ, how teachers accommodate for student differences, and what instructional methods are required to effectively link students with curriculum. Tomlinson and Allan (2000) indicate that with today's teachers bringing theory (Figure 2) and practice together for responsive teaching, these understandings need to be part of the novice teachers' pedagogical development as well, where *they* construct understandings of how differentiated instruction can be used for responsive teaching prior to practicum experiences (Tomlinson, 2014).

Pre-service teachers need clarity in their understandings of what it means to use differentiation for responsive teaching (Tomlinson, 2014). For example, after interviewing and observing 70 pre-service teachers' experiences with differentiation in a teacher education program, Tomlinson et al. (1997) discovered that candidates' appreciation for the need to differentiate increased but they were unclear about how that connected specifically with learner variance. However, on further inquiry, the researchers discovered little differentiated instruction in the pre-service teachers' coursework and minimal practice with differentiation during the student teaching experience. Discouraged, Tomlinson et al. (1997) recommend that teacher education programs be strategic in their placement of novice teachers, so that they are able to experience and learn from cooperating teachers who subscribe to, practice, and articulate their thinking about differentiation (p. 280).

In similar qualitative studies, Manson (1999) identified inconsistencies in how teacher education programs prepared pre-service teachers to differentiate for diverse academic populations noting that pre-service teachers received mixed messages about what differentiation was, and how it was to be used. Spooner et al. (2007) revealed in their study that pre-service teachers who received one in-service training about differentiation to accommodate students with special needs were not prepared to meet the diverse needs of *all students* as student teachers in the regular classroom.

In a recent qualitative study, Dee (2010) investigated the strength of teacher education programs preparation of pre-service teachers' differentiation skills as they responded to the students with special needs during field experiences. She discovered that though the pre-service teachers spent a substantial amount of their practicum

experience with an experienced teacher, very little differentiation appeared in their lesson plans or teaching reflections.

Tomlinson (2014) states that teacher education programs fall short in preparing pre-service teachers for academically diverse classrooms because differentiation is “rarely encouraged . . . by education professors, university supervisors, or master teachers” (p. 179). This was evident when Santangelo and Tomlinson (2012) explored teacher educators’ perceptions of differentiated instruction (including how differentiation is modeled as responsive teaching for pre-service teachers). They discovered that despite the demand and support for differentiation, systematic and collaborate implementation was the exception, rather than the rule (p. 310). The researchers concluded that with the absence of differentiation in both teacher education programs and during the student teaching practicum, novice teachers are unprepared to teach effectively in classrooms where academic diversity is a significant factor.

Novice Teachers Differentiate for Responsive Teaching

Darling-Hammond (2006) states that student teaching is the capstone experience for student teachers to connect educational theory and subject matter content to the practice of teaching. Spangler (2013) adds that student teaching allows teacher candidates to transition from novice to pre-professional where they experience opportunities to plan, implement, and evaluate professional decisions in the school setting.

Darling-Hammond (1999) claims that successful student teaching evolves when “[student teachers are assisted in their capacity] to inquire sensitively and systematically in the nature of learning and the effects of teaching” (p. 31). This developmental

approach from Vygotsky's (1978) research on the internalization process identifies assisted performance as what the individual [the student teacher] can do with help, with the support of the environment, of others, and of the self (Tharp & Gallimore, 1988). Lunenberg, Korthagen, and Swennen (2006) describe student teachers' capacities as elements of growth where they go through several stages during student teaching translating new views and theories about learning into actual teaching practices in the schools. Perry, Hutchinson, and Thauberger (2007) add that as student teachers develop in their practice they require scaffolding of their knowledge, readiness, and teaching from experts in the field who model, mentor, co-teach, and provide feedback.

Bransford et al. (2005) define these experts as the critical players who assist in the student teacher's success or failure in the field, including the teacher education faculty, the cooperating teacher, and the supervising instructor. Tomlinson and Allan (2000) suggest that successful practice of differentiation comes predominately from the cooperating teacher, who provides the expertise in preparation, encouragement, guidance, and knowledge while modeling responsive teaching methods. Tomlinson (2014) adds that these teachers set clear expectations for the student teacher's growth in understanding how to respond to learner variance in today's classrooms.

Empirical research linking the student teaching experience with differentiation and responsive teaching is rare and quantitative studies are almost nonexistent. Qualitative research is also limited due to the newness of the research field. However, most studies in differentiated instruction are qualitative with few studies published before 2005. Notably, the greatest research focus with student teachers and

differentiation is on pedagogy and the co-teaching relationship with the cooperating teacher (Berry, 2010; Dee, 2010; Edwards, Carr, & Siegel, 2006; Valencia et al., 2009).

Student teachers collaborate to differentiate for responsive teaching.

Tomlinson and Allan (2000) indicate many novice teachers never see quality differentiation for responsive teaching. They add that many novice teachers observe the “teach to the middle” method, where learning is the same for all students in the classroom rather than being differentiated for individual needs. Dee (2010) states that regardless of how much university preparation student teachers receive in differentiation, pedagogical preparation is typically “washed out” at the conclusion of the student teaching experience. Equally discouraging, Santangelo and Tomlinson (2012) found student teachers so overwhelmed in the field that they failed to recognize the necessity for differentiation, particularly for academic variance.

Literature linking student teacher success with differentiation suggests that the role of the cooperating teacher and the relationship that develops during the student teaching experience significantly impact the implementation of differentiation (Perry et al., 2007; Tomlinson, 2014; Tomlinson et al., 2003). Larkin (2013) suggests that in addition to helping student teachers adjust to basic information, such as school rules, policies, physical arrangements, and classroom management, cooperating teachers provide the student teacher with appropriate resource materials to help them integrate their own ideas about good teaching with those of their teacher education program. Holloway (2001) shares that assigning experienced teachers to guide and support novice teachers provides valuable professional development for both, and through mentoring,

modeling, and reflective conversation, student teachers are able to improve their abilities to respond to learner needs as they assume full responsibility for a classroom.

Cooperating teachers who mentor their student teachers help them reflect on what learners need and the appropriate responses to those needs (Tomlinson, 2014). One quantitative study I reviewed (Moon et al., 1999) compared the effects of how cooperating teachers mentored their student teachers' attitudes towards inclusion, instructional accommodations, and fairness in the classroom. This study sampled seven national university sites where student teachers were placed in elementary classrooms with academically diverse learners. Moon et al. (1999) shared that prior to the implementation of the study, a workshop was presented to the student teachers to ensure that all participants had at least some common involvement with key principles and practices of working with academic diversity (p. 57). Two experimental groups were exposed to differentiation through coaching (by the cooperating teacher) and one control group had no treatment. Survey data identified that the three treatment groups held similar attitudes about differentiating for academic diversity before the intervention (coaching); however, following the interventions only the "workshop and coach ... [treatment groups]" (p. 58) experienced a slight gain. Further, the student teachers saw differentiation as an accommodation method for students with special needs only rather than all learners in the classroom, a good indicator that more research needs to happen in this field (Moon et al., 1999).

In addition to mentoring, Santamaria and Thousand (2004) discovered that collaboration and co-teaching were methods used by cooperating teachers and their student teachers to respond to academic variance in the classroom. In their qualitative

study, the researchers examined the impact of collaboration, co-teaching, and differentiated instruction on the success and challenges of implementing core curriculum standards to a culturally, linguistically, and academically diverse school. Participants in the study included high school classroom teachers, paraprofessionals, student teachers, university professors, student learners, parents, and the school principal. The yearlong study explored the juxtaposition of a variety of individuals who, through collaboration, consultation, and varied co-teaching approaches, explored differentiation as a method for meeting the needs of students with special needs within an already diverse student population. Santamaria and Thousand (2004) used Tomlinson's conceptual framework (Figure 2) to assist in identifying three themes that support the success of cooperating teachers' and student teachers' collaboration and co-teaching using differentiation, including:

1. Collaboration and co-teaching of key concepts differentiated for readiness,
2. Co-teaching and strategic assessment of student interest to differentiate for choice,
3. Co-teaching to differentiate learning experiences based on student preference (pp. 23-26).

The researchers' intent was not to use the framework to guide differentiation in the classroom; however, the cooperating teachers and student teachers actually did this for themselves. Both researchers noted that the collaboration and co-teaching process allowed the cooperating teachers and the student teachers the ability to respond to many learners, who would not have had access to the entire general curriculum nor participated in school-wide assessments (Santamaria & Thousand, 2004, p. 22).

Santamaria and Thousand (2004) argue that collaboration and co-teaching is needed for student teachers and cooperating teachers to successfully differentiate when responding to academic diversity. Tomlinson and Allan (2000) add that when differentiated instruction is done systemically (as noted by Santamaria & Thousand, 2004) the focus of school change is on classroom practice and responsive teaching where many stakeholders are involved in learning outcomes.

Tomlinson (2014) argues that cooperating teachers must become partners with the novice teacher to model and support development of differentiation in the student teaching practice. D. Anderson's (2007) qualitative study shared how partnerships impacted student teachers' and cooperating teachers' descriptions of teaching roles, how these positions influenced the power differentials, and what student teachers could control or not control when differentiating for responsive teaching. D. Anderson (2007) discovered that although the 98 student teachers had favorable student teaching experiences, including positive relationships with the cooperating teacher (59%) and the experience of practicing craft (59%), over half of the student teachers expressed feeling pressured to conform to their cooperating teachers' behavior (p. 313). This included teaching with extensive worksheets rather than hands-on activities, using outdated teaching plans, and not providing any support for how to support the range of learners in the classroom (D. Anderson, 2007). Tomlinson and Allan (2000) argue that most teachers in today's schools are challenged to deliver high-quality responsive teaching because they have little time to reflect or collaborate with others about how to differentiate for the varied learners in their classrooms.

Tomlinson (2014) states that partnerships allow teachers to build discussions about differentiation and are critical for successful implementation when responding to learners' needs. She adds that effective partnerships support novice teachers' ability to differentiate and can impact how they practice in future classrooms. Tomlinson and Allan (2000) claim that teachers (novice and professional) need to be a part of effective collaborative partnerships where they can be coached and guided with the differentiation techniques required for responsive teaching. This was evident in one study I reviewed by Valencia et al. (2009). Their findings were also relevant to my own research study.

During a four-year longitudinal study, Valencia et al. (2009) followed teachers from their last year of teacher education (including the student teaching experience) into the first three years of full-time teaching to understand the context of student teaching, the complex interactions with the cooperating teacher, and how these experiences shaped how they understood teaching from their teacher education programs (p. 306). First, Valencia et al. (2009) noted that the relationship between the cooperating teacher and the student teacher impacted how student teachers felt about their abilities to respond to learners in the classroom. For example, Valencia et al. (2009) discovered when cooperating teachers assisted student teachers in their response to learners' needs (i.e., respectful tasks, flexible groups, ongoing assessment), they co-planned with differentiated teaching resources, co-taught with the student teachers, and debriefed with them after the lessons finished. In addition, Valencia et al. (2009) found that when cooperating teachers assisted their student teachers with decisions about responsive teaching, the student teachers were more prepared to connect what they knew

conceptually about good teaching with the practical pedagogical tools that supported their development to independent practice (p. 310).

Second, additional cooperating teachers in the study viewed learning to teach as experimentation and *did not* provide the scaffolding or assisted performance to help the student teachers with their practice of differentiation for responsive teaching. Valencia et al. (2009) discovered that this caused the student teachers to be frustrated and at risk for not being able to respond to their learners' needs. Valencia et al. (2009) described cooperating teachers who ignored and deserted their student teachers to do other things, providing no feedback or verbal support (p. 311). The case study concluded that the student teaching experience is greatly influenced by student placement, the mentoring role of the cooperating teacher, and the capacity of the student teacher to successfully differentiate with or without the guidance of an expert teacher. In this study, the teacher or a more expert peer was essential to the student teachers' learning process. Tharp and Gallimore (1988) indicate that for independence to happen, individuals require assistance to increase their capacity to grow in learning. Bransford et al. (2005) indicate that the cooperating teacher's responsibility includes nurturing and assisting the novice teacher by modeling, coaching, and through collaboration or co-teaching with tasks in which peer assistance can occur.

Student teachers respond to learner variance. Studies with student teachers' response to learner variance were small. The only quantitative study I found with student teachers and differentiation for responsive teaching was by Berry (2010). She investigated the attitudes of beginning general education teachers (student teachers and early career) with respect to responsive teaching in inclusion classrooms. This study

focused on how student teachers developed in their attitudes towards learners and whether these teaching attitudes impacted their use of differentiation when responding to their students' academic needs (Berry, 2010). Findings showed significant relationships between the student teachers' confidence or anxiety and their positive or negative feelings about students, including three aspects of inclusion (instructional, academic accommodations, and fairness), but provided superficial evidence about the student teachers' abilities to respond to the academic needs of their learners.

Qualitative studies about student teachers' response to learner variance were more plentiful. For example, Johnsen (2003) conducted a qualitative study of student teachers' practice with differentiating instruction to respond to learner readiness. Student teachers in this context were encouraged to differentiate content and process, use learning centers, while providing tiered reading materials. This study revealed that student teachers learned to differentiate for learner readiness by first teaching homogeneous groups then transferring this knowledge to teaching heterogeneous groups. Johnsen (2003) indicated that the student teachers practiced scaffolding literacy activities by highlighting prompts and facts for slower students, while adjusting independent research assignments for gifted learners. Results indicate, however, that students with exceptional needs continued to receive individual specialist support through other services.

Two more qualitative studies examined how student teachers responded to learner variance differentiating curriculum with instructional strategies. In one study, Edwards et al. (2006) discovered student teachers and their cooperating teachers responded to learning needs together by using varied instructional techniques with

content areas. However, both cooperating and student teachers were hesitant to confirm using these beyond the practicum experience, indicating that this wasn't something they would do again in their practice as teachers. Bailey and Williams-Black (2008) examined student teachers' abilities to apply literacy modification in content, process (activities done during instruction), and what learners produced to demonstrate mastery. Of the 24 student teachers in the study, the researchers discovered that only three met the criteria for using differentiation in response to learning needs. One student teacher successfully developed tiered questions to provide for different reading levels, another developed literacy workstations that allowed learners to practice and perform a Reader's Theatre of their choice, and the last student teacher successfully developed tiered contracts for guided reading with intentional strategies for individual student growth.

In a recent study about student teachers' attitudes and preparation to use differentiation for responsive teaching, Casey and Gable (2011) discovered that student teachers struggle to distinguish between "surface-level differentiation and deep structure (intentional) differentiation" (p. 19), while scaffolding methods to meet academic variance. Results indicate that fewer participants reported using intentional differentiation. The ones who did differentiate successfully varied assignments according to readiness, created assessments using rubrics, and allowed learners to progress at their own pace (Casey & Gable, 2011). Literature recommends that engaging learners in active, deep thought within the content requires strategic differentiation (Tomlinson et al., 2003; Tomlinson & Imbeau, 2010).

Summary of Chapter II

In this chapter, I provided a definition for differentiated instruction including historical context and contemporary views about what differentiation is and is not, so that describing how student teachers differentiate instruction as a method for meeting elementary students' learning needs could be understood. Next, I provided a conceptual model for this study as a framework for responsive teaching practices that use differentiation. The conceptual model for this study (Figure 2) aligns differentiated instruction with pedagogy and classroom practices for responsive teaching to academic diversity. I reviewed and investigated educational theories that are underpinnings for differentiated instruction and distinguished how classroom teachers respond to learners' needs, including readiness, interest, and learning profile, while effectively linking curriculum to meet academic diversity. Finally, I examined studies that linked differentiated instruction for responsive teaching with student teacher preparation as a foundation for why this research is critical in teacher education. Although the research with differentiated instruction and student teaching is limited, there is reason in both theory and research to support pre-service teacher and student teacher preparation for future classrooms that are attentive to student variance, notably in the areas of readiness, interest, and learning profile (Tomlinson et al., 2003). Further, responsive teaching is a critical part of school reform (Hargreaves & Fullan, 2013) and classroom practice is the most important determinant when meeting the needs of academic diversity (Darling-Hammond, 2006; Hargreaves & Fullan, 2013; Tomlinson & Allan, 2000).

CHAPTER III

METHODS

The primary research question of this study asks what differentiated instruction looks like in student teachers' classrooms. I sought to understand the successes and challenges these student teachers experienced with the differentiation process, what conditions they could or could not control with differentiated instruction, and how their relationship with the cooperating teacher impacted student teachers' description of differentiated instruction as a method for meeting elementary students' diverse learning needs.

In this chapter, I present the design of the study. The design is presented in Figure 3. I use design elements to organize this chapter. I elaborate on each element of the design beginning with stating the research questions and other initial decisions about the study. I present information about my data collection methods and explain aspects of the data analysis. Additionally, throughout the chapter I will address trustworthiness of the research, researcher reflexivity, and other methodological considerations.

Design of the Study

Research Questions

The research questions, as stated previously, are as follows:

1. How do student and cooperating teachers describe differentiated instruction as a method for meeting elementary students' diverse learning needs?

2. What challenges and successes do these student teachers experience with implementing differentiated instruction?
3. What can the student teachers control or not control about differentiated instruction?
4. How does the relationship with the cooperating classroom teacher impact how student teachers differentiate instruction?

These questions intrigued me because, as a longtime educator in the field, differentiated instruction is a method of thinking and planning, which, as described in the professional literature, supports the learning needs of all students whether struggling, advanced, or in-between so that all students achieve success in the learning environment.

Case Study

My research questions are compatible with the case study approach to qualitative research. Case study research is used to describe human lived phenomena where similar happenings are experienced (Crotty, 2011; Stake, 2010; Wertz et al., 2011). It is suitable for research that seeks to investigate phenomena in depth and describe various cases with defined boundaries (Yin, 2014). Stake (2010) stresses the benefits of qualitative case study methodology, with its emphasis on the uniqueness of each case. Yin (2014) adds that case studies are used to build and analyze descriptions that stem from multiple sources of data such as observations, interviews, and artifacts such as documents, records, or physical artifacts. Researchers (Patton, 2002; Stake, 2010) agree that lived experience is not something that can be measured or weighed; rather, it is the *experience* and *who experienced it* that are important facets of the investigation.

Through a case study methodology, I sought to describe the experiences through the activities and actions of my participants (Creswell, 2012, p. 465). The purpose of my study, noted in Figure 3 (which presents the design of this study), was to identify whether or not student teachers differentiate instruction, and, when they do, how do they describe what it looks like in their classrooms as they meet the needs of diverse elementary students?

I wanted to explore the *how* and *what* of the student teachers' description of differentiated instruction through observation, interviews, and collection of student teaching artifacts. Further, I sought to understand how cooperating teachers described differentiated instruction, to determine whether their understandings influenced the student teachers' descriptions of differentiated instruction and how that impacted the relationship between the two teachers.

By documenting the lived experiences of student teachers through the lens of differentiated instruction, I was able to trace how these individuals viewed and talked about their learning, how they constructed ideas, and how they differentiated lessons in the teaching settings in which they find themselves. The construction of meaningful reality in the classroom allowed the student teachers to engage with the world they were interpreting and allowed me to understand and describe the phenomena being experienced (Crotty, 2011). Yin (2014) recommends case studies as the best methodology to describe the phenomenon and the real-life context in which it occurs (p. 16).

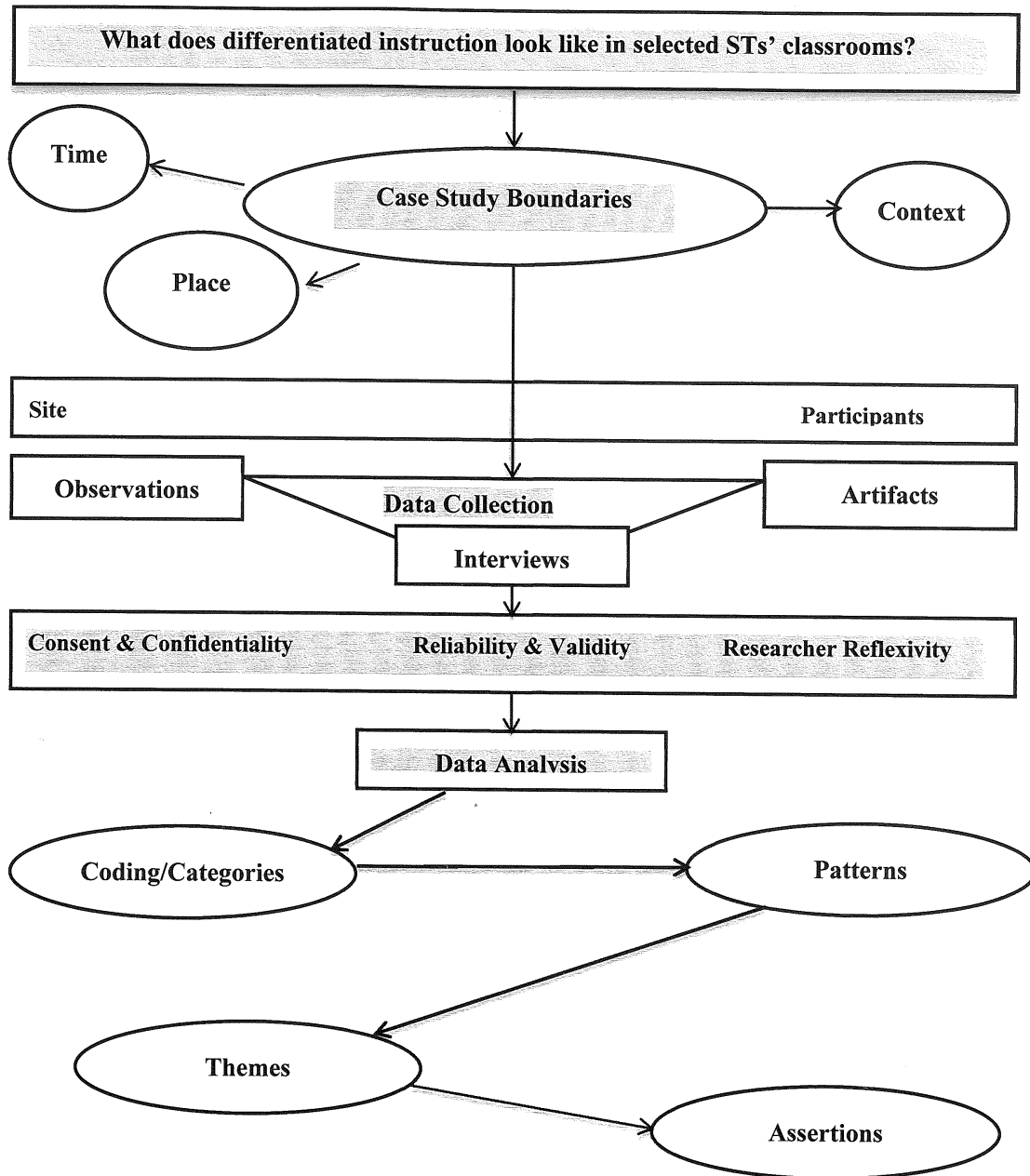


Figure 3. Research design for this case study. (The methodological framework is based on recommendations by Gay, Mills, and Airasian, 2011.)

Case Study Boundaries

According to Creswell (2007), case studies are “an exploration of a ‘bounded system’ of a case or multiple cases over time through detail, in depth data collection

involving multiple sources of information rich in context” (p. 61). In order to gain multiple perspectives in the area of differentiated instruction, this case study has identified three interrelated boundaries that allow the study to remain reasonable in scope and to determine what will not be studied (Stake, 2010; Yin, 2014). These boundaries are time, place, and context (Figure 3).

- Time (Creswell, 2012). This study occurred during the 2014 spring semester starting in January and concluding the first week of May, which is the complete time period for the student teaching experience.
- Place (Creswell, 2012). The student teacher participants in this study were student teaching in elementary classrooms in Grant Public Schools (GPS) (pseudonym). The cooperating teacher participants in this study are state certified educators who were teaching in the GPS elementary classrooms where student teachers were placed.
- Context (Yin, 2014). The participating student teachers are also bound by context. For example, a critical contextual factor is that all three student teachers have very similar sets of background knowledge about differentiated instruction. Because they all were in the same section of a course on this topic at the same time, they have knowledge of how to differentiate content areas, teaching procedures, and student outcomes or products based on student readiness, interests, and learning profiles (Tomlinson & Allan, 2000).

Site

This study took place in a small city with a population of approximately 53,000 residents. This community features a mid-sized, four-year university institution with

over 15,000 students and I am a doctoral student and graduate teaching assistant (GTA) in the College of Education at this institution. Three different elementary schools that are part of the Grant Public Schools (GPS) were research study sites. All three elementary schools had similar demographics. Numbers of students varied in each school and ranged from 300-600 students.

Student teacher participants were selected from the Midwest University (pseudonym) that prepares 80-100 elementary education teachers each year in an undergraduate program. To obtain a B.S.Ed. from the College of Education at this institution, teacher candidates complete over 125 credits of coursework, including courses in essential studies, their Elementary Education major, and other courses required for licensure in the state. Student teaching is the culminating event prior to graduation.

Participants

Purposive sampling was used to select participants for the study. Robson (2002) defines purposive sampling as choosing participants based on criteria that ensure collecting data related to the topic of the research to enable the researcher to “satisfy her specific needs in a project” (p. 265). This sampling method allowed me to secure participants who had the most potential to offer rich data for the study. Student teacher (ST) participants for this study were selected after conferring with the Teacher Education Director of Field Placement, the individual who is responsible for student teacher placements in the Grant Public Schools. The criteria used to select three participants included STs who:

- were approved for student teaching for Spring 2014,

- had completed coursework in differentiated instruction,
- planned to complete their student teaching experience in Grant Public Schools, and
- were student teaching in an elementary classroom level.

With these criteria, I consulted the list of STs and identified a pool of five potential participants. Two were eliminated because they had not taken the course in differentiated instruction. The remaining three met all criteria as specified. These three student teachers were asked to take part in the study for the duration of the 2014 spring semester, with possible limited follow-up contact during the summer and fall 2014. At the time I approached each of them, I explained they were selected because they had taken a course in differentiated instruction, and this was the topic of my study. They also had some entry level of knowledge upon which they would be able to draw from when describing differentiated instruction. When each student teacher agreed to participate, two things occurred. First, I made arrangements to meet with each of the STs to obtain informed consent. Second, I arranged to confer and meet with each of the student teachers' cooperating teachers to seek their participation.

Student teachers were placed with cooperating teachers (CTs) who had some background about differentiated instruction. These cooperating teachers became participants in the study. Participating student teachers and cooperating classroom teachers were white females. Student teachers were between 21-25 years of age. Cooperating teachers' teaching experience ranged between 5-25 years. Table 4 summarizes information about the participants. Participants were provided pseudonyms to protect identity and the title "Ms." was used for all CTs. The overall years of

Table 4. Teacher Participants Demographic Information.

Participant Number	Overall Teaching Experience (years)	Pseudonym
ST1	-----	Anne
ST2	-----	Mary
ST3	-----	Ruth
CT1	5 yrs.	Ms. Haley
CT2	25 yrs.	Ms. Gates
CT3	18 yrs.	Ms. Stone

teaching experience were also acknowledged for the three CTs. Placements are as follows:

- Anne (ST1) with Ms. Haley (CT1)
- Mary (ST2) with Ms. Gates (CT2)
- Ruth (ST3) with Ms. Stone (CT3)

Ms. Gates and Ms. Stone were veteran teachers and had taught in their respective grade levels for the duration of their professional teaching. Ms. Haley was a fifth year teacher and had some experience teaching multiple grade levels as well as teaching in international settings.

The Grant school district’s curriculum and development vision statement indicates that all teachers in the district have received some professional development in differentiation. In addition, Ms. Gates has minimal background with differentiated instruction and used some techniques to accommodate students with special needs. Ms. Stone was an experienced practitioner with differentiation having read books and journal articles, as well as attending conferences on the topic. Ms. Haley was at the

beginning stages of using differentiated instruction as a method to meet her varied students' needs. She has read some articles and collaborated with more experienced teachers in her school for ideas on how to differentiate.

Consent and Confidentiality

The consent forms for the ST and CT participants appear in the appendices and were provided for the student teaching participants and their cooperating teachers before any data were collected for this study. Each participant was offered time to read the consent and ask questions. Both the participants and I signed the consent forms and each participant received a copy of the signed consent. To protect participant confidentiality, all final transcripts and observation notes were anonymous and findings were reported without any identifiers that could reveal participant, school, or school district identity. Pseudonyms were applied to CTs and STs as an additional aspect of risk management. There were no major unforeseen risks of any type associated with participation in this study; however, there could have been potential risks if any of the participants decided to drop from the study. That did not occur.

Since the conclusion of this study, data and analysis files are being kept on a password-protected computer and are backed up on an external hard drive. As the researcher of this study, I am the only one with access to the data. Printed materials, except for participant consent forms, are stored in a secured box. Consent forms are stored separate from paper and electronic forms of data. All data and analysis materials, both electronic and paper, will be stored in appropriately secure locations. All digital audio files will be destroyed three years after the completion date, written documents will be shredded after five years; however, transcripts will be kept indefinitely in a

secure location. Throughout the study and for five years after its completion, consent forms will be stored separately from data and analysis materials.

Data Collection

All data for this study were collected with permission and in compliance with and approved by the Institutional Review Board (IRB). Data collected for this study came from three principal sources:

- observations of ST participants as they taught lessons;
- interviews of ST and CT participants including the construction of diagrams using cardstock and drawing tools;
- artifacts such as the STs' and CTs' lesson plans, photos of students actively engaged in learning conditions, and samples of their schoolwork.

Role of the Researcher

The role of the qualitative researcher can vary greatly, depending on the type of study and the research questions (Yin, 2014). In this case study, my role was to observe and interview. While observing, I participated in very minimal ways in the classroom. I only interacted with student learners by greeting them, and smiling and nodding when they spoke to me. When observing or interviewing the student teachers or cooperating teachers, I did not provide instruction or address questions about differentiated instruction. In fact, when meeting with participants, I explicitly informed them my role was simply to watch, observe, and listen. My role did not stretch to that of a participant or even a participant-observer.

Observations

The role of observation enables the researcher to draw inferences about someone's perspective that may not necessarily be obtained by relying exclusively on interview data (Maxwell, 2005). Patton (2002) suggests that what people say is a major source of qualitative data. He recommends that to "understand fully the complexities of many situations, direct participation in and observation of the phenomenon of interest may be the best research method" (Patton, 2002, p. 21). In this study, I observed three STs' practice of differentiated instruction during the 2014 spring semester where I collected data from the student teaching experience in the form of handwritten field notes.

As summarized in Table 5, I conducted observations of the three student teachers up to eight times for each student teacher for approximately 60 minutes per visit over the course of a semester. During the first week, I made school visits to meet with the principals of the school sites to inform them about my study. I also met with the STs and CTs to obtain their informed consent (Appendix A and Appendix B), provide parents with informational letters (Appendix C) about the study, and respond to any questions about the study from children prior to obtaining their permission on assent forms (Appendix D). Throughout the data collection process, the STs indicated the day and time of the lesson they wanted me to observe. At the end of the study, I made closure visits with principals, student teachers, and cooperating teachers to thank them for allowing me to do research in their schools and classrooms.

During classroom observations, typically, I sat in the back section of each classroom to be less obtrusive and have more visibility of the STs movement and

Table 5. Data Collection for Three Student Teachers.

Scheduled Visits	ST1	ST2	ST3
Week 1	School visits	School visits	School visits
Week 2	I.1	I.1	I.1
Week 3	O.1	O.1	O.1
Week 4	NM	NM	NM
Week 5	O.2	O.2	O.2
Week 6	O.3	O.3	O.3
Week 7	O.4	O.4	O.4
Week 8	I.2	I.2	I.2
Week 9	NM	NM	NM
Week 10	O.5	O.5	O.5
Week 11	O.6	O.6	O.6
Week 12	O.7	O.7	O.7
Week 13	O.8	O.8	O.8
Week 14	I.3	I.3	I.3
Week 15	School visits	School visits	School visits

Note. O = Observation; I = Interview; NM = No Meeting.

interactions with children while teaching. I watched the STs teach different content areas (e.g., math, science, social studies, and reading), and observed how they differentiated for learners' needs in flexible classroom conditions, including whole-classroom teaching, small group, and individual interventions. Insofar as possible, given student teachers' self-selected observation times, I varied the observation dates and times to determine whether or not what STs described during their interviews was consistent with what I actually saw them put into practice. During the observation, I used an observation-guided checklist (see section about Observation Instrument below) when taking field notes to prompt me to remember particular differentiation and management strategies. Besides observing content delivery and

varied learning conditions, I intentionally watched how the STs differentiated for student readiness, interest, and learning profile. For example, during one of the ST's math lesson, I observed how she used multiple intelligences to engage student interest by having them *dance* in the hallway to musical clock formations.

Observation instrument. The protocol I used for observing and collecting field notes on student teacher participants appears in Appendix E. The instrument was derived from Gregory and Chapman (2013) methods for differentiated instruction in elementary classrooms and included elements described in Tomlinson and Allan's (2000) conceptual model (Chapter II, Figure 2). Over the period of 15 weeks, the length of the student teaching assignment, I used the observation tool to document the content of the lessons, the interactions between the STs and the elementary students, and how differentiated instruction was applied by the ST (Gregory & Chapman, 2013; Tomlinson & Allan, 2000).

Interviews

In a case study, interviews allow for open-ended and inductive styles of questioning aimed at drawing out individual experiences (Flyvbjerg, 2013). For this study, one-on-one interviews were conducted with the three student teachers and their cooperating teachers using an open-ended interview guide.

Interview instruments. The interview protocols that I used with the ST and CT participants appear in Appendix F and Appendix G. The interview guides were developed to understand how the STs and CTs described differentiated instruction in their teaching practice. The desired result was to create a rich dialogue with the evidence (Yin, 2014, p. 73). The guide for interviewing student teachers aimed to help student teachers

describe differentiated instruction. For example, I asked questions such as, “Could you share with me how you would define differentiated instruction?” and “What teaching materials help you develop lessons for elementary learners?” The guide for interviewing cooperating teachers aimed to help CTs define differentiated instruction and how they described differentiated instructional methods that were important for responsive teaching. Similar questions for both STs and CTs allowed me to see how novice teachers and experienced teachers viewed differentiated instruction.

In the sections that follow, I will describe the processes surrounding student teacher interviews and then follow with the cooperating teacher interviews.

Student teacher interviews. I interviewed student teachers in their classrooms on a scheduled basis, after school was dismissed for the day. Each interview lasted between 45-75 minutes and was audiotaped. I also wrote field notes, when possible. Each interview was typically in a quiet room and I made sure each student teacher was comfortable and at ease prior to each interview session.

The purpose of the first interview was to assist in the descriptions of differentiated instruction in elementary classrooms. The interview protocols included a request for student teachers to construct a visual representation of differentiated instruction and student teaching (Appendix H). On an 8.5 x 11 piece of cardstock, I asked each ST to write “student teachers” and “differentiated instruction,” and include whatever words, symbols, or drawings they wanted to help them describe differentiated instruction in elementary classrooms. The participants were given 10 to 15 minutes and were encouraged to use whatever tools they wanted to assist them with the assignment. Once the participants were done drawing, they used the illustrations to guide their responses to

questions during the interview process. These drawings were used as reference points in the following two interviews.

The goal of the second interview was to allow the STs to describe how their understanding of differentiated instruction changed from the first interview. To prepare for the interview, I asked the STs to review their ideas, drawings, and diagrams about differentiated instruction from the first interview to see if they would change, remove, or reconstruct the details of their experiences. The STs modified their drawings from the first interview to guide them in their description of changes they experienced with differentiated instruction. This also included what they were able to control or not control, and the successes and challenges with differentiated instruction after six weeks of student teaching (Appendix I).

The third interview was done during the student teachers' two weeks of independent teaching. To prepare for the interview, I asked the STs to review their drawings about differentiated instruction from the two previous interviews to see if they would change, remove, or reconstruct the details of their experiences. After adding more detail to their diagrams, the STs used the drawings to help them describe changes in their understandings of differentiated instruction, what they valued about differentiated instruction, and whether it was meaningful for meeting the learners' needs in their classrooms (Appendix J).

Cooperating teacher interviews. Cooperating teachers (CTs) were interviewed once, midway through the student teachers' practicum experience. The point of the interview was to establish information about the CTs' knowledge and expertise with differentiated instruction as a method responding to academic diversity in the classroom

and how they described this as a method they modeled for their student teachers. It was important to do the CTs' interview midway in the semester so that the cooperating teachers could share insights about their student teachers' ability to differentiate for responsive teaching. I interviewed the CTs in their own classrooms during their teacher preparation time and the interviews lasted between 45-60 minutes. STs were not present during the interviews and were with learners in their special classes (e.g., music, gym, library). I made sure each cooperating teacher was comfortable and at ease prior to the interview session.

To assist in their interviews of differentiated instruction in elementary classrooms, CTs were also asked to use an 8.5 x 11 piece of cardstock as a tool to help them describe differentiated instruction as a professional practice in elementary classrooms. They were given 10 to 15 minutes and were encouraged to use whatever tools they wanted to assist them with the assignment. Once the participants were done drawing, they used the illustrations to guide their responses to questions during the interview process (Appendix K).

Artifacts

Artifacts are significant sources of data for case study research studies (Creswell, 2007; Glesne, 2011; Yin, 2014). Artifacts collected for this study included examples of copies of the student teachers' lesson plans, copies of worksheets or other materials distributed to students during the class periods, and printouts of slide shows and PowerPoint presentations prepared by the student teachers. I did not collect all lesson plans or lesson artifacts, but collected them when they were part of what the STs provided with their descriptions of differentiated instruction during interviews. With

consent from the STs and CTs (and IRB approval), photographs were taken to document samples of students' work and learning conditions where the STs displayed *how* they differentiated instructional content, process, or product for student readiness, interest, and learning profile. Although I had students' assent, I was very careful to take images of children or subjects positioned with backs turned to me so that there would be no recognizable features to reveal personal identities.

Photos were taken during different periods of teaching and learning to show how the STs responded to learner variance. For example, Appendix L shares photos taken while observing one ST as she introduced a lesson to the whole class then transitioned students to small collaborative groups for problem solving, then differentiated tasks for individual needs using technology. It should be noted that the research questions centered on STs, and that IRB approval was sought for observations of STs; therefore, all personal identities were removed from visuals of children's work or student observational data.

By using these three forms of data collection for data analysis, I gained new insights on what differentiated instruction looks like in the student teachers' and cooperating teachers' classrooms and their transformation experiences. Also, qualitative results from multiple sources (e.g., interviews, observations, and student artifacts) allowed for saturation of information and increased the validity of this study by allowing the three forms to be integrated with each other and analyzed for similar results.

Data Analysis

Wolcott (1994) suggests building a descriptive account of the phenomena by using analysis that involves a progressive focusing of the data. Accordingly, the first

step of the analysis was to review the rich and thick observation field notes and write them up more completely after leaving the site. These were reread and analyzed by looking at the events that occurred within a lesson, particularly when the STs appeared to have adapted a lesson or their interactions to the needs of particular learners. I tried to look for more evidence of the STs' designing or adapting of lessons for specific students or for specific needs.

Interview strategies included audio recording each participant and verbatim transcripts of the interviews. I transcribed, reread, and analyzed all of the interview data for each ST and CT by question. I looked across the questions and the entire conversations for the STs' descriptions of differentiation – specifically how each ST stated their methods of differentiation during the lesson including what they planned or adapted on the spot, their successes and challenges, and what they were able to control or not control about differentiated instruction. STs' and CTs' descriptions were compared and contrasted with the differentiated instruction (DI) conceptual model, then across the three STs and CTs to see if descriptions showed similarities and differences.

Data analysis was ongoing throughout the data collection to allow for richer and more meaningful findings, rather than analyses left fragmented after data collection has been completed (Glesne, 2011). The deepest analysis, however, involved using a computer program to code the data, identify initial patterns, and develop themes (Figure 3). In the remaining part of this chapter, I explain these analysis processes.

Coding

The initial step of analysis was to read and review the interview transcripts, observational notes or memos, and additional documents that were to be analyzed

(Maxwell, 2005). Assisted by the computer program Atlas.ti (Muhr, 1996), I open coded the data collected from the three STs' and CTs' descriptions of differentiated instruction while noting that the purpose of coding was to “fracture data” (Maxwell, 2005, p. 96) in order to break it apart and rearrange it for comparison and contrast of emergent patterns. For case studies, Yin (2014) explains that data analysis consists of “examining, categorizing, tabulating, testing, or otherwise recombining evidence, to produce empirically based findings” (p. 132).

For the purpose of identifying categorical codes, I used elements of Tomlinson and Allan's conceptual model (Figure 2) for differentiating instruction as a source of some categorical codes for sorting the data for further analysis (Figure 3). For example, terms such as “content differentiation,” “learning profiles,” “tiered lessons” were used as general categories both on the conceptual model as well as for the purposes of raw data analysis. Data attached to these codes allowed me to inductively identify patterns of emic origin (e.g., from the STs' and CTs' own comments or words), and then deductively identified patterns of etic origin (e.g., my own research ideas, connections to the conceptual model identified for this study, or current issues in meeting the needs of diverse learners in teacher education research). To support the open coding process, I used Atlas.ti (Muhr, 1996). Atlas.ti is an electronic data management and analysis tool for qualitative research. I loaded my raw data into the Atlas.ti program and, as I read and reread the data, I freely coded the data. Seventy-two initial “free codes” were applied, as represented in Appendix M.

Once the data were coded, I began the process of categorizing the codes in order to identify relationships among groups of codes and to establish a deeper or more

substantive level of analysis (Appendix N). Maxwell (2005) suggests that connecting strategies can be used to seek out patterns between codes, rather than simply identifying similarities across categories of codes. He also recommends using varied methods to identify the relationships among codes to avoid sorting data into similarities, and focus more on relationships that connect “statements and events within a context into a coherent whole” (p. 98).

Guided by my research questions and using Atlas.ti (Muhr, 1996) for the analysis, I carefully reviewed and sorted all the codes from all the data, then developed a matrix that indicated the strongest frequency of patterns between the codes (Appendix O). For example, I used the query tool on Atlas.ti (Muhr, 1996) to examine relationships between the two classroom climate codes “safe” and “collaboration,” to identify data saturation and possible overlap. I considered what it meant to be safe and collaborative, and what was going on between the two codes as they related to the initial research questions. I did this for all of the additional “free codes” for the entire research project. Coded relationships that provided the highest frequency and codes that clustered adjacent to each other became meaningful categories of interest.

These categories and codes are listed in written and photograph format in Appendix O and represent:

1. the initial frequency matrix handwritten from the analyses done through Atlas.ti,
2. the matrix of coded data typed with colors representing levels of frequency,
3. the condensed data matrix – frequencies of five or less were eliminated and shaded gray for visibility of stronger frequencies,

4. the master code matrix condensed a second time eliminating frequencies of three or less. Cluster groups that emerged with the highest frequencies were examined for categories and emergent themes.

Analysis of the master code matrix allowed me to identify categories that could be collapsed into themes from which anticipated assertions could emerge (Creswell, 2007). Themes reflect from all forms of the data (observations, interviews, and artifacts). Further, to guard against data analysis techniques that remained at the organizational coding level without delving into substantive and theoretical coding (Maxwell, 2005), I established theoretical codes to situate the coded data in a more general or abstract framework. Theoretical codes such as “respectful tasks,” “student interest,” “adjusted assignments,” and “flexible grouping” connect with Tomlinson and Allan’s (2000) principle-based model of differentiated instruction (Chapter II, Figure 2).

Table 6 represents a small sample of coded data from multiple interviews of one ST. Data samples are presented in the middle column. In the left column, preliminary codes support the substantive category of teacher collaboration. The coded data describe the importance of CTs’ modeling and mentoring differentiated instructional methods for their STs as a form of scaffolding or actively engaged teaching with assisted performance. The right column shows preliminary data analysis related to Vygotsky’s zone of proximal development (Chapter I, Figure 1) as it supports the transformation of STs from dependence to independence in their development of using differentiated instruction in the classroom.

Table 6. Substantive Category: ST & CT Collaboration – Modeling and Mentoring STs.
What does differentiated instruction look like in selected student teachers' classrooms?

Category: ST/CT Collaborate	Coded ST Interview Data for ST3	Vygotsky's ZPD Stages
Modeling/Mentoring	Atlas.ti Codes I1-I2-I3-U3-U4	
CT scaffolds, models teaching for ST	ST: That scares me because I keep thinking about my students' futures. What if they had a student teacher that didn't do a great job of teaching them? I rely heavily on my CT's help.	1-2
CT scaffolds for ST's development	ST: I look at my CT and she just keeps on encouraging me and by us working together ... I know it's going to be okay.	1-2
Relationship is valued	ST: Connecting with your CT is critical. I think being a new teacher and not having that support would be scary.	2
Relationship is valued	ST: Having that support or collaboration of going back and forth – makes it easier and it makes it more comfortable.	1
ST/CT relationship	ST: The relationship is definitely very important.	2-3
CT models learning preference	ST: My CT did an awesome lesson recently. The kids were having so much fun and really learning ... like, they didn't want to stop. They kept asking "what if" questions. It was so cool and I got to be a part of the lesson – kids working right in their intelligence areas too.	2-3
CT models how to structures small group learning	ST: My CT does a lot of group work. She knows ... who works well together, and she knows that it's important that they get along. She has modeled for me how to build a DI community – start with relationships.	3
ST and CT collaborate	ST: Yes, collaboration is done with intentionality. She models then I do the teaching. I feel better prepared.	3-4
CT encourages ST to be reflective	ST: My CT has encouraged me to be reflective ... a lot. I think, in my opinion, that reflection is one of the most important parts of being a good teacher.	4
CT encourages ST to be reflective	ST: Some people just don't reflect naturally, where they stop and think about the lesson to decide whether or not it was done well or if it needed to be changed. I am doing that continuously now.	4
Collaboration is a practice	ST: My CT and I model DI for each other and we're both teaching children together.	4

My thematic analysis sought patterns across STs and CTs permitting me to develop a “detailed rendering” (Creswell, 2012, p. 472) of their differentiated instruction during the student teaching experience, as represented in Table 7. A sample of a six-page data list is located in Appendix P.

Following Creswell’s (2012) recommendations for “thematic data analysis” (p. 473), I was able to crystalize the essential patterns of information that became evident in the case, resulting in the emergence of themes. Table 8 lists the four themes that emerged through data analysis.

Reliability and Validity

Qualitative researchers seek methods that allow them to record accurately their own observations while also uncovering the meanings their subjects bring to lived experiences (Denzin & Lincoln, 2011). This methodology requires trustworthiness, integrity, and credibility to the research findings. Even though absolute trustworthiness cannot be achieved, Yin (2014) suggests using qualifiers for establishing validity in a case study design (pp. 45-46) to reduce threats to validity. This study’s qualifiers for reliability are construct and internal validity. To assure validity in this study, findings were triangulated across the different data sources for individual STs. Table 6 documents different data sources that were collected on theme three to provide a stronger systematically developed description of what differentiated instruction looks like in the ST’s classroom.

Table 7. Convergence of Quotes to Codes and Categories Into Theme Three.

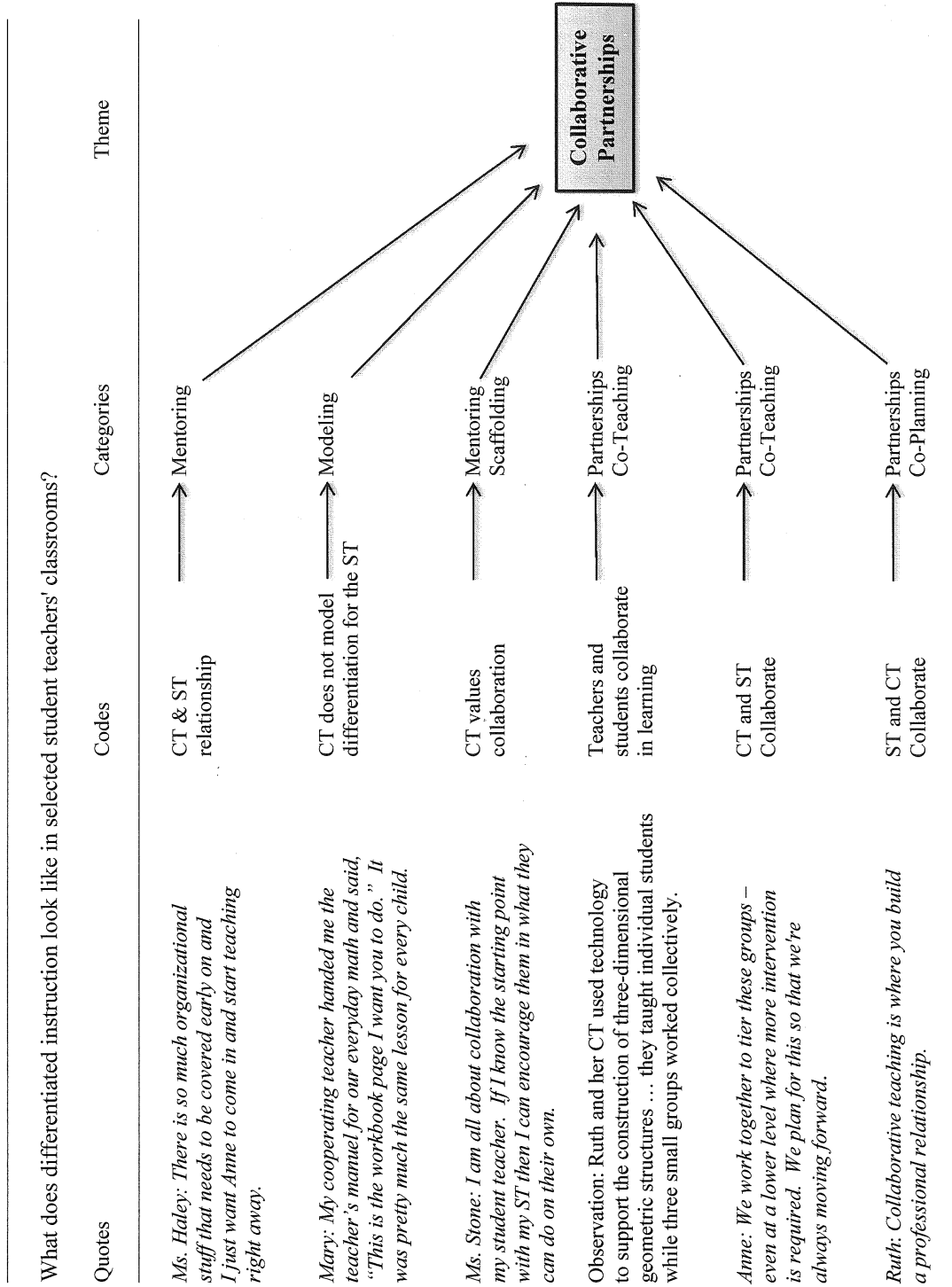


Table 8. Four Themes Emergent From Data Analysis.

Number	Theme
1	Kaleidoscopic Viewpoints
2	Getting Focused: Taking Risks to Build Confidence
3	Collaborative Partnerships: Shifting Patterns, Changing Scenes
4	Pathways to Responsive Teaching: A Developmental Process

Construct Validity

Data sources include field notes from the three STs' classroom observations (eight observations each), three in-depth interviews with the STs, three in-depth interviews with the CTs, and teaching artifacts from the STs. Using multiple sources of evidence with an established chain of evidence is a case study tactic for construct validity (Yin, 2014, p. 46). Member checking was used to enhance the descriptive validity of the data. Student teacher participants were provided with a transcript of their second interview mid-semester and were given two weeks to review the document to add or change anything in their description of DI. This allowed me then to *construct* a valid representation of their perspectives with authenticity and viability of interpretation. Minimal changes were made from the participants' feedback and the changes added more richness to the student teachers' descriptions.

Internal Validity

Ongoing thematic analysis provides *internal validity* that follows a case study tactic of pattern matching, explanation building, and logical models (Yin, 2014, p. 47). To achieve this, all data collected for this study were carefully organized and stored. I

provided an audit trail of the transcribed interviews, memos, and prepared field notes during and immediately after each classroom visit. For example, to avoid the broader problem of making inferences too early, memos were listed separately on the observation protocol to keep the observation data separate from my personal thoughts about the teaching lesson being observed (Appendix Q). For example, while observing one student teacher with a small math group, I wrote memos about my observations of some of her teaching behaviors, including mannerisms and gestures, pace of instruction, and how often the student teacher checked for developmental gaps in the students' understanding of the concepts being taught. Memos were separate from field notes.

Researcher Reflexivity

Reflexivity refers to a circular relationship between cause and effect. According to Creswell (2012), reflexivity “refers to the researcher being aware of and openly discussing his or her role in the study in a way that honors and respects the site and participants” (p. 474). Yin (2014) argues that the credibility of a case study can be threatened if the researcher is not aware of the potential biases that can occur (p. 117). In my role as a researcher for this study, I realized that my biases and perceptions influenced the way I conceptualized this research, the lens I used to collect and analyze data, and my interpretation. As a teacher educator, I model differentiation principles through experience and design so that students in my courses have practice with differentiated instruction prior to their student teaching and senior capstone, the final course requirement to complete a degree in teacher education. I also teach a course in Differentiated Instruction and all three STs took this course from me.

I realized that the participating STs could potentially seek input from me regarding their teaching practice in differentiation; however, I informed them at their first interview that for the duration of this study I would not provide them any guidance or support. For example, Appendix J has a sample of how I remained trustworthy in this study. During an interview, one ST requested for “pointers” to help her with differentiating a social studies lesson. I stated that I was sorry I couldn’t help and reminded her that I could not provide any support with differentiation while we were doing the study. To maintain the respect of the site and participants (Creswell, 2012) and be sensitive to any reflexive threat (Yin, 2014), all additional conversations remained focused on the STs’ descriptions of differentiated instruction as a practice for responding to learner’s needs. I was intentional with how I interacted with the three CT participants who were recruited for this study because we had a former professional relationship when I worked in the school system. I reminded all three CTs that to maintain the integrity and credibility of this research, there would be no conversations about our previous professional relationship or any guidance with differentiated instruction for the duration of the study.

Summary

In this chapter, I reviewed the purpose for this current study with justification for using the case study approach to this research. An overall design of the study (Figure 3) was presented followed by a description of the essential elements of the study: the central research question, parameters of the case, location, participant sampling, and data collection procedures. Descriptions of the methods used to obtain consent of each participant were noted. I explained the coding processes and the use of Atlas.ti

(Muhr, 1996) to derive thematic groupings of the data. I shared significant themes that emerged from the data through analysis. I addressed the researcher reflexivity, reliability and validity, and procedures for data analysis.

CHAPTER IV

FINDINGS

This chapter describes the key findings from the study and describes significant themes that emerged from the data through analysis. I restate the research questions and offer a brief introduction to the four themes that emerged. The remainder of the chapter is devoted to presenting the findings.

Research Questions

The purpose of this study was to explore what differentiated instruction looked like in student teachers' classrooms and examine how they (student teachers) describe differentiated instruction as a method for meeting elementary students' diverse learning needs. The central research question asks, "What does differentiated instruction look like in selected student teachers' classrooms?" Specifically, the study addresses the following questions:

1. How do student and cooperating teachers describe differentiated instruction as a method for meeting elementary students' diverse learning needs?
2. What challenges and successes do these student teachers experience with implementing differentiated instruction?
3. What can the student teachers control or not control about differentiated instruction?

4. How does the relationship with the cooperating classroom teacher impact how student teachers differentiate instruction?

Overview of Themes

Four themes emerged from the data analysis:

1. Kaleidoscopic Viewpoints
2. Getting Focused: Taking Risks to Build Confidence
3. Collaborative Partnerships: Shifting Patterns, Changing Scenes
4. Pathways to Responsive Teaching: A Developmental Process

Theme One addresses research question one about how student and cooperating teachers view and describe differentiated instruction. The data presented in this theme convey the perspective and knowledge the participants possess about differentiated instruction. It focuses on the content of the overall model of differentiated instruction (Tomlinson & Allan, 2000). Theme Two synthesizes data that describe the challenges and successes student teachers experience when they take risks to implement differentiation. This theme also explores the role of student teacher as a learner of differentiated instruction and the cooperating teacher as one who assists this learner. This theme primarily addresses research question two. Theme Three addresses both research questions three and four. This theme posits the importance of student teachers' collaborative partnerships with cooperating teachers who differ in many ways relative to differentiated instruction. Theme Four addresses research question four and communicates findings about student teachers' achievement of responsive teaching given their opportunities to implement differentiated instruction as independent teachers.

Theme One: Kaleidoscopic Viewpoints

The theme, Kaleidoscopic Viewpoints of differentiated instruction, draws on data about how student and cooperating teachers describe their knowledge and understandings of differentiated instruction, primarily from the first interview with the student teachers and the only interview with the cooperating teachers. Codes such as differentiated instruction defined, differentiated instruction and background knowledge and beliefs, and differentiated instruction with knowing learner differences fed into the categories of “Student Teacher Conceptions of Differentiated Instruction” and “Cooperating Teacher Conceptions of Differentiated Instruction.” The theme provides a basis for describing student teachers’ experiences with differentiation in their student teaching classrooms and the kaleidoscopic viewpoints that are shared by student teachers and cooperating teachers regarding differentiated instruction. Descriptions colorfully illuminate the conflicting and contrasting viewpoints that student teachers and cooperating teachers had about differentiation. Intersections at the end of this theme address some of the variegations in how the participants viewed and described differentiated instruction to respond to learner variance.

Student Teachers’ Viewpoints

Data collected from all three student teachers’ interviews conceptualize differentiated instruction as a method teachers use to be proactive in their thinking about the structure of a classroom environment and how it actively supports learners and learning. When I asked the three student teachers to define differentiated instruction during their first interview, all three shared background knowledge of differentiated instruction and what it meant to them as student teachers, how they saw

differentiated instruction as a means to connect with learners in the classroom, and what they observed their cooperating classroom teachers doing with differentiated instruction during the first few weeks of student teaching.

Figure 4 is the diagram Anne (ST1) created and used as a viewpoint of differentiated instruction in her fourth grade student teaching classroom. When I prompted Anne to use the drawing to share her thoughts, as a student teacher, about differentiated instruction, she used the upper left side of the paper to list several words and phrases and to draw a stick figure inside of a box. She used words such as getting to know students, assessments, and philosophy of teaching to describe student teachers. She used words such as students and teachers interacting with content, process, and product to describe differentiated instruction. Anne also included different ways for students to receive information and show what they know as part of differentiation.

Anne hesitated frequently during her first description of differentiated instruction, stating, “I’m starting as a new teacher and I feel that DI is still in a box for me.” When asked why she felt that way as a student teacher, Anne noted,

I don’t want to be stuck in the basal series or the textbooks that we do have. I’d like to modify things and have the focus of my teaching be differentiation for ... you know the lesson that the book provides for me.

Mary (ST2) presented a different viewpoint of differentiated instruction as a student teacher in a second grade classroom. In her drawing (Figure 5), Mary saw differentiation as something “different, where the teacher provides that extra or different type of material to students that need it.” Using a rainbow to represent differentiated instruction she explained,

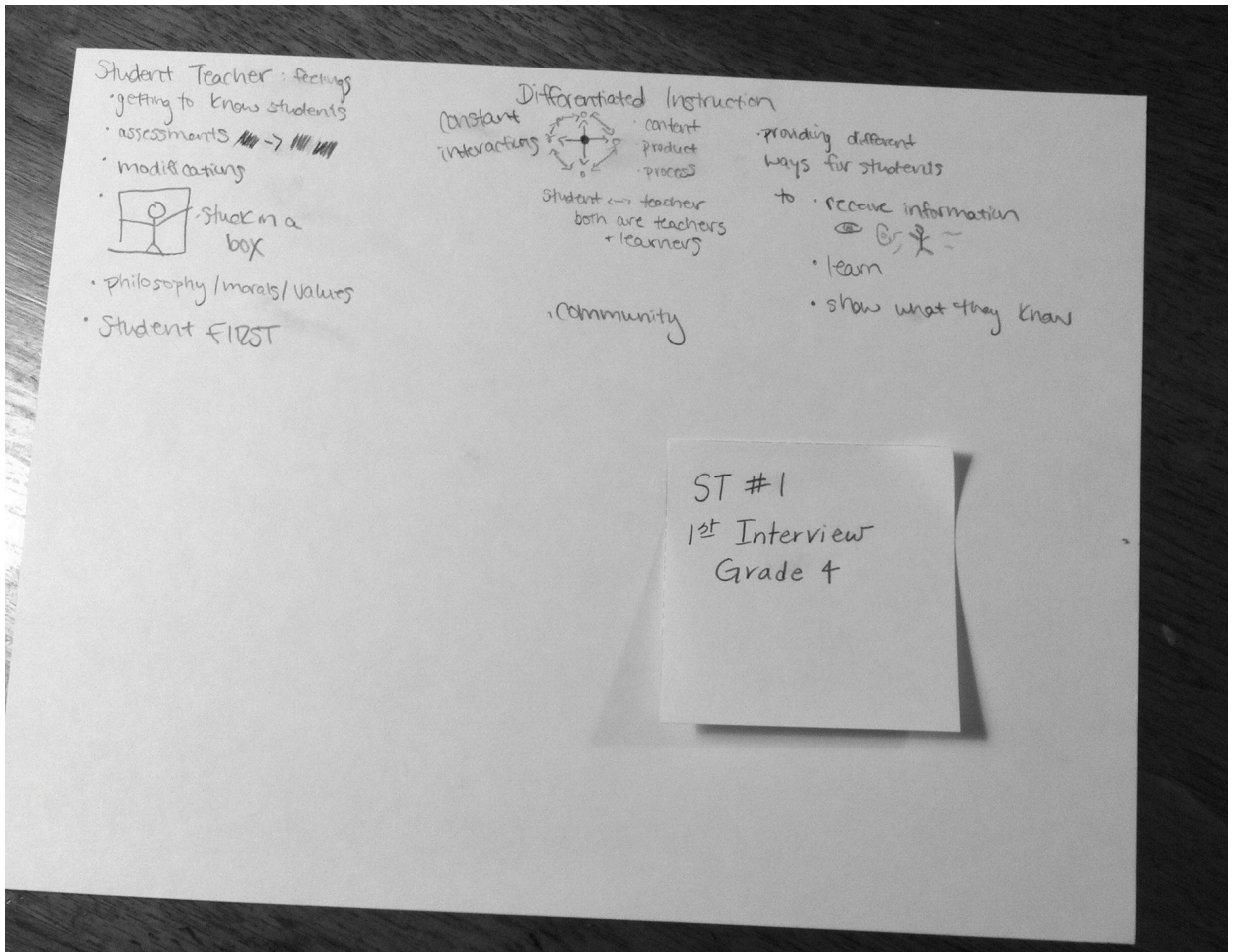


Figure 4. Visual drawing of differentiated instruction and student teaching from Anne (ST1) generated during her first interview.

You go from a standard that is black and white where everyone does the same thing ... then you mix it up and you provide different learning activities for the kids that need it. Those are the colors of the rainbow.

Mary surrounded the rainbow with words such as new, challenge, learn, change, and being informed to help her define how she saw her own status with differentiated instruction. During her first interview, she described observing her cooperating classroom teacher “teach straight from the book.” This approach to teaching counters

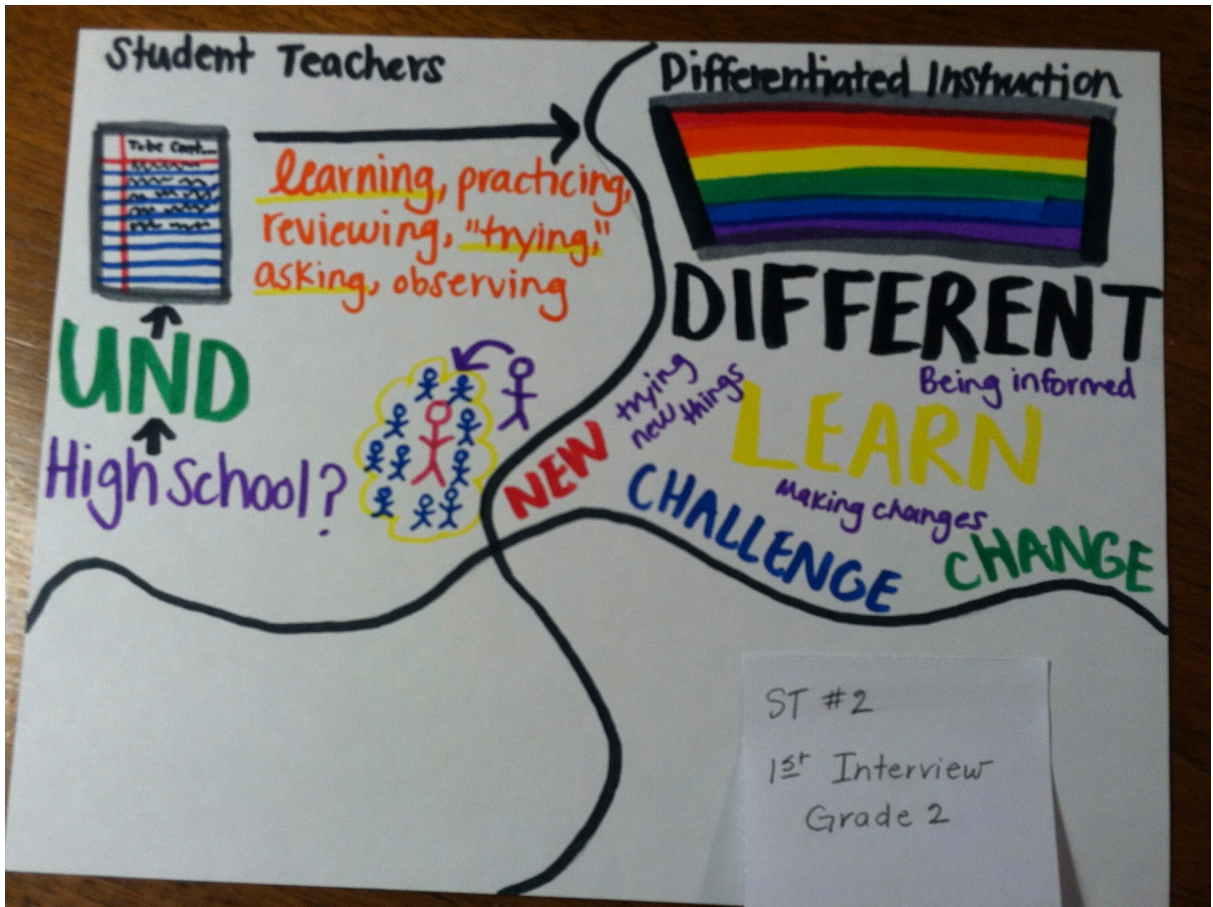


Figure 5. Visual drawing of differentiated instruction and student teaching from Mary (ST2) generated during her first interview.

Mary’s view that differentiated instruction is about “trying new things” (Figure 5). She states, “I *think* that differentiation is good teaching where teachers do things in a different way to meet the different kind of learners in the classroom.”

When asked to share more about the idea of *good teaching* and *differentiated instruction*, Mary paused, stating, “Well ... in my drawing I started at the bottom where I knew nothing about DI until I went to the university. I only filled up half of the drawing because I am still learning as a student teacher.” She underlined words such as learning, reviewing, and practicing as important words to describe what she wanted to do with differentiation in her student teaching experience. During her interview, Mary

recommended using differentiation as a way to acknowledge different learning levels in the classroom, stating, “It’s just important that teachers are using DI to help the learning be different or to challenge the kids.”

As a student teacher in a fifth grade classroom, Ruth (ST3) described her first impression of differentiated instruction as *getting to know learners*. Ruth’s drawing (Figure 6) provides words such as multiple intelligences, learning styles, academic levels, and accommodating for enrichment and special education to help her define ideas about differentiated instruction. Over to the right of the picture is a box with five colored dots that represent the variety of activities created for learners in her classroom. Using her drawing as a guide, Ruth explained, “It’s how to work with them (the students) where they are at academically, their interests, their intelligences, whatever that may be – like that’s the first thing a student teacher needs to know.” She added that watching her cooperating teacher create lessons based on these three indicators of *knowing learners* influenced her beliefs as a student teacher and encouraged her interest in exploring instructional strategies that promoted differentiation for learner differences.

Data indicated that the student teachers considered learners and learner differences as important when viewing differentiated instruction. Anne described her fourth graders as *very, very* [emphasis added] different, noting, “There are differences in the learning, student backgrounds, and home life – there is a lot of different culture.” Ruth added, “The biggest thing that is different about my students are their family lives – and how that plays into how they (the students) do in school.” She shared an example of a fifth grader who came late to school every day because as a foster child he spends the mornings with his brother and Mom because they wouldn’t have time to be

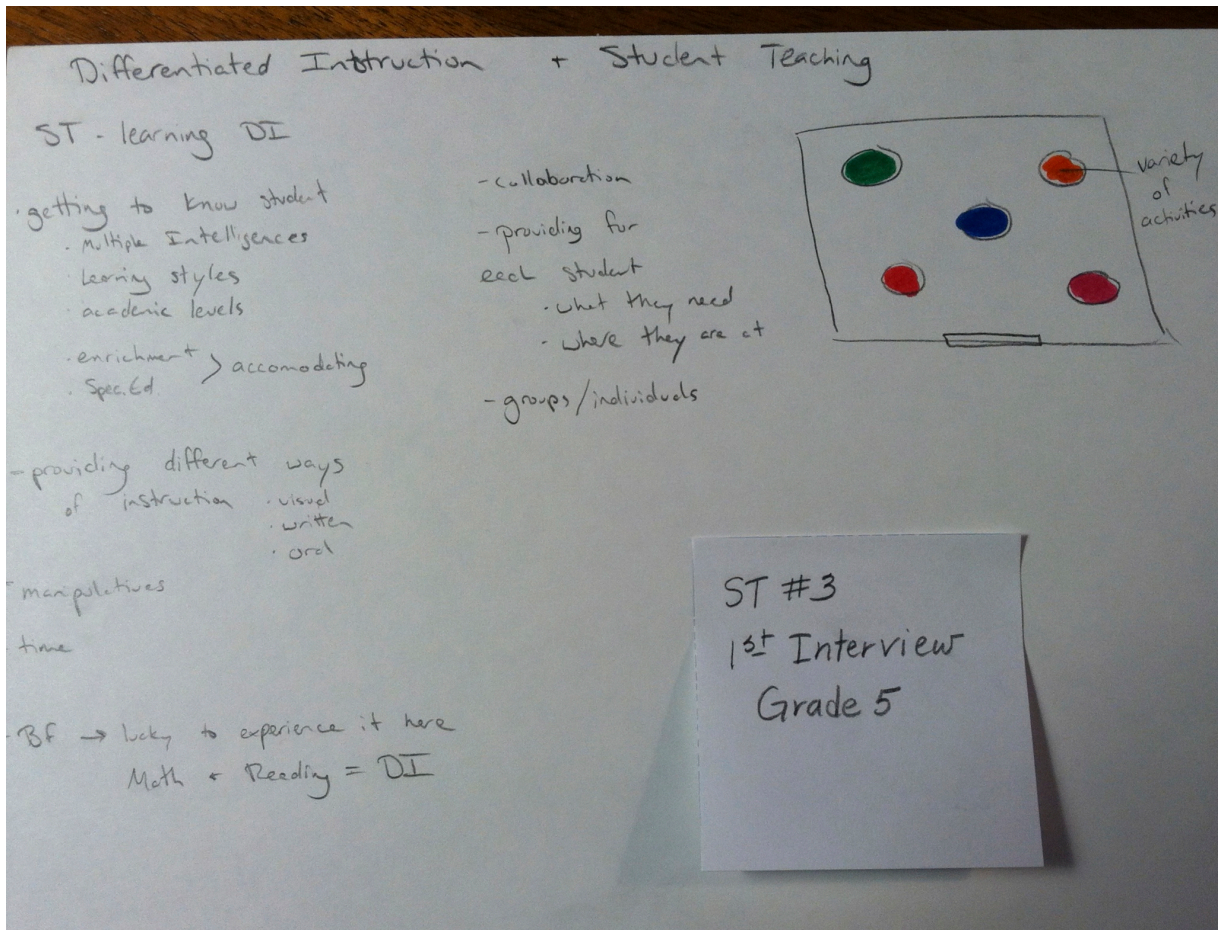


Figure 6. Visual drawing of differentiated instruction and student teaching from Ruth (ST3) generated during her first interview.

together otherwise. Mary focused more on the academic variance, adding, “On the learning scale or educational standards, they are very different. I see differences in how they are writing, how they are doing, their spelling, how they can explain things differently.”

All three student teachers used their sketches to help illuminate their first impressions of cooperating teachers’ use of differentiation to meet student needs, and how those views shaped their understandings of learner differences. Mary placed parentheses around the word *trying* on her diagram (Figure 5), because she indicated that she had not observed her cooperating teacher differentiate instruction beyond the

scope of leveled reading groups. This worried Mary as she described watching academically bright students “sit in their desks half paying attention and half looking away with boredom” during a math lesson.

In addition to knowing their learners, student teachers viewed differentiated instruction as ways to build classroom community. Anne highlighted assessment as a good place to start differentiating for small groups where learners could “get what they need – where they are at.” She observed her cooperating teacher model different types of assessment for differentiating process and product during the first weeks of student teaching. When asked to explain why assessment was effective, Anne said, “Assessments can be great experiences for students ... you know, whether it’s synthesizing and making connections with what they know or can do. So it’s not just recall but deeper levels of thinking.”

Choosing the word *collaboration* from her picture (Figure 6), Ruth discussed how the classroom teachers in her school “team up to create differentiated lessons,” which allows students and teachers to learn together. During her first three weeks, Ruth observed her cooperating teacher use academic data and interest surveys to structure small-group learning settings, where the importance of placing students for learning needs was strategic and purposeful. Linking the importance of knowing your students with assessment and social communities, Ruth described what she experienced during the first few weeks with differentiated instruction in her classroom:

Because DI to me is groups – like grouping students where they’re at and what they need ... you differentiate the activities that they [students] are actually doing based on the assessment for groups overall. For example, you might have one

group doing this activity where another higher group will be doing something more complex. This is what I am seeing right now – but I’m not sure I’m ready to do that by myself.

Data from the student teachers’ first interviews suggest that the STs viewed differentiated instruction as a method for teaching, a means to connect with learners in the classroom, and an approach for building lessons that are differentiated based on academic and interest assessments.

Cooperating Classroom Teachers’ Viewpoints

Data collected from all three cooperating teachers’ interviews conceptualize differentiated instruction as methods to attend to student differences by constructing learning communities that are respectful of individuality and collaborative relationships. Each cooperating teacher was interviewed once, and the interviews occurred during the middle of the student teaching practicum. In addition, all three cooperating teachers emphasized using differentiation to connect learners with curriculum; however, the viewpoints described by the cooperating teachers were very different based on their own background knowledge and experience.

As a fourth grade teacher, Ms. Haley (CT1) was eager to share her perspective and views on differentiated instruction. After drawing DI at the top of her illustration (Figure 7), Ms. Haley added five arrows to link the words content, learning style, interests, strengths and weaknesses, social, and process in her definition of differentiated instruction.

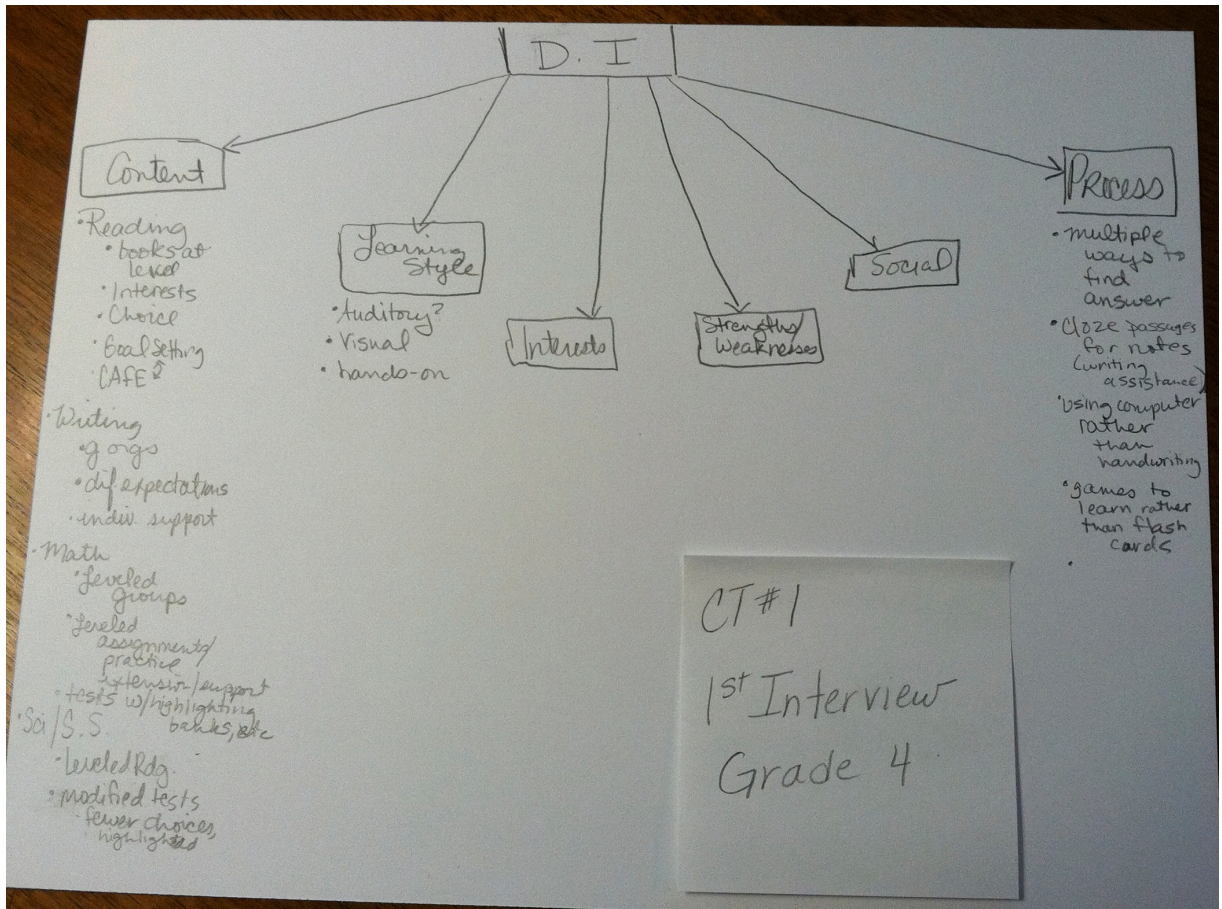


Figure 7. Visual drawing of differentiated instruction from Ms. Haley (CT1) generated during her interview.

Parallel to Tomlinson and Allan’s (2000) model (Figure 2), Ms. Haley explained, “I think a lot of the things we talk about with differentiated instruction deals with content and process, but I also think we need to consider the student – you know, the learning styles, interests, strengths, and weaknesses.” She also emphasized looking at the whole child rather than just the learner, adding that her collaboration with Anne had allowed both of them to discuss whether differentiation was a modification, accommodation, or individualized learning.

Ms. Gates (CT2) viewed differentiated instruction as “meeting the needs of all kids so that all kids can learn.” Using her diagram (Figure 8), she described differentiating for second graders as having a “toolbox,” where teachers could “find new tools to try because each group and each child will be different.”

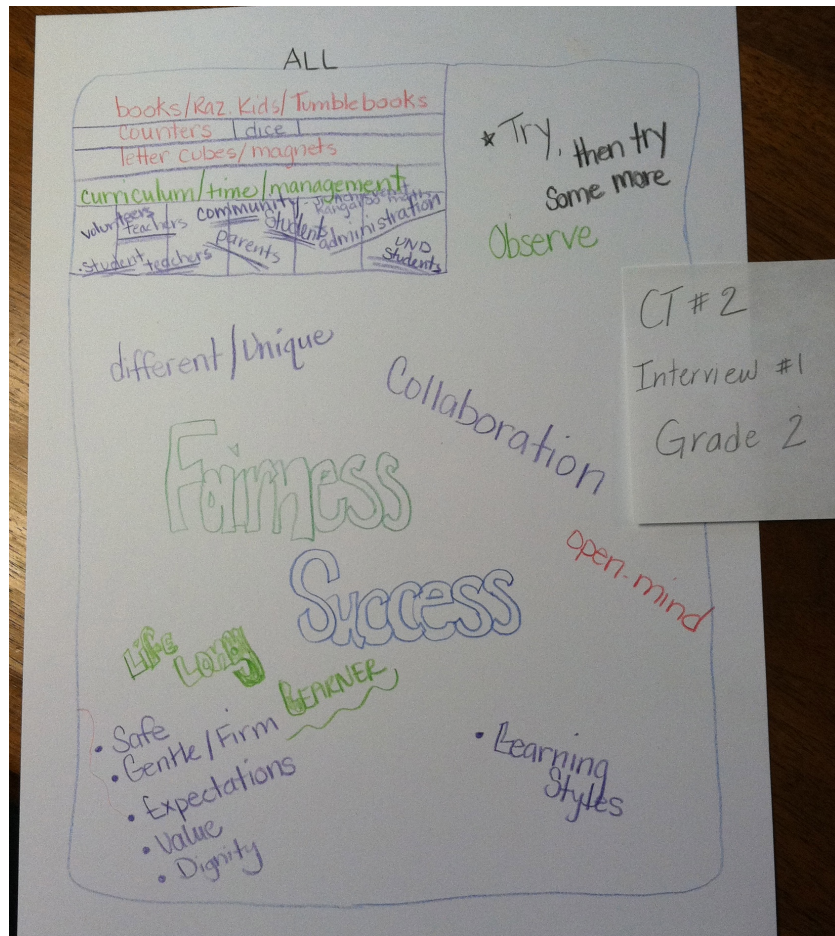


Figure 8. Visual drawing of differentiated instruction from Ms. Gates (CT2) generated during her interview.

Ms. Gates indicated that *all* students needed differentiated instruction through varied books, curriculum, time, and management. She revealed that her understandings of differentiation came from her special education background, adding, “In my classroom, learning differences are addressed early in the school year to help students

feel that the classroom is a fair and equal place for learning.” When asked to explain more about *fairness and equality* as a method of differentiated instruction, Ms. Gates explained,

All second graders want to be alike and have the same opportunities in the classroom – students start to think about the classroom being unfair where some kids get to do things they don’t get to do. I just want them to get the same opportunities so that they can all learn together.

Ms. Stone (CT3) called differentiated instruction the only method for teaching in today’s classrooms, indicating that her whole framework for teaching in a fifth grade classroom is built around the brain. On her illustration (Figure 9), Ms. Stone drew a person wearing a cap that was labeled “Thinking inside a powerful brain.” She extended lines from the cap to include words such as intelligence strengths, learning preferences, interests, and project ideas to help her describe where teachers differentiate for learners and curriculum. Ms. Stone noted that she begins the process of differentiation by sharing personal stories of experiences with her students that were challenging for her as a learner.

In her interview, she emphasized that her message to students during the first few weeks of school is “Individuals are different and choice is valued.” Similar to Tomlinson and Allan’s (2000) model (Figure 2), Ms. Stone uses assessments to identify students’ academic levels, smarts, and preference for learning. During her interview, she acknowledged that this leads learners to find their voices and discover what “hooks interest” or “piques wonderment.” Ms. Stone added, “By looking at myself first with

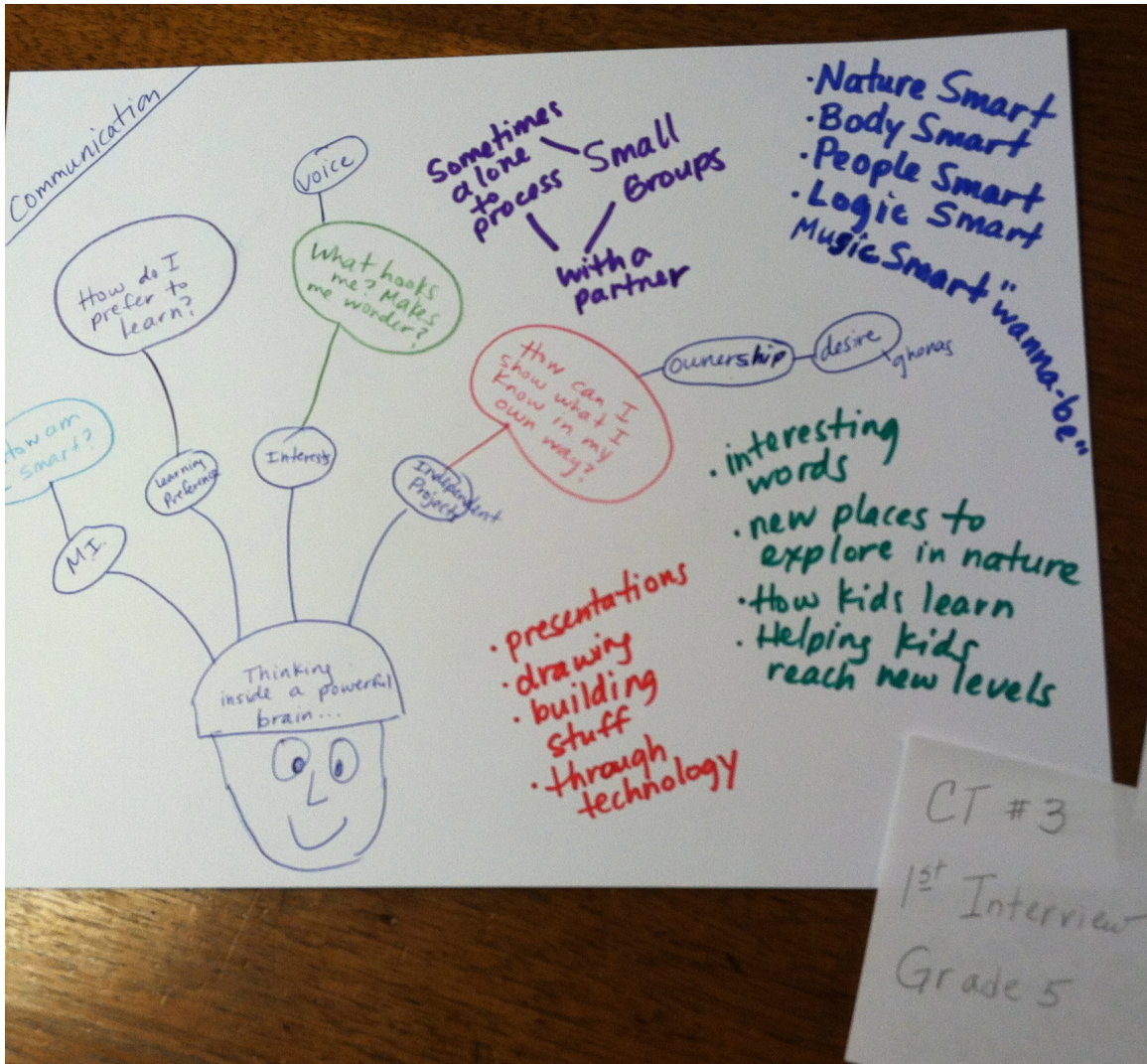


Figure 9. Visual drawing of differentiated instruction from Ms. Stone (CT3) generated during her interview.

kids, I can ask them how they are smart ... prefer to learn ... show what they know as my starting point for differentiating for their learning needs.”

Data indicated that the cooperating teachers shared different views in their responsibility for modeling differentiated instruction for student teachers. Ms. Haley described Anne as a co-teacher where modeling was something they did for each other and discussions about teaching and assignment adjustments were done daily. Ms. Haley

said, “We spend a great deal of time discussing and planning together what we’d do differently in our teaching, and I think there are many areas we would like to work harder on when addressing student differences.”

Using her picture, Ms. Stone pointed to *how kids learn* and *helping kids reach new levels*, stating, “I want my student teachers to have time to kid watch and kid engage.” She added that this is more successful in the fall than the spring because it’s a natural part of how teachers develop relationships with students. Ms. Stone shared the importance of modeling differentiated instruction for student teachers by asking questions. She posits thinking about learners first, saying, “I ask student teachers to consider what they’d do if they had learners with four different learning preferences and those students want to share what they knew in different ways. How would you guide that?” When asked how she modeled for Ruth, Ms. Stone said, “With deliberation. I think university students need to know where to start, what to start, and how to start. One subject at a time.”

Ms. Gates described mentoring for student teachers through conferences and discussions about difficult teaching situations. When probed to share how she modeled differentiated instruction for her student teacher, Ms. Gates said, “Well ... I am learning from my student teacher as much as she is learning from me about differentiation [laughs].” She added that modeling how to build competence with children was the most important part of her mentoring with student teachers.

Data from the cooperating teachers’ interviews suggest that the CTs viewed differentiated instruction as methods to attend to student differences where learning communities were constructed to respect individuality and collaborative relationships.

Intersections of the Participants' Viewpoints

Data indicated that the student teachers and their cooperating teachers share some similar and some different viewpoints about differentiated instruction that colorfully illuminate how they see differentiated instruction as an instructional approach to respond to learner variance. Ruth (ST3) and her cooperating teacher Ms. Stone (CT3) both identify similar words (e.g., multiple intelligences, learning styles, and interests) to describe differentiated instruction as a way to support learners in the classroom. Whereas Ruth views differentiated instruction as a means for meeting the needs of all fifth graders, Ms. Stone narrows her description to individual learner needs, specifically those that impact student interest and choice.

Ms. Haley (CT1) and Anne (ST1) both agree that differentiated instruction is effective when working through the elements of content and process. Interestingly, Ms. Haley positioned content and process on opposite sides of her diagram (Figure 7) with the learners' individual needs in the center. She also listed detailed instructional and management strategies under both content and process, while the four profile descriptors were predominantly blank. In contrast, Anne drew content, process, and product as pieces of differentiation that are constantly interacting where students and teachers are learning together. Data suggest that her focus or viewpoint was more about the relationship between student learners and teachers rather than curriculum.

Mary (ST2) and Ms. Gates (CT2) both describe differentiated instruction as being “different,” however with contradicting views. Frequently during her interview, Ms. Gates discussed student differences (e.g., culturally, academically, and socially) with differentiation, but stressed that *fairness and equality* was more important for the success

of her students. Mary saw the word “different” with differentiation as an opportunity to try new teaching methods. She aimed to challenge and change the classroom equality by making adjustments according to learners’ needs versus teaching in the mode of “one size fits all.” Ms. Gates described differentiation as something she did “for fun,” while Mary saw differentiated instruction as something done “continuously every day.” Descriptions from the student teachers’ first interview and the cooperating teachers’ interviews present a spectrum of viewpoints about differentiated instruction as a method for responding to learner variance. Data indicated that viewpoints are kaleidoscopic where student teachers and cooperating teachers use a similar lens (describing differentiated instruction) but have different structural and colorful outcomes (descriptive words, processes of teaching, and perspective of student differences).

Theme Two: Getting Focused: Taking Risks to Build Confidence

Student teachers’ challenges and successes with using differentiated instruction (research question two) emerged from the data for Theme Two. As they assumed more teaching responsibilities, situations of risk-taking and evidence of building confidence added to and changed their descriptions of differentiated instruction. Codes such as student teachers’ risk-taking, student teaching confidence, student teachers’ success, and student teachers’ control and no control with differentiated instruction fed into the categories of “Student Teachers’ Risk-Taking with Implementing Differentiated Instruction” and “Student Teachers’ Confidence with Implementing Differentiated Instruction.”

Challenges relate to the situations in which student teachers took (or did not take) risks using elements of differentiated instruction to meet the needs of their diverse learners. Data suggest that when student teachers met the challenges by taking risks, they experienced success. The successful moments tended to feed their confidence about using differentiation. The interrelationship of risk-taking and confidence and their impact on guiding student teachers to differentiate instruction is described in the section that follows. The data suggest student teachers' knowledge about differentiated instruction and implementation is influenced by the cooperating teachers' behaviors as competent models (Tharp & Gallimore, 1988). Descriptions from student teachers' second interviews indicate that each one of them struggled with differentiation as an instructional practice during the first few weeks of their practicum experience; however, much of the tension and frustration came from situations where they were either supported or not supported by their cooperating teacher when transitioning from "frustrated teachers to confident teachers" with differentiation.

Student Teachers' Risk-Taking and Challenges

Data from observations and the student teachers' second interview indicated that all three student teachers experienced risks and were challenged with their first attempts at differentiating for learning needs. Mary tried to differentiate for second graders' interest; however, it didn't go as planned. During her second interview, she added the words "difficulty, restrictions, and confusion" to her drawing (Figure 10), to help her describe how she felt as a student teacher with differentiated instruction. Using a red marker, Mary wrote questions about her feelings of uncertainty with differentiation. Quietly, Mary explained,

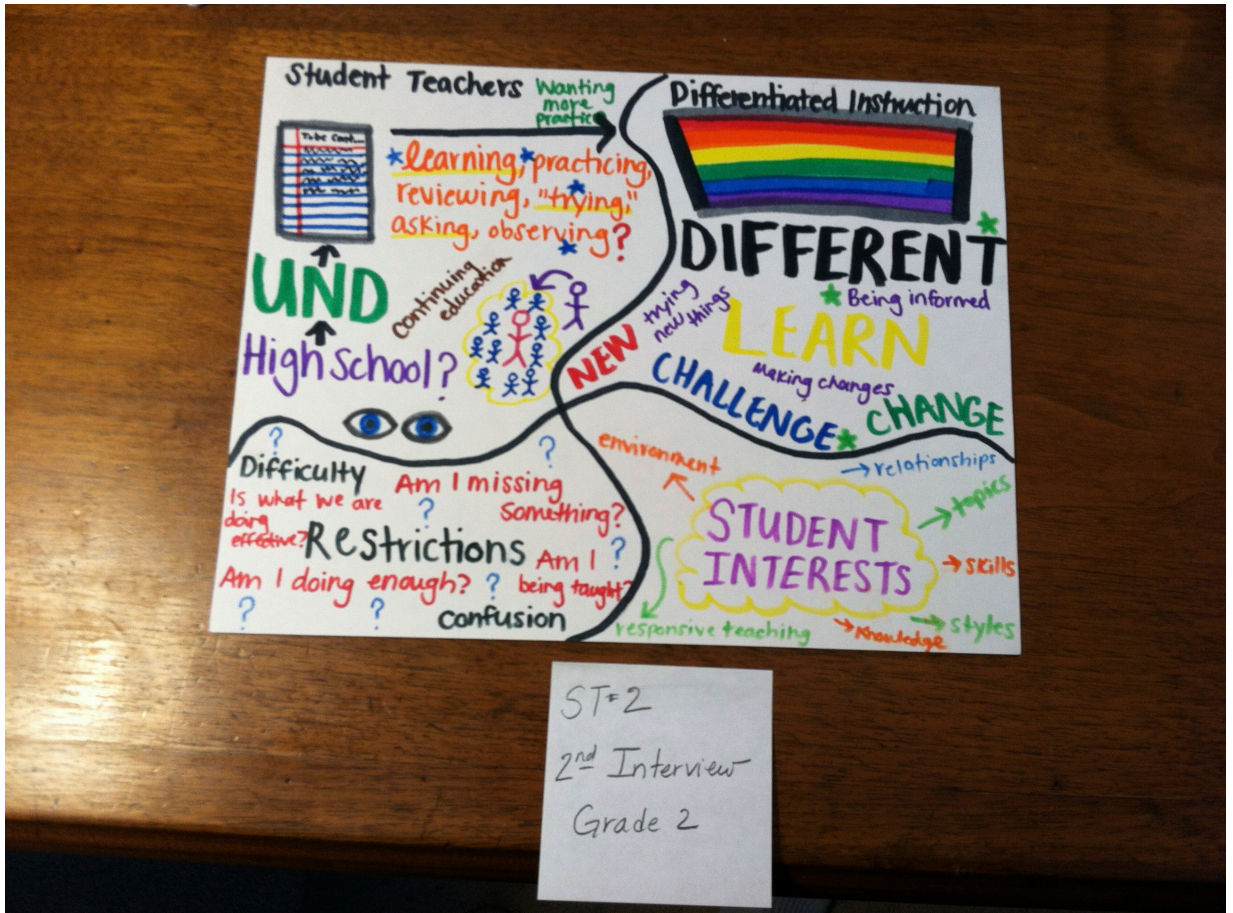


Figure 10. Visual drawing of differentiated instruction and student teaching from Mary (ST2) generated during her second interview.

Yesterday's lesson was a struggle for the kids *and* for me. I thought my DI strategies with technology and webbing would be engaging for their interests and help the kids share their ideas independently – I forgot they hadn't had a lot of choice so I think I was teaching by my way of understanding.

When probed to explain why she wrote the question, "Am I being taught?" on her diagram, Mary sighed and said,

I want to know more about DI and how to do it. I know from my own experiences that it is challenging and a lot of work ... I'm craving the techniques, the strategies, and a teacher who will model for me.

Mary's frustration increased when she shared how other student teachers at her school were getting guidance and scaffolding for instructional methods using differentiation. Knowing that she was not fully able to differentiate on her own, she perceived a lack of support by a capable other (Tharp & Gallimore, 1988). She added with sincerity, "I don't want to complain, but I do feel that I deserve a student teaching environment that allows me to grow in this area." Mary acknowledged that she needed to communicate better with her cooperating teacher about differentiation so that she could receive guidance similar to other student teachers in the building.

Data indicated that the student teachers struggled with how to use assessment data to differentiate lessons for learner variance. Ruth discovered issues with equity after placing fifth grade students in collaborative groups using multiple intelligence data. Some kids wanted to do all the work and others sat passively, doing nothing. During her second interview, she listed five challenges with differentiation on her diagram (Figure 11), including "student relationships and the ability to work together." Frustrated, Ruth groaned, "Each time I tried to resolve one problem, another one started ... I wondered why I even bothered working so hard to create the groups in the first place!"

Ruth acknowledged that she and Ms. Stone (her CT) had daily collaboration meetings where they discussed learners' needs, learning levels, and what method they planned to use to engage learners. Ruth smiled, saying, "Sometimes I get overwhelmed when I look at the day-to-day process and watch to see if something's going to work or not based on how students respond." She sees Ms. Stone's support as building her own capacity to be more independent with differentiation (Tharp & Gallimore, 1988). She whispered, "There are risks ... I am glad I have Ms. Stone right here with me."

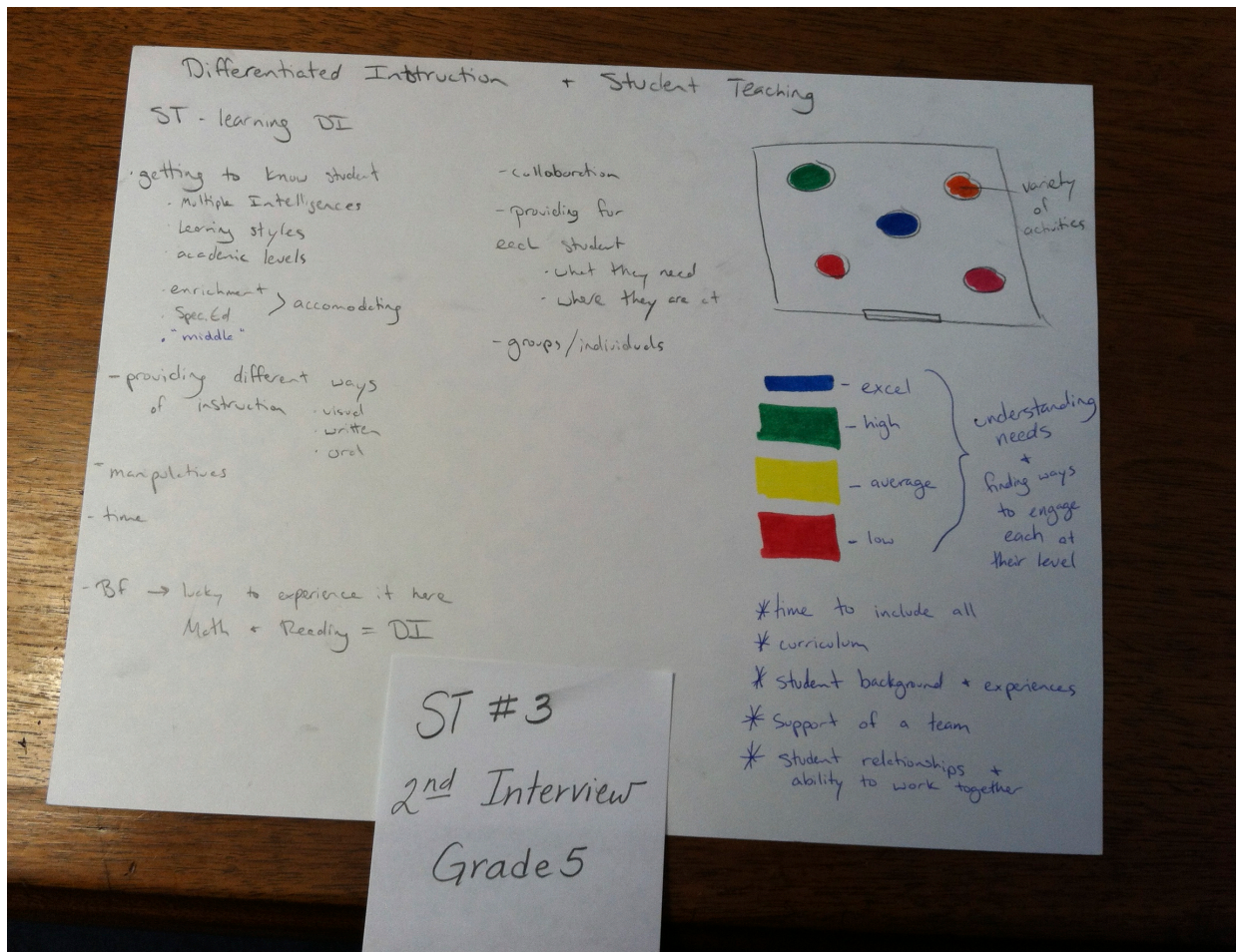


Figure 11. Visual drawing of differentiated instruction and student teaching from Ruth (ST3) generated during her second interview.

Anne shared that she struggled with grouping students. During an observation of a social studies lesson about maps, Anne used a differentiation technique called *jigsaw* to place her fourth graders into cooperative groups. She provided learning goals for each group to complete, and then students and teachers came together at the end of class to share what each group discovered.

As Anne began teaching, she moved throughout the classroom to check for understanding and work closely with individual groups. Before she left to go to another group, she provided tasks for each child to complete on their maps. After leaving one group (two boys and two girls), the boys sat down on the carpet, stopped working, and

began to play around. The girls looked at the boys, shrugged, and continued working on the map. One girl looked up at Anne and called her back to the group table. Anne looked over at the boys and frowned. Both boys got up and moved back to the map as soon as she returned. Anne handed each boy a playing card and a ruler and said, “Okay you guys, *you* [emphasis added] boys can find the route to Marcote.” She continued to monitor the group until she felt that they were able to work independently without her diagram (Figure 12) to help her describe the learners and her frustration with differentiating the social studies lesson. Anne stated,

I never seem to know when I group kids – what’s going to happen and if I’m going to fail. Sometimes it’s just who those kids are – I think this is the hardest part for me to differentiate because it has to do with who these kids are ... not their academics. Some are like sunshine ... some are growing and some struggle. It’s them as individuals. I am fortunate to have my CT who is able to work with me as I learn more about my students.

These descriptions of student teachers’ efforts to address learner variance reveal three different images. Mary wants to incorporate differentiated instruction and senses she needs assistance to make this happen. By contrast, Anne feels the challenges because she lacks the experience with differentiation, but affirms that her cooperating teacher is there to help her know learners and assist with their academic needs. Ruth shares that fifth graders are academically demanding, and recognizes Ms. Stone as the right teacher to help her develop lessons for academic needs. In addition to challenges of differentiating for interest and learner variance, all three student teachers struggled with general content delivery. While observing the student teachers, consistent scaffolding

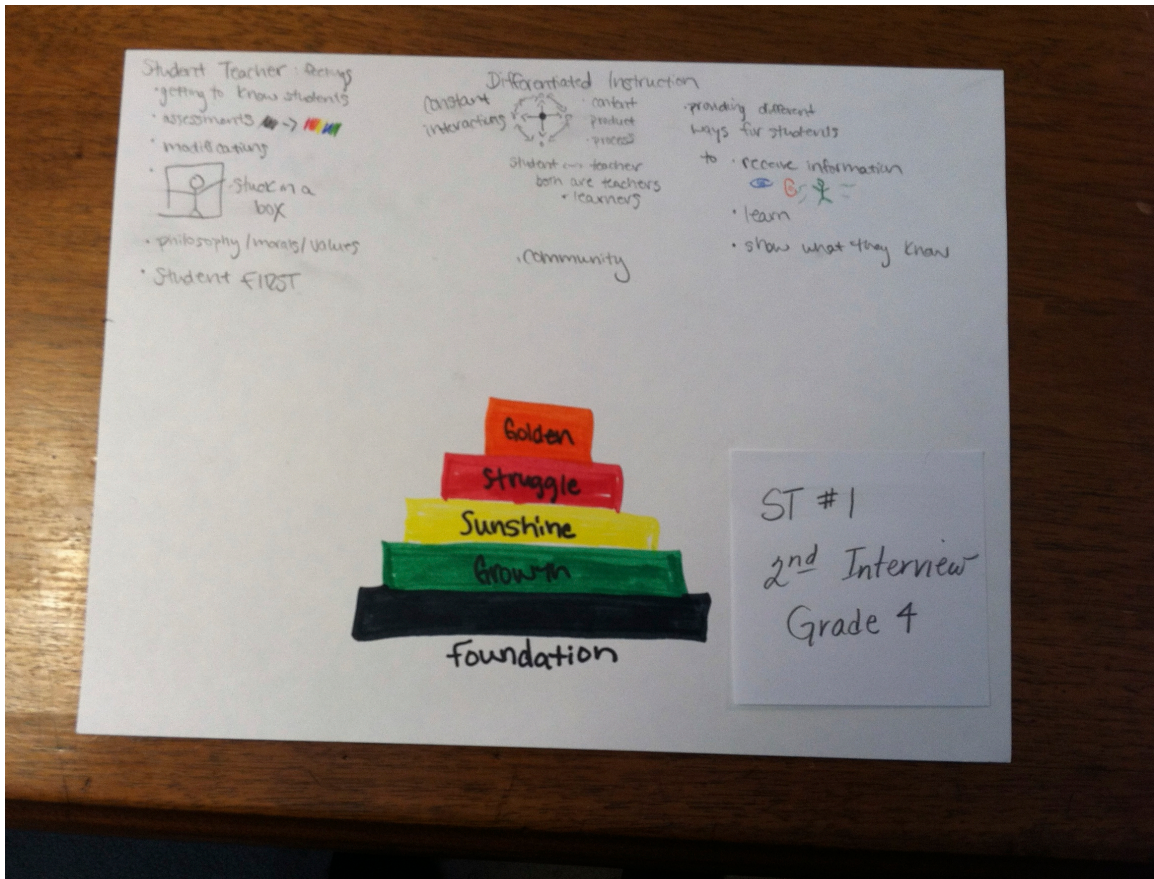


Figure 12. Visual drawing of differentiated instruction and student teaching from Anne (ST1) generated during her second interview.

for individual learner needs with content areas was difficult and frustrating for all three. For example, during a math lesson, Ruth seemed confused about a math concept she was teaching and had difficulty articulating her ideas to the students. As the fifth graders became restless, the cooperating teacher (Ms. Stone) stepped in to assist and model a different technique to support and redirect Ruth's teaching.

Anne's math lesson became more difficult to differentiate when she tried to explain the process of rounding numbers with a small group of leveled fourth graders. Flustered, she took 10 extra minutes to figure out a way to say *how to do it*, and looked through the teacher's manual for guidance. As the lesson continued, she would bite her

lower lip and look over at the cooperating teacher to see if she noticed. After Anne finished teaching the small math group, she apologized to her cooperating teacher, saying, “You know, it's just not coming very naturally right now – I still struggle with the different places students are at and my own understanding of the math.” Ms. Haley smiled and said to Anne, “You are doing fine – this is part of the process of learning how to teach.”

All three student teachers had a hazy conception of what children should gain from content differentiation. Using her drawing (Figure 11), Ruth discussed risks for teaching math levels based on her understandings of student needs and assessment data. She stated, “I struggle with how to make those curriculum connections ... stick.” Ruth acknowledged that her misconceptions about some of the math content came from limited experience, and, through curriculum mapping with Ms. Stone and the entire fifth grade team, she could see how to use the assessment data “the right way.” She smiled and said,

I know I'm lucky to be in a classroom that can talk about this, but I wonder if there are times when teachers just go *through the motions of teaching* rather than thinking clearly about what needs to be done for their students.

Anne shared a science lesson she struggled to differentiate while introducing new content to her fourth graders. She explained, “It's probably my own fault because I didn't run this by my CT. The vocabulary was very hard. I just lost my students because I didn't organize the information for *their* needs ... I was teaching the way I learn.”

Anne added that she was a bit confused with the science requirements and disappointed when her students disengaged early in the lesson. After discussing this with Ms. Haley, Anne shared that after she reviewed the science content of living organisms more closely

she was able to return with a better lesson the following day, where she sequenced the vocabulary into a game so that the students had multiple experiences learning new words.

While observing Mary teach a differentiated math lesson, she struggled with how to present the content information and manage the 25 second graders sitting in their desks. She became uncomfortable and asked her students to be quiet numerous times. As the lesson continued, she returned to her desk to quickly look through the teacher's manual. At one point she glanced at her cooperating teacher who was sitting in the back of the room grading papers. Ms. Gates did not intervene. Mary returned to the front of the room to continue the lesson; however, the students were disengaged. She stopped the lesson, redirected, and moved all of the students to the back of the room for carpet time. When asked to share about this lesson, Mary remarked that she was frustrated with the students, stating, "I'm taking risks all the time for my kiddos." She indicated that differentiation was something that she did independent of her cooperating teacher and that she would benefit from more guidance.

The three student teachers took the initiative to differentiate content but the outcomes for each were varied. Despite Anne's ineffective attempt, her cooperating teacher encouraged her to review the content and try the lesson again. Ruth recognized misconceptions with the math content and received support from multiple fifth grade teachers. Mary acknowledged frustration with her students because differentiation continued to be challenging for her to implement in the second grade classroom.

Student Teachers' Successes With Differentiated Instruction

When asked what experiences helped them feel successful using differentiated instruction while student teaching, all three student teachers stated that their classroom

settings contributed to their success. This included student teachers' comments on classrooms where learners were safe, able to think critically, and work in collaborative groups. During various observation visits, it was apparent that the three student teachers were attentive to supporting safe classrooms for their learners through positive interactions with students (e.g., eye contact, affirmation of ideas, and verbal feedback). Mary suggested that, in her classroom, teachers and students both needed to feel safe so that they could work independently, yet know that the support systems were in place to guide when needed. She added, "I feel like I have a sense of control with the kids ... and that feels good to me."

During the third observation in Ruth's classroom, teachers and fifth graders were laughing in a relaxed, safe, and comfortable environment. Although not all learners were engaged in conversations, there seemed to be a mutual respect for teaching and learning by Ruth and her cooperating teacher (Ms. Stone), where humor was used to nurture risk-taking and trust in the classroom. Ruth and Ms. Stone both sat on the floor in a circle with the students, reminding them that they were in a safe place where risk-taking was okay. As she introduced the lesson, Ms. Stone stated, "Today I want you to trust the teachers. We are going to work on some challenging math problem solving and the answers will not be obvious. You will have to STAR [Stop, Think, Act, Respond] your thinking." Ms. Stone and Ruth passed out the math links assignment and asked students to find two partners. Students created groups then moved to different areas in the classroom. While the students solved problems, the teachers guided and supported the learners as the problems became more difficult. Students varied in their response to the challenging math – some enjoyed the challenge and others were frustrated because they

made mistakes. Ms. Stone and Ruth continued to monitor the groups and scaffold for their individual needs.

During her second interview, Ruth explained how this teaching experience helped her understand why risk-taking is important for student learning as a part of differentiation. Ruth stated, “We [my CT and I] talk about mistakes as being gifts to us and how they will help us try to do the next thing, which is what we are doing to support individual students’ needs.” Ruth added that being transparent was important for her relationship with the cooperating teacher and the students. She added quietly, “We often talk about the fact that it’s okay to be wrong, and it’s about the process we took to get there – not necessarily the answer.”

Although data indicated that the student teachers struggled with content differentiation, the data also provided areas where they had success. With literacy being an important initiative in the school district, reading was a subject area all three student teachers felt confident differentiating. During one observation, Anne asked a small group of girls to meet her in the hallway for their book club. She led one of four reading groups that were leveled in the fourth grade classroom and had one of the high-leveled sections. She asked the four girls to sit in a circle where she identified differentiated roles for each student.

Anne: Okay, girls, today we’re going to have each of you take a role in our book discussion. One of you will be a discussion leader, one will be looking for vocabulary words, one will be a creative artist and draw ideas for our discussion, and the last person will summarize our conversations. I have a worksheet for each of you to keep a record of your individual responsibilities. Let’s get started.

Student: Ms. H, is this what real book clubs do?

Anne: Some, but I'm not sure. We're going to give it a try. Right now, I'm going to let you choose which role you'd like. AJ ... how about you?

AJ: Um ... I want to draw.

Anne: Okay – here you go. Now let's get started with our discussion.

While Anne encourages the rest of the students to choose roles, she asks them to carefully think about questions they want to ask for deeper understanding. Anne is careful to scaffold inquiry building on the students' prior knowledge. She then links their thinking to new ideas in the story about Leonardo Da Vinci. For example,

Anne: I like your thinking – those are good ideas. Da Vinci did think differently.

MD: Okay ... like, how can we do that?

AJ: We can turn Da Vinci's ideas around ... you know, do them backwards.

Anne: [Pauses for more responses]. Okay, you guys, let's get back to our reading and see what else we can discover about Leonardo Da Vinci. I want you to look closely for examples and connections to what we've been discussing. AJ, you start drawing, okay?

AJ: Sure.

Anne later described how much she enjoyed working with the small group where she felt more confident to scaffold reading for different learners. After collaborating with Ms. Haley, the two teachers placed students into four flexible groups with those reading at the higher level doing book clubs, while those reading at the lower level receiving direct instruction. Students rotated so that all learners were able to experience book clubs; however, the higher groups had lessons tiered with simple to complex reading

response questions. Anne mentions that letting students have choice was a huge part of where she felt successful with differentiation, because “they have a say and take their roles seriously.” She indicates that some students are able to handle individual responsibilities, while others are not. She adds, “I think it's a great way to include their interests, especially what they *feel* when they talk about what they've read.”

Data supporting the student teachers' descriptions of differentiating challenging curriculum that allowed students to learn in collaborative communities were also evident. During one interview, Anne shared a positive lesson where “complexity” was used to describe strong learning communities in the classroom. She noted,

We don't do a math box to just do a math box – we want to hash it out and get right down to the deeper level of it and find out what is the point of really doing this activity? Why should we care?

Mary shared an effective social studies lesson where she differentiated social studies content to allow second graders to choose their mode of learning (process) and what they would create (product) to share in collaborative communities. Mary explained how she instructed students to put social studies content into their *own way of thinking*. Some students chose to research topics, some shared ideas in small groups, and others wrote stories with their writing partners. Mary asked students to consider being creative by “elaborating their ideas” beyond the primary inventors to include authors, designers, directors, and composers – any creative artists. During her interview, Mary reflected on the lesson's purpose by stating,

I wanted to move the “high-flyers” to greater levels of thinking. I believe they are capable of doing so much more and I enjoy asking them spontaneous questions to really make them think – you know, not having the answer right away.

Although the student teachers shared successful experiences with differentiated instruction, they all indicated a need for ongoing guidance and support. During the observed math lesson in Ruth’s classroom, students compared and contrasted the art/math geometric shapes they had created. Ruth helped them work through their thinking to see different perspectives and apply classroom problem solving techniques, including logical reasoning, guess and checking, and/or choosing an operation. While thoughtful ideas were shared, Ruth began to struggle with how to scaffold deeper inquiry for her students. She described this higher-level teaching experience:

You're asking students to synthesize other people's ideas with their own and stay focused on the ball. But you know what – what's the ball? What's the target? I'm trying to hear what these kids are thinking and apply it to my own thinking and learning. I'm supposed to have students think about multiple answers – but I'm still guessing too.

In order to grow more confident in synthesizing ideas, Ruth watched Ms. Stone (the CT) model more inquiry level questions about constructing the geometric art form. As the math lesson continued, Ms. Stone asked Ruth to write student ideas on the board and suggested she ask questions for her own interest. This assistance by the cooperating teacher *and* the assistance provided by self was encouraging for Ruth and the collaboration was a successful part of her practice with differentiated instruction.

Ms. Stone: So, what is the focus of this learning? What is important? [She pauses]. We want you to read, sequence, and gain more knowledge before you begin the task. [She waits quietly for a response]. Okay, I'm going to ask you again, what is important?

Student: When you fold it – it's kind of hard to explain ... I can only picture it in my head.

Ms. Stone: Okay, so help me see the idea with words.

[The child looks confused].

Ruth: I think we want you to draw a picture with words; does that make sense?

Student: Can I use paper then add words?

Both teachers: Yes!

In her second interview, Mary described a successful lesson she differentiated for her higher reading group based on their academic levels. During this reading lesson, she asked the high-leveled readers to go into the hallway and read stories with each other while collaborating about the problems and solutions within the story. She added,

The lesson was pretty successful and they [the students] had to do it together – they had to talk about it together. I wanted them to be challenged because they are so bright, but I just don't know how to do this or write the questions for these kids.

She added, "I need more guidance." The request for more assistance with differentiation was a frequent part of the conversation during Mary's interview.

As the student teachers began to take more risks to differentiate curriculum, they became more confident in how they responded to their learners' needs. For example,

Anne shared that after watching her students for a few weeks she was interested in scaffolding for their social and emotional needs. She discovered that “brain breaks” were critical for her students to relax with less structure. During one observation, she led a five-minute group dance session to get the students up and moving during a very snowy afternoon. While they were dancing, she commented to Ms. Haley, “I just love watching them dance ... they’re all interacting and there’s no competition – it’s just amazing that everybody gets along with everybody – zero barriers. Why can’t everything we do be like this?”

Adjusting curriculum became successful for Ruth as she described feeling more confident when she differentiated with technology. An observation during Ruth’s two weeks of independent teaching provided a reading lesson on how to use primary and secondary sources for research. Differentiating for independent study and student choice, Ruth had the students use their Netbooks to create a visual PowerPoint slide representing a Revolutionary War hero. Students were required to cite one primary and one secondary source on their slide before completion. They submitted their finished work by sending her a link to their Google docs. While they worked she facilitated and supported students with their slide development asking questions about what they knew and understood about the research topic and techniques. Extra teachers were in the room and available for students who needed support. The students worked quietly and efficiently and all were serious about the assigned task. Once the slides were submitted, Ruth set up a quick presentation to share at the end of the lesson. The students were eager to learn from each other. In a follow-up interview, Ruth stated, “I thought it was a wonderful lesson. I

loved watching the interactions and conversations between students about their Revolutionary heroes – it was effective because I made it personal for each student.”

Mary’s confidence was a factor while she differentiated science content for student interest as well. She noticed that some students needed more rigor and scaffolding for academic variance in science. Mary decided to take a risk and create lessons that included more options for the learners in her classroom. She explained that she spent one weekend creating ways to build interest in the science lesson by organizing the content information so that students could learn in their own way. For example, Mary designed graphic organizers to help them with drawings, labeling diagrams, and organizing written ideas. A week later, students got up in front of their peers as science experts in the classroom.

Excitedly during her second interview, Mary shared examples of her second graders’ graphic organizers and added,

They really liked the variety of formats and we left the science materials out for over a week. Every chance they could get they were working with the elements and were writing, drawing, and listing their ideas. Their hands were in the sand or playing with the rocks. My goal was to keep them interested and engaged – I believe I did.

Mary emphasized, “I think that when they’re done with their work by the time we’ve explained problem number two, we’re not doing enough for those kiddos.”

All three student teachers indicated success with differentiation when they included activities that supported student interest. Anne wrapped up, saying, “I think that

this whole experience of connecting kids based on their interest for me as a student teacher is what I value. Interest is huge.”

Guiding Student Teachers’ Practice of Differentiated Instruction

Data indicated that student teachers experienced challenges and successes when attempting to implement differentiated instruction. When student teachers met the challenges by taking risks, they experienced success. This was more evident in the data when cooperating teachers provided guidance and resources to support the student teachers’ capabilities to differentiate successfully. For example, Anne (ST1) was able to take risks with confidence because she knew her cooperating teacher would provide encouragement and support each afternoon. Risk-taking in Ruth’s classroom was nurtured daily as a teaching and learning practice. She grew in confidence right along with her students.

When there was limited or no scaffolding by the cooperating teacher for the differentiation process, the student teacher was hesitant to take risks to differentiate and remained more dependent on the cooperating teacher’s methods of instruction. As was in Mary’s (ST2) situation when she felt insecure in her practice of differentiated instruction, she indicated that it wasn’t modeled by the cooperating teacher or supported as a method for meeting students’ needs on a regular basis. Risk-taking was uncomfortable for Mary. Her desire to connect to students’ interests, however, made her feel that she was making a difference, which in turn built her own confidence as a student teacher.

Anne and her cooperating teacher (Ms. Haley) constructed their methods for differentiating as a team. Anne’s need for support while working and delivering content

in small groups was observed and noted in interview data. She required more scaffolding with differentiation techniques and consistent assurance from her cooperating teacher to build her level of confidence. Ms. Haley shared that she guided Anne during after-school conversations, where both teachers reflected about differentiated instruction and its impact on the learning process. These conversations allowed Ms. Haley to scaffold and assist Anne in her thinking, build confidence to teach, and encourage Anne to take more risks to implement differentiated instruction on a regular basis.

Ruth's (ST3) experience with differentiated instruction was a pattern of success. Being placed with a cooperating teacher (Ms. Stone) who practiced differentiation as her only method of teaching provided Ruth with experiences where learners' needs were evaluated and adjusted for the "right fit." Ruth shared that risk-taking was a natural part of the teaching and learning in her student teaching classroom and the rigor of learning was sometimes above her capabilities. Ruth's interviews and observations indicate that the cooperating teacher modeled, mentored, and assisted on a regular basis.

Descriptions from student teachers' second interviews indicate that although they each had situations where they struggled (how to use assessment data), took risks (grouping students by ability), and were challenged (uncertain about what children would gain from content differentiation), they also had some successes that helped build their confidence.

Theme Three: Collaborative Partnerships: Shifting Patterns, Changing Scenes

Theme Three addresses research questions three and four, which examine what the student teachers could control or not control with differentiation and how the relationship with the cooperating classroom teacher impacted differentiated instruction. In this theme, I synthesize data that describe what student teachers wanted to and did achieve with their growing knowledge of differentiation, and how the cooperating teacher, intentionally or unintentionally, restricted or opened possibilities for differentiation. Data coded relationships between cooperating and student teachers (Chapter III, Table 8), and collaborative planning, teaching, and coaching, combine to reveal information about how the student teacher-cooperating teacher relationship impacts achieving responsive teaching. Descriptions from student teachers indicate that effective and ineffective partnerships were present. Student teachers were influenced by the events in the classroom. These included observing classroom scenes where cooperating teachers modeled differentiation and situations where the student teachers shifted in their capacities to differentiate based on the mentoring and guidance of the expert teacher.

Beginning Partnerships: Observations and Modeling of Differentiated Instruction

Data collected from all three student teachers' interviews describe effective or less effective partnerships with cooperating teachers and how those relationships influenced the student teachers' abilities to internalize the practice of differentiated instruction. All three student teachers indicated that meeting their cooperating teacher prior to the student teaching experience alleviated fears and allowed them to do early

observations, discuss schedules, examine curriculum, and discuss issues regarding individual learner needs.

Cooperating teachers noted that they, too, were happy to meet their student teachers early. In her interview, Ms. Haley indicated this was a good idea and recommended building positive partnerships before the student teachers begin their student teaching. She added, “There is so much organizational stuff that needs to be covered early-on – I just wanted Anne to come in and start teaching right away.” During her interview, Ms. Gates also recommended developing an early relationship so that “student teachers can observe as much as possible before they begin their field experience – so there are no surprises.” Ruth shared one of her first experiences with her cooperating teacher. She said,

When I was in Ms. Stone’s room and watched her talk through with her co-teachers what they were going to do next, what direction they planned to go, and what they wanted to do after that – I saw teachers working together and I was interested in being in that classroom.

During observations and interviews, the student teachers watched their cooperating teachers model good teaching methods for classroom management and content-process differentiation. For example, Anne shared that, through modeling, Ms. Haley demonstrated to her how to differentiate the content using *jigsaw* so that the learners could respond to varied questions in different reading groups. Anne laughed, adding, “In our relationship it’s okay to ask her any questions – so, I’m constantly asking questions!! She [Ms. Haley] differentiates process so easily – I need to keep watching her do that.”

Ruth maintained that Ms. Stone’s modeling of differentiation of flexible groups and flexible instruction (to engage fifth graders as individuals and as members of a group) strongly impacted their partnership as teachers. Ruth shared a lesson her cooperating teacher modeled early in the semester. The lesson was designed to build community, where students examined population density using learning preferences and multiple intelligences. Ruth explained,

With this activity you have like four people trying to stand on one chair to represent, you know ... cities and stuff. The kids were having so much fun and really learning ... they didn’t want to stop. They kept asking *what if* questions. It was so cool and I got to be a part of the lesson – kids working right in their intelligence areas too.

Data indicated modeling wasn’t limited to the veteran teachers. In some cases, student teachers coached their cooperating teachers with new curriculum and techniques for differentiating flexible groups. For example, during one observation, Mary demonstrated a math lesson that she constructed *with* her cooperating teacher. When Ms. Gates (the cooperating teacher) gave her more control of the teaching by handing her the teacher’s manual and everyday math worksheets, Mary asked if she could “change it up a bit,” so that it wasn’t the same lesson for every child, indicating that “the lesson was just so standard textbook boring.” Ms. Gates agreed and together they created three differentiated math stations for small group learning with leveled games. Mary stated,

You know after all that, she still wanted me to go through the worksheet with them so she could get the points [for her grade book] ... but she really liked the

activities. Although she went right back to the teaching manual and worksheets for the next lesson.”

In some instances, modeling was reciprocal, where the cooperating teacher observed the student teacher. For example, during an early view of Anne’s teaching with a small group of fourth graders, her cooperating teacher (Ms. Haley) was also observing her from across the room. Anne looked up at Ms. Haley and they both smiled. Ms. Haley walked over to Anne and they stepped away from the students who were there doing independent reading. They began to visit about Anne’s teaching with her reading group.

Ms. Haley: Hey, how’s it going?

Anne: Okay, I guess. I am not sure that I have accurate reading prompts for this group.

Ms. Haley: What do you mean?

Anne: Well ... [hesitates] they seem too hard for these kids.

Ms. Haley: Let’s take a look. [She reviews the prompts and hands them back to Anne]. They look fine to me. Here – just give a few to each student so that they don’t have to do all of them. They can share what they’ve discovered and teach the other kids. Anne, just relax – this is your classroom too.

Ms. Haley smiles, pats Anne on the back, and returns to her own reading group. Anne breathes a sigh and returns to question her students. In a follow-up interview, Anne shared that she was initially nervous about working with the small group, indicating that she was trying new questioning strategies to get kids to think more deeply about their texts. Anne complimented Ms. Haley’s ability to model differentiated reading, adding, “I

am always wondering if I have gone deep enough with these kids ... with Ms. Haley it comes natural.”

Intermediate Partnerships: Mentoring, Co-Planning, and Co-Teaching

Collaborative partnerships require more than modeling. Data revealed that cooperating teachers who mentored student teachers were able to guide student teachers’ practice of differentiated instruction when both teachers taught together. For example, Ruth indicated that “collaborative teaching is where you build a professional relationship,” adding that her entire grade planned and differentiated curriculum intentionally to maximize student growth. She expressed the value of being mentored each day by the whole fifth grade team where she watched teachers employ strategies to engage students and manage classroom behavior.

Ms. Haley suggested that mentoring student teachers works when you “know their [the STs’] starting point by encouraging them in what they are able to do on their own – then supporting them where they need help as a teacher.” That inspiration and scaffolding was a valuable part of the collaborative relationship described by Anne and helped her become more independent as she gained better control of her practice with differentiation. In a closing interview statement, she shared,

My CT and I taught many lessons together, but my favorite was our state research unit where the fourth graders created their own online link to the state website. All of the research information will be shared with other kids across the state. I have to say that this was definitely one of the best ways we have planned and differentiated for the kids – really based on their interest and their choice. I was able to continue

this project as we moved into my two weeks of teaching. That was good to have my CT with me to get me started.

Anne added that her cooperating teacher was always “pushing her to consider new ways to differentiate.” Anne and Ms. Haley shared that they both saw technology as a method for differentiation when they taught together, because it allowed everyone the ability to collaborate and acquire varied resources that were beneficial for learning.

Collaborative partnerships can have moments of tension where both teachers have different perspectives about differentiation that are conflicting. This was evident in Mary’s descriptions about her cooperating teacher’s guidance or mentoring with differentiation, which reflected her inexperience and novice level as a student teacher. These descriptions were possibly due to her naïve expectation of being placed with a cooperating teacher who practiced differentiated instruction, or heightened by the study itself, where the relationship between the cooperating teacher and student teacher might have evolved differently without the study topic of differentiation.

For Mary, tension between wanting to differentiate instruction and comfort doing so arose early in her student teaching. During her second interview, she shared her concerns about not seeing differentiation practiced by her cooperating teacher. Further inquiry about this partnership brought comments, such as, “I’m still learning to build a relationship with her.” Mary shared that her cooperating teacher modeled successful whole classroom learning and leveled reading groups, but mentoring how to do differentiated instruction was scarce. She added, “That will be something that I will do differently when I’m in my own classroom because I feel that it is much more important than perhaps what my cooperating teacher felt.” By contrast in her interview, Ms. Gates

said, “I think my student teacher has helped me see differentiation better, particularly with spelling. I guess I can learn something new after 25 years of teaching.” Although tension was present regarding differentiation, Mary shared her respect for Ms. Gates indicating that conversations about differentiation were beginning to “take shape” during their collaboration time.

Data indicated that collaborative relationships supported student teachers’ abilities to practice differentiation so that they had more control of differentiation as they moved into independent teaching. Anne admired her cooperating teacher and said, “You know, my relationship with Ms. Haley has gone beyond professional – we’ve become good friends.” Through tears, she added, “I really trust her and I believe she trusts me.”

Across town in a different classroom, Ruth revealed that the relationship with Ms. Stone had a significant impact on her confidence as a teacher. Being open to ask questions about school, teaching, education, and life were some of the aspects she valued. Ms. Stone reciprocated with comments about Ruth’s early growth and maturity with differentiation as she became more independent in her teaching practice. During her interview, Ms. Stone said, “Over the last few weeks, she [Ruth] has just bloomed.” She added,

I think that with everything Ruth experienced so far, she has seen how the entire fifth grade is organized to support differentiation. We consider individuals, partners, groups – you know, everyone has a voice. This year, we laid out the groups and built student-centered projects around how they worked together, placed on assessment data and their interests.

In a final thought, Ms. Stone smiled, saying, “We plan for all of those learning conditions with intentionality.”

Theme Four: Pathways to Responsive Teaching: A Developmental Process

An outcome of effective differentiated instruction is responsive teaching (Tomlinson, 2014; Tomlinson & Allan, 2000), but each of the three student teachers experienced different pathways to achieve this outcome. For each, different circumstances controlled their achievement of responsive teaching, which is the premier outcome of differentiated instruction (Tomlinson, 2014). Responsive teaching means a teacher is attuned to students’ varied learning needs, makes modifications in how students get access to important ideas and skills, and responds with approaches that are effective to various learners (Tomlinson & McTighe, 2006). The relationship with the cooperating teacher impacted student teachers’ responsive teaching. The cooperating teacher’s knowledge and view of differentiated instruction colored the relationships and achievement of responsive teaching.

Theme Four addresses research question four, which examines how the relationship with the cooperating teacher impacted student teachers’ use of differentiated instruction to meet the needs of academic diversity. Data coded learner variance, assessment, instructional strategies, and classroom climate combine to describe student teachers’ methods for responsive teaching. Data are shared primarily from observations and the last interview with the student teachers. The theme provides a basis for describing how student teachers transformed in their abilities to differentiate instruction as a method for responsive teaching, given their partnership with

cooperating teachers who may or may not differ in many ways relative to differentiated instruction.

Responsive Teaching: Intentionality for Learners

Data revealed that, with continued practice, the student teachers' interest and desire to use differentiation became more intentional. Student teachers indicated that they became strategic when adjusting assignments for learners' academic needs, deliberate with flexible grouping (partner, small group, or whole classroom), and purposeful with providing students choice in their learning outcomes.

Responding to academic needs. One aspect of responsive teaching is attending to student readiness for academic growth (Tomlinson & Allan, 2000). In her final interview, Mary chose to use the word *Comfortable* to describe herself as a student teacher using differentiated instruction as a method for responsive teaching with second graders. On her diagram (Figure 13), she added words such as less confusion, less difficulty, less constrictions, and more practice to help her with her descriptions. Mary expressed that she felt more confident with differentiation, but still longed for more guidance, more practice, and more learning (practice, read, talk, explore, and observe) as a student teacher. She added, "Ms. Gates and I now collaborate and plan together, but DI is not always at the forefront of our planning."

During her interview, Ms. Gates responded differently, saying, "We're *learning* to differentiate all of our spelling. This is new for me and each child has their own spelling level – even our children who go to the ELL classroom have their own lists." Later in the interview Ms. Gates added, "... working with my student teacher has helped me consider

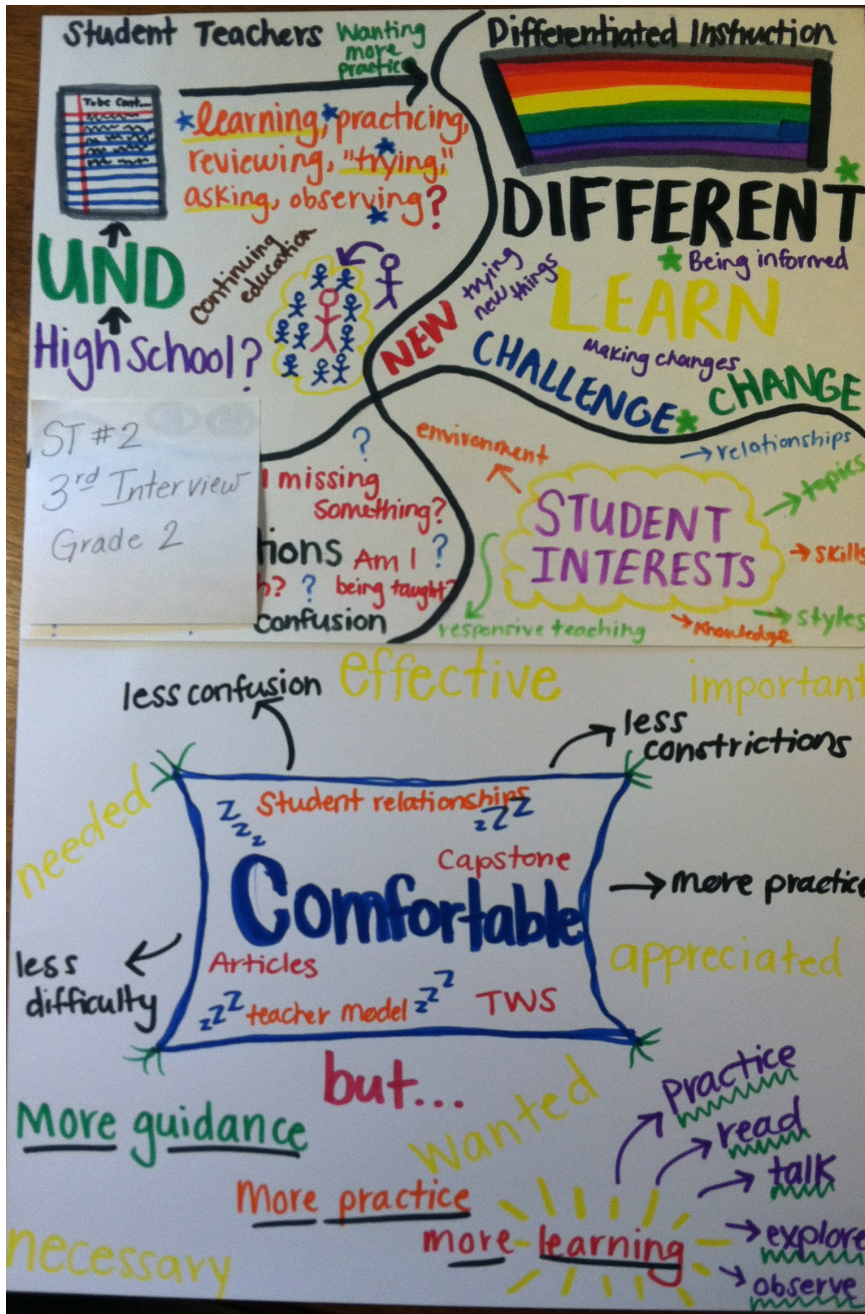


Figure 13. Visual drawing of differentiated instruction and student teaching from Mary (ST2) generated during her third interview.

more differentiation ... and it is a part of our teacher evaluation now so I can't be old school anymore."

Anne created a word picture, which she called a “tag cloud” (Figure 14), during her final interview to help her describe how to respond to academic needs using differentiated instruction. Stressing the word, *Different*, Anne shared,

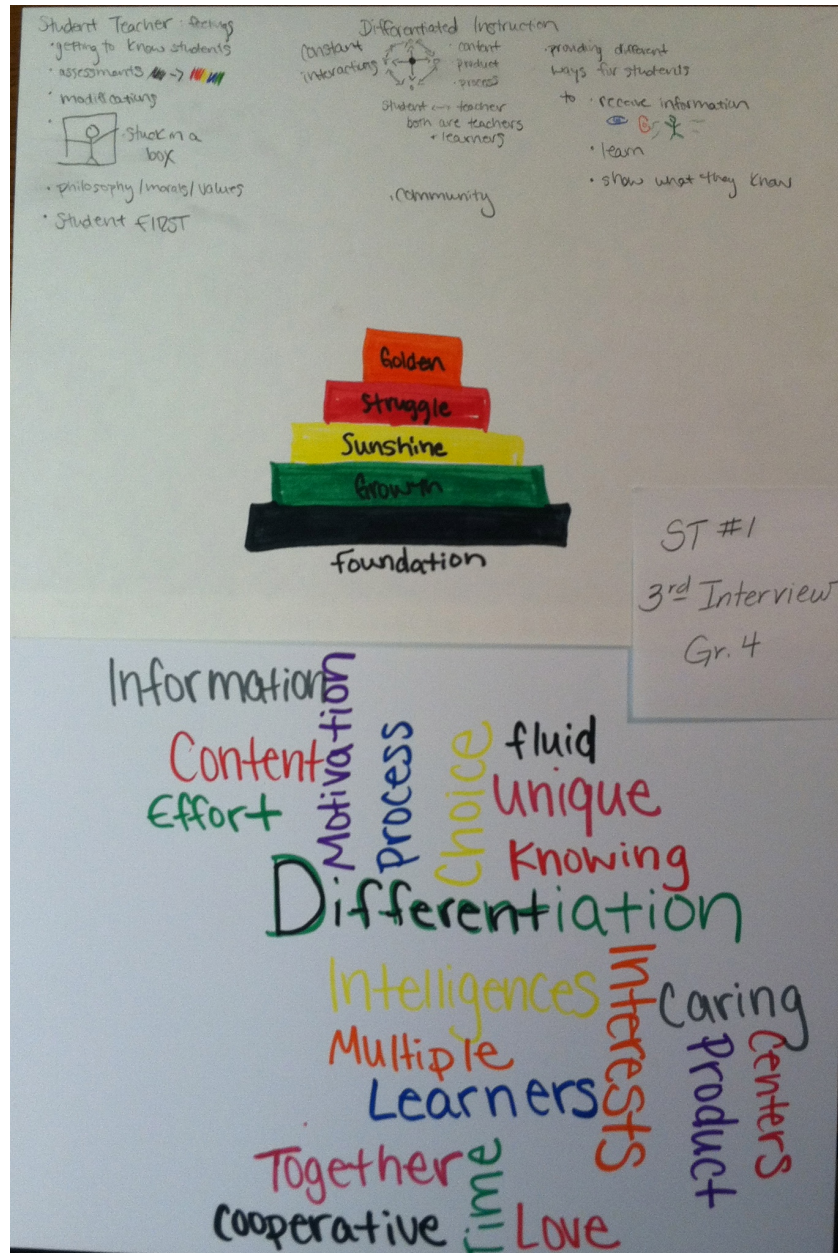


Figure 14. Visual drawing of differentiated instruction and student teaching from Anne (ST1) generated during her third interview.

You know, I'm getting more confident with differentiating for the academic levels and Ms. Haley and I respond to those – but what about the emotional levels?

When kids know that you care and ... [Anne hesitates], they share something confidential. Well, I think that can help them be more successful at school.

When probed to share more about her word picture, Anne exclaimed, "I think the words that stand out for me are caring, time, and love. These are super important for paying attention to *my* students' interests." Anne shared that the words reflect long and meaningful conversations with her cooperating teacher (Ms. Haley) about responsive teaching, where collaborating for students' needs is done on a deeper and more personal level. Anne added that both she and Ms. Haley collaborate ways to engage students so that they (the students) could bring more of their emotional selves into the classroom. She added, softly, "So that the whole child's needs are met. That means a lot to me."

Responding with flexible groups. Another feature of responsive teaching is attending to student learning preferences (Tomlinson & Allan, 2000). Mary described engaging lessons where she responded to her second graders' academic differences with flexible grouping. She smiled, saying, "I just asked Ms. Gates if I could do *more* adjusting of the math lessons for my kiddos, and she said, 'Of course.' I was surprised." Mary's ability to respond to academic needs with differentiation was part of a final observation, where she used assessment data for flexible grouping and tiered assignments (Tomlinson & Allan, 2000) during one of her independent teaching weeks. In this lesson, four groups of students were placed in different areas of the classroom. One group received direct instruction from Mary, another group practiced individually at their desks with math worksheets, a third group played a multiplication card game, and the last group

worked with a partner on their math boxes. Mary moved students every 15 minutes and, as they transitioned, she regrouped and restructured the lessons with repeated expectations. Students responded with excitement about being able to move in the classroom and have different learning opportunities for math.

Responding for student choice. Responsive teaching includes attending to students' interests by connecting them with important content (Tomlinson & McTighe, 2006). This was apparent in Ruth's teaching. Adjusting curriculum became comfortable for her when she described using technology to differentiate for student choice as a method of responsive teaching. During her last interview, she linked DI (Differentiated Instruction) and Student Teaching on her diagram (Figure 15), using words such as mixed groups, same level groups, and individuals when identifying her methods for responding to learners' needs. Ruth stated, "I am curious about fifth graders and what makes them learn with success." She detailed how differentiating with technology allowed each of her fifth graders to write, create, and present ideas in their own way. She exclaimed, "By using Netbooks [individual computers], the students can work in their own space, use their own resources, and be free to research at their own pace ... they can also explore within their interest areas."

During a reading observation, Ruth taught a lesson on how to use primary and secondary research sources using technology. She responded to her students' academic needs, by differentiating process and product (Tomlinson & Allan, 2000) through independent study and student choice. Ruth had students use their Netbooks to research and create visual PowerPoint slides representing a Revolutionary War hero. Students were required to cite one primary and one secondary source on their slide before

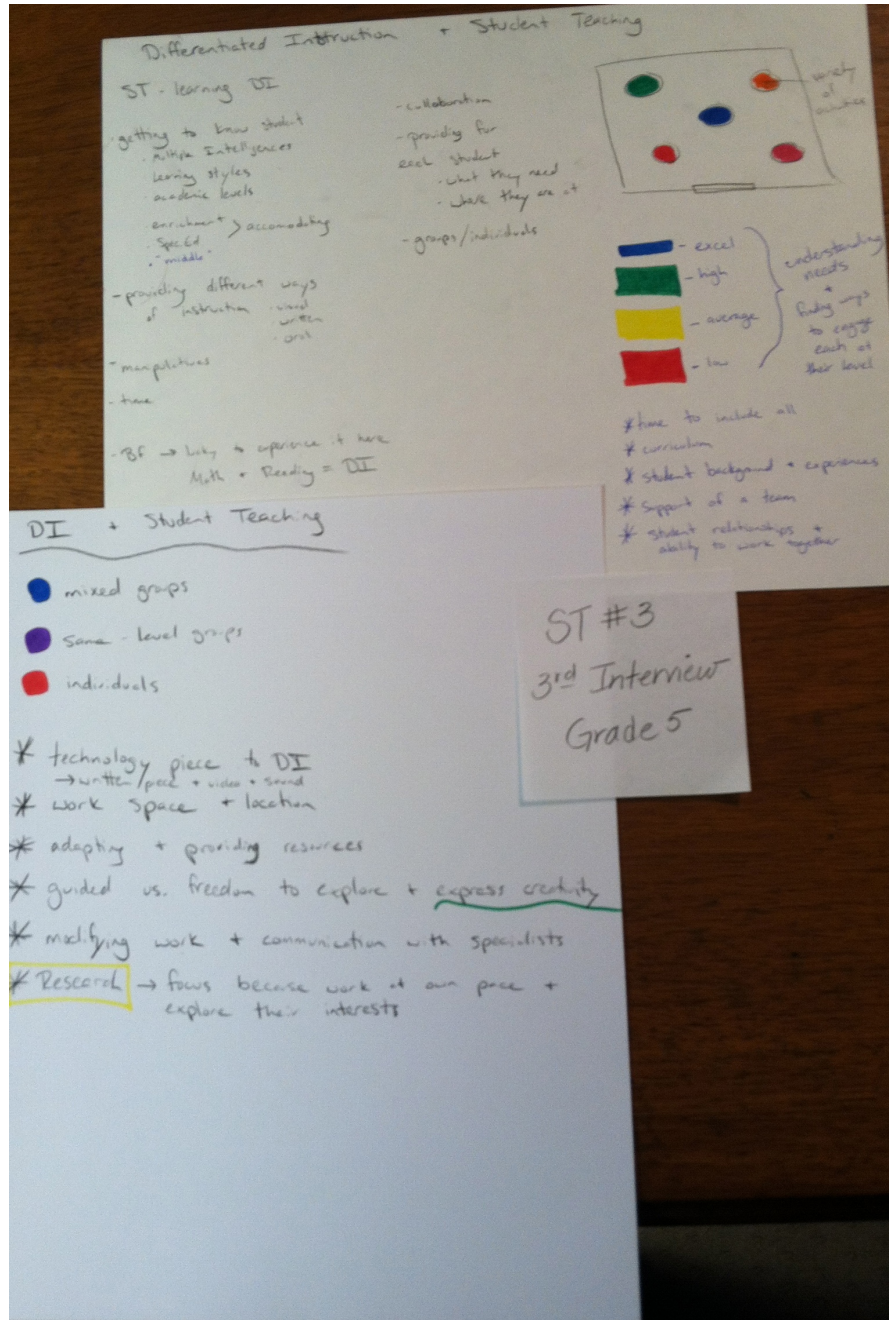


Figure 15. Visual drawing of differentiated instruction and student teaching from Ruth (ST3) generated during her third interview.

completion. They submitted their finished work by sending her a link to their individual Google docs.

While they wrote, Ruth facilitated and supported students with their slide development asking them questions about what they knew and understood about the research topic and techniques. Additional teachers were also available for those who needed support. Students worked quietly and efficiently and all were serious about the assigned task. Once the slides were submitted, Ruth set up a quick PowerPoint presentation to share at the end of the lesson. During her final interview, Ruth chose words with care to describe her success differentiating with technology and how it helped her respond to student needs. She said, softly, “I was surprised to see how the students did without the added guidance ... they were free to explore and create. That was a meaningful way to engage learners.”

Responsive Teaching: Collaboration for Student Teachers

To meet the needs of academic variance in today’s classrooms, responsive teaching requires effective collaboration between all teachers (Tomlinson & Allan, 2000). Student teachers indicated that responding to learner readiness, interest, and profile (Tomlinson, 2014) was based on effective collaboration with the cooperating teacher. For example, all three student teachers described co-planning experiences where they constructed responsive teaching lessons for the whole classroom, small group, and individual students (Appendix I).

Collaboration. Data about student teachers’ and cooperating teachers’ collaborative methods for responsive teaching focused on *being strategic* when developing lesson plans for learners’ academic needs. For example, Ms. Stone explained that, in order to respond to today’s students, teachers must be open to change and collaborate with peers (including student teachers) who feel the same way. She indicated,

“You prioritize what you’re doing in a classroom versus things that you used to do.”

Adding, “... not that you have to take the fun out of everything, but responsive teaching means studying data and planning for student differences ... that is the heart of DI.”

Ruth agreed, saying,

I think in terms of planning for a differentiated lesson you have to think about what you want kids to be able to know and do at the end of the lesson. Your teaching partners back you up and give you ideas – and even just getting their input to how you've created your lesson to include DI – that teamwork makes a difference.”

Student and cooperating teachers advocated for collaboration when they planned and differentiated for flexible groups for responsive teaching. For example, Anne and Ms. Haley shared that they teamed up in their planning time to build stronger lessons for flexible grouping to respond to the needs of their low-leveled math students. Ms. Haley stated, “Anne and I work together to tier these groups – even at a lower level where more intervention is required. We plan for this so that we're always moving forward.” Anne indicated that planning and developing tiered lessons with her cooperating teacher got to the heart of where students were at in their learning. She explained,

If there are three students who need that extra support they are with me. I know the groups that Ms. Haley and I form are done with thought. We think about how students work together in groups – in addition to their math level.”

Collaboration *for* responsive teaching was not a part of Mary’s descriptions.

However, Mary shared that most of her collaboration experiences with Ms. Gates focused on behavioral issues. She stated, “Most of our collaboration time was spent talking about

behavior problems in the classroom and problems with children talking too much.” She added, “I think we started talking about DI too late ... it would have made a difference if we had started earlier in the semester.”

Independence. As the student teachers moved into their independent teaching, they each recognized and shared descriptions of their own growth as student teachers using differentiation for responsive teaching. During Anne’s last interview, she noted, “I like how I am seeing my students doing more thinking for themselves and they have choice – they might be getting the same material, but they're responding to it differently.” She stated, “I think that choice will be an important part of what I do with differentiation next year.” Anne indicated that her ability to teach and respond to learners’ needs more independently was strengthened by the strong collaboration techniques she developed with Ms. Haley. Adding, “Ms. Haley helped me take risks to think beyond academic interventions and to focus on the emotional needs in the classroom and how those impact student relationships.” According to Anne, this was one of the most meaningful parts of her development as a student teacher.

Ruth describes “growing tremendously” with her ability to differentiate independently for responsive teaching. She added that this was due to quality mentoring from Ms. Stone and because “DI is part of the school culture.” Ruth indicated that differentiation is everywhere in the school and part of a belief system for how the school functions. Both Ruth and Ms. Stone share that planning and teaching *must* be collaborative and *must* go beyond the boundaries of one classroom. Ms. Stone suggests that teachers work within their grade levels to create learning tasks that are purposeful for individual students. Ruth added that her fifth grade level involved her in team

collaboration, including her ideas for how to use student assessment data to build interest and choice in the classroom. She explained, “My best area now with differentiation is knowing what is flexible within the original lesson to help students find their passion.” For example, Ruth shared that she can respond to learners’ needs more automatically. She stated,

I can pull out these three students in the back of the room and do separate projects because they’re at that independent level. The rest of my groups are also high but are working on things that they need to accomplish to reach their learning targets. I love that about what I am able to do now with students. I can see that being a part of my classroom in the future.

Mary’s independence using differentiation for responsive teaching was less colorful. During her final interview, Mary indicated that she felt more comfortable differentiating for her students because it was necessary and wanted by her students. However, she noted that she was hesitant to take too many risks (even near the end of her student teaching practicum) because of inconsistent support. Mary shared examples of teaching where learners responded so positively with the differentiated lessons that her cooperating teacher began to notice the change. Mary added, “It wasn’t something she modeled for me ... in some respects, I was modeling for her.” By the end of her student teaching experience, Mary indicated that she found resources and guidance for differentiated instruction from other classroom teachers in the school, which helped her develop a stronger relationship with her cooperating teacher. She added, “After observing in another second grade classroom, I returned to my classroom and shared

differentiation ideas with my CT. I was surprised ... she really liked what the *other* teacher was doing.”

Mary indicated that her collaboration with Ms. Gates improved and they began to plan and co-teach by the end of her student teaching experience. She added, “In some respects, I think the teachers in this school need to collaborate more because this is the best way to share differentiation.” Mary shared how much she appreciated her students and indicated that her desire to differentiate for learner needs had not diminished. She shifted quietly in her chair and smiled, adding, “If anything, it makes me want to learn more *on my own* and find other resources to help me be better at doing this ... you know, for the kids.”

Responsive Teaching: Student Teachers’ Transformations

Student and cooperating teachers share responsive teaching as intentional and strategic for meeting academic learning needs in their classrooms. For example, Anne and her cooperating teacher, Ms. Haley, both identify responding to learner needs by adjusting lessons tiered content and process for struggling learners while being attentive to the social and emotional needs of the students. Flexible grouping was another important aspect shared by student and cooperating teachers as a method for responsive teaching. This was part of Mary’s description for meeting the varied academic needs in her classroom. Cooperating and student teachers include student choice as a responsive teaching method to help bring students closer to the curriculum content. This was evident from Ruth’s description of her success using technology to engage students’ interest allowing them to choose a hero to research from the Revolutionary War period.

Responsive teaching was a part of the student teachers' and cooperating teachers' descriptions of their collaboration allowing them to transform independently as teachers. Ms. Haley and Anne were successful with differentiated instruction because they both wanted to grow in their responsive teaching techniques beyond differentiating for content and process. Although Mary describes modeling differentiated instructional techniques for Ms. Gates, responsive teaching was not really a part of their collaboration until Mary returns from observing in another classroom. Ruth and Ms. Stone see planning and responsive teaching as collaborative and a part of systemic change in schools.

Transformative pathways were different for each student teacher. Near the end of her student teaching, Mary and Ms. Gates begin conversations about responsive teaching, which allows Mary to feel some independence in her ability to practice differentiation. Anne describes her independence with differentiated instruction based on collaborative teaching she and Ms. Haley did together. Because these two teachers co-taught their content, each one was able to respond to learner needs differently, one with a focus on academics and the other responding to the social and emotional needs. Ruth describes her independence to differentiate students' interest as she helps them find their passion in life. Early in her student teaching, her intention was to differentiate for all fifth graders, but by the end of the semester she narrows her focus to individual needs.

Summary of the Themes

In Chapter IV, I provided a description of themes that emerged from data collection and analysis. I found the key elements of responsive teaching with differentiated instruction as described by participants in this study encompassed

viewpoints of differentiated instruction, how cooperating teachers assisted the student teachers' capacities to take risks, respond to challenges, and with guidance build confidence with successful implementation. Descriptions by the participants also included collaborative partnerships for responsive teaching for academic variance in the classroom, including how cooperating teachers modeled and mentored differentiated instruction through co-planning and co-teaching methods.

CHAPTER V

DISCUSSION

The purpose of this study was to explore what differentiated instruction looked like in student teachers' classrooms and examine how they (the student teachers) described differentiated instruction as a method for meeting elementary students' diverse learning needs. The questions guiding this study were:

1. How do student and cooperating teachers describe differentiated instruction as a method for meeting elementary students' diverse learning needs?
2. What challenges and successes do these student teachers experience with implementing differentiated instruction?
3. What can the student teachers control or not control about differentiated instruction?
4. How does the relationship with the cooperating classroom teacher impact how student teachers differentiate instruction?

The theoretical framework underpinning this study was Vygotsky's (1978) model for the Process of Internalization. The conceptual model used to frame the research lens for this study was Tomlinson and Allan's (2000) framework for differentiating instruction.

The four themes that emerged from the data analysis are:

1. Kaleidoscopic Viewpoints
2. Getting Focused: Taking Risks to Build Confidence

3. Collaborative Partnerships: Shifting Patterns, Changing Scenes
4. Pathways to Responsive Teaching: A Developmental Process

These four themes that emerged from data analysis represent key elements from the descriptions of participating student teachers as they transformed from dependence to independence in their responsive teaching for academic diversity during student teaching. Using Vygotsky's Process of Internalization as a framework, Figure 16 shows the relationship between the four stages of internalization (Tharp & Gallimore, 1988) and student teachers' transformative experiences that increased their capacity to perform differentiated instruction with independence. These experiences created awareness for the student teachers that teaching is hard work and requires strong practice in schools that are constantly changing and continuously improving to respond to the needs of varied students (Hargreaves & Fullan, 2013).

The themes in this study were clustered into two groups. The first set recognized the student teachers' kaleidoscopic viewpoints of differentiated instruction (Theme One), including their dependence on the cooperating teachers' assistance in their capacities to take risks and respond to challenges (Theme Two), and, with guidance, build confidence to experience successful practice of differentiation. The second set of themes identified student teachers experiences with collaborative partnerships (Theme Three) and how these helped student teachers' transform in their abilities to differentiate and respond to academic variance (Theme Four), including how cooperating teachers modeled and mentored differentiated instruction through co-planning and co-teaching curriculum.

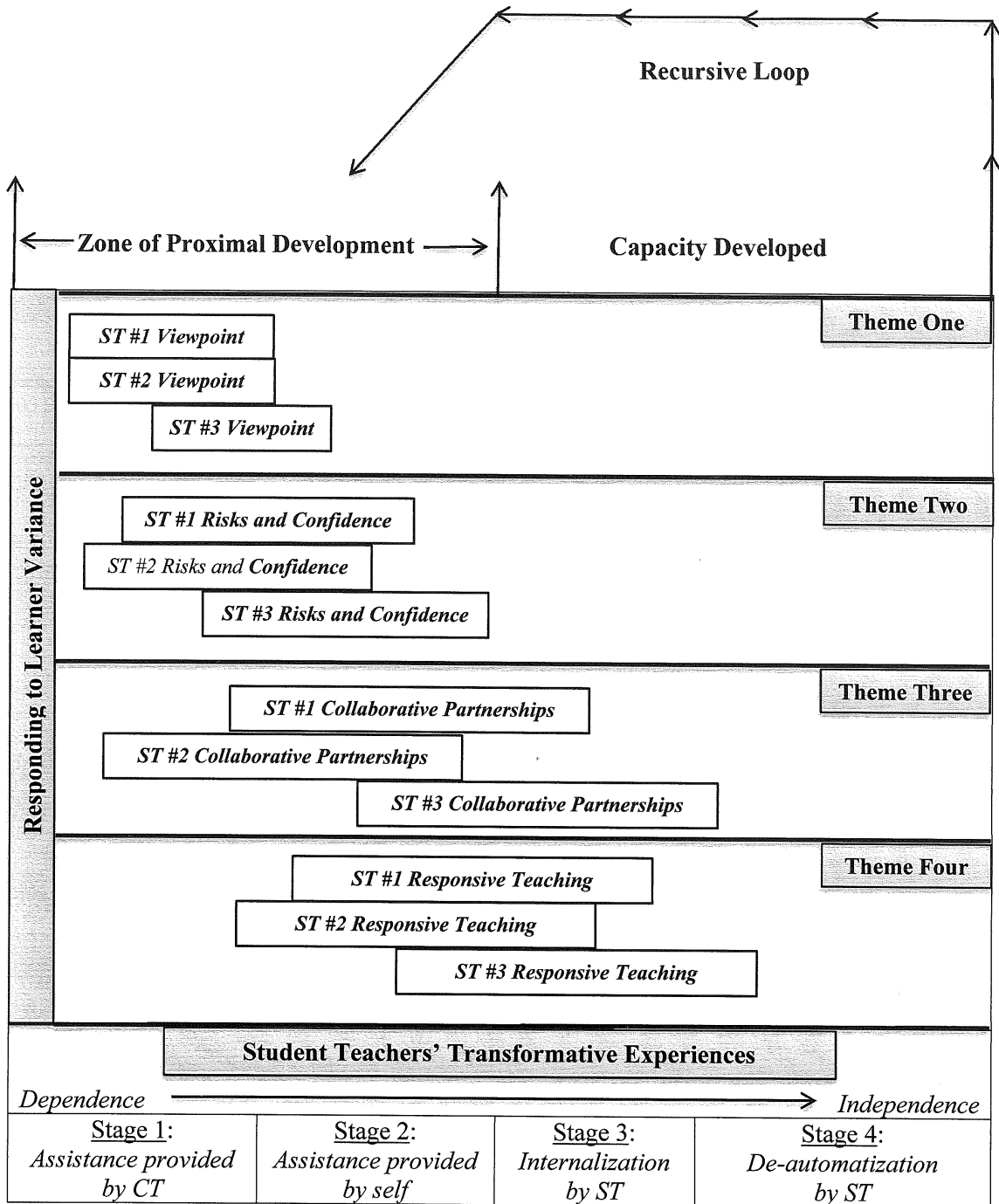


Figure 16. The relationship between the four themes, the four stages of internalization (see Tharp & Gallimore, 1988, p. 35), and student teachers' transformative experiences that increased their capacity to perform differentiated instruction for responsive teaching with independence.

In this chapter, I state and discuss two assertions derived from data analysis and contextualization of the themes within Vygotsky's (1978) model for internalization, the relevant research literature, and the conceptual model for differentiated instruction designed by Tomlinson and Allan (2000). This chapter also includes limitations, recommendations for teacher education, and future research recommendations.

Assertion One: Student Teachers' Capacity to Respond to Learner Variance is Dependent on Collaborative Partnerships

The first assertion derived from thematic data analysis claim is "Student teachers' capacity to respond to learner variance was most dependent on the collaborative partnerships between themselves and their cooperating teachers." Responding to learner variance is the goal of responsive teaching, which requires classroom teachers to differentiate their instruction of content, process, and product in response to learners' academic levels, interest, and learning preference (Tomlinson, 2014). Collaborative partnerships allow the classroom teacher to assist, model, and provide constructive feedback to the student teacher as she responds to learner variance during the student teaching experience. As presented in Figure 16, the student teachers' transformative experiences or capacity to develop their practice of differentiation instruction as a method for responding to learner variance did not progress at the same interval. Student teachers' viewpoints of differentiated instruction and their partnerships with the cooperating teachers influenced how early they responded to learner variance, the risks they were willing to take during their practice, and the successes they experienced to help build confidence with differentiated instruction.

Viewpoints of Differentiation

The first theme that evolved from data analysis was the student teachers' viewpoints of differentiated instruction. The student teachers shared similar perspectives about *knowing learners*, indicating that this was an important aspect of responding to academic variance in the classroom. Two of the three student teachers viewed learner variance in broad, general terms (e.g., students are different and unique) and the third student teacher recognized variance by learner preference (e.g., multiple intelligences, learning styles, academic levels, and accommodations for special needs). Tomlinson and Allan (2000) claim that responsive teachers need to be attentive and intentional to learner differences and provide stimulating classrooms where responsive teaching can be done with intentionality. This includes time for interactions, conversations, and joint activities, which are necessary between teachers and students (Tharp & Gallimore, 1988).

All three student teachers viewed their student teaching classrooms as safe learning environments where their students could take risks, work in collaborative communities, and connect with curriculum in varied ways. Descriptions of learning needs were detailed and through early observations and review of student assessment the student teachers watched their cooperating teachers model instruction of lessons for whole classroom, small group, partner activities, and individual needs.

As the student teachers continued to observe their cooperating teachers, their internalization of how to differentiate for student readiness, interest, and learning profile varied. Anne and Mary watched their cooperating teachers doing varied or no differentiation, which limited both of their capacities (Figure 16) to see effective

differentiated instruction for responsive teaching. Mary's cooperating teacher (Ms. Gates) modeled whole-classroom learning experiences that promoted equality for all learners rather than responding to learner differences. In addition, Ms. Gates' special education view of differentiation did not match Mary's descriptions of differentiation, which impacted Mary's ability to even try differentiating much less develop at the same pace as the other two student teachers. Tomlinson (2014) argues that student teachers require partnerships with teachers who model intentional differentiated instructional methods.

Anne and her cooperating teacher assisted *each other* with varied assessment techniques to respond to different reading levels because they were both learning about the process of differentiation at the same time. This placed Anne's viewpoint of differentiation for responsive teaching at an earlier stage of internalization because her cooperating teacher readily described her as a "co-teacher rather than a student teacher." Tomlinson (2000) cautions establishing this type of relationship early in the student teaching experience, reminding classroom teachers to be strategic with their modeling so that student teachers see differentiated instructional strategies for responsive teaching that are intentional and supportive for the next stage of learner development.

Differentiation with intentionality was a part of Ruth's views as a student teacher, as she was encouraged to differentiate for learner differences early in the semester. Responsive teaching was well established in her classroom and in the school setting, which supported Ruth's understandings on differentiation as a method for teaching and connecting with learners. Tomlinson (2014) argues that student teachers require clear models of differentiated instruction (Chapter II, Figure 2) because they

(STs) have narrow understandings of student differences and operate from an “entrenched view of schooling,” which often impedes their ability to know how to respond to academic diversity unless it is modeled consistently for them (Tomlinson et al., 1997, p. 271). Ms. Stone (cooperating teacher) encouraged Ruth’s observation of responsive teaching in other fifth grade classrooms so that she could begin to construct her own way of thinking about differentiation as a method for responding to learner variance. This allowed Ruth to view rich and meaningful teaching lessons that were reflected in her descriptions. These also supported her capacities to differentiate earlier and at a faster pace than the other two student teachers.

Collaborative Partnerships

The second theme emerging from the data analysis highlighted student teachers’ descriptions of the challenges and successes they experienced while developing their capacities to differentiate in lesson planning and early attempts of collaborative teaching, which depended greatly on their relationship with their cooperating teachers. Positioning of the “collaborative partnerships” theme on Figure 16 settled in the first three stages of the internalization process. Part of this variance was due to the classroom placements of the student teachers. Tomlinson (2014) suggests teacher education programs provide early partnerships with teachers who practice differentiated instruction while ensuring their comfort in implementing growing ranges of instructional methods to meet the needs of academic variance and facilitate classroom management (Chapter II, Figure 2). Further, choosing strong mentors while structuring meaningful practicum experiences are important elements for student teachers’ success in learning to teach and manage a classroom (LePage et al., 2005). This requires

cooperating teachers (the assistors) to be in close touch with the student teachers' needs as they relate to the teaching tasks (Tharp & Gallimore, 1988, p. 42).

The three student teachers describe the importance of developing a good relationship with their cooperating teachers by observing, listening, and being open to guidance for greater competence (Vygotsky, 1978). All three described observing differences in ideologies and responsive teaching methods that allowed them to reflect on what was modeled for them and what they wanted to eventually put into practice. Tomlinson and Imbeau (2010) indicate that conversations about the value of differentiated instruction with other teachers can sharpen the understanding and practice on both sides and clarify the purpose for using a model when choosing instructional techniques (Chapter II, Figure 2).

Respectful tasks in this case study were the responsive instructional techniques that were differentiated and modeled by the cooperating teacher, then tried by the student teacher. Scaffolding allowed the cooperating teachers to assist with the student teachers' early attempts to practice responsive teaching when taking risks with differentiation in teaching situations. Figure 16 indicates that the risks taken by each student teacher built her confidence for success at different intervals. This was due to the type of collaborative relationship that allowed for these successes to occur. Tharp and Gallimore (1988) argue,

For pedagogical skills to be acquired, there must be training and development[al] experiences that few teachers encounter – opportunity to observe effective examples and effective practitioners of assisted performance,

and opportunities to practice nascent skills, to receive video and audio feedback, and to have the gentle competent “coaching” of a skilled consultant. (p. 43)

One of the issues that became problematic for two of the student teachers (Anne and Mary) was when to actually move from being the observant teacher to the practitioner. Both felt limited and restricted in developing their teaching practices and discussed boredom in watching children all day. Hammerness et al. (2005) describe problems associated with long apprenticeships of observation where pre-service teachers “observe the superficial trappings of teaching, but not the underlying knowledge, skills, planning, and decision making” (p. 367). In those cases, misconceptions about how to differentiate for learner differences can develop. This was evident when the student teachers felt uncertain about “how and where” to begin differentiation. Efforts to differentiate for learner readiness, interest, and learning profile were fragmented and adjusted curriculum was minimal.

Tomlinson (2014) claims that, for student teachers to grow with differentiation, they require ongoing mentoring to reflect on student needs and modeling of appropriate responses to those needs. Developing lessons for academic diversity and struggles with classroom management without the assisted support of the cooperating teacher also heightened concerns for their development. This was true for Mary, who remained dependent on her cooperating teacher for teaching methods because little or no scaffolding was provided for her practice with differentiated instruction. Collaboration with Mary’s cooperating teacher, Ms. Gates, focused heavily on classroom management techniques and methods for teaching the whole classroom. Tomlinson and Allan (2000)

contend that today's teachers *must* differentiate beyond the whole classroom by focusing on ways to respond to individual student needs.

Ruth took risks at the beginning of her student teaching experience after watching her cooperating teacher model a lesson. Ruth observed her cooperating teacher model differentiation in a variety of ways, such as whole classroom, small groups, and with individual students. Although Ruth was challenged with first attempts, her cooperating teacher provided ongoing modeling and scaffolding to assist Ruth's capacity and confidence. Anne's risks with differentiation were limited because lessons were always constructed with the cooperating teacher, Ms. Haley. Anne's first attempt to differentiate for a small-group math lesson required constant scaffolding from her cooperating teacher, indicating that Anne needed more support with her capacities to use differentiation effectively for responsive teaching. It was very clear that the student teachers' capacity to respond to learner variance was most dependent on the collaborative partnerships between themselves and their cooperating teachers. This included how cooperating teachers modeled, mentored, and assisted with the student teachers' capacities to differentiate content, process, and product in response to learners' academic levels, interest, and learning preference.

Assertion Two: Student Teachers' Pathways to Transformative Experiences Varied When Using Differentiation to Respond to Learner Variance

The second assertion derived from thematic data analysis is "Student teachers' pathways to transform from dependent to independent teachers varied based on what they could control or not control while responding to learner variance with differentiation." As presented in Figure 16, the student teachers described teaching

experiences that allowed them to transform and build levels of confidence to respond to learner variance while acknowledging restrictions (what they could control or not control) that evolved during the student teaching experience. Notably, all three student teachers desired *more* intentional modeling of differentiated instruction (Chapter II, Figure 2) from their cooperating teachers as they transitioned from student teachers to responsive teachers. Besides collaboration, co-teaching, and constructive feedback, mentoring is required as cooperating teachers develop student teachers' capacities for differentiated instruction (Santamaria & Thousand, 2004; Tomlinson, 2014).

Collaboration to Independence

The third theme revealed from the data analysis addressed the student teachers' descriptions of how their cooperating teachers supported their success with differentiation methods for responsive teaching, and what they could control or not control as they transitioned towards independence. Collaboration, co-planning, and co-teaching added richness to the descriptions student teachers shared when cultivating lessons with their cooperating teachers to respond to learner variance. Student teachers were equally interested in how to engage learners in successful and flexible learning environments (e.g., individually, small group, and whole classroom).

As the student teachers transitioned from dependence to independence, there were times they still needed assistance with differentiated instruction. With their developmental levels being in different places, two of the student teachers were beginning to assist themselves and internalize some of the instructional methods in response to learners' needs (Figure 16). Tharp and Gallimore (1988) suggest that “by

whom [the] performance is assisted is less important than that performance is achieved, and thereby development and learning proceed” (p. 31).

The different pathways from collaboration to independence made the data analysis particularly interesting because the descriptions of how the student teachers were supported to use differentiation added context to their individual development as responsive teachers. This was done gradually, where all three student teachers reported having less control at the beginning of their student teaching experience and more near the end, suggesting that their ZPD as prospective teachers fell within a broader range for varied assistance. Tharp and Gallimore (1988) indicate that this is to be expected because there are variations in the means and patterns of assistance to learners and “responsive adult assistance can become quite varied within a single episode of collaborative activity” (p. 41). Student teachers need *time* to develop skills in using DI and benefit from being a part of co-teaching with tasks where peer assistance can occur and the processes of effective and innovative teaching can be modeled (Bransford et al., 2005; Tomlinson, 2014).

One of the restrictions that became problematic for two of the student teachers was when to actually move from being the observant teacher to the practitioner. Both indicated this decision was out of their control and both felt limited in developing their teaching practices. They also discussed boredom in watching children all day.

Another restriction or area of limited control for responsive teaching with differentiation included classroom management. Anne and Ruth described practicing intentional classroom management techniques that required them to develop relationships with their students while constructing learning communities. Both were

able to identify management strategies that allowed learners to work well with peers (Chapter II, Figure 2). Mary described her classroom as being very restrictive and less open to using technology as a differentiated technique for managing science inquiry lessons. LePage et al. (2005) argue that classroom management needs to include many teaching practices, such as “developing relationships; structuring respectful classroom communities ...; organizing productive work around meaningful curriculum ...; successfully motivating ... [students] to learn; and encouraging parent involvement” (p. 327). Tomlinson and Imbeau (2010) add that teachers with best intentions for DI as a method for classroom management will not *progress* unless they are able to transfer this into intentional classroom practice.

As each student teacher continued her practice with differentiation, there were less restrictions and more success. Mary’s independence with differentiation began to develop from stage one to stage two (Figure 16) after collaborating with other teachers who differentiated for learner variance. She was able to then assist herself in developing lessons to respond to learners’ academic needs, and differentiated lessons for interest during her last two weeks of student teaching. As Anne and Ms. Haley continued to co-plan instructional lessons, they also began to co-teach using differentiated instruction. Their partnership with differentiation developed into meaningful lessons where both teachers grew in their internalization process, building Anne’s confidence to teach with less assistance from her cooperating teacher. Ruth’s initiation to responsive teaching started early in her student teaching experience, allowing her performance with differentiation to develop to automatization (Figure 16).

This was part of the collaborative experience with her cooperating teacher and the rest of the school community.

Tomlinson and Allan (2000) claim that teachers who differentiate collaborate to avoid situations of autonomy. Of the three classroom settings, only one student teacher experienced grade-level collaboration where groups of teachers reviewed assessment data and constructed lessons to respond to academic variance. The other two classrooms remained independent, modeling inclusive strategies for varied learners in the classroom. According to Tomlinson and Allan (2000), these inconsistencies are part of a systemic problem, indicating that teachers who practice differentiated instruction for responsive teaching are still isolated and in the minority. Student teachers are more likely to adopt certain pedagogical strategies and require multiple experiences where they learn what it means to be a part of a professional community that works together to improve and respond to student needs (Darling-Hammond, 1999; LePage et al., 2005; Tomlinson, 2014). In addition, schools focused towards change engage in team-building collaborative relationships where everyone is a stakeholder in the future of education (Hargreaves & Fullan, 2013; Tomlinson & Allan, 2000). As Ms. Stone stated, "... we consider individuals, partners, groups – you know, everyone has a voice ... and we planned for all of those learning conditions with intentionality."

Student teachers' pathways to responsive teaching had some challenges when they differentiated content areas outside of literacy and math. Limited resources and no control over instructional time required the student teachers to use more traditional teaching methods for social studies and science where content reflected decontextualized skills. Gaps in the student teachers' abilities to link the key elements

of content, process, and product with learner readiness were noticeable when they shared the lack of differentiated modeling in science and social studies. Tomlinson et al. (2003) claim this type of teaching hinders teachers' response to learner variance where understanding is sacrificed to coverage. Math and reading, however, were differentiated for student readiness based on assessment data. Horowitz et al. (2005) argue that classroom teachers should observe students in all content areas to see what they can do without assistance to provide the strategic help in understanding key ideas and concepts within the discipline. This includes how to scaffold for learning variance in those subjects too. Additional research suggests that student teachers benefit from strong modeling in varied content areas, and without effective differentiation in those areas for readiness, interest, and learning profile, the support and scaffolding for high-quality learning is diminished (LePage et al., 2005; Tomlinson, 1999; Tomlinson & Allan, 2000; Tomlinson & McTighe, 2006).

Independence and Responsive Teaching

The final theme emerging from data analysis addressed the student teachers' descriptions of their capacities to respond to learner variance using differentiation as independent teachers. As the student teachers were given more control of the teaching in the classroom, they experienced success collaborating, co-planning, and co-teaching with cooperating teachers. They also began to internalize what it meant to respond to learners' varied needs, making modifications in how their learners got access to important ideas and responding with approaches that were effective to various learners (Tomlinson & McTighe, 2006).

Pathways for successful practice of differentiation happened during the two weeks of each student teacher's independent teaching. All three student teachers controlled how they assessed, adjusted, and provided meaningful tasks for their students based on their learners' readiness and interest. Only one student teacher described using differentiation to engage learner preference while assisting students through their problem solving of complex math problems. Tomlinson and Imbeau (2010) support using differentiated instruction to attend to efficiency of learning and suggest using many modes beyond preference for how students like to learn. Differentiation begins with sharing a sense of direction where worthwhile journeys don't always progress in a straight line or within the same content areas (Tomlinson, 2014). This was evident as all three student teachers included different elements of differentiated instruction when responding to academic needs, including respectful tasks, flexible groupings, ongoing assessments, and assignment adjustments (Tomlinson & Allan, 2000; Chapter II, Figure 2).

Successful pathways allowed student teachers to be intentional with their methods of differentiation for responsive teaching to academic readiness. The student teachers in this case study described feeling confident differentiating literacy groups that were structured with purposeful teaching for academic readiness (Vygotsky, 1978) with reading content based on student interest (Tomlinson, 1999). All three student teachers taught successful literacy lessons where they described finding gaps in learner progression and responding with appropriate interventions that provided direct instruction. Each student teacher created differentiated activities structured for different reading levels and were particularly responsive to gifted readers by giving these

children effective interactive lessons varied for higher levels of thinking (Hammerness et al., 2005). Tomlinson et al. (2003) indicate that a teacher's job is to push children into their ZPD and coach for success with a task slightly more complex than they can manage alone, where "instruction should always 'be in advance' of a child's current level of mastery" (p. 126). It was impressive to see these student teachers consider these learning conditions as they became more confident and independent in their responsive teaching practices.

Successful pathways allowed each student teacher to foster learner interest through content differentiation. Each student teacher described adapting curricular elements (content, process, product) when differentiating for student interest. Horowitz et al. (2005) acknowledge that capitalizing on students' developmental interests enhances motivation in school tasks. This was evident in various lessons when all three student teachers allowed their learners to "invest and own" their choice for respectful tasks. Observation of interest did not go unnoticed by the cooperating teachers. All three cooperating teachers expressed gratitude for their student teachers' insight to this need and felt it changed how they saw themselves practicing differentiation beyond academic readiness and learning preference.

As the student teachers became more independent in their practice of differentiation, they began to question how to use data to drive instruction. Conversations with cooperating teachers explored thoughtful decision-making about learners' needs that were more individual. All three student teachers expressed confidence with how to scaffold for learners beyond readiness adding that one of the goals they learned for effective instruction was to remain flexible so that learners had

options for constructing knowledge, understandings, and experiences. Literature argues that differentiated instruction cannot happen for the full range of students unless curriculum and instruction fits for each individual learner, giving students choice about what they learn and how they learn (Tomlinson, 1999, 2014). Knowledge of learners and how they learn and develop in social contexts is part of teacher education frameworks for understanding teaching and learning (Chapter II, Figure 3).

Good teachers must be ... present in the classroom, deeply engaged with their students and their subjects, and able to weave an intricate web of connections among themselves, their subjects, and their students, so that students can learn to weave a world for themselves. (Palmer, 1988, as cited in Bransford et al., 2005, p. 13)

It was very clear that the student teachers' pathways to transform from dependent to independent teachers varied based on what they could control or not control, and how the collaborative partnerships assisted in their capacities to practice differentiation in response to learner variance. Both assertions reveal that the student teachers' and cooperating teachers' viewpoints about differentiated instruction – what they could control or not control and how student and cooperating teachers collaborated – impacted how differentiated instruction was used as a method to respond to learner variance.

Limitations

First, this study only focused on the descriptions of differentiated instruction for responsive teaching from three elementary leveled student teachers and their cooperating classroom teachers. I did not seek to include data from the middle school or high school student teachers or graduate students who may have been able to offer

insights about how they differentiate content, process, and product in response to learners' readiness, interest, and learning profile needs. In addition, I did not seek to include other school personnel, such as administrators, academic and literacy coaches, specialists, or other staff, who possibly would have provided a broader description to the data findings. Further, I did not interview children who would have enriched the data enormously by providing descriptions about the benefits and restrictions they might have felt towards having their learning needs differentiated.

Second, classroom observations of student teachers using differentiated instruction for responsive teaching were limited to lessons planned in advance and approved by the classroom teacher. I did not observe the student teachers do much differentiation beyond the four content areas (math, reading, social studies, and science). For example, there may have been times that the student teachers differentiated for learner variance as a part of teaching in extracurricular classes (i.e., gym, music, library, and other classrooms) or lessons responding to social conflicts. However, my observations did not capture those instances, nor did the student teachers or cooperating teachers share how differentiated instruction would have been beneficial or restrictive to those learning environments.

Third, student teachers' descriptions during interviews did not show the impact of other courses taken during the student teachers' field placements (i.e., student teaching seminar, capstone course) or the influence of coaching by supervisors. I did not inquire about any feedback from supervisors regarding their teaching, and I did not request to see reflective writing that is standard for evaluating practice of effectively meeting learner needs. For example, reading their writing about comfort and

confidence with using differentiated instruction for responsive teaching could have provided a different way of thinking about teaching and learning, particularly as it pertains to their transformation from student teachers (dependent) to practicing teachers (independent).

Lastly, this qualitative study was to provide a rich and thick understanding of what differentiated instruction looked like in three student teachers' classrooms, and examine how the student teachers describe differentiated instruction as a method for meeting elementary students' diverse learning needs. There may be findings in this study that connect with the works of other researchers in the field of differentiation and teacher education; however, this study is not to be generalized for broader reference about student teachers and their cooperating teachers.

Recommendations for Teacher Education

First, the movement towards developing academically responsive classrooms is still fairly new so the background knowledge and understandings to support such classrooms is still developing in relationship to school reform. We do know statistically that students in 21st-century classrooms are more diverse than ever indicating that the need is great and the movement towards responsive teaching is imperative for change in the teaching profession (Hargreaves & Fullan, 2013). Teacher education programs are a part of the systemic way that supports schools' *endeavor* to respond to learner variance. Investment in professional capital requires teacher education programs to develop teachers both as individuals and collectively so they can respond to the differences in the learning and achievement of all students (Hargreaves & Fullan, 2013; Tomlinson &

Imbeau, 2010). This not only includes the undergraduate programs, but all graduate level programs that support teachers who are currently in today's classrooms.

Second, differentiated instruction is relatively new in teacher education, so it needs to be a part of how teacher educators prepare the next generation of teachers to enter schools so they can teach effectively and responsively. Student teachers are very aware of different needs in the classrooms but don't always know how to articulate the ways they plan to respond to those needs. Based on InTASC standards (Council of Chief State School Officers, 2013), teacher education programs must *envision* how to link standards more effectively with responsive teaching through conceptual models of differentiated instruction (Chapter II, Figure 2) in coursework and how those models influence the methods pre-service teachers use in written format (i.e., UbD lesson plans). For example, teacher educators could assess pre-service teachers' readiness levels, interests, and learning profiles prior to teaching coursework, then model instructional and management methods of course content, classroom activities, and products based on the results of learner needs identified in the pre-assessments. Once pre-service teachers have some initial understandings of how they differ as learners, they need to observe classroom settings where they can see for themselves how teachers respond to learner differences in readiness, interest, and learning preference by differentiating curriculum content, process, and product (Tomlinson & Allan, 2000). By addressing learner differences early in teacher development, pre-service teachers can be assisted by others to begin the internalization process (Vygotsky, 1978) of the rationale for differentiated instruction.

Finally, pre-service teachers need more time to *enact* during their student teaching field experience so that they receive the full spectrum of what it means to transform in their various pathways from student teachers (dependent) to practicing teachers (independent). Teacher education programs that advocate differentiation for responsive teaching need to support student teachers by placing them with cooperating teachers trained in differentiation. Student teachers need longer and more intentional practicums (i.e., one full school year) prior to graduation, so that they can become teachers who are experienced in clear models for differentiated instruction that respond to learners' readiness, interest, and preference.

For the entire school year, student teachers can see effective teaching and learning when paired with a mentor teacher who differentiates by using assessment data to inform lesson planning and curricular procedures. Extended partnerships allow student teachers opportunities to have extended time in the classroom where they can control lessons they differentiate; build more expertise and conceptual understandings of content areas for clarity about what they want students to know, understand, and be able to do at the end of a lesson; and develop stronger relationships with professional teachers. Tomlinson (2014) adds that when pre-service teachers are clear about the essential concepts and understandings within their disciplines they can begin to see how the content can be differentiated to meet the academic diversity of their students. *Enactment* further allows teacher educators the time to evaluate and to provide the needed feedback or scaffolding necessary to make sure the student teachers have a strong sense of research-based pedagogical techniques for effective differentiation while in the field.

LePage et al. (2005) add, “Having a student teaching placement [that] begin[s] at the start of a school year allows student teachers to see how classroom routines are established; how teachers learning about students, their families, and their communities” (p. 353). Student teachers’ mid-year placements cause them to miss those beginning of the year connections that build relationships and establish classroom structure with students, initially impairing their ability to use learner preference and interest as a method for differentiating learner variance at the beginning of student teaching.

Directions for Future Research

School change is imperative in today’s classrooms and necessary for growth in the teaching profession (Hargreaves & Fullan, 2013). Teachers who intentionally respond to the varied learning needs of their students are replacing the “one size fits all” method of teaching, and academic diversity of all sorts is growing exponentially in schools and classrooms (Tomlinson, 2014; Tomlinson & Allan, 2000). To prepare classrooms for a future that is vastly different from what we experienced as learners requires a different approach to teaching and learning, and new methodologies for teacher preparation programs (Bransford et al., 2005). Teachers who differentiate their instructional practices are guided by conceptual models (Chapter II, Figure 2), which support the methods they use to respond to learners’ readiness, interests, and learning profiles (Tomlinson & Allan, 2000). These fundamental concepts also guide teacher educators as they prepare future teachers to be responsive to learners’ needs in 21st-century classrooms (Tomlinson & McTighe, 2006).

This study was based on a need to fill a noticeable gap in the research literature in teacher education and the field of differentiation, one that seeks to explain what

differentiated instruction looks like in student teaching classrooms and how student teachers describe differentiated instruction as a method for responding to student academic learning needs. This study offers a valuable and important start to this promising field of educational research and opens many possibilities for future research in teacher education as we consider how to prepare high-quality teachers to become professionals in their work, capacity, and effectiveness (Hargreaves & Fullan, 2013).

It would be fascinating to examine more closely each student teacher's individual movements within her pathway of development. For example, being present on a daily basis to see purposeful approaches to using differentiation within the context of one curricular area might provide richer and deeper understandings of their practice for responsive teaching. I would be interested in observing their actual collaboration with the cooperating teacher, to hear how these conversations impact what the student teacher can do or not do with their instructional practice for responsive teaching.

I would be very interested in studying how the student teachers describe their use of differentiation for responsive teaching as first year teachers, where they are fully independent in their practice and responsible for the academic needs of all students. I would be curious to know the pedagogical choices they would make to construct learning environments that were differentiated according to learner readiness, interest, and learning profile. It would be interesting to see the notable pieces of teaching and learning that transferred from student teaching and what was constructed or developed following this experience. It would enlighten me to know whether the scaffolding or mentoring that was provided by the cooperating teachers during the student teaching

practicum influenced the student teachers' choices for classroom instruction in their own classrooms.

In addition to the student teaching experience, another potentially interesting direction for research would include studying how pre-service teachers develop understandings of differentiated instructional principles for responsive teaching based on the modeling of pedagogy and practice by teacher education faculty. Gaps in the data analysis indicate that core standards, UbD lesson plans, and InTASC standards were not linked as strongly with the responses from student teachers and cooperating teachers about differentiated instruction. What does this mean about the transference of these important parts of teacher education programs? One possible research avenue would be to observe and interview faculty as they teach and reflect on their practices for meeting the diverse students in their *own* courses. This might provide insight for how teacher education programs can be innovative and creative in training teachers for the roles and responsibilities they will discover in their own future classrooms. How might teacher educators' practice both individually and collectively impact the pre-service teachers' transformation to be effective and efficient? How might these conversations among faculty be impacted by future reform changes?

A final focus for research in differentiated instruction and responsive teaching lies in questions that center on how teachers approach and connect culture to learning that may strongly shape learner readiness, interest, and learning profile in the classroom. Although this was not an avenue for this present study, it was one of the areas highlighted by many researchers for future inquiry (Darling-Hammond, 2006; Tomlinson, 2014; Tomlinson & Allan, 2000; Tomlinson & Imbeau, 2010). For

example, how do classroom teachers respond to the identity of each learner when differentiating content, process, and product according to each student's readiness, interest, and learning profile? How do teachers craft differentiated paths of cultural understandings for how learners communicate, build relationships, work through power structures, and respond to respect?

Concluding Thoughts

As a social constructivist, I am interested in moving more intentionally to the heart of differentiated instruction by providing meaningful experiences for pre-service teachers to learn how to respond to the academic variance *and* affective needs of learners. As a former public school teacher, I watched children disengage from learning experiences because they were not connected emotionally. To reignite the *fire and love of learning*, educational systems must transform from filling pails to engaging minds. This requires teachers to respond beyond assessment data and standardized curriculum and look at their learners saying, "I see you, know you, care for you, and will always be here for you." This is the next aspect of differentiated instruction that will hold our teachers to higher standards and more intentional practice.

APPENDICES

Appendix A
Consent Forms: STs

INFORMED CONSENT: Student Teachers

TITLE: *A Case Study of Student Teachers' Experience with Differentiated Instruction in Elementary Classroom Settings*

RESEARCHER: *Laurie D. Guy, Ed.D. Candidate*

CONTACT INFORMATION: *777-4139*

DEPARTMENT: *College of Education: Teaching and Learning*

STATEMENT OF RESEARCH:

A person who is to participate in the research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please ask.

PURPOSE OF THIS STUDY:

You are invited to be in a research study during your student teaching semester. The study is about meeting the needs of diverse learners in elementary classrooms. The purpose of this study is to describe your experiences with differentiated instruction during student teaching.

PARTICIPANT INFORMATION:

- ☞ You would be one of 5 student teachers participating in this study.
- ☞ Your participation will last for the duration of the spring semester 2014, with possible limited follow-up contact during summer and fall 2014.
- ☞ As a participant, you would be observed up to 8 times for about 60 minutes each time and interviewed up to 3 times during your student teaching.
- ☞ During observations, I would write notes to help me recall what I was observing. Mainly my notes would be focused on you and events in the classroom. I may make some general notes about students, as well.
- ☞ During interviews, I would ask you questions about your teaching and would audio-tape our conversations. I would also make a few written notes. Our interviews would take place in a quiet location at your school site.
- ☞ I would ask you to provide examples of lesson plans and other teaching and learning artifacts that may help me fully understand what is occurring in the classroom.

- ☞ I estimate that your participation in this will take approximately 3-4 hours of your time for interviews.
- ☞ Your participation should not conflict with the student teaching requirements.

DATA COLLECTED:

Data for the study includes handwritten field notes from observation in the classroom, audio recordings from interviews, and teaching and learning artifacts such as copies of lesson plans and copies of student work.

RISKS OF THE STUDY:

There are no foreseeable risks to participating in this study. Your participation is voluntary. If at any time you experience stress due to participating in this study, you can withdraw with no penalty. This study data will not affect any course grade associated with the student teaching experience. This data will not be reviewed or shared with any faculty or evaluator who is involved in the student teaching practicum.

BENEFITS OF THE STUDY:

You may benefit personally from being in this study in terms of learning/expressing new concepts about differentiated instruction. You will not have any costs for being in this research study. You will not be paid for being in this study. The University and the researcher are not receiving any payments from other agencies, organizations, or companies to conduct this study.

CONFIDENTIALITY:

The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed by Government agencies, the University Research Development and Compliance office, and the University Institutional Review Board. Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

Confidentiality will be maintained by means of: Participants will be given pseudonyms by the researcher. Pseudonyms will be kept in a locked file cabinet (with the consent forms in Room 31F of the Education Building) assigned to research protocols. The research data including field notes from observations, audiotapes from interviews, interview transcripts, and other written documents will be kept in a locked cabinet in the principal investigator's office (Room 275 in the Education Building). Only Laurie Guy, the principal investigator, will have access to the data.

The data from this study will be used for educational purposes and will contribute to the furthering of our knowledge of how teachers differentiate instruction for diverse students in the regular classroom. If I write a report or article about this study, I will describe the study results in a summarized manner so that you cannot be identified.

The researcher conducting this study is Laurie Guy. You may ask any question you have now. If you later have questions, concerns, or complaints about the research, please

contact Laurie Guy at 777-3149 or email at laurie.guy@my.und.edu. You may also contact my advisor, Dr. Shelby Barrentine, at 777-3243.

If you have questions regarding your rights as a research subject, or if you have any concerns or complaints about the research, you may contact the University Institutional Review Board at (701) 777-4279. Please call this number if you cannot reach research staff, or you wish to talk with someone else.

Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

Subject's Name:

Signature of Subject:

Date:

Appendix B
Consent Forms: CTs

INFORMED CONSENT: Cooperating Classroom Teachers

TITLE: *A Description of Differentiated Instruction in Elementary Education Student Teachers' Classrooms*

RESEARCHER: *Laurie D. Guy, EdD Candidate*

CONTACT INFORMATION: *777-4139*

DEPARTMENT: *College of Education: Teaching and Learning*

STATEMENT OF RESEARCH:

A person who is to participate in the research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please ask.

PURPOSE OF THIS STUDY:

You are invited to be in a research study during the semester you have a student teacher. The study is about meeting the needs of diverse learners in elementary classrooms.

PARTICIPANT INFORMATION:

- ☞ You would be one of 5 classroom teachers participating in this study.
- ☞ Your participation will last for the duration of the spring semester 2014, with possible limited follow-up contact during summer and fall 2014.
- ☞ As a participant, you would be interviewed one time for about 60 minutes.
- ☞ During interviews, I would ask you questions about meeting the needs of diverse learners and I would audio-tape our interview. I would also make a few written notes. Our interview would take place in a quiet location at your school site.
- ☞ I estimate that your participation in this will take approximately 1-2 hours of your time for the interview.
- ☞ Your participation should not conflict with your teaching requirements.

DATA COLLECTED:

Data for the study includes audio recordings from interviews, field notes from classroom observations, and teaching and learning artifacts such as copies of lesson plans. I may request some copies of student work.

RISKS OF THE STUDY:

There are no foreseeable risks to participating in this study. Your participation is voluntary. If at any time you experience stress due to participating in this study, you can withdraw with no penalty. This study data will not affect any course grade associated with the student teaching experience. This data will not be reviewed or shared with any faculty or evaluator who is involved in the student teaching practicum.

BENEFITS OF THE STUDY:

You may benefit personally from being in this study in terms of learning/expressing new concepts about meeting the needs of diverse learners. You will not have any costs for being in this research study. You will not be paid for being in this study. The University and the researcher are not receiving any payments from other agencies, organizations, or companies to conduct this study.

CONFIDENTIALITY:

The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed by Government agencies, the University Research Development and Compliance office, and the University Institutional Review Board. Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

Confidentiality will be maintained by means of: Participants will be given pseudonyms by the researcher. Pseudonyms will be kept in a locked file cabinet assigned to research protocols. The research data including field notes from observations, audiotapes from interviews, interview transcripts, and other written documents will be kept in a locked cabinet. Only Laurie Guy, the principal investigator, will have access to the data.

The data from this study will be used for educational purposes and will contribute to the furthering of our knowledge of how teachers differentiate instruction for diverse students in the regular classroom. If I write a report or article about this study, I will describe the study results in a summarized manner so that you cannot be identified.

The researcher conducting this study is Laurie Guy. You may ask any question you have now. If you later have questions, concerns, or complaints about the research, please contact Laurie Guy at 777-3149 or email at laurie.guy@my.und.edu. You may also contact my advisor, Dr. Shelby Barrentine at 777-3243.

If you have questions regarding your rights as a research subject, or if you have any concerns or complaints about the research, you may contact the University Institutional Review Board at (701) 777-4279. Please call this number if you cannot reach research staff, or you wish to talk with someone else.

Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

Subject's Name:

Signature of Subject:

Date:

Appendix C
Parent Information Letter

January 2014

Dear Parents,

My name is Laurie D. Guy, and I am a graduate student in the Department of Teaching and Learning at the University. As part of my degree program, I am required to complete an in-depth study. The purpose of my study is to describe what differentiated instruction looks like in student teachers' classrooms and how they [the student teachers] experience this method to meet diverse learners needs. For my study, "to differentiate instruction" means to tailor instruction to meet individual student's learning needs. Your child is in a classroom that has a student teacher who is participating in the study. This study will begin in January 2014 and conclude in early May 2014.

Student teachers are the focus of the study but as a student in the classroom, your child will be observed. While I will record some field notes on children's behaviors and collect a few examples of children's work, my interaction with children in the classroom will be limited. I may, for example, greet your child, offer encouraging comments, or respond to questions about my presence in the classroom. Your child may observe me engaged in data collection such as writing notes to describe the lesson. I will also be interviewing student teachers, but interviews will occur after the school day. Again, to help me describe student teachers' differentiated instruction, some evidence of children's differentiated performance may be collected in the form of copies of children's work. In all situations, all children's names will be changed to protect their identity.

There are no foreseeable risks to participating in this study. Your child may benefit personally from being in this study in terms of learning new concepts through a differentiated instructional setting. There will not be any costs for being in this research study and no one (including the student teacher) is receiving any payment for participation. The University and the researcher are not receiving any payments to conduct this study. The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, your child will not be identified.

If you have any questions about this project, you may contact Laurie Guy at 777-3149 or laurie.guy@my.und.edu. You may also contact my advisor, Dr. Shelby Barrentine, at 777-3243 or shelby.barrentine@email.und.edu. You may also contact your child's classroom teacher or school principal with any additional questions. You may also contact the IRB office at 777-4279. If you do not want me to make notations about your child or collect any of his/her work, please indicate below by January 17, 2014. If a request to "not participate" is not received by this date, it will be accepted as parental consent.

Sincerely,

Laurie D. Guy, M.S.
Gifted Education Specialist | EdD Candidate Department of Teaching & Learning
College of Education and Human Development

_____ I do not want my child to participate in this research study with Mrs. Laurie Guy.

Parent Signature: _____ Date: _____

Appendix D

Assent Form

CHILD ASSENT FORM

TITLE: *A Description of Differentiated Instruction in Elementary Education Student Teachers' Classrooms*

RESEARCHER: *Laurie D. Guy, EdD Candidate*

CONTACT INFORMATION: *777-4139*

DEPARTMENT: *College of Education: Teaching and Learning*

I am willing to participate in a study with Mrs. Laurie Guy from the University, which will last from January to May 2014.

I am willing to do the following:

- Allow Mrs. Guy to observe my learning in the classroom.
- Allow my student teacher to share examples of my work with Mrs. Guy for her research project.

I can ask my student teacher not to share my work at any time without any penalty just by telling my teacher, my student teacher, or Mrs. Guy.

Signed:

Date:

Observation Protocol for STs

Observation Checklist for Participant

Checklist of STs' with DI in Elementary Classrooms

Observation Code: _____

Site: _____ Date: _____ Time: _____

		Observed	Not Observed
A	Classroom Climate		
1	<i>Safe & Nurturing</i>		
2	<i>Encourages Risk Taking</i>		
3	<i>Multisensory & Stimulating</i>		
4	<i>Complex/Challenging</i>		
5	<i>Collaborative: Team and class building</i>		
6	<i>Mindset</i>		
B	Knowing the Learners		
1	<i>Learning Profiles</i>		
2	<i>Learning Preferences Inventory</i>		
3	<i>Multiple Intelligences Inventory or Checklists</i>		
4	<i>Cultural</i>		
5	<i>Gender</i>		
C	Assessment of the Learners		
1	<i>Before: (Formal: Pre-assessments Pretests or Journaling) (Informal: Squaring off, Boxing, Graphic facts)</i>		
2	<i>During: (Formal: Formative, Journaling/Portfolio, Teacher-made tests, Checklists/Rubrics) (Informal: Thumb it, Fist of five, Fact the fact)</i>		
3	<i>After: (Formal: Summative, Posttest, Portfolios, Conferences, Reflections) (Informal: Talking topics, Conversations, Circles)</i>		
D	Adjustable Assignments		
1	Compacting: <i>Gifted</i>		
2	<i>Total Group: Presentation, Demonstration, Guest Speaker, Jigsaw</i>		
3	<i>Alone: Interest, Personalized, Multiple Intelligences</i>		
4	<i>Paired: Random, Interest, Task</i>		
5	<i>Small Groups: Heterogeneous, Homogeneous, Task-Constructed, Interest</i>		
E	Instructional Strategies (Process)		
1	<i>Tiered Lessons, centers or products</i>		
2	<i>Graphic Organizers, Webbing, Jigsaw</i>		
3	<i>Cooperative Grouping, Role-playing</i>		
4	<i>Inquiry-based Questioning - varied</i>		
5	<i>Technology</i>		
F	Curriculum Approaches (Products)		
1	<i>Centers</i>		
2	<i>Projects & Choice Boards</i>		
3	<i>Problem-Based Learning Conditions</i>		
4	<i>Inquiry Models</i>		
5	<i>Contracts: Independent Study</i>		

Observation Code: ST #3.003

Date: February 17, 2014

Time: 12:55 – 1:55 PM

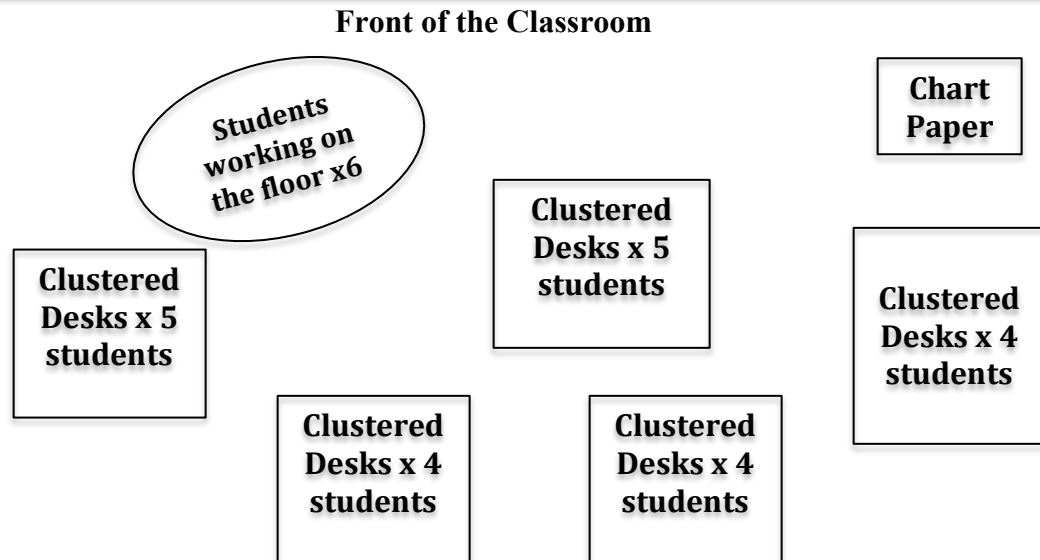
Location: Elem. School for ST #3

Context Notes: 12:55 - 1:55 PM

I arrive at the elementary school at 12:45 PM. After checking in at the office and greeting the secretary, I enter the 5th grade classroom around 12:50 PM. I greet both the CT and the ST. Both teachers escort the students into the classroom. They are returning from lunch, recess and bathroom breaks. Ms. Stone indicates that the peer teacher is still absent and there will be no substitute that day, so the classroom would have more students and a different framework for teaching.

The CT reviews the expectations for learning with the students before the lesson, including the ideas of trust, responsibility and problem solving. Students in this group are leveled for math and include low to medium placements. The math lesson uses art to explore math problem solving with triangles. Both the CT & ST want students to explore how they think independently, with a partner and in a small group. It is a 60-minute lesson that includes technology, paper folding and some coloring.

I position myself in the back of the classroom at a kidney-shaped table. For the first 5 minutes I observe and study the classroom environment, noting the room arrangement of teacher and student desks. The teacher's desk is in the back of the room and near the doorway.



Date: February 17, 2014 Time: 12:55 – 1:55 PM Location: Elem. School for ST #3

Elements of DI: <i>ST implements DI principles in learning</i>	Observation of ST Process/Implementation of DI	Memos & Observer Comments (OC)
Content	Time: 12:55	OC:
Process	Students enter the classroom with their math journals and writing tools. They all find a spot either on the carpet or in a desk. The CT explains that Miss G is still sick and that she [the CT] and Miss B [the ST] would be doing something different for the math lesson.	This is a large classroom. There are over 28 students who are fully engaged and responsive to the teacher's prompts.
Math Problem Solving The content and process were done interchangeably which made for a richer learning experience.	<i>Classroom climate: (A1) The classroom is safe and encouraging.</i> CT: "Today I want you to trust the teachers, so we are going to work on some challenging problem solving. The answers will not be obvious and you will have to STAR [Stop, Think, Act, Respond] your thinking." <i>Classroom climate: (A3) CT indicates early that the problem solving will be complex/challenging.</i> She points to the chart on the wall that has the STAR acronym framed with the representative words.	She uses humor and tact when interacting with the students, while being intentional in her expectations for learning and behavior.
According to Student	The CT shares multiple tasks that are available for students so that they have a choice on what to do once they have completed their art/math activity.	
Readiness	<i>Knowing the Learners: (B3) Usage of MI.</i>	Within the technology apps are ways to combine math and music – another aspect of MI.
Interest	These include extensions of the math [fractions] with technology. Two apps are identified for usage with the ipads in the room. One is titled: "Pattern Block Rock," and the other is "Geometric Structures." The CT models the first app with the music/math combined learning conditions.	<i>Knowing the Learner: (B3) The CT includes Multiple Intelligences as a part of the learning conditions (art and music).</i>
Learning Profile Multiple Intelligences	<i>Instructional strategies: (E1) Examples of tiered assignments (from whole group to individual – interest and learning profile).</i> <i>Instructional strategies: Technology Curriculum Approaches: (F2) Projects & Choice</i> 1:00 PM	I asked the CT why she does this. She indicates that it sets the guidelines and

	<p>CT: "So, what is the focus of this learning?" Various students provide answers to her question.</p> <p>CT: "What is important? To read, sequence and gain more knowledge <i>before</i> you begin the task. What is important?"</p> <p>Students respond by repeating what she says. Lots of frequent repetition of the expectations for learning.</p> <p>The CT continues to share options for extended learning within the class Blogmeister – indicates that what students choose is relevant to the math concept for the present lesson. Both the CT and ST have selected 5-6 apps that also include current issues where the math concept could be transferred (i.e., 2014 Olympics).</p> <p>Knowing the Learner: (B1) Student interests</p> <p>Curriculum approaches: (F3) Real-world problem solving</p> <p>ST: "I'm going to begin with a video about fractions and art. I need you to watch closely. We will watch this video several times until you know the procedure."</p> <p>Adjustable assignments: (D5) Whole group instruction</p> <p>Instructional strategies: (E5) Technology</p> <p>Instructional strategies: (E4) Interspersed inquiry-based learning/questioning</p> <p>The ST begins the video titled, "Bryony's Triangle Problem." It is approximately 5 minutes in length. As the students watch the expert on the video fold and reshape a square of paper into a flower of triangles, they begin to whisper quietly to one another. The ST watches them but doesn't say anything.</p> <p>1:15 PM</p>	<p>expectations for a mindset. Classroom climate: (A6) Intentional teaching.</p> <p>The CT and ST have intentionally chosen technology apps to support and extend student learning.</p> <p>Classroom climate: (A3) Choices for students are multisensory and stimulating.</p> <p>I was very glad to see that the ST did not respond to the insecurities of the students nor reinforce their uncertainties. Ms. Stone reminded them to trust their teachers. Neither teacher responds to the fear of risk-taking. They just let the students process in their thinking,</p> <p>Classroom climate: (A2) Encourages risk-taking.</p>
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	<p>ST: “5th graders, here is the problem: What fraction of the large square is shaped into triangles?”</p> <p>The students begin to respond out-loud some sense of confusion and uncertainty.</p> <p>The CT writes on the board: What are your predictions? She turns to the class and asks the question. Some of the students share random ideas and she lists them on the board. The ST indicates that this type of problem solving needs to be done with others and asks AS how many students need to be in a group.</p> <p>Curriculum approaches: (F3) Problem based learning conditions</p> <p>CT: “Boys and girls, we need to put you into groups to help you support each other – wave at me if you are in my math group.” The students wave at her and she has their attention. With humor she says, “Miss B, we like to talk a lot.”</p> <p>Students are quickly move into their math problem solving teams and are waiting for further direction from both teachers. They are curious and interested in the activity and still have a lot of questions about how to construct the art form.</p> <p>1:20 PM</p> <p>ST: “Okay, before we get started, I want you to STAR with the people in your group about your predictions.”</p> <p>The students begin have conversations about their ideas while the CT and ST use chart paper and the board to write down ways to structure thinking. Adjustable assignments: (D4-D5) Students work with pairs and small groups based on interest and tasks.</p> <p>CT: “You can also talk about how you would</p>	<p>The CT adds humor as a way to get the attention of her students and to help the see that their conversations need to stop so they can get more direction for the problem. They are quick to respond.</p> <p>For this math lesson, there is less time in content and more in process.</p> <p>I really appreciated how the CT uses the students’ strategies to be inclusive in the teaching and learning. Very constructivist approach and shows a true understanding of</p>
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	<p>approach the problem.”</p> <p>Classroom climate: (A5) Collaborative and team building</p> <p>The CT mentions to the group how she likes the sketching that is occurring on the front of two students’ math journals – and indicates that some people draw to help them structure their ideas and thinking.</p> <p>Students work for 5 minutes on their ideas and creative approach to the problem. The CT and ST are floating within the groups and modeling STAR while collaborating with all students. Classroom climate: (A5) Students are in collaborative – team and class building environments.</p> <p>Both teachers ask the students to raise their hands when they have ideas to share – they are passing out the square paper at the same time so the students can begin the process following the predictions.</p> <p>Child1: “When you fold it --- it’s kind of hard to explain...I can only picture it in my head.”</p> <p>The CT is writing on the board the student’s idea. She says, “Okay so help me see the idea with words.”</p> <p>Child 1: “You try to fit the itty-bitty triangle into the bigger triangle.”</p> <p>Child 2: “You can draw boxes with the big squares then divide them up.”</p> <p>Another student indicated that you could work the problem backwards, but that might be difficult.</p> <p>Other students respond with their ideas and predictions. Both the CT and the ST continue to list ideas on the chart paper and white board while student engage in rich think-aloud processing. The CT tells the students that they most honor the ideas of all by staying with “math talk.”</p> <p>1:25 PM</p>	<p>how students process differently.</p> <p>What is interesting at this point is how students respond. Some ideas are very concrete, while others are abstract.</p> <p>Child 2 responds with a British accent that reflects what she saw in the video. Most of the children ignore her acting and the teachers both continue to teach without acknowledging the humor. The student feels safe to be able to share in this format.</p> <p>Classroom climate: (A1) Safe and encouraging.</p> <p>Breaking down problem solving beyond the intellect is powerful. The CT and ST both know their</p>
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	<p>CT: “Okay kids, today before we actually do this problem solving, I need to share two things:</p> <ol style="list-style-type: none"> 1. Accuracy is important, but not perfection. 2. Frustration is normal and healthy. <p>“What are ways we can deal with frustration while we are problem solving?”</p> <p>Child 3: “We can take deep breaths.”</p> <p>Child 4: “We can relax... it’s only paper.”</p> <p>1:25 PM – continued.</p> <p>CT: “Exactly. It’s only paper.”</p> <p>ST: “We’re going to do a step-by-step here. Stay with the video and we’ll stop and do each step one at a time.”</p> <p>The ST begins the video and the students watch approximately one minute before she pauses. Some students begin the process early, while others wait for the teachers’ direction. Neither teacher requires the students to start at the same time – they just float around and watch how the student process and problem solve. Both notice students who are working independently, while others are with partners. While teachers are watching students, the students themselves are observing each other -- some to make sure they are doing the steps correctly, and others to give guidance and support of their peers. The ST shares two more steps with the class so they can continue to work on the problem. Both the CT and the ST continue to move from group to group.</p> <p>1:35 PM</p> <p>The ST shows the last direction then stops the video to let the student continue. As students interact and share with each other, the level of the tasks become more complex. Classroom climate: (A4) Complex and challenging.</p>	<p>students well particularly their emotional levels.</p> <p>Knowing the students: (B1) Learning profiles can include knowing student emotions and fear of failure.</p> <p>This was interesting to watch. So much interaction happening at the same time.</p> <p>The timing and pacing of this lesson with so many students is challenging for both teachers. They remain calm and supportive. I am glad the CT did the “frustration talk” prior to the students’ engagement in the activity. Classroom climate: (A2) Teachers are intentional when encouraging risk-taking.</p> <p>This is an excellent example of ZPD. The</p>
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	<p>1:35 PM – Continued. During this time, students are comparing and contrasting their art/math flowers. There is serious inquiry happening with the questions that are asked in the groups [by the CT & ST] as well as students asking questions of each other.</p> <p>Instructional strategies: (E4) Intensive levels of inquiry-based questioning.</p> <p>Each time the ST shares another section of the video, the students are quiet. They begin each step carefully, but the complexity causes students to verbalize their frustration.</p> <p>1:45 PM Students are in different places with folding, coloring, counting and highlighting. The ST and CT work with each individual student and in groups to support <i>where</i> they are in the process.</p> <p>1:45 PM continued. CT: “5th graders, once you’ve got an idea of how to answer the question, come to the board and add you solutions next to your predictions.”</p> <p>ST: “Remember to work with your problem-solving group to come up with an answer. This requires teamwork.”</p> <p>Classroom climate: (A5) Students must collaborate.</p> <p>As students move to the front to write their ideas, some need support with how to process thinking. Both the CT & the ST encourage students to use the problem-solving strategies posted on the wall.</p> <p>As students work in small groups there is a lot of noise and constructive thinking.</p> <p>Adjustable assignments: (D5) Small groups are task-constructed, heterogeneous and built on interest.</p>	<p>teachers are able to scaffold the learning conditions for individual needs and be flexible to teach to those individual needs.</p> <p>What is impressive about this lesson is that the learning conditions reflect process and product interchangeably. There is constant thinking and limited closure. The product is part of the process – which creates deeper thinking.</p> <p>The ST is finding her voice and using humor to relate to the students. They laugh and are comfortable with their part of this relationship.</p> <p>This response didn’t</p>
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	<p>Student move back and forth from the front of the room with the chart paper to their teams at the desk areas. Students on the floor do the same.</p> <p>1:50 PM The noise level is fairly high, so the CT does an appropriation rhythmic signal (Shh—shh—shh—shh—shh--) that indicates students lower their voices. Students respond with the same signal/rhythmic pattern. As the teachers scan the room, they are determining whether the group is ready to share in their problem solving strategies.</p> <p>ST: [returns the class to a whole group sharing time] “What were your strategies in this problem?” Students look towards the wall and choose to help them choose their ideas. Both the CT and ST ask them to STAR as a team before responding.</p> <p>ST: “Show me your hands – gorgeous hands!” The students laugh.</p> <p>Child 5: “If you look at the triangles in the middle, they fit well into the bigger ones.... That is where I started.”</p> <p>ST:” Who has another idea?”</p> <p>Child 6: “I was thinking... you know like Mrs. S, and she agreed too.” ST: “Take your time – I’ll come back to you. Who else wants to share their thinking?”</p> <p>Child 7: “You can use ratios from big to small.”</p> <p>CT: “Are there any predictions we need to change due to our new ways of thinking?”</p> <p>Students ask to have some of the predictions erased on the board, but the CT says we need to see what we were thinking and how that</p>	<p>make sense, but the ST gave her more time with her team to think.</p> <p>This was impressive thinking.</p> <p>Great strategy for allowing students to see the flow of their thoughts (individually and in groups). Adjustable assignments:(D2-D5) Students work independently, in pairs, and in small groups.</p>
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	<p>changes with the activity. As the CT continues, she has students reflect on their strategies [from the math wall] and how that impacted their thinking.</p> <p><i>Instructional strategies: (E4) Inquiry-based questioning and thinking</i></p> <p>Various children responded with: Solving little problems that are part of bigger problems, using logical reasoning, guess and checking, choosing an operation.</p> <p>Students are asked to write their names on the art pieces and to take them home for the evening. They must continue the math problem solving with their families by connecting the activity with the real world.</p> <p>1:55 PM CT: “Students, what is an appropriate time for working on this problem?”</p> <p>A few students respond 10-15 minutes. She agrees, and asks students to place the information in their planners and get ready to return to their classrooms.</p>	
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Elements of DI: <i>ST implements DI principles in learning</i>	Observation of ST Process/Implementation of DI	Memos & Observer Comments (OC)
<i>Product</i>	Interchangeable with the Process	The product was identified as Bryony’s Fraction Flower

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

Gregory, G., & Chapman, C. (2007). *Differentiated instructional strategies: One size doesn’t fit all* (2nd ed.). Thousand Oaks, CA: Corwin Press.

Appendix F
Interview Protocol for STs

Interview Protocol for Participant

STs' Descriptions and Implementation of DI in Elementary Classrooms

Interview Code: _____

- I. Prepare audio recorder. Test and have extra batteries available.
- II. Verify consent form has been signed.
- III. Review purpose of the interview: (Restate the study outline here)

IV. About this interview:

Date: _____ Time: _____ Location: _____

V. Interview Questions

Interview I:

- 1. Could you share with me how you would define differentiated instruction? Please draw or write all of your ideas during the next 10-15 minutes.
- 2. Is meeting the needs of diverse learners and differentiated instruction the same or different? Explain. How have you observed differentiated instruction being used in your student teaching classroom?
- 3. What have you observed in classroom teachers as they plan for different student needs?
- 4. Can you share examples of how you see your cooperating classroom teacher differentiates instruction?

To strengthen this study, follow-up interviews (II/III) about differentiated instruction will be linked to observation data, where conversations can reflect and inform the types of questions that are rich and relevant to what was observed during the teaching lesson. Sample interview questions are provided.

Interview II:

- 1. How has your understanding of differentiated instruction changed in the last six weeks? What are some ideas you'd like to change or add to your diagram?
- 2. What successes or challenges have you had with differentiated instruction?
- 3. Can you share how your student teaching experience impacts your ability to control (or not control) differentiating instruction in the classroom? Can you share an example?
- 4. Have do you differentiate for content areas (e.g., math, reading, science, social studies)?

5. Can you share a technique you might try to differentiate either reading or math for one student?
6. What techniques would you do to differentiate for a student's interest? How does knowing a student's interest make a difference in the classroom setting?

Interview III:

1. How has your understanding of differentiated instruction changed in the last six weeks? What are some ideas you'd like to change or add to your diagram?
2. How do you differentiate your teaching process to meet student needs?
3. What teaching materials help you develop lessons for elementary learners?
4. Can you share differentiation experiences that you found valuable? Can you share experiences that you found less valuable? To what extent were these meaningful to your ability to meet the learners' needs on a continual basis?
5. What recommendations do you have for other student teachers about differentiated instruction?

VI. Additional Probing Questions

1. You stated...
2. Can you help me understand more about...
3. Can you elaborate a little more about...
4. Tell me more about your thinking behind...
5. Can you walk me through...

VII. Close interview:

21. Thank the participant.
22. Assure the participant of confidentiality.
23. Ask the participant if he/she has any questions.

Appendix G **Interview Protocol for CTs**

Interview Protocol for Participants

CTs' Descriptions and Implementation of DI in Elementary Classrooms

Interview Code: _____

I. Prepare audio recorder. Test and have extra batteries available.

II. Verify consent form has been signed.

III. Review purpose of the interview: (Restate the study outline here)

IV. About this interview:

Date: _____ Time: _____ Location: _____

V. Interview I Questions:

1. Could you share with me how you would define differentiated instruction?
Please draw or write all of your ideas during the next 10-15 minutes.
2. Is meeting the needs of diverse learners and differentiated instruction the same or different? Explain.
3. What successes or challenges have you had with differentiated instruction?
4. How do you differentiate for content areas (e.g., math, reading, science, social studies)?
5. Can you share a technique you might try to differentiate either reading or math for one student?
6. What techniques would you do to differentiate for a student's interest?
7. How does knowing a student's learning preference make a difference in the classroom setting?
8. What teaching materials help you develop lessons for elementary learners?
9. Can you share differentiation experiences that you found valuable? Can you share experiences that you found less valuable? To what extent were these meaningful to your ability to meet the learners' needs on a continual basis?
10. What recommendations do you have for teacher education programs about differentiated instruction?

VI. Additional Probing Questions

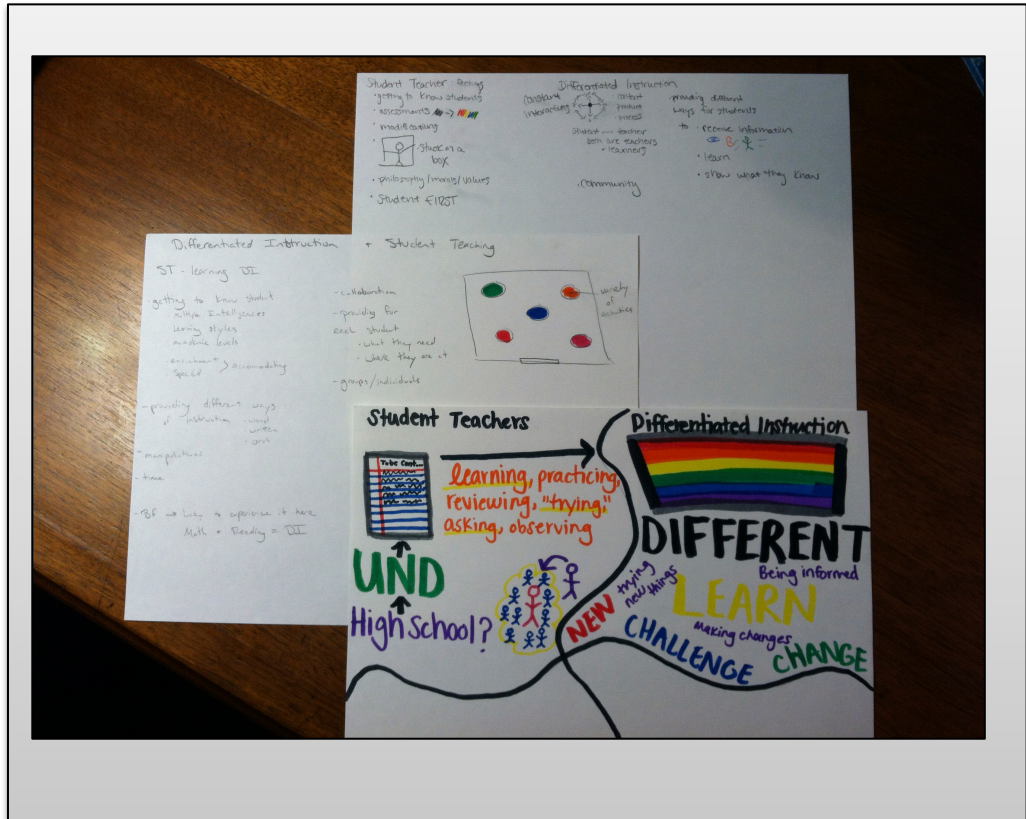
1. You stated...
2. Can you help me understand more about...
3. Can you elaborate a little more about...
4. Tell me more about your thinking behind...
5. Can you walk me through...

VII. Close interview:

1. Thank the participant.
2. Assure the participant of confidentiality.
3. Ask the participant if he/she has any questions.

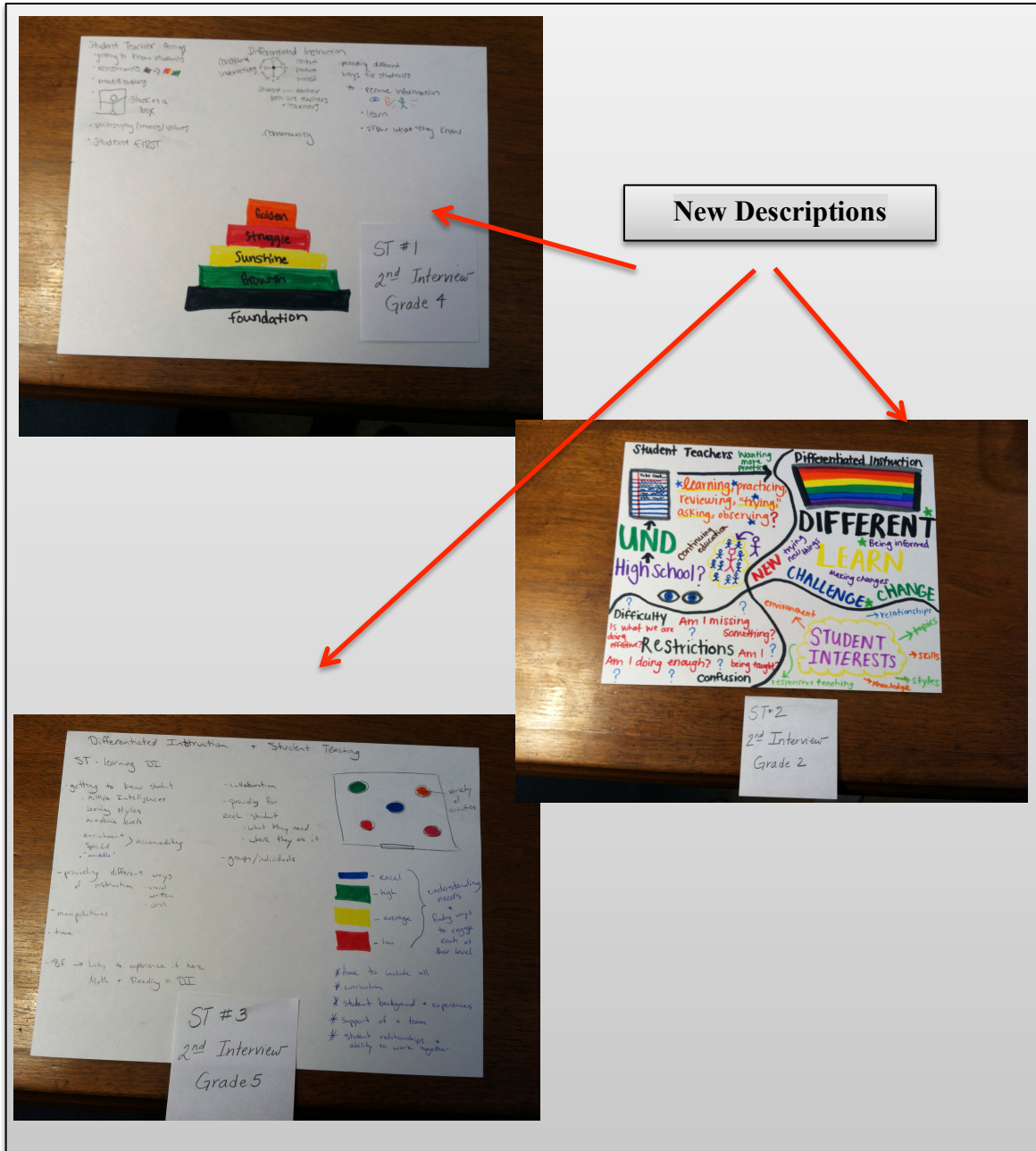
Appendix H

STs Viewpoints of Differentiated Instruction: Interview One



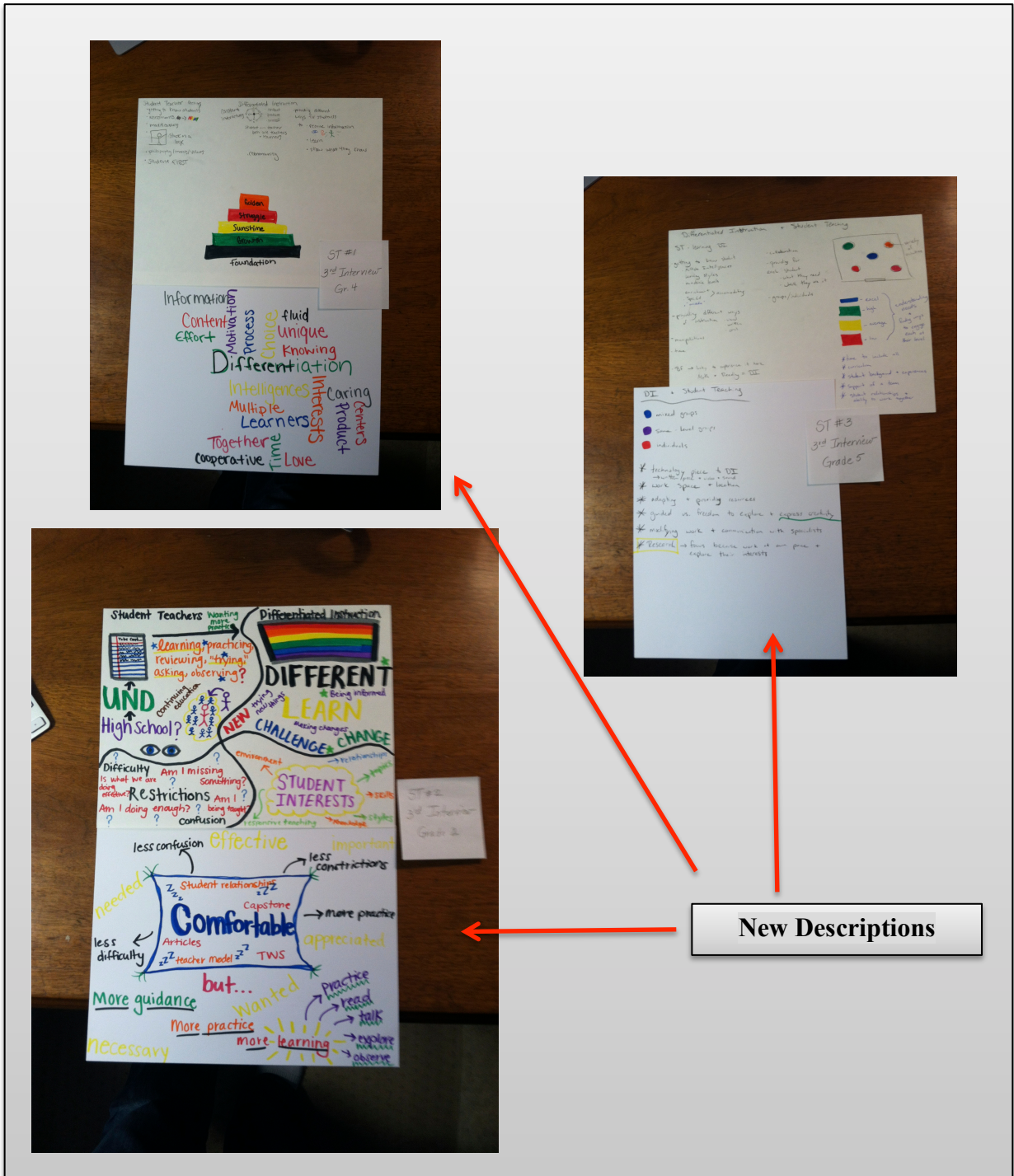
Appendix I

STs Viewpoints of Differentiated Instruction: Interview Two



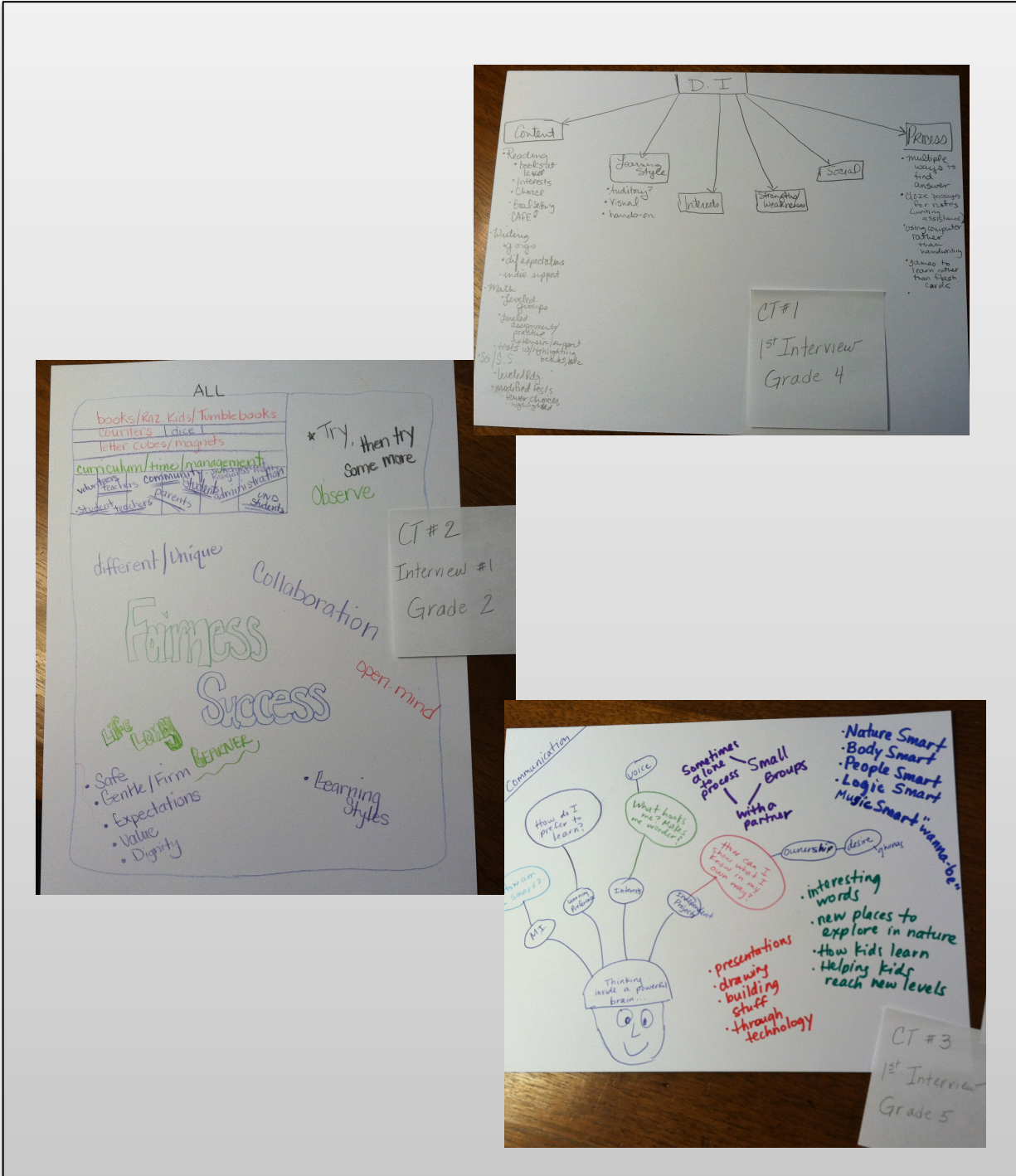
Appendix J

STs Viewpoints of Differentiated Instruction: Interview Three



Appendix K

CTs Viewpoints of Differentiated Instruction: Interview



Appendix L
Visual Representation of STs Scaffolding for
Whole Classroom Instruction, Small Collaborative Groups, and Individual Needs

Whole Classroom Instruction



Small Group Collaborative Learning



Individual Student Choice



Appendix M
72 Initial Free Codes From Raw Data Using Atlas.ti

A1-CC Safe
A2-CC Risk-taking
A3-CC Stimulating
A4-CC Complex/Challenge
A5-CC Collaborative
A6-CC Mindset
B1-KL Learn Profile
B2-KL Learn Preference
B3-KL MI
B4-KL Culture
B5-KL Gender
C1-AL Pre-Assess
C2-AL Formative
C3-AL Summative
D1-AA Compacting
D2-AA Total Group
D3-AA Individual
D4-AA Partner/Pairs
D5-AA Small Group
E1-IS Tiered Lessons
E2-IS Graphic Organizers
E3-IS Cooperative Groups
E4-IS Inquiry - Questions
E5-IS Technology
F1-CA Center
F2-CA Projects/Choice
F3-CA PBL
F4-CA Inquiry Models
F5-CA Contract
G1-DI 1st Define-ST
G2-DI Define-CT
G3-DI 2nd Define-ST
G4-DI 3rd Define-ST
G5-DI Principles
H1-DI Learner Variance-ST
H2-DI Learner Variance-CT
H3-DI Responsive Teaching
I1-ST & CT Collaborate - Plan
I2-ST & CT Collaborate - Teach
I3-ST describes CTs Coaching
I4-CT describes CTs Coaching

J1 STs successes with DI
J2 STs challenges with DI
J3-CTs successes with DI
J4-CTs challenges with DI
K1-STs control with DI
K2-STs non-control with DI
L1 STs DI approach-content
L2 CTs DI approach-content
M1-STs DI approach-academic readiness
M2-CTs DI approach-academic readiness
N1-STs DI approach-student interest
N2-CTs DI approach-student interest
O1-STs DI approach-learning preference
O2-CTs DI approach-learning preference
P1-STs DI approach-process
P2-CTs DI approach-process
Q1-STs DI approach instruct/manage
Q2-CTs DI approach instruct/manage
R1-STs value of DI
R2-CTs value of DI
S1-STs recommends-TE
S2-CTs recommends-TE
T1-One size fits all
T2-Standards
T3-Achievement based
T4-UbD Lesson Plan
U1-InTASC Standards
U2-DI Coursework & Pedagogy
U3- DI Clinical Experience
U4-Novice Teachers

Appendix N
Data Placed Into Code Filters Using Atlas.ti

Classroom Climate

Safe, Risk-Taking, Stimulating and Multi-Sensory, Complex and Challenging

Code: A1-Classroom Climate is Safe {53-0}

Primary Documents

P1: Interview #1 ST1.1-21-14.docx (125:125), (134:147), (283:283)

P2: Interview #1 ST2.1-23-14.docx (68:68)

P3: Interview #1 ST3.1-23-14.docx (152:152)

P4: Observation Field Notes ST 1.1.docx (14:14), (116:116)

P5: Observation Field Notes ST 1.2.docx (79:79), (108:108), (250:250)

P6: Observation Field Notes ST 1.3.docx (10:10), (78:78)

P7: Observation Field Notes ST 1.4.docx (68:68), (133:133), (207:207), (215:215), (353:353)

P8: Observation Field Notes ST 2.1.docx (10:10), (104:104), (177:178), (193:193)

P9: Observation Field Notes ST 2.2.docx (78:78), (78:78), (164:164)

P10: Observation Field Notes ST 2.3.docx (85:85), (95:95), (254:254), (275:275), (355:355), (359:359)

P11: Observation Field Notes ST 2.4.docx (153:153), (274:274), (318:318), (320:320), (371:371)

P12: Observation Field Notes ST 3.1.docx (12:12), (72:72), (72:72), (313:313)

P13: Observation Field Notes ST 3.2.docx (10:10), (10:10), (78:78), (146:146), (305:305), (437:437)

P14: Observation Field Notes ST 3.3.docx (9:9), (79:79), (81:81), (255:262), (382:382), (391:391)

P15: Observation Field Notes ST 3.4.docx (150:169), (184:184)

Code: A2-Classroom Climate Promotes Risk-taking {37-0}

Primary Documents

P10: Observation Field Notes ST 2.3.docx (95:95), (237:237), (282:283), (355:355), (373:373)

P11: Observation Field Notes ST 2.4.docx (371:371)

P12: Observation Field Notes ST 3.1.docx (91:91), (161:161), (179:179)

P13: Observation Field Notes ST 3.2.docx (85:85), (91:91), (124:124)

P14: Observation Field Notes ST 3.3.docx (9:9), (81:81), (114:114), (175:175), (175:175), (255:262), (266:269), (271:276), (294:294), (391:391), (412:412)

P15: Observation Field Notes ST 3.4.docx (184:184)

Code: A3-Classroom Climate is Stimulating & Multi-sensory{45-0}

Primary Documents

P 1: Interview #1 ST1.1-21-14.docx (84:84), (125:125)

P 2: Interview #1 ST2.1-23-14.docx (40:40)

P 3: Interview #1 ST3.1-23-14.docx (180:180)

P 4: Observation Field Notes ST 1.1.docx (14:14), (116:116), (199:199)

P 5: Observation Field Notes ST 1.2.docx (319:319)

P 6: Observation Field Notes ST 1.3.docx (178:180)

P 8: Observation Field Notes ST 2.1.docx (12:12), (14:14), (121:122)

P 9: Observation Field Notes ST 2.2.docx (186:186), (221:221)

P10: Observation Field Notes ST 2.3.docx (116:116), (275:275), (359:359)

P11: Observation Field Notes ST 2.4.docx (94:94), (277:287)

P12: Observation Field Notes ST 3.1.docx (74:74), (79:79), (83:83), (91:91), (184:194), (203:203), (313:313)

P13: Observation Field Notes ST 3.2.docx (93:93), (103:113), (126:126), (138:139), (148:148), (156:156), (163:163), (305:305), (437:437), (441:441), (469:469)

P14: Observation Field Notes ST 3.3.docx (81:81), (93:100), (161:161)

P15: Observation Field Notes ST 3.4.docx (106:106), (121:140), (142:148), (150:169), (171:179)

Code: A4-Classroom Climate is Complex/Challenge {46-0}

Primary Documents

P10: Observation Field Notes ST 2.3.docx (95:95), (95:95), (273:273), (359:359)

P11: Observation Field Notes ST 2.4.docx (127:127)

P12: Observation Field Notes ST 3.1.docx (83:83), (91:91), (174:174), (179:179), (184:194), (265:265), (313:313)

P13: Observation Field Notes ST 3.2.docx (85:85), (89:89), (103:113), (138:139), (165:181), (272:272), (295:295), (429:429), (469:469)

P14: Observation Field Notes ST 3.3.docx (9:9), (81:81), (255:262), (271:276), (288:288), (291:291), (339:339)

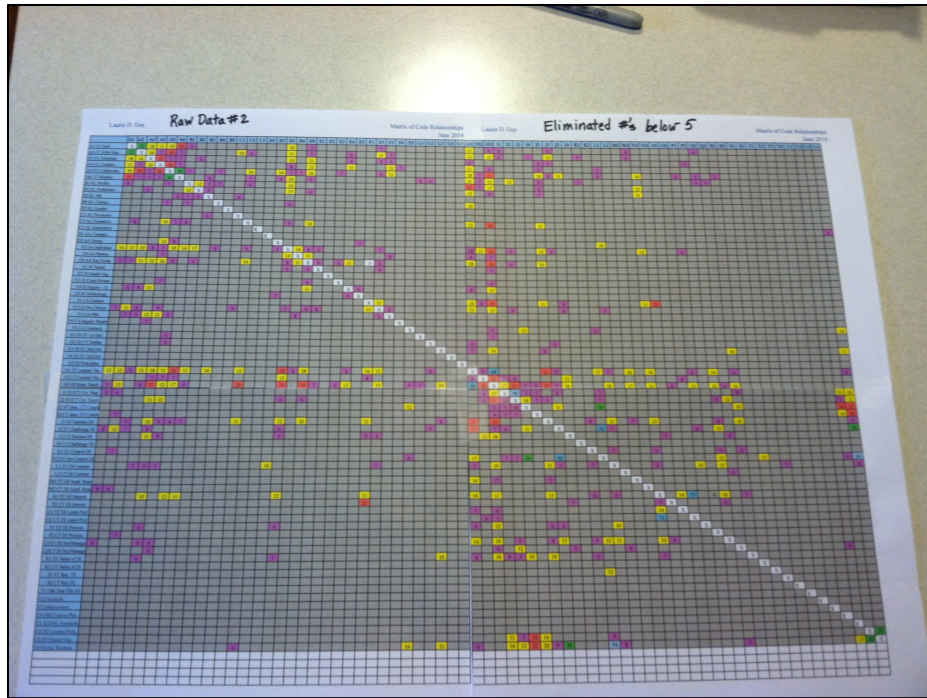
P15: Observation Field Notes ST 3.4.docx (106:106), (108:112)

Appendix O
Coded Data Sorted into Frequency Matrixes
Visual Representation of Categories and Codes

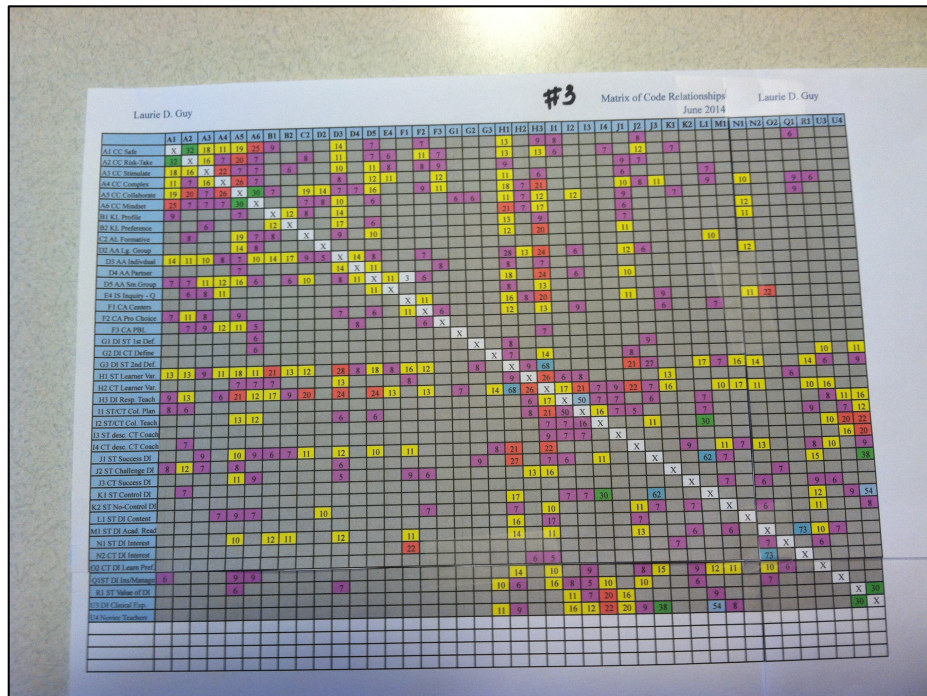
The initial frequency matrix handwritten from the analyses done using Atlas.ti

The matrix of coded data typed with colors representing levels of frequency

The first condensed data matrix – eliminated codes [shaded grey] with frequencies of five or less



The master code matrix after data is condensed a second time. Eliminated codes with frequencies of three or less. Cluster groups emerged with the highest frequencies – examined for categories and emergent themes.



Appendix P
Categories, Codes, Quotations, Vygotsky's ZPD Stages and Theme Three

Research Question 4: *How does the relationship with the cooperating classroom teacher impact how STs differentiate instruction?*

Theme: Partnerships and Responsive Teaching

Category: ST and CT Collaborate <i>Model & Mentoring</i> <u>Atlas ti. Codes</u> I1-I2-I3-U3-U4	Quotations: Significant Statements	Vygotsky's ZPD
	ST: My CT has been guiding me a lot. She even shared her experience when student teaching in Australia where units are all integrated. She shared how important it is to try things when you are student teaching so that you have those experiences. She talked about how they did their science and social studies together. Everything works so much better together because you were working in all of these skills in areas that are connected. I'm glad that she shares these with me... because we're going to do that with our poetry unit next month.	Stage 2-3
CT does not model or mentor DI	ST#2: My cooperating teacher handed me the teaching manual for our everyday math and said, "This is the workbook page and this is what I want you to do." It was pretty much the same lesson for every child in the classroom. You know after all that, she still wanted me to go through the worksheet with them so she could get the points, but she really liked the activity. Although she went right back to the teaching manual and worksheets for the next lesson.	Stage 1-2
CT models how to structures small group learning	ST #1: My CT does a lot of group work. She knows... who works well together, and she knows that it's important that they you know, work it out and get along. She has modeled for me how to build a community where you start DI building relationships with children.	Stage 3
ST is frustrated with lack of modeling	ST#2: I am so frustrated with my CT -- sometimes I am wondering why I am in this classroom? [She looks towards the closed classroom door and whispers] It is very frustrating to be this far in my teaching preparation and not being able to share this with my CT. She is hard to talk with right now.	Stage 2

<p>Category: ST and CT Collaborate <i>Model & Mentoring</i> Atlas ti. Codes I1-I2-I3-U3-U4</p>	<p><u>Quotations:</u> Significant Statements</p>	<p>Vygotsky's ZPD</p>
<p>ST and CT relationship</p>	<p>ST#2: I'm still learning how to build a relationship with her.</p>	<p>Stage 1</p>
<p>CT and entire grade level model for ST</p>	<p>ST: I think that with everything -- how the entire fifth grade is set up is very-- that way, you know differentiated. This is the mindset of this teacher and how she works with me to be prepared for today's students.</p>	<p>Stage 3-4</p>
<p>CT models DI through learning preference</p>	<p>ST#3: My cooperating teacher did an awesome lesson recently. So, with this activity you have like four people trying to stand on one chair to represent, you know... cities and stuff. The kids were having so much fun and really learning... like, they didn't want to stop. They kept asking what if questions. It was so cool and I got to be a part of the lesson -- kids working right in their intelligence areas too."</p>	<p>Stage 2-3</p>
<p>CT models DI through learning preference</p>	<p>ST#3: My cooperating teacher did an awesome lesson recently. So, with this activity you have like four people trying to stand on one chair to represent, you know... cities and stuff. The kids were having so much fun and really learning... like, they didn't want to stop. They kept asking what if questions. It was so cool and I got to be a part of the lesson -- kids working right in their intelligence areas too."</p>	<p>Stage 2-3</p>
<p>CT and ST relationship</p>	<p>ST#1: In our relationship it's okay to ask her any questions-- so, I'm constantly asking questions!! [laughs]. She differentiates process so easily – I need to keep watching her do that.</p>	<p>Stage 2</p>
<p>ST and CT mentor each other in DI</p>	<p>ST#2: I guess with me asking and wondering if I could bring it in more, as a part of how to meet different students needs, she was learning right alongside me.</p>	<p>Stage 2</p>

Category: ST and CT Collaborate <i>Model & Mentoring</i> Atlas ti. Codes I1-I2-I3-U3-U4	Quotations: Significant Statements	Vygotsky's ZPD
ST needs more guidance and mentoring	ST#1: I ask a lot of questions because I don't want to have the students miss anything because I'm the one teaching it.	Stage 2-3
ST and CT relationship	ST#3: The relationship is definitely very important.	Stage 2-3
ST shares positive relationship with CT due to modeling	ST: She really talks about learning is a gray area-- it's not black and it's not white. You know this whole process-- she really likes the whole process of how to get there. She likes problem-based learning-- you know about your students in a box where this is the right answer or this is the wrong answer or you have my answer. She really wants me to have the ability to think on my own.	Stage 2-3
ST feels trust from her CT	ST: Since my first couple of weeks -- this is only about my second week of actually teaching lessons. It's --- I've been noticing it more and I don't sit in a chair. I'm up and moving around.	Stage 2
ST & CT relationship is valued	ST: Connecting with your CT is critical. I think being a new teacher and not having that support would be scary. And you wouldn't know what is good or bad, what's going to work when it's not going to work-- without having that support or collaboration of going back and forth. It makes it easier and it makes it more comfortable to be here and to be in front of the classroom. And, to be okay with what you're doing.	Stage 2
ST is safe with CT	ST: I think it's really enhanced my experience to be that much better because I feel safe to take risks with my CT. She's there to catch me and to give me guidance.	Stage 3

Category: ST and CT Collaborate Model & Mentoring Atlas ti. Codes I1-I2-I3-U3-U4	Quotations: Significant Statements	Vygotsky's ZPD
ST and CT relationship	ST#1: The relationship I have with my CT has really impacted my confidence as a teacher. I am very appreciative of how open things are with her. I can ask her any question about school or about teaching, education --- even life. You know, this relationship with Ms. Haley has gone beyond professional and we become good friends. I really trust her [she become teary] and I believe she trusts me.	Stage 2-3
ST & CT learn about DI together	ST: I guess I'm seeing her grow with DI in similar ways that I am --- partly because we are learning about things together.	Stage 2
CT values early relationship with	CT#2: I just recommend that you build an early relationship with your ST. I want my student teachers to observe me as much as possible before they begin their field experience – so there are no surprises.	
ST coaches the CT	The ST coaches and helps her with some of the math content because it is a new concept for both of them to teach.	Stage 1-2
CT scaffolds for ST	CT#1: There is so much organizational stuff that needs to be covered early-on and I just wanted Anne to come in and start teaching right away.	
ST and CT relationship	ST#3: Collaborative teaching is where you built a professional relationship.	Stage 3-4
Intentional modeling	ST #3: Our entire grade level is intentional when planning for maximum student growth.	Stage 2-3

Category: ST and CT Collaborate <i>Model & Mentoring Atlas ti. Codes</i> I1-I2-I3-U3-U4	Quotations: Significant Statements	Vygotsky's ZPD
CT provides mentoring for ST and scaffolding for ST	<p>As the ST is working with her reading group the CT is sitting across the room watching her. The ST looks up and they both smile. Ms. Haley walks over to Anne and they step away from the students who are doing independent reading.</p> <p>CT: "Hey, how's it going?"</p> <p>ST: "Okay, I guess. I am not sure that I have accurate reading prompts for this group."</p> <p>CT: "What do you mean?"</p> <p>ST: "Well... [she hesitates] they seem too hard for these kids."</p> <p>CT: "Let's take a look." [She reviews the prompts and hands them back to Anne]. "They look fine to me. Here --- just give a few to each student so that they don't have to do all of them. They can share what they've discovered and teach the other kids. Anne, just relax – this is your classroom too."</p> <p>She smiles, pats Anne on the back and returns to her small reading group. Anne breathes a sigh and returns to question her students. "</p>	Stage 2
Value of ST	ST#2: [long pause]. I don't know 100%, whether I'm valued or not.	Stage 1
ST is scaffolded by CT	ST #1: That scares me because I keep thinking about my students' futures. What if they had a student teacher that didn't do a great job of teaching them and now they don't have this information? Then I get a negative attitude. I look at my CT and she just keeps on encouraging me.	Stage 1-2
Relationship of ST/CT	ST#3: I think a good relationship starts before you even begin student teaching. For example, when I was in Ms. Stone's room for my field experience and I saw her talk through with her co-teacher what they were going to do next, what direction they planned to go, and what they wanted to do after that. I saw teachers working together and I was interested in being in this classroom.	Stage 3

Category: ST and CT Collaborate Model & Mentoring Atlas ti. Codes I1-I2-I3-U3-U4	Quotations: Significant Statements	Vygotsky's ZPD
	ST: When my CT and I plan together -- for example, we were just working on summarizing last week and this is where I struggle with the black-and-white because she really goes off of what the kids say-- picking that out from the text. I need to watch her more and see how she does that! She reminds me that some teaching is just "off the cuff."	Stage 2-3
Planning & Teaching is collaborative	ST#3: The whole 5th grade team is mentoring me each day when I get to see them teach and observe the strategies they use to engage students and manage classroom behavior.	Stage 3
ST/CT plan instruction together	ST: Well, my CT pays attention to the details. We look together and talk about where kids are at and how we're going to add onto a book or unit to build what the kids know at that time. We look at the materials once we know what were doing and think about how to include students based on interest or readiness. Then, we look at the materials she's done in the past and maybe what were going to do differently this time as we think through student needs.	Stage 2-3
ST & CT collaborate successfully	ST#1: This was a good collaboration experience because we worked together to align the two topics into a complete study of how inventors/artists impact our imaginations.	Stage 2-3
CT values collaboration with ST	CT#1: I am all about collaboration with the ST. If I know the starting point with my ST then I can encourage them in what are able to do on their own --then support them where they need help as a teacher.	Stage 1-2
ST & CT work at a professional level	ST: My CT and I are constantly reading books. Whether that is for her enjoyment or for her professional growth I don't know, but she has encouraged me to check out any of her books from her professional library. She is always talking about the importance of professional development... it's ongoing.	Stage 3-4

Appendix Q Preliminary Interview Analysis

Location: Elem. School for ST #1
Grant Public Schools
Interview #1: ST #1
Date: January 21, 2014
Time: 10:15 AM – 11:15 AM

Context Notes: 10:00 AM

I arrive at the elementary school for ST #1 at 10:00 AM. This school is located in a north-end school in Grant Public Schools. I approach the office I am greeted by a friendly secretary. I go to the fourth grade classroom and meet Anne [ST #1]. She welcomes me into the classroom and mentions that the children are taking a test. She indicates that they have been working individually, with partners, and now in groups to acquire the information.

Classroom Climate: (A5) Collaborative classroom setting

Adjustable Assignments: (D3-D5) Students work alone, in pairs and in groups to build their conceptual understandings.

We leave the classroom and go into a quiet conference room for the 1st interview.

Speaker Codes:

I Interviewer
ST ST #1: Anne

Transcription Conventions:

... 1 sec pause, or moment of silence
[] Actions. Diacritical marks, and other conventions
() Unclear what has been said
- Self-interruption
// Overlapping speech
bold Strong words of emphasis

I: This is interview #1 with Anne [ST #1] at an elementary school in Grant Public Schools. Let's just review the study here we are looking at how you would describe differentiated instruction as a student teacher. So, what I would like you to do is draw, write, or describe on your paper everything that you think of about differentiated instruction. You can use a pencil or whatever tools you want to describe your ideas. So I'd like you to list on the paper student teachers in one section and in another section write differentiated instruction.

ST: Okay...

I: I'd like you to think about new ways of using whatever words or what symbols or however you want to describe ideas to describe that relationship between student teachers and differentiated instruction.

ST: So... in a way with a list in the box?

I: You can box it, or you can list. Whatever you want to do.

Audio-recorded interview begins at 10:15 AM.

ST: So... I guess my feelings as a student teacher with DI um... You know observing Ms. Haley [the CT] and um... for the assessment for example, I put just kind of gray black and white. She you know --- I want to be doing different assessments and making them you know not so generic where it came from the book. I put some color into it and the grouping was a lot of fun but you know I don't want to be stuck in a box with the basal series or that you know, the textbooks that we do have. I'd like to modify things and have the focus be my guide and then differentiate you know, the lessons that the book is providing for me.

Assessment of Learners: Varied assessments inform instructional practice.

(C1) Before – Pre-assessments

(C2) During -- Formative

(C3) After -- Summative

I: Can we start with the idea of assessment? Since you just walk out of the classroom from that experience, can you tell me how you see assessment with DI?

ST: When I think of assessment I like to think of the product or the processed product part of the DI. The product part where they show you what they know, and you provide them with different options so they can show you what they know. Personally, when the students heard the word test, I saw them go, "Ohhh" [gestures with hands in the air interpreted as uncertainty or anxiousness], and I don't want my students to feel that way. And, I think that you know... I'm always thinking that I want to change assessments. I just don't know how or where to start. And, I --- well, the products we did in the team lesson plans were my favorite thing to write about because I love to think about all the ways they could show me what they know. I think that gives you so much more to assess. And, I want tests or assessment to be colorful I don't want them to be dull. It's hard. [laughs a bit awkwardly]

Assessment of Learners: (C3) Post assessment of learning – summative

Instructional Strategies: (E4) Inquiry-based thinking and questioning

I: It's okay... I think the whole idea of what you indicated with using the basal text assessment versus doing your own type of assessment is interesting. Can you talk more about that?

ST: I just think that it's a new guideline for me. Starting as a new teacher, I feel that it's in a box... And Miss H [the CT] has even said that the tests from TCI [Social studies curriculum] require more reading comprehension than actual social studies topics or concepts – like we did in TEAM. And, the basal tests basically have them recall information from the text. So, I want to take that test and create it to be a deeper level of thinking and not just recalling information.

Classroom Climate: (A5) Complex/challenging

Assessment of the Learners: (C2) Assessment is formative and transforms thinking

I: So how would you do that?//

ST: //I have no idea...[smiles, laughs and coughs]. Like... I would just like them to apply what they've learned to the Grand Forks community. This last week, they were able to do a comic strip, where they could draw and that was nice to assess. I guess just applying what they have learned so that it matches to their life and... I don't know. When I was observing professional development day yesterday and learning about close reading, I'm trying to think about these ideas--- I don't know how. But, I *want* to know [emphasis on want].

Classroom Climate: (A2) Encourages risk taking

Knowing the Learners: (B2) Learning Preferences – Interest

Instructional Strategies: (E3) Graphic organizers – comic strips

Curriculum Approaches: (F2) Projects and Choice Boards

I: When you have those conversations with your cooperating teacher, do you ask questions about these learning experiences?

ST: What do you mean?

I: Well, when there are things you don't know in regards to reading or DI. Do you have conversations with the CT?

ST: Well... A few times. But not in terms of the professional development. I have brought up my feelings on you know, changing and modifying what social studies or TCI social studies is set up for. She doesn't consider changing Social studies. I come from TEAM social studies where you're always worried about how important it is to do the personal spin to meet the varied levels in social studies. I wish you could just give me some pointers too.

Knowing the learners: (B1) Learning profiles – meeting individual students' needs

Instructional Strategies: (E1) Tiered Lessons

I: I'm sorry that I can't help, remember? I can't support you right now, okay?

ST: Oh yeah, I keep forgetting. Sorry about that

I: No problem. Let's talk a little bit more about what other ways you describe DI. Can you share more from your diagram?

ST: It's just giving students options... So I wrote down on my paper providing students with ways to receive information, to learn and show what they know. I also think cooperative grouping is a big part of that that I like. I hope that is okay.

Classroom Climate: (A5) Collaborative: Team and class building
Adjustable Assignments: (D3) Alone – Built on interest, personalized
Curriculum Approaches: (F2) Projects and Choice Boards

I: It's alright, you're sharing some very thoughtful ideas.

ST: Well, I thought I knew DI. But, [chuckles]...

I: Use the tool there to help you find the words. Take your time.

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