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DIFFERENTIATING READING INSTRUCTION FOR SPECIAL EDUCATION STUDENTS IN AN INCLUSIVE MIDDLE SCHOOL: COMPARING TEACHER KNOWLEDGE AND APPLICATION

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DIFFERENTIATING READING INSTRUCTION FOR SPECIAL EDUCATION STUDENTS IN AN INCLUSIVE MIDDLE SCHOOL: COMPARING TEACHER KNOWLEDGE AND APPLICATION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

by

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Abstract

DIFFERENTIATING READING INSTRUCTION FOR SPECIAL EDUCATION STUDENTS IN AN INCLUSIVE MIDDLE SCHOOL: COMPARING TEACHER KNOWLEDGE AND APPLICATION

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This qualitative case study uses observations and interviews to examine the practice of differentiation by twelve collaborative middle school reading teachers in a school that has shown a decrease in the achievement gap for students with disabilities on end of year tests on state standards. Observations and interviews were analyzed to determine the teachers' knowledge and application of differentiated instruction. The results showed that four of the six teams possessed a comprehensive knowledge of the practice of differentiation and the data available to assist in planning lessons. Some differentiation was observed in each of the six classrooms.

Chapter 1

Introduction

The integration of students with disabilities into the general education classroom environment has required a change in the strategies and techniques special educators use to deliver instruction. A partnership between the special educator and the general educator has developed. Special educators contribute expertise in meeting the needs of diverse learners. General education teachers must be able to adapt their teaching for students of differing abilities. The inclusion of student with disabilities in the general education environment is a product of the enactment two federal education acts, the Individual with Disabilities Education Improvement Act and the No Child Left Behind Act.

Background

Since the implementation of the Education for all Handicapped Children Act, Public Law 94-142, in 1975, the amount of time during the school day that students with disabilities spend in general education classrooms has increased. Precipitated by civil rights legislation, the Education for All Handicapped Children Act was enacted by Congress to ensure that children with disabilities have the right and opportunity to receive a free appropriate public education. As a result, schools were integrated by students of different ethnicities and abilities. Fourteen primary terms exist under the main definition of a child with a disability as defined through this Federal Regulation. These

definitions guide how states set criteria to determine who is eligible for special education or related services under the auspices of these disabilities terms ((NICHEY, 2008.).

Emphasis on access and academics has become increasingly significant for special education students. According to the National Center for Education Statistics, between the 1994-95 and 2004-05 school years, the percentage of students with disabilities spending 80% or more of the school day in a general classroom increased from 45% to 52%. Currently only 17.5% of special education students spend less than 40% of their school day in a general education classroom (National Center for Educational Statistics, 2008).

A driving force in the inclusion of students with disabilities in general education content area subjects has been the No Child Left Behind Act of 2001 (NCLB). Accountability measures are the guide as schools are expected to ensure that all students reach proficiency on standards for reading and math. A goal of NCLB is to eliminate the achievement gaps among students in subgroups. These subgroups include economically disadvantaged, racially and ethnically diverse groups and students with disabilities. The academic performance of these subgroups is a key component in reaching the goal of 100% of students achieving to state academic standards in reading/language arts and math (Yell, Shriner & Katsiyannis, 2006b). The United States Department of Education (2002) measures the progress of states, schools and districts under the No Child Left Behind legislation through the gauge of Adequate Yearly Progress (AYP). AYP can be defined as the goal that all students reach proficiency in state academic standards (United States Department of Education, 2002). For schools to demonstrate AYP the following requirements exist: at least 95% of all enrolled students, including specific subgroups

must participate in testing, all students and subgroups should score at least proficient on the state's AYP targets; and all students and subgroups must meet AYP targets for graduation and attendance (Yell, Katsiyannis, and Shriner, 2006a). All students must achieve these levels of proficiency by the year 2014 (Yell, et al., 2006b).

Teachers have been required to put into practice different instructional models and methods in order for each student to achieve success. NCLB requires that these methods be scientifically based, defined as instructional methods that are subject to rigorous standards and have been documented through research to yield positive results when they are applied with integrity (Faircloth, 2004).

Conceptual Underpinnings for the Study

One way to address achievement gaps between students with disabilities and their non-disabled peers is through differentiated instruction. Differentiated instruction is a model of teaching designed to present a curriculum suitable for all students by focusing on their unique needs. It requires the teacher to actively plan for students by allowing them to work at their individual academic level and at their own pace, and offers students choices in ways of displaying their own learning (Nordlund, 2003; Tomlinson, 1999, 2003). Classrooms that meet the students' diverse needs create environments that allow students to work at various readiness levels due not only to their learning styles but also their areas of interest (Tomlinson, 2000: Tomlinson, 2001; Tomlinson, 2003: Tomlinson & Eidson, 2003).

According to Tomlinson (1999), teachers can decide to differentiate their instruction based on three different areas: content; process; and product. Content is defined as what the student is required to learn. Process is how the student is to learn this

content. Product is how the student demonstrates what he or she has learned (Tomlinson & Eidson, 2003). Wormelli (2007) believes that the most important factor for educators in any subject or grade level to differentiate is their "mind-set". He feels that unless educators have courage to implement differentiation they cannot incorporate it as part of their craft of teaching.

Using information from formative and summative evaluations, both the general educator and special educator can tailor instruction to teach to a student's strengths while supporting his or her weak areas. For students with disabilities, a team comprised of a general educator, a special educator, parents or school administrator are required by IDEIA 2004 to develop an educational plan of specialized instruction for students who have special needs called an Individualized Education Plan (IEP) (IDEIA, 2004). This plan is required to contain information about the student's present levels of academic achievement and functional performance, measurable academic and functional annual goals and how those goals will be measured, accommodations, services and supports, and how the student will be assessed on state standards. General educators and special educators share responsibility for the plan's implementation. Special education services are to be delivered in the student's least restrictive environment so that special education students are instructed to the fullest extent possible with their non-disabled peers (NICHCYb, n.d.).

Gains have been made in the academic achievement of students with disabilities since the inception of NCLB. In Virginia, for 2007-2008, the passing rate in reading of students with disabilities increased five percentage points from 2006-2007 to a rate of 67% (Virginia Department of Education, 2008). This corresponds to a decrease in the

percentage of special education students spending more than 40% of their school day outside of the general education classroom from 18% in 2005-2006 to 15% in 2006-2007 (Virginia Department of Education, 2006 & Virginia Department of Education, 2007). Achievement has increased as more students receive special services in inclusive settings.

The instructional model of collaborative teaching is being utilized to deliver services to students with disabilities in an inclusive environment. An inclusive classroom is a place where the integration of disabled and non-disabled students with same age peers occurs in an instructional setting. The practice of inclusive schooling is to provide a child with disabilities his or her education with nondisabled peers, with the supports and accommodations needed by that student (York-Barr & Shultz 1996). The model for delivery of specialized instruction changes when inclusive practices are in place. Often instruction in an inclusive classroom is done collaboratively by a general education and special education teacher. The object is not for general educators to become special educators or for special educators to become general educators. King-Sears (1997) states that inclusion does not mean that that special education is not needed. The need for specialized services and special educators remains. Specialized instruction includes the supports and services needed by a student with disabilities to access the curriculum. Differentiated instruction, however, can be used with all students.

To determine if differentiated instruction in inclusive classrooms contributes to closing the achievement gap for students with disabilities it is necessary to observe the instruction provided by teachers in the classroom which have shown success in this area. According to Sherman (2008), there is an abundance of literature on the theories and implementation of differentiated instruction. Largely these are testimonials in support of

differentiation. Few empirical research studies have been conducted related to differentiation as a catalyst for improvement in student achievement. Existing studies report on the challenges of implementation, leadership perspectives on differentiation, and student motivation.

Differentiated instruction is a compilation of what is known about constructivist learning theory, learning styles, and brain development. Its foundation relies on support through empirical research on the influencing factors of learner readiness, interest, and intelligence preferences toward students' motivation, engagement, and academic growth within schools (Tomlinson & Allan, 2000). Leo Vygotsky proposed that students learn in their zone of proximal development, a point of mastery where the child cannot function alone, but can succeed with support (Tomlinson, et. al, 2003). When learning tasks are matched to student readiness, what a child requires with assistance today, she will be able to perform with independence after instruction. This level of readiness provides the seed from which learning can grow. (Bransford, Brown, & Cocking, 2006; Tomlinson, 1999). Interest describes positive emotions that go along with student engagement (Hidi & Renninger, 2006). Student interest effects motivation. A student who is motivated is more engaged in the process of learning and masters concepts at a faster rate. They become an active participant in learning. According to Pachtman (2006), student engagement is an important factor in the components and practices that are part of a reading program. Tomlinson defines learning style as a student's preferences related to environment, modality of instruction and interpersonal interactions (Tomlinson, et al., 2003). It is shaped by the student's culture and gender. When there is disparity between a student's learning style and how the instruction is delivered, the student is at risk to struggle

academically (Levine, 2002). Addressing learner readiness, learning style and student interest can be done through the act of differentiating instruction in content, process and product (Tomlinson & Eidson, 2003; Tomlinson, et al., 2003).

Statement of the Problem

In order to determine if differentiated instruction is an effective tool in reducing achievement gaps, research is needed to determine if it is applied where data shows that there has been improved achievement of standardized tests. There is lack of empirical literature related to the middle school general education and special education teachers' use of data to differentiate instruction for students with disabilities. An inventory is needed to determine what data teachers have available to furnish them with the information they require to be able to differentiate according to readiness, interest and/or learning profile. Examining teacher behavior can uncover what teachers in successful classrooms are doing to achieve positive results. Observations of instruction can indicate if teachers are using the data that they have access to in order to plan and implement instruction that best meets the student's needs. By interviewing teachers, information about their understanding and use of differentiation can be documented. To determine if and how differentiated instruction is used in successful classrooms, the following research questions will be considered:

1) What data do teachers have access to in order to determine appropriate specialized instruction needed to meet the individualized needs of middle school students with disabilities in reading?

2) How do middle school teachers use data to individualize instruction to meet the readiness levels, learning profiles, and interest levels of students with disabilities during reading instruction?

3) How do middle school teachers individualize the content, process, and product of a lesson to meet the needs of students with disabilities during reading instruction?

Summary

This study consists of five chapters. Chapter 1, the introduction, outlines the statement of the problem. Chapter 2, the literature review, provides a review of topic and its relationship to previous work. Chapter 3, the methods chapter, outlines the methodology of the study. Chapter 4 provides analysis and results from the study. Chapter 5 contains discussion and implications for future research.

Operational Definitions

Achievement Gap- The difference between how well low-income and minority children perform on standardized tests as compared with their peers (Faircloth, 2004).

Adequate Yearly Progress- an individual state's measure of yearly progress toward achieving state academic standards; the minimum level of improvement that states, school districts and schools must achieve each year (United States Department of Education, 2002).

Content- what the student is required to learn (Tomlinson, 1999).

Differentiated Instruction- a model of teaching designed to present a curriculum suitable for all students by focusing on their unique needs (Norlund, 2003; Tomlinson, 2003).

Disability- educationally defined as a student having mental retardation, a hearing impairment speech or language impairment, a visual impairment, a serious emotional disturbance, an orthopedic impairment, autism, traumatic brain injury, an other health impairment, a specific learning disability, deaf-blindness, or multiple disabilities and needing specialized instruction and/or related services (National Dissemination Center for Students with Disabilities (NICHCYa, n.d.).

Free and Appropriate Public Education (FAPE) - the premise of IDEA. It must be provided at public expense, under public supervision, at no charge to the parents, and must be based on the child's unique needs and not on the child's disability (NICHEYa, n.d.; IDEA 1994,1997: IDEIA, 2004).

Inclusion- practice of educating children with special needs in regular education classrooms in neighborhood schools (York-Barr & Schultz 1996).

Interest- what a student enjoys learning about, thinking about, and doing (Tomlinson & Eidson, 2003).

Learning Profile- a student's preferences related to environment, modality of instruction and interpersonal interactions (Tomlinson, et.al, 2003).

Least restrictive environment (LRE) - requirement to educate special needs children with children who are not disabled to the maximum extent possible (NICHEYb, n.d.)

No Child Left Behind Act (NCLB)- the most recent authorization of the Elementary and Secondary Education Act (ESEA), which is the primary federal law affecting K-12 education the purpose of which is for all students to meet state standards of achievement (NCLB, 2001; Hoover and Patton, 2004)

Readiness - the present level of knowledge a student has related to a particular ability (Tomlinson & Eidson, 2008)

Process- how the student is to learn this content (Tomlinson, 1999).

Product- how the student is to demonstrate what he or she has learned (Tomlinson, 1999).

Special education- specially designed instruction, at no cost to the parents, to meet the unique needs of a child with a disability (NICHEYa, 2008)

Standards of Learning (SOL) - minimum grade level and subject matter educational objectives that students are expected to meet in Virginia public schools (Virginia Department of Education, 2009)

Chapter 2

Review of Literature

Introduction

The following literature review examines the Federal Regulations that address educational services and supports for students with disabilities and accountability for student achievement. In addition, it gathers research that presents positive or negative results concerning the increased achievement for students with disabilities in inclusive settings. This review also explores modifying instruction for individual needs through student readiness, interest and leaning profile. Literature reflecting studies on the middle school setting and reading instruction conclude this chapter.

Individuals with Disabilities Education Act

In 1975, Public Law 94-142 mandated support services for students with disabilities. Precipitated by civil rights legislation, the Education for All Handicapped Children Act was enacted by Congress to ensure that children with disabilities have the right and opportunity to receive a free appropriate public education in the least restrictive environment (LRE). LRE means that, to the maximum extent appropriate, school districts must educate students with disabilities with non-disabled peers with appropriate aids and supports (IDEA 1994, 1997; IDEIA, 2004; NICHEY, 2010). In the first two decades of implementation, specialized instruction was often delivered in classrooms separated from the regular school program with little integration with same age peers (Kavale, 2002).

Twenty years later, the 1997 re-authorization of the renamed Individuals with Disabilities Education Act (IDEA) emphasized two changes in the law that would transform the conceptual mindset of special education. First, new emphasis was placed on

integrating students with disabilities in the general education curriculum. Second, a requirement was put in place stating that special education students must participate in state or district wide assessments. A primary goal of the 2004 Individuals with Disabilities Education Improvement Act (IDEIA) was to set high goals for special education students and improve their outcomes (Yell, Shriner, & Katsiyannis, 2006b). A goal of IDEA is that all students without regard to race or ability have the right to obtain a free appropriate public education

No Child Left Behind

When IDEA was reauthorized and renamed in 2004, it was aligned with the No Child Left Behind Act. IDEIA 2004 is student-centered, and emphasizes the individual child's access to the curriculum. No Child Left Behind, however, is a standards-based reform which seeks proficiency for students in mastering uniform learning standards (McDonnell, McLaughlin, & Morison, 1997). Both laws address student participation in statewide assessment and accountability systems. NCLB emphasizes group data to determine school and district accountability (NCLB, 2004; Turnbull, 2005). Yell, et al. (2006b) stated, "NCLB's guiding principles may be seen as misaligned with the focal point of IDEA decision making — the individual student" (p.36). The performance of students with disabilities on standardized tests has an impact on the school's ability to meet yearly performance benchmarks known as "adequate yearly progress" (Katsiyannis, Zhang, Ryan, & Jones, 2007, p.1). Given the observed achievement gap between disabled and non-disabled students and the mandates of participation, meeting the needs of disabled students and achieving adequate yearly progress becomes a priority for schools.

To achieve compliance with both pieces of legislation, educators must raise their expectations of students with disabilities and strengthen their teaching competency. "One significant result of standards-based reform is that educators have a greater opportunity to reverse the trend of lowered standards for students with learning and behavior problems" (Hoover, & Patton, 2004, p.76).

Schulte, Villwock, Wichard, & Stallings (2001) found support for this outcome, in a five year longitudinal study of one school district's performance of learning disabled student's scores in reading on the state mandated testing program. In this district, the increased participation of students with learning disabilities in state-wide assessments resulted in a raise in reading scores. Four hundred sixty-one students across seven grade levels participated in the study. The North Carolina End of Grade Level (EOG) test in reading comprehension was used as the measure. The number of students participating in the EOG tests increased from 85% to 96% across the five years of the study. A between groups comparison of data for the students from the first year to the last year of the study showed a significant increase in the mean reading score. The number of learning disabled students learning at or above grade level proficiency standards also increased.

Inclusion

The reauthorization of IDEIA 2004 requires that special education services be designed to meet the individual needs of students with disabilities with their non-disabled peers in the least restrictive environment. The term "inclusion" is not in the legislation rather the requirement is that to the maximum extent possible educate students with disabilities with their non-disabled peers (NICHEYa, n.d.). In inclusive settings, the

special education teacher and the general education teacher have a joint responsibility for instruction.

Echoing the beliefs of those who support inclusion, Yatvin (1995) states, "All children learn best in regular classrooms when there are flexible organizational and instructional patterns in place and human and material supports for those with special needs" (p.482). Rea, McLaughlin, & Walter-Thomas (2002) and Blackorby, et al. (2005) provide support for inclusion, finding that special education students who were instructed in settings with general education peers achieved higher academically than did those instructed in self contained settings. Rea, et al. (2002) studied 8th graders with learning disabilities where students were served either in pull-out settings or inclusive settings and found that students in inclusive settings scored higher grades, received higher standard scores on the Iowa Test of Basic Skills, and had better overall attendance rates.

The Special Education Elementary Longitudinal Study (SEELS) beginning in the year 2000 was designed to assess change in educational, social, vocational, and personal development of students with special needs over time. Analysis showed that students with disabilities who spent 75% of their school day in general education settings were closer in grade level in both reading and math than students with disabilities that only spent 25% of their time there. These same students scored seven points higher on standardized tests in passage comprehension and calculation and had higher attendance rates. The inclusive instructional model serves as one means of increasing the achievement scores of students with disabilities to meet accountability standards for NCLB (Blackorby, et al. 2005).

As schools move toward more inclusive models of instruction, there is concern that the implementation of a continuum of special education services will be abandoned. It is feared that schools will focus more on where the students receive specialized instruction rather than how that instruction is delivered (Scruggs and Mastropieri, 1995). The pressure for students to master the content could lead schools into placing students in settings where their individual needs are not fully addressed. A review of research completed in the early years of special education by Sindelar & Deon (1978) found support for both the efficacy of resource rooms and of inclusive environments when examining the academic achievement of special needs students. This study done over thirty years ago represents very different classroom settings than exist today.

Zigmund & Baker (1996) conducted a later case study of five elementary schools across the country. They found that individual student learning needs were not being addressed. Through interviews of teachers and administrators, observations of students and research on the model of inclusion used in each school, the authors found that it was not the setting where instruction takes place alone that makes an impact on learning, but the individualized instruction received in that setting. The delivery of individualized special education services is challenging in an inclusive setting. Whether the term modification, differentiation or adaptation is applied, the underlying constant for special education students is that their diverse educational needs must be met (Hoover, et al. 2004). Positive outcomes for the performance of students with disabilities require good content area instruction and appropriate special education support. Inclusion implemented through the collaborative teaching model provides a way for students with special needs to receive specialized services while in content area classes. In this model a special

education teacher and a general education teacher share the responsibility in both providing and monitoring instruction. Both teachers work together to implement the student's IEP and assure that accommodations and modifications are followed.

Modifying Instruction for Individual Needs

There are three classroom elements that teachers can modify so that each student's learning needs can be addressed. The first modification that can be made is to "content" which is defined as what students need to learn based upon local and state standards (Tomlinson and Eidson, 2003). The expectation is that all students will have access to the content; however, it will be adjusted by degree of complexity for the diversity of the learner. The second modification is "process", or the way in which the content is taught. It may include flexible grouping based on students' learning styles, interests or readiness and the use of tiered activities (Corley, 2005; Tomlinson & Eidson, 2003). The third modification is "product" which allows students to demonstrate their learning in various forms. Options for product can include written or oral reports, posters, graphs, displays and discussions. Ideally, assessment consists of two portions, a student's grades based on mastery of standards and the student's growth toward mastery (Tomlinson & Eidson, 2003). According to Tomlinson (1999, 2001, 2003) the key factors to differentiate instructional content, process and product are by the learner characteristics of readiness, interest and learning profile.

Student Readiness

To differentiate by student readiness is to move the student beyond a level of mastery and provide support for the student to succeed at a more advanced level (Tomlinson & Eidson, 2003). Theoretical support for differentiated instruction by

readiness is found in Vygotsky's socio-cultural theory (Lekyvh, 2008). Vygotsky maintained that a child follows an adult's example and gradually develops the ability to do certain tasks without help or assistance. He called the difference between what a child can do with guidance and what he or she can do without guidance, the zone of proximal development (ZPD). Readiness is defined as the present level of knowledge a student has related to a particular ability (Tomlinson and Eidson 2008). As described by Levykh (2008), ZPD is the gap between what a learner has already mastered (the actual level of development) and what the learner can achieve with the guidance of a teacher or more capable peer (potential development). Vygotsky saw the instructor as teaching purposefully to build a bridge to the student's zone of proximal development through meaningful experiences and activities (Subban, 2006). Teaching outside the student's ZPD results in a mismatch between the learner and the task (Tomlinson, 2004). The teacher's job is to scaffold instruction by breaking complex tasks into smaller pieces, modeling the task, and creating links to students' existing knowledge. Scaffolding supports students in their learning until they are ready to pursue a task independently (Bransford, Brown & Cocking, 2006).

According to Tomlinson (2004), "implicit in the definition of the (effective) teacher is the ability to guide a student's growth as well as the ability to help the student envision a horizon he or she might not have seen without the vision of more experienced eyes" (P.188). Voicing support for inclusion and differentiating instruction for students with special needs, Vygotsky stated that special needs students require specific methods of instruction within their ZPD and in the mainstream socio-cultural classroom (Gindis, 1999). Further theoretical support for addressing student readiness comes from the

research of Cronbach and Snow (1977) on aptitude and interaction. Cronbach's research outlined that learning outcomes are better when the instructor's presentation is adapted to match the student's aptitude and personality. He coined this Aptitude-Treatment-Interaction research and found that aptitudes and methods of instruction interact in complex patterns and are influenced by task and situation variables (Cronbach and Snow, 1977).

Student Interest

Renninger (1992) defines interest as "the stored knowledge, stored value, and feelings that influence engagement, questioning, and activity of individuals (or groups of individuals)" that always results in motivated behavior (p.1). Tomlinson (2003) states aiding students in developing new understandings by connecting them with things that they already find interesting and relevant is the goal of differentiation. Research shows that student interest can positively influence student performance.

A study by Ivey and Broadus (2001) surveyed 1,265 middle school students in twenty three schools on what students value most in their language arts classes and what motivates them to read. The percentage of students that preferred to have time to read in their language arts classes was 62%. They found that 42% of their respondents were motivated by finding good material to read and having some choice in the selection of what they could read. The students preferred these activities to class work activities to extend novel work. These results indicate that student interest in reading material motivates them to read.

Hidi, Berndorff, & Ainley (2002) found support of the positive effect of student interest through research on writing instruction. One hundred and seventy-seven students

at the junior intermediate level participated in the study which included a pre-test, intervention, post-test design with two forms of intervention used. One form was basic instruction for all students. The second form included instructions on argument writing and incorporated strong motivational features and collaborative activities. The study focused on relationship between interest and self-efficacy. The results showed an improvement in the quality of the student's writing from those in the motivational features and collaborative activities group. The researchers also administered questionnaires to the students' pre and post intervention. The responses indicated that children's genre-specific liking and self-efficacy of writing are closely associated and that both of these factors are also associated with their general interest in writing.

Learning Profile

Learning profile is defined as the personal or environmental factors in which students learn best. These learning preferences are influenced by learning style, intelligence preference, culture and gender (Tomlinson, 2003; Corley, 2005). Teachers can differentiate by learning profile when choices other than paper and pencil tests are provided so students can show mastery. A student's learning style can be auditory, visual or kinesthetic. Two studies provide support for differentiating by learning profile.

According to Gardner (1991) intelligence cannot be measured by one testing instrument. By recognizing that students possess different cognitive profiles, today's schools give students the chance to exercise their intellectual area of expertise (Gardner, 1991; Green, 1999). Using Gardner's theory of multiple intelligences, Douglas, Burton & Reese-Durham (2008) conducted a study in which the students were taught math either using the traditional direct instruction model or by using multiple intelligence strategies.

The results indicated that students exposed to multiple intelligence based instruction showed a considerable increase on the posttest measure when compared to those taught using direct instruction.

Sternberg (1998) conducted two studies, one of 213 third grade students and the other of 181 eighth grade students. Ability measures were used as covariates for each group. Each of the groups was provided one of three different types of instructional treatments either memory based, analytical based or triarchically based (analytical, creative and practical). Results showed that students who received triarchic instruction learned more than students who were instructed in either of the other methods. Also, using variety assessments, including both memory-based ones that were already in use and performance-based ones that were designed especially for the study, students showed greater learning.

Middle School

The National Center for Education Statistics' profile of a public school classroom indicates that a typical classroom might contain students whose academic performance could possibly differ five grade levels (National Center for Education Statistics cited in Hertberg-Davis & Brighton, 2006). Vaughn and Schumm, (1994) looked at how general education teachers think about instruction for students with special needs and what types of instructional adaptations were desirable and feasible. This study examined the planning and teaching of three middle school teachers who had been selected by school leaders as working successfully with learning disabled students. Results indicated that the teachers had not taken the learning disabled students' needs into consideration as they planned instruction.

Weiss and Lloyd (2002) conducted interviews and observations of secondary level special education teachers in collaborative and pull-out settings. They found that the teachers "had few opportunities to plan with their co-teachers, little training, and many content areas to cover" (Weiss and Lloyd (2002), p. 67). They also found disconnect between the administrator's and the teachers' understanding of what constituted specially designed instruction. In the co-taught classroom, the special education teachers did not make use of their ability to differentiate instruction to meet learner needs. The teachers delivered instruction as whole group with no individual needs addressed. Tomlinson (1995) conducted a case study of one middle school and the reluctance of its teachers to differentiate instruction. Teachers reported that they felt differentiation was a fad that would pass and were concerned that there was not adequate time to plan varied lessons (as cited in Subban, 2006). These barriers challenge the acceptance of differentiation as common practice. Another study by Tomlinson, Moon and Callahan in 1998 again looked at middle school instruction and found that few teachers took learning needs or cultural profiles in question, when planning instruction (as cited in Subban, 2006). Zigmond and Baker (1996) found that the role of the special educator provided only an extra body in the room, but was not utilized as a resource to differentiate instruction.

Few studies were found that reported empirical evidence concerning differentiation on the middle school level. In classroom situations where two teachers were available, even though one had training in specialized instruction, little acknowledgement of learner needs was given. A study by Castle, Baker, Deniz & Tortora (2005), did find positive effects in literacy when flexible grouping was implemented as a method of differentiation at a high needs school. The study looked at below grade level

student's literacy assessment during a five year implementation of flexible group instruction. The teachers reported that using flexible grouping allowed them to focus on individual student's learning needs. The number of students who tested at the mastery level increased from 10% to 57% over the five year period.

Reading

In order to narrow the focus of this study to a single content area, reading/literacy instruction was chosen. King-Shaver & Hunter, (2003) wrote that English classes are an ideal place to differentiate instruction. Reasons such as: the ability of students to have choice in outside reading, small group instruction and the multimodal products that can be produced for assessment that support individual learning needs were cited.

Accountability measures have revealed unwelcome truths about the proficiency of readers in secondary classrooms. Biancarosa and Snow (2004) state that "According to experts in the adolescent literacy field, as many as 70% of students struggle in some manner and require differentiated instruction in areas where multiple circumstances conspire against students' chances for success" (p.8). A panel of leading reading researchers outlined in this report fifteen critical components of secondary reading instruction. These included comprehension instruction and instruction in reading in the content area. Two additional factors considered within the philosophy and practice of differentiated instruction were building motivation to read and performing ongoing formative assessment.

Ivey (1999) performed a case study on three individual sixth-graders over a five month period and examined how they experienced reading day-to-day in their classrooms. He cites three findings concerning middle school students 1) they are

complex and multidimensional as readers, 2) a notable degree of variability exists among them, and 3) their reading performance and attitudes toward reading are dependent upon the kind of instructional environments in which they are asked to read.

Summary

Differentiation is a compilation of theories and practices that educators claim are successful in raising academic achievement levels. Considering student readiness levels, engaging learner interest and addressing multiple intelligences have been discussed in research and considered beneficial for students. However, based on what is evident in the literature, the practice of differentiation is lacking empirical validation. With the onset of inclusive models of instruction, the role of the special educator in the general education classroom is defined theoretically, but little evidence supports that the expectation to provide specialized instruction is acted upon. There is an acknowledged and decided gap in the literature in this area and future research is warranted (Sherman, 2007; Subban, 2006).

Chapter 3

Methodology

Qualitative research and investigation was used to gather and analyze the data to determine if and how differentiated instruction is used in classrooms where there has been documented improvement on state standard examinations in reading. A case study design was used in this study to provide a holistic and context sensitive analysis of the research questions. The purpose of this research was to determine how teachers in schools that are closing the achievement gap in reading between students with disabilities and their non-disabled peers are providing instruction, what data is utilized to drive instructional decisions and if and how the content, process and product of that instruction is differentiated by student readiness, interest and learning profile. The following research questions were considered:

1) What data do teachers have access to in order to determine appropriate specialized instruction needed to meet the individualized needs of middle school students with disabilities in reading?

2) How do middle school teachers use data to individualize instruction to meet the readiness levels, learning profiles, and interest levels of students with disabilities during reading instruction?

3) How do middle school teachers individualize the content, process, and product of a lesson to meet the needs of students with disabilities during reading instruction?

Design

A qualitative case study design has been chosen for the study of collaborative language arts teachers. This design entails an in-depth analysis of a single entity; in this case, collaborative reading teachers in a middle school have been chosen for the within a single site study (McMillan, 2004). Qualitative research is defined as a systematic approach to understanding qualities, or the essential nature of a phenomenon within a particular context (Brantlinger, Jimenez, Klingner, Pugach, & Richardson 2005). This method provides for a holistic impression of events. Qualitative research design seeks to understand process, meaning and context. In qualitative research, the goal of the researcher "is to better understand human behavior and experience" (Bogdan & Bilkin, 2007, p. 43).

The process of interpreting the data and making conclusions is iterative occurring throughout qualitative research. The case study method allowed me to examine instruction as it was planned and implemented in a school setting. A case study is defined as an exploration of a "bounded system" over time through detailed, in depth, data collection involving multiple sources of information rich in context (Creswell, 1998). A case study can be composed of multiple sources of information such as documents, observations, and interviews. This method allowed me to capture the thinking of the participants. In this study, through direct interaction with the participants and detailed data collection, the focus was on the naturally occurring behavior of teachers.

Participants

The school site was selected from a large, suburban public school district in the southeast with a student population of over 58,000 students. This school has been selected for the following reasons: 1) the administrative and instructional structure of the schools in this division are fairly typical for other school systems of this size in Virginia; 2) I am familiar with the faculty; 3) the school received extensive training in the collaborative teaching model and the philosophy of differentiated instruction during the 2006-2007 and 2007-2008 school years; 4) the Virginia Standard of Learning scores for students with disabilities in the area English/Reading has shown improved achievement from 2005-2008 with a 6% increase for 6th graders, a 15% increase for 7th graders and a 7 % point increase for 8th graders; 5) the district has implemented a structured benchmark assessment program to emulate the Virginia SOL tests to be administered at each nine weeks and 6) the school is convenient and accessible. While other schools in the district may fit the criteria, the selection of this school fits my needs as the familiarity I have with the faculty makes access to the classroom setting less intrusive. Beta Middle School (fictional name) is comprised of sixth, seventh and eighth grades with total enrollment of 1600 students. Fifteen percent of the students in Beta Middle School are identified as students with disabilities. The overall performance of students with disabilities on the Virginia Standards of Learning Tests has improved over the last three years. In 2005-2006, 62% of students with disabilities passed the SOL tests. This was two percentage points less than the state pass rate which was 64%. In 2006-2007, Beta Middle School matched the state percentage at 62%. In 2007-2008, Beta exceeded the pass rate of the Virginia's students with disabilities by three percentage points at a

67%. In the content area of English/ Reading, Beta has shown a steady increase in the passing rate of students with disabilities. Beta's percentage of students passing the Reading/English SOL has exceeded the division's pass rate except for school year 2006-2007 for 7th grade. The scores of the seventh grade have impressively raised 15 percentage points since the 2006 administration of the SOLs. Although scores have consistently risen in all grades, the division has seen as the most significant change in scores in eighth grade, by 11% points. Table 1 compares Beta's pass rates for students with disabilities over the past three years for sixth and seventh grades and for the past six years for grade eight with the district's pass rates for the same period. Grades six and seven were not tested in English/Reading prior to the 2005-2006 school year (VADOE, 2008; VDOE, 2006).

Table 1

Comparison of pass rates for Reading/English SOL's of students with disabilities, Beta's and its School Division

	Grade 6 English/ Reading		Grade 7 English/ Reading		Grade 8 English/ Reading	
Year	Pass Rate		Pass Rate		Pass Rate	
	District	Beta	District	Beta	District	Beta
2007-2008	65%	68%	62%	76%	60%	69%
2006-2007	62%	68%	59%	58%	57%	60%
2005-2006	60%	62%	58%	61%	49%	62%
2005-2004					48%	55%
2004-2003					44%	50%
2002-2003					39%	50%

There has been much more variability in scores for students with disabilities at Beta than with those of their non-disabled peers. More dramatic gains were seen in the scores of the students with disabilities while the scores for the sixth and seventh grade non-disabled students remained stable and the eighth grade students fell six percentage points. Table 2 outlines this data.

Table 2

Comparison of pass rates for Reading/English SOL's for non-disabled students and students with disabilities at Beta's

	Grade 6 English/ Reading		Grade 7 English/ Reading		Grade 8 English/ Reading	
Year	Pass Rate		Pass Rate		Pass Rate	
	Non-disabled students	Students with disabilities	Non-disabled students	Students with disabilities	Non-disabled students	Students with disabilities
2007-2008	87%	68%	88%	76%	85%	69%
2006-2007	89%	68%	83%	58%	85%	60%
2005-2006	87%	62%	87%	61%	91%	62%
2005-2004					86%	55%
2004-2003					83%	50%
2002-2003					83%	50%

The performance of all students at Beta is similar to the performance of all students in the district. As seen in Table 3, pass rates for English/Reading SOLs reflect the same trends in gains and losses of percentage points over the 2005-2006, 2006-2007, and 2007-2008 school years.

Table 3

Comparison of pass rates for Reading/English SOL's for Beta and District for all students.

	Grade 6 English/ Reading		Grade 7 English/ Reading		Grade 8 English/ Reading	
Year	Pass Rate		Pass Rate		Pass Rate	
	District	Beta	District	Beta	District	Beta
2007-2008	88%	87%	89%	88%	81%	85%
2006-2007	89%	89%	86%	83%	86%	85%
2005-2006	86%	87%	89%	87%	87%	91%

Selection

The participants for this study were chosen using criterion-based sampling. The selection of information rich cases for study allowed me to develop an understanding of a phenomenon in depth (Patton, 2002). This method required me to choose certain criteria relevant to the study and then match the participants to these criteria (Macmillan, 2004). The selection of participants was based on the following criteria: 1) status as member of a collaborative teaching team; 2) instructing in the content area of English/Reading; 3) at Beta Middle School in either sixth, seventh or eighth grade. There was no requirement for teachers to report whether they do or do not employ differentiated instruction. Three collaborative teams teaching reading on each grade

level were invited to voluntarily participate in the study. Both members of the team were required to agree to participate for the team to have been selected. Participants gave permission for two classroom observations and to participate in an interview.

Procedures

As part of University policy, this proposal for research was reviewed by the Institutional Review Board. Informed consent for the participants contained the necessary requirements including the purpose of the research, a full description of the procedures to be followed, the duration of the participant's participation, a description of any risks or benefits to the participant, a statement concerning the confidentiality of the participant, a statement about whom to contact if the participant has questions and a statement that participation is voluntary and that the participant may discontinue participation at any time without penalty (VCU Institutional Review Board, 2009). Permission to conduct the research was obtained by submitting a copy of the research proposal to the Office of School Improvement of the school division.

Collaborative teams were asked to participate in two separate observations and an interview lasting approximately forty-five minutes through letter (see Appendix A). The members of the collaborative team were to be interviewed together. I also paid an on-site visit to meet with each team to confirm their participation shortly after their receipt of the letter. Six of the nine collaborative teams teaching English at Beta agreed to participate. Participants agreed by signing the informed consent form (see Appendix B). A table of specifications was created to assure that the observation checklist and interview questions addressed the research questions (see appendix E and F). Participants were observed during two separate language arts blocks. A

data and safety monitoring plan was established to insure the privacy of the participants. Confidentiality was maintained through the use of pseudonyms for participants in reported findings. Data collected was stored in a secure area.

Observers looked for evidence of differentiation during instruction. The goal of the observations was to provide data on how teachers provide successful differentiation in the areas of content, process and product (see Appendix C). Observations lasted at least forty-five minutes of the existing ninety minute language arts block. Observers received training on the observation checklist to be used and the protocol for observation notes. A field test was conducted of three high school classrooms using the observation protocol serving special needs students. Two observers were given brief training on the use of the observation checklist. Analyzing the protocols showed that there was significant disagreement in the ratings given on the checklists by the observers. As evidenced in the variance of ratings given by the observers, each held differences in the conceptual understandings of definitions used within the instrument. In light of this, the observers received instruction on definitions of content, product, process, readiness, interest and learning profile so as to have a common understanding of these terms. Standardizing the data collection techniques improved the reliability of the study. Two observers, including myself, were employed in order to enhance the reliability of the findings through inter-rater reliability. Had a discrepancy between our results occurred, an additional observation would be conducted. At the end of each observation, the additional observer and I reviewed our findings together. Immediately following the observations, documentation was written or recorded in the

form of field notes containing personal reflections, observations, and identifying any themes that emerged.

Comprehensive interview questions for this study were developed to gather data on teacher perspectives and their understanding of differentiation (see Appendix D). Interview questions addressed each research question centering on what data the teachers have and how they use it to differentiate instruction. Interviews were conducted once the two observations were completed. Participants were interviewed as pairs in a comfortable setting on school grounds at a time convenient to the participants. Interviews were tape recorded and then transcribed and coded. Tape recording of the interviews allowed me to capture the actual words of the interview subjects. Patton (2002) states that: 1) nothing can substitute for actual quotations spoken by the person being interviewed; 2) a tape recorder permits the interviewer to be more attentive to the interviewee; and 3) (allows the interviewer) to take notes to indicate interpretations, thoughts or ideas that may come to mind during the interview " (p. 380-381, 383). The interview was semi-structured with open-ended questions that were specific in intent, allowing for probes and follow-up questions (McMillan, 2004). Questions regarding the use of pre-assessment and post-assessment methods were included along with how evidence of learning is demonstrated (Tomlinson & McTighe, 2006)**.** Framework and summary questions explored the participant's understanding of differentiated instruction and provided an opportunity to include any thoughts about instructional practices used to meet the individual needs of students with disabilities (Vaughn & Schumm, 1994). Notes were taken to supplement data obtained during the interview.

The iterative process of the qualitative study guides the need for additional data collection and analysis. The written observation notes, observation checklists and interviews achieved a triangulation of the data on differentiation. According to Patton (2002) a study using more than one method of data collection is more likely to provide cross-data validity checks.

Data Analysis

Patton (2002) states "the challenge of qualitative analysis lies in making sense of massive amounts of data" (p. 432). Analyzing data in a qualitative study involves organizing the data, coding them, synthesizing them and seeking out patterns from them (Bogdan, 2007). According to Miles and Huberman (1994) the steps in analyzing qualitative data are: 1) Data reduction: transforming the raw data into a more usable form; 2) Data display: using an organized way to express the data through text, chart, diagram using codes to sort the data by theme or common idea; 3) Conclusion drawing and verification: revisiting the data repeatedly to confirm the themes that were identified.

The qualitative data emerging from this research consisted of the field notes, the classroom observations and the transcribed interviews and anecdotal notes. In order to organize the data, a log was kept containing a description of the date and kind of data collected. Post observation discussion was held immediately after each observation. The results of each team's observation checklists were combined and analyzed to determine what level of strength existed over both observations for the presence of differentiation in readiness, interest, learning profile, content, process and product. My observation notes and those of the additional observer were combined in sequential order and transcribed into documents that were attached to the

observation checklists. I also transcribed my field notes in order to aide in their review and for organizational purposes. I transcribed the tapes of the interviews verbatim. Codes were developed for identifying differentiation in content, product or process, and for evidence of differentiation by student readiness, interest or learning profile as related to assessment, planning and implementation (Bogdan, 2007) (see Appendix G).

Qualitative data analysis software can assist in data storage, retrieval, grouping data in categories (Patton, 2002). Atlas.ti, one type of data analysis software, was used to organize and code the interviews. Computer-assisted data analysis software can be time saving and effective in terms of project management (Hwang, 2008). Once the transcriptions were uploaded, the software numbered each sentence and coded items based on a search for key words in the text.

Throughout the data collection process and analysis it was vital that I acknowledged my personal beliefs that might color my perceptions and interpretations. Having worked as a special educator I have planned and implemented differentiated instruction in both special education classes and in inclusive settings. According to Bogdan (2007) it is impossible to divorce yourself from you own opinions and beliefs but the goal is to recognize how they shape what you do. It was important that I remained open to information that was in contrast to my general beliefs. Using field notes for reflection was one way to acknowledge my own subjectivity while completing the research.

Chapter IV

Findings

Introduction

The purpose of this research was to determine if teachers in schools that have demonstrated a decrease in the achievement gap in reading between students with disabilities and their non-disabled peers are utilizing differentiated instruction, how they are using it and what data the teachers make use of to drive instructional decisions. The following research questions were considered:

1) What data do teachers have access to in order to determine appropriate specialized instruction needed to meet the individualized needs of middle school students with disabilities in reading?

2) How do middle school teachers use data to individualize instruction to meet the readiness levels, learning profiles, and interest levels of students with disabilities during reading instruction?

3) How do middle school teachers individualize the content, process, and product of a lesson to meet the needs of students with disabilities during reading instruction?

Description of Teacher Teams and Observed Instruction

The teacher participants in this research provided information for analysis through observations and interviews. A description of the teacher teams, the extent of the differentiated instruction observed and an account of the classroom structure will be presented in this section. In the following section, descriptions of differentiated instructional strategies employed in the

classrooms will be presented as well as an analysis of teacher knowledge and understanding of differentiation.

Two observations were completed for each collaborative team in the general education setting. Both anecdotal notes and the Differentiated Classroom Observation Form (Appendix E) provided data on the structure and instructional practices evident in the classrooms. All observations were conducted in the first semester of the school year. The checklist was used as a tool to provide a common frame of reference for the observers. One other observer and I conducted each of the observations. Two teams on each grade level 6th, 7th, and 8th were observed. Teams 1 and 2 taught 6th grade, teams 3 and 6 taught 7th grade and teams 4 and 5 taught 8th grade.

The observers' ratings on the checklist were analyzed to determine if the differentiation of the content, process, and products during each observation fell in the *Strong* category (more than five examples), *Some* category (five or fewer examples), or *None* category (there was no evidence of differentiated content, process, or product). When differences occurred between my rating and that of the other observer, anecdotal notes provided information that assisted us in coming to consensus during the post observation discussion. The discrepancies in ratings typically occurred when determining if there were adequate examples to produce a score of *Strong* (more than five examples) over a score of *Some* (one to five examples). The more difficult discussions transpired when we had to come to consensus over a difference between the ratings of *Some* and *None*. Different ratings in this instance led to discussion of whether the differentiation was implied but not readily observable. In both of the observations for Team 4,

we disagreed on whether there was any evidence of differentiation for content, product or process. This conflict of perceptions will be further examined in the description of Team 4.

For both Teams 5 and 6 there was a difference in ratings of *Some* and *None* for differentiation in readiness. In the post observation discussions for both groups we agreed that grouping of students for activities based on reading level constituted differentiation of readiness. After both observations were completed, we reviewed definitions, referenced our notes, agreed on examples of implementation and were able to reach consensus in all areas of the checklists.

Table 4 shows the ratings obtained by each team for each category. To determine which teacher was the predominant respondent during the interviews, the transcriptions of the interviews were analyzed by highlighting the words of each speaker in a different color. Visual comparisons were made to determine which teacher had the most and longest responses.

Table 4

Rating Received in Readiness, Interest, Learning Profile, Content, Process, and Product on the Classroom Observation Form of Differentiated Instruction

	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Content	Some	Some	Some	Some	None	Some
Process	None	Some	Some	None	Some	Some
Product	None	Some	Some	Some	Some	Some

Team 1

This 6th grade team was comprised of a veteran special education teacher with over thirty years experience and a general education teacher with five years experience. The special

education teacher had endorsements as a teacher of students with learning disabilities and as a reading specialist. The general education teacher who identified herself as, "a career switcher, [who] just graduated 2003 and … had only one class …that we had to take as part of the state mandated general ed. requirement on special education." The general education teacher answered a majority of the questions during the interview session which proved to be one of the longest sessions lasting almost 40 minutes.

Both observations took place during the morning English block. For the first half hour of each observation, the special education teacher pulled a small group of five or six special education students for systematic reading instruction using word clues to decode words with multisensory strategies. The students receiving this instruction did so as implementation of their individual education plans (IEPs). While these students were receiving the pull-out instruction, the remaining students were involved in "sustained silent reading" or "SSR" time. During SSR time, the students were allowed to read a book of their choice. While they were reading, the general education teacher conferenced with individual students while moving around the room. During both observations, the general education teacher began to transition to the next activity a few moments before the special education teacher and the students returned. The special education teacher led instruction during the first observation and the general education teacher led instruction during the second observation. The teachers showed *Some* differentiation in content and *No*ne in the areas process or product for both observations.

Team 2

The special education teacher in Team 1 also served as the special education teacher of Team 2. This 6th grade team has collaborated for three years. The special education teacher was the leader during the interview session. Team 2's members were very comfortable with each other and often finished each other's sentences during the interview.

During both observations, Team 2 worked together in providing instruction. The special education teacher led the instruction from the front of the room while the general education teacher added input while moving among the students. Both observations involved lessons on using context clues while reading. For both observations, the teachers showed *Some* evidence of differentiation in product, process and product. Differentiation was evidenced by the classroom instructional methods which utilized flexible use of the classroom space, paired grouping, and a strong use of visual cues. The instruction was interactive between the teachers and the students. Although not as many examples were observed during the second observation, *Some* differentiation was apparent in all areas.

Team 3

This 7th grade team has been recognized in the district as a model co-teaching team. They have presented on the collaborative model in their school and district. The general education teacher took the lead in answering questions during the interview session.

During both observations, the teachers would come approach the observers periodically to explain more about the activity the students were involved in or to share information about their collaborative approach. Although this was not done in other observations, the teachers were

able to do this without interrupting the instructional flow. The special education teacher shared with the observers a student's "I'm Determined" notebook which is a part of the state education department's program on student self-determination. Contained in this notebook was a learning profile inventory that the student had completed. It was evident during the observations that the teachers communicated through verbal and non-verbal cues to each other. During the first observation, the students worked independently either reading silently or completing tasks related to a book report. Both teachers rotated working with individual students.

During the second observation, the general education teacher led class instruction in writing and the special education teacher led class instruction in a reading activity. Team 3 rated *Some* for differentiation of content, product and process for both observations.

Team 4

Team 4, an 8th grade team, was observed instructing one class (Class 1) for the first observation and that same class (Class 1) and an additional class (Class 2) for the second observation. Each responded equally in the interview session. The general education teacher primarily led instruction during both observations. During the first observation she read a novel to the class and the second observation she guided them in writing instruction.

There was a discrepancy between the rating of *Some* and *None* for the each of the areas content, process and product in both the first and second observations. Thorough discussion and analysis of anecdotal records along with reference to examples of how each can be demonstrated (Tomlinson, 2003), assisted us in reaching consensus that there was *Some* evidence of differentiation in content and product and *None* in process.

Team 5

This is the first year of collaboration for Team 5, an 8th grade team. Each had experience in the collaborative model, but they had not collaborated with each other before. During the interview session, the questions were predominately answered by the general education teacher. Both observations began as the students who were having pull-out reading instruction were returning to the classroom. This instruction was provided by the special education teacher for 5 or 6 special education students for systematic reading instruction using word clues to decode words with multisensory strategies. During this time, the general education teacher conferenced with students who were working on sustained silent reading (SSR) or independent reading time. The general education teacher did the whole of the classroom instruction observed. During the first observation, the general education teacher read to the students from a novel they were studying. The students took notes from the board on word phrases in an activity led by the general education teacher during the second observation. Team 5 rated *Some* in the areas of differentiation of process and product and scored a rating of *None* or no evidence of differentiation for content.

Team 6

The general education teacher and special education teacher of Team 6 teach 7th grade. A small group of special education students were pulled for systematic reading instruction using word clues to decode words with multisensory strategies. The observations were completed after the students had already transitioned into the general classroom. The team seemed very comfortable with each other during the interview process and each contributed equally in

answering questions. During the first observation, the general education teacher led a vocabulary review with assistance from the special education teacher. The students participated in a group activity on chronological order led by the general education teacher and a sentence writing activity with the special education teacher during the second observation. Team 6 showed *Some* differentiation in each of the categories content, process and product during their observations. During both observations, Team 6 shared in instruction with one person taking lead, but the other actively involved. Both teachers responded equally during the interview session. This Team displayed an easy rapport with each other and seemed comfortable with interjecting ideas and comments while the other led instruction.

Summary of Team Descriptions

Six teams of middle school reading teachers were observed for two sessions lasting at least forty-five minutes each. Each grade level, 6th, 7th and 8th was represented by two collaborative teams. As shown in Table 5, three of the teams contained students who were pulled for small group instruction in multisensory reading instruction. Delivery of instruction was shared by Teams 2, 3 and 6 during the observations. Although one teacher led an activity, their collaborative teacher showed active involvement by interjecting comments and reinforcing instruction. For Team 1, the special education teacher led instruction for the first observation and the general education teacher for the second. For both observations for Team 4 and Team 5 the general education teacher led instruction with little verbal input from the special education teacher. The general education teacher led the responses during the

interview sessions for Teams 1, 3, and 5. The special education teacher for Team 2 led responses. For Teams 5 and 6 both teachers took the lead on answering different questions.

Table 5

Summary of Team Descriptions

	Grade	Group Pulled out for Multisensory Reading	Who delivered instruction?		Who led responses during interview?
			Observation 1	Observation 2	
Team 1	6	Yes	Special Ed.	General Ed.	General Ed.
Team 2	6	No	Both	Both	Special Ed.
Team 3	7	No	Both	Both	General Ed.
Team 4	8	No	General Ed.	General Ed.	Both equally
Team 5	8	Yes	General Ed.	General Ed.	General Ed.
Team 6	7	Yes	Both	Both	Both equally

Participant Definitions of Differentiated Instruction

Each interview began with asking the teachers to provide their definition of differentiated instruction. This gave me insight in the teacher's knowledge of a technical definition of

differentiation. In analyzing the information, I looked for the key words of readiness, interest, learning profile, content, process, and product or references to the definitions of those terms. Often the teachers were further able to expand on their definitions when answering the second question, "What do you think is important for you to know about students when planning lessons?"(Appendix D).

The general education teacher from Team 1's response was negative toward a formal definition of differentiation yet encompassed many of the items that make up that definition.

> First let me start off by saying that the educational differentiating instruction goes through massive amounts of charts describing this particular child and that particular child. And my way of looking at it is if you know your children and as a teacher you should know your student's needs, you just give them whatever it is that they need to be successful. … Don't worry about the chart and characterizing this category and that. We don't have time here to sit here and look at charts and say these two children fit in this particular thing. If they work at different paces, it doesn't matter; you still can't group them together. You give each child what they need at the time they need it. Exactly, as many different ways as they need it to be successful you give them all the opportunities that you can.

The special education teacher from Team 2 affirmed that teachers should give students whatever they need to be successful and also mentioned that lessons should be modified as needed. She stated that an IEP (Individual Education Plan) doesn't "run" giving students opportunities to be successful, instead, "… that's a good teacher." As far as what they felt they needed to know about their students for planning, the general education teacher felt that she should know what the students already know and stated that that they did a lot of pre-assessments. She stated, "The last thing you need is a bunch of bored kids in the classroom, because they already know the material that you're supposed to teach." The special education teacher stated that she felt it was important to know a student's reading level.

Team 2's general education teacher defined differentiation as instruction based on what students need. The general education teacher emphasized, "The key word – different." The general education teacher elaborated saying that it included different learning styles. "Different expectations for different students" was also included in the definition given by the special education teacher. When asked about what was important to know when planning lessons, the special education teacher stated that she felt it was important to know where students had gaps and which students might be able to help other students. The general education teacher felt that it was important to know who needed to have material retaught.

The special education teacher and general education teacher of Team 3 agreed on their own definition of differentiated instruction. The special education teacher said, "Meeting every student's needs regardless of how they learn." The general education teacher stated, "…it's also knowing how they learn, knowing what levels they're on and having them…allowing them to show us in different ways how they learn or what they know. … It means that it is not one size fits all, it's not everybody take a multiple choice test - that's the only way you can show me what you know." When asked what the teachers thought was important to know when planning lessons, the special education teacher stated that it was key to how the student learns best and knowing that "one thing that might work with one student, knowing ahead of time that it might not work with another one [that] [sic] is going to need more support." The general education teacher conveyed that the team had given a learning style inventory at the beginning of the year which indicated whether students learned best, visually, auditorily or kinesthetically. She stated,

"We always make sure that when we are instructing we have - if we can, all three - you know - they can see it, they can hear it, they talk it."

The special education teacher for Team 4 gave her definition of differentiation as "I think it's taking into consideration the needs of all students and different levels that are within your classroom and accommodating them through lesson plans or even their accommodations as well." The general education teacher agreed and stating that, "… and also, like how best do they learn visually, auditorily, you know, kinesthetically and all that kind of stuff… just getting as many different activities at as many different levels as possible." In describing what they felt was important in planning lessons; the teachers agreed that what they had just described in their definitions was important. The general education teacher also included knowing learning styles, accommodations, how they had done on the last assessment of the skill and whether the student spoke English as a second language. The special education teacher stated that she thought it was important to know about a student's learning disabilities.

Team 5's general education teacher described differentiation as

> Giving students different tasks based on what their levels are… so there's different types of differentiated instruction, right? …. There is differentiated instruction based on the whole class where today we're going to do like our character foldable that we did last Wednesday where they're doing a visual to help them and tomorrow we're going to do a written response and then the next day we're going to . . . and we read in different ways. … And then there's individual or small group differentiation where we do like a tiered instruction or the day that we split them in half and half did one thing and went to the lab [sic] so giving them different tasks to accomplish a goal in small group ways….

The special education teacher added the word "strengths" and phrase "meeting the needs of the student's individual abilities" to the definition. Simultaneously both added the term "learning styles". When asked what was important to know about students when planning lessons, the

special education teacher answered that what a student already knows is important. The general education teacher reported that they had given the students a learning style inventory at the beginning of the year and that both felt it was important to know the interests of their students.

Team 6 gave the most comprehensive definition of differentiated instruction of all teams interviewed. Five out of the six aspects were included. According to the special education teacher from Team 6, "Differentiated instruction means to me that we teach to all the learning styles, [sic] and the learning styles would be visual, auditory, tactile [sic], so that component is in there as well as different academic levels." Team 6's general education teacher stated she felt that she and the special education teacher were "very much in tune" when it came to a definition of differentiation. In planning their lessons the general education teachers stated that they had done a survey of the students' learning styles, tested for the student's reading levels and writing capabilities or as the special education teacher explained, "their base level of writing." The general education teacher also explained that they had surveyed the students through an interest survey to find out what kinds of things interested them saying, "we try to tie it (instruction) in a lot of times with stuff they can connect to because we've definitely found with these kids that if you give them something they are not interested in they will tune you out." Both explained that there was leeway in choosing what material to teach, that the student's are tested on specific skills that can be taught and that they can choose the avenues with which to teach them.

All teams included readiness in their definitions of differentiated instruction and what they wanted to know when planning lessons by mentioning the importance of knowing what level the students were on or by knowing where they had gaps in knowledge. All but Team 1

mentioned learning profile as one aspect of differentiation. Teams 3, 4 and 6 further defined learning styles as auditory, visual and kinesthetic. Only Team 6 included content in their definition describing that student interest level affects the content that they choose for instruction. Team 5's definition also contained reference to differentiation by student interest. Teams 1, 3, 4, 5 and 6 included that they felt that the process of instruction should be differentiated for different student's needs. Team 3 also indicated that all students do not show what they have learned the same way citing differentiation of product. Table 6, summarizes this data.

Table 6

Aspects of differentiated instruction included on teacher responses

	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Readiness	X	X	X	X	X	X
Interest					X	X
Learning Profile		X	X	X	X	X
Content						X
Process	X	X	X	X	X	X
Product			X			

During the 2006-2007 and 2007-2008 school year staff development was presented to the staff at Beta on the topics of collaborative instruction and differentiating instruction. In addition

during 2006-2007, an on site administrative intern consulted with teachers on effective co-teaching strategies. I questioned each team about what training they had received on differentiated instruction. None of the teams could respond with the names of specific trainings.

Team 1 agreed that there had been a collaborative training held last year at Beta. The general education teacher stressed that what she wanted out of training was new information. She stated, "I don't know if extra education along those lines really, other than different techniques on how to present material.

Team 2 recalled that they had attended trainings over the past couple of years and that there were district wide and school trainings. The general education teacher stated that some had been held for the whole faculty within the school and the special education teacher stated that there had been training for collaborative teams. When asked how these trainings had influenced their teaching the special education teacher offered that they had given her some good ideas. She also stated that national conferences such as the International Dyslexia Conference were wonderful and that she got several ideas from every workshop she attended. Both agreed that district in-services have improved over the years now that the teachers have choice in attending whatever session in which they have the most interest.

The general education of Team 3 stated she had attended trainings district wide on differentiation and also within the school. She described a training that had taken place in the school library and the special education teacher offered that the presenter had been an author or developer. The general education teacher also said that she does a lot of reading on differentiation stating, "I've read a lot on that. But a lot of it is sort of self trained, I mean things

that we just know, that make common sense, and a lot of it has come from (the special education teacher) and the exceptional ed background because that is…so I've learned a lot of it from there. So we just pool what we know. So we sort of, yes, we've been to some trainings but we've also sort of taught ourselves. We've taught each other."

The general education teacher of Team 4 mentioned school wide training in The Strategic Instruction Model © Kansas Writing Strategies which she felt was an example of differentiation. She stated that currently in class she was instructing in sentence variety.

The special education teacher from Team 5 recalled a school wide training in which she received a book on differentiated instruction. The general education teacher stated that she did not attend that training, but had received a book from the department chair this year, but that she had not referred to it too much. She did remember attending an afterschool training where the presenter instructed through a conference call and put forth that she had attended a district two day workshop in the district where she had done her student teaching. The special education teacher felt that training did provide her with "plenty of ideas, you know you come back with inspiration."

The general education teacher for Team 6 stated that the only trainings she has attended on differentiation have been at the county level. She said, "I really depend on her for the ideas when it comes to that kind of stuff. And she's got great ideas so a lot of times she'll come to me and say 'hey, why don't we try this' and I'll say well ok, this is the content, you know, wanting to teach with and we just mesh our ideas together." The special education teacher stated that she

always chose differentiation as a topic when taking a class for recertification or going to a workshop.

Analyzing the information provided by the teachers concerning training that they had received on differentiation indicated that it is evident that neither district or school wide trainings have proven memorable in content for most respondents. Only the general education teacher from Team 4 named specific instructional content. Among the teams there was no real agreement on what type of training had been held school wide. Teams 1, 2 and 5 stated that they felt they that being able to bring back practical ideas were what they sought from training. General education teachers from Teams 3 and 6 identified their collaborative special education partner as a resource to use for differentiating instruction. On the whole the teachers provided varied and non-specific information.

Planning and Assessing to Differentiate Instruction

Vital to the practice of differentiated instruction is the use of data to inform and guide instructional decisions. According to Moon (2005), informed decision making, "involves a teacher focusing on what to teach, how to teach it, and how to assess the student's proficiency with what was taught . . . " (p. 227). Planning for differentiated instruction relies on assessment done prior to instruction (pre-assessment), formative assessment done during instruction and summative assessment as a culminative assessment of skill mastery. Teachers were interviewed and asked to describe the data that they used to determine readiness, interest and learning profile for their students. In addition, they were asked for the data that they would use specifically for students with disabilities.

Before beginning the interview process of the study, I met with a group of instructional specialists for special education in the district to outline what available data teachers could access when planning instruction. A wide variety of data sources were discussed and a list was developed that outlined the common sources across kindergarten through 12th grade. Elementary, middle and high each also had specific data which was available only to those grade levels. Common sources of data included: previous report cards, previous scores from administration of the Standards of Learning (SOL), Developmental Reading Assessment (DRA), Individual Education Plans (IEPs), standardized educational and psychological testing administered to determine eligibility for special education services, curriculum based assessments including benchmark tests, information from student's Individual Education Plan (IEP), student input, parent input, and previous teacher reports. On the middle school level, the student's selection of elective courses and participation in extra-curricular activities such as sports and clubs provide additional information about the student.

Although the intent of the interview questions was to determine if data was different or used differently for students with disabilities than from their non-disabled peers, the teams did not interpret the questions as such and offered similar answers for both questions. The general education teacher of Team 3 stated succinctly a common thread in the interviews, "… one thing you'll find is that it's hard for us to answer questions about kids with disabilities and kids without (be)cause they all have disabilities and they all have strengths and weaknesses." During the interviews the teams also indicated other additional forms of data that they used for planning specific to their classrooms.

Readiness

As shown in Table 4, each Team included student readiness in their definition of differentiated instruction. Readiness is defined as the present level of knowledge a student has related to a particular ability (Tomlinson & Eidson, 2003). During the observations to ascertain how the teachers were differentiating based on readiness we looked to see if the team attended appropriately to advanced learners and made flexible use of classroom space, time and materials. Team 1, 5 and 6, which contained pull-out groups to work on multisensory reading skills, demonstrated planning for readiness in that those students who needed specialized instruction in decoding skills were pulled to a separate setting. The special education of Team 5 described what occurs during the pull out instruction by saying, "We talk about what we're going to do when we get back (to class) so that they feel like when they come back they're not afraid to participate [sic] ." Team 2 made use of reading partners during both observation sessions as mixed readiness work groups. During the first observation of Team 3 the demonstration of differentiation for readiness was shown when the teachers allowed the students to work at their own pace during sustained silent reading. Some students were still reading, while others were involved in creating the product they had chosen from a Tic-Tac-Toe board of activities. It was not clearly evident during either of the observations for Team 4 how the teachers had planned for readiness. Team 6 utilized various spaces within the classroom for instruction. Different materials based on readiness were used in the second observation but this was not clear until the interview session.

When asked during the interview what data the teachers used to assess readiness skills, each of the Teams stated that they used the Developmental Reading Assessment. This

assessment tests fluency, accuracy and comprehension of reading. It is given at the beginning of the school year and again at the end for those students who were scored below proficiency initially. Every Team also cited previous SOL scores as a source of data they use to plan for readiness. This information is available in the student record, but also in an online data management system accessible to the homeroom or general education teacher. Teams 1, 3 and 5 referred to using this system. Teams 2, 3, 4 and 5 indicated that performance on cumulative assessments including benchmark assessments given every nine weeks is used to gauge student readiness. The general education teachers of Teams 4 and 6 indicated the use of formative assessment. Formative assessment helps teachers determine what the next steps of instruction should be during the learning process by assessing where the student is in the continuum of mastery of the skill. The general education teacher for Team 6 described that while working with a group struggling disabled and non-disabled readers, using frequent review checks for understanding were needed during reading instruction. Formative assessment was observed in each of the Team's observations as the teachers checked for understanding as they provided instruction. Teams 1, 2, 5 and 6 stated that they gave the students a standardized test to determine reading comprehension.

Conferences with students about what they were reading were indicated by Teams 1 and 3 as a means to determine student readiness levels. The special education teacher for Team 3 also cited student observation as another way to measure to determine student readiness. Intervention folders that record the types of interventions that have been employed with struggling readers are a district wide initiative. How successful the intervention has been in increasing the student's

reading level is recorded and made a part of the student's permanent record. This data source was mentioned by Teams 1, 3 and 5. The general education teachers for Teams 1 and 3 each spoke of the need to consolidate data into a user friendly format for themselves. The general education teacher for Team 1 stated, "I just make a little spread chart that I can take those home because I can't take those [folders] home every day." Individual education plans were referred to by Teams 2, 3 and 4 as providing information about student readiness levels. The special education teacher of Team 2 was the only teacher out of the entire group to mention recent educational and psychological testing as a source of data.

Some teams were clearer than others in providing examples of how they use data about readiness levels to meet the needs of students with disabilities. Team 2 stated that they used reading levels to determine reading buddies for students in the class. They look at the scores on the DRA for each student and split the class in half. They pair the highest student with the highest student of the lower half of the class and so on until the lowest reader of the top half is paired with the lowest reader in the class. The special education teacher of Team 3 stated that she used the data she gathers at the beginning of the year about the students to guide her instruction. The general education teacher stated that students were divided into reading groups based on their reading level. Table 7 summarizes the data that teachers use to plan instruction based on readiness level.

Table 7

Data Sources Used to Plan for Instruction Based on Student Readiness

Data Sources	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Standards of Learning	X	X	X	X	X	X
Developmental Reading Assessment	X	X	X	X	X	X
Cumulative Assessment		X	X	X	X	
Formative Assessment			X			X
Individual Education Plans		X	X	X		
Student Observation			X			
Student Conferences	X		X			
Special Education Testing		X				
Standardized Testing		X			X	X
Intervention Folder		X			X	
Online Data Management System	X		X		X	

Student Interest

Interest is defined as a student's fondness and engagement in a topic (Tomlinson, 2003). Interest in objects, events or ideas motivates a student to engage and reengage with these things

over time (Hidi & Renninger, 2006). Team 5 and Team 6 cited student interest as part of their definition of differentiated instruction. The general education teacher from Team 5 stated, "I think . . . also its important to know what their interests are because that plays a big roll … it's pretty much getting to know them, know your students." The general education teacher from Team 6 when citing interest said, "We're trying to expose them to different genres and such so we try to pick a little of each because they all have different … different things that they like."

Giving their students a reading interest survey at the beginning of the year was one way Teams 2, 4, 5, and 6 collected data on student interest. Teams 1, 3, 4, and 5 each stated that data on interest comes from talking with students about the books they chose to read. Both general education teachers for Teams 1 and 3 spoke about having read all the books in their class libraries themselves so that they could talk to the students about the books they are reading. The special education teacher for Team 3 said that she felt the data on student interest comes from making connections with the students asking them, "What they did over the weekend, what books they are reading, why do they like that book. What are they interested in? I would say just … casual conversation with them." Teams 1, 2, and 3 found data on student interest by looking at the topics that the students were writing about. Team 1's general education teacher pointed out that to find out what her students were interested in; she had only to look at the topics they have chosen to write about in their writing folders. Allowing the students choice in their reading was identified by Teams 1, 2, 3 and 4 as a way to meet their student's interests in reading. Team 2's general education teacher described a recent class project in which the class took a vote on what to do. "Because they knew they had to do some sort of fiction, so we told them about the

different genres and went through them … and then had them vote their top two favorite genres they would like to do the project about. And so their project's tailored based on which ones they chose." Tying student interest into a lesson about characterization, the general education teacher for Team 5 described a student profile project which she felt served as additional data. She explained that, "the student had to do pictures of themselves, a description of themselves, their goals, and their seven favorite things - a quote from a friend. … Each student gets a day where they're up on the bulletin board and everybody can come and look at them …".

Allowing for student interest through topic choice was demonstrated during the observations of Team 1, 2, and 6. During the first observation of Team 1, the students were given the assignment to use prepositional phrases to write a story in the form of a poem using the broad topic of finding a missing treasure, but allowing for individuality in what kind of treasure and where it might be. As a warm-up activity during the first observation of Team 2, the students were given a choice of two topics from which to pick to write three sentences. The data used by the teams to determine student interest is shown in Table 8.

Table 8

Data to determine student interest

	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Interest Survey		X		X	X	X
Talking with students	X		X	X	X	
Reading same books	X		X			
From their writing	X	X	X			
Class votes		X				
Student choice	X		X	X		

Learning Profile

Learning Profile is a student's preferences related to environment, modality of instruction and interpersonal interactions and if considered, increases the efficiency of instruction (Tomlinson, et.al, 2003) (Tomlinson, 2004). It is influenced by culture, environment and learning style. Scigliano & Hipsky (2010) define learning profile as composed of a student's strengths, preferences and learning style. Learning profile was present in the definition of differentiated instruction for every Team but Team 3. Throughout the interviews, each of the teams interchanged the term learning style with learning profile. During the classroom observations, each team made use of both visual and auditory means of instruction. Teams 2, 3 and 6 in one of their observations, allowed students to move around and get into small groups at least once

during instruction. Team 3 and Team 6 did activities during one of their observations that required the students to manipulate or create materials.

The general education teacher from Team 1 said her data for learning profile could be gained by talking to the students. She felt it is important to just know what her students want and need. The special education teacher from Team 1 referred to the information that can be gleaned from the eligibility testing for students with disabilities as source of learning profile data. When interviewed as part of Team 2, the special education teacher stated that student observation was the main way to determine a student's learning profile and that the IEP for a student with disabilities also served as a source of that information. Teams 5 and 6 also stated that they referred to the student's IEP. Team 3 administered a learning style survey to the class in the beginning of the year. This information is placed in the student's "I'm Determined" notebook and is reviewed with the student regularly. Team 4 stated that they did not have any data on learning profile but would like to give their class a learning style inventory next year. Teams 5 and 6 also administered a learning style survey. The general education teacher for Team 5 stated that this was a continual point of reference she uses with the students when conferencing. Both teachers laughed regarding student responses to the survey. The general education teacher said, "They all said that they were kinesthetic. They were all like 100% kinesthetic learners." The special education teacher added in, "And they all think their auditory." Learning profile data for Team 6 was the IEP and a learning style survey administered to the class. Team 6 also stated that they used the 9-week benchmark tests as data to determine a student's learning profile. The general education teacher explained this about benchmark tests administered by computer,

> Well, I will say that if we find like with the benchmark tests, we found we had quite a few, (that) it was a disappointment to us what the outcome (was). So alright, we know we have a high level of kids that are tactile learners, they've got to be able to use the highlighter. So … we chose to give them, we didn't use that test at all. We chose to give them a hard copy and we had them … just go over a few more of the testing strategies like slash and trash. We (said we) want you to go ahead and highlight and go ahead and actually do that on this paper. You weren't able to do that on the computer'.

The special education teacher continued by saying, "and we found the scores were higher. They weren't like major higher, but they were higher. And so knowing that their learning styles … most of them were the tactile, we provided them a highlighter and this ability to be able to actually do the strategies that we do in class." Table 9 summarizes the data the Teams used to determine learning profile.

Table 9

Data used to determine Learning Profile

Data	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
IEPs		X			X	X
Learning Style Survey			X		X	X
Benchmark tests						X
Observation		X				
Talk with students	X					
Eligibility testing	X					

In compiling the data, I determined that the teachers sometimes used a data source to in multiple ways. The teachers provided more specific data examples than the general ones formulated by the instructional specialists. For each of the data sources identified by the Teams, I reviewed the full context of the response and determined if that data source fit in one of our predetermined categories. All data sources cited by the Teams could be related to the more general ones formulated by the instructional specialists with no novel data sources noted. Some examples of differences in terminology follow. Formative assessments are conducted throughout a lesson to monitor the student's progress and allow the teacher to adjust instruction in relationship to that progress (Wormelli, 2007). In using this definition, observing students was included as a method of formative assessment. The teacher uses what she observes as data to adjust the instruction for that student by readiness, interest or learning profile. Constituting student input as a data source were surveys, conversations with teachers, student choice and writing assignments. In compiling our lists of data sources, we anticipated that all standardized testing would be done as part of an eligibility or triennial education process. At Beta, a standardized reading comprehension assessment was given to the special education students in the collaborative setting and a writing diagnostic assessment was given to all students in the collaborative classroom. For the purposes of this analysis, these assessments are included as educational and psychological testing data sources. The online data management system cited was identified as separate source for data on student readiness (see Table 5). This system contains a student's SOL scores, benchmark test data and previous grades. In using this separate category earlier in the analysis of data sources for student readiness, it allowed me to take note of

one way the teachers were accessing that particular information. For the context of this research it is more important to identify what parts of the online system the teachers have accessed.

The interview sessions provided information about what data sources the teams used to differentiate readiness, interest and learning profile. The most common referenced source for all three areas was student input particularly in the areas of interest and learning profile. A common term used among the Teams was "talking" to the students. The general education teacher for Team 1 said, "We talk to the kids all the time about their reading." Team 3's general education teacher stated, "I love, um, being able to talk to the kids about the books. You know we have, we have great conversations." The special education teacher for Team 3 described a student conference as, "I mean, very often they'll come up and have a question or we'll call them over and even if it is just a three minute conference that tells us a lot about where they are and what they know and what they don't know and with two of us it's good to kind of take that time." The special education teacher from Team 4 noted that a lot of their information about the student's interest comes from talking with them individually. The general education teacher twice during their interview mentioned talking with the students. Surveys for interest or learning style were mentioned by every team except Team 1.

The most sources of data were used to determine student readiness, followed by learning profile, with the fewest for student interest. The Standards of Learning Tests were used by all Teams to determine student readiness. The nature of these tests does not provide information about student readiness or learning profile and none of the Teams indicated that they used the SOLs for such. The Developmental Reading Assessment (DRA) was used by all Teams as data

for student readiness. Team 2 indicated that they used the survey portion of this assessment as data for student interest. Teams 4, 5, and 6 referred to using an interest survey but it was not indicated the survey they used was a part of the DRA. Formative assessments such as pretests we indicated by Teams 1, 2, and 6 as data sources used to influence the instructional plan. The general education teacher for Team 4 explained how they used quizzes to inform instruction, "and if they do a quiz and they don't do well on it, we'll go back and teach it again in a different way. There's no point in moving on if nobody gets it." Formative assessments were used as data for readiness by Team 3 but these assessments were not described. Summative curriculum assessments such as benchmark tests were used as data sources for readiness and learning profile by Teams 3 and 5. Teams 2 and 4 stated they used this information as data for readiness and Team 6 stated they used this data to determine learning profile. The IEP is the plan that parents and school staff develop to outline the student's present level of performance, goals, accommodations, supports and services which the school is then responsible for carrying out to provide the student with a disability a free and appropriate education. When written as outlined by IDEA, the IEP should contain information about the student's readiness levels, his or her interests, and learning profile. Team 2 indicated that they used information from the student's IEP as a data source for both readiness and learning profile. Teams 3 and 4 used the IEP as a source of data for student readiness and Teams 5 and 6 used it as a source of information about learning profile. Only Team 3 mentioned report cards specifically as a source of student readiness data. Previous grades are part of the information available in the online data management system which Teams 1 and 5 cited as a place to find data on student readiness.

Teams 1, 2, 5, and 6 referred to educational and psychological testing as a data source. This includes the use of standardized classroom assessments used to test reading comprehension and writing skills. Specific use of educational and psychological testing for special education eligibility purposes was cited by Team 2 as readiness data and Team 1 as data to determine a student's learning profile. Previous teacher's reports were indicated as a source of readiness data for Teams 2 and 5. Parent input, course electives and extracurricular activities included by the instructional specialists as data sources were not identified by any of the teams. Table 10 summarizes the data sources used to determine readiness, interest and learning profile.

Table 10

Summary of Data Used by Each Team

Types of Data	Readiness	Interest	Learning Profile
Standards of Learning	All Teams	None	None
Developmental Reading Assessment	All Teams	2	None
Formative Curriculum Assessment	1, 2, 3,4,6	None	2
Summative Curriculum Assessment (Benchmark Tests)	2, 3, 4, 5	None	3, 5, 6
Individual Education Plans	2, 3, 4	None	2, 5, 6
Previous Report Cards	3	None	None
Educational/Psychological Testing	2, 5, 6	None	1
Student Input	1, 3	All Teams	1, 3, 5, 6
Parent Input	None	None	None
Previous Teachers' reports	2, 5	None	None
Course Electives	None	None	None
Extracurricular Activities	None	None	None

Implementing Differentiated Instruction

Tomlinson & Eidson (2003) write that the middle school student brings great joy, energy and potential to the classroom but they find it difficult to imagine a more agonizing setting than

the one-size fits all model in which these students often must exist. Labeling instruction as being differentiated does not make it so anymore than observing instruction and saying that it has not been differentiated. By doing both observations and interviews I was able to see what the instruction looked like and how the teachers were delivering it and then in the interview ask follow-up questions to gain a better understanding of the lessons I saw. The two observations done for this study were done no less than one week apart with the interviews followed the observations by one or two weeks. This time frame allowed me to see some introductory lessons turn into finished products or become parts of a review. The interviews provided information about how the teachers felt they differentiated through content, process and product. During the interview, the teams were given Carol Ann Tomlinson's (1999) definitions of content, process and product and asked how they differentiate in reading for students with disabilities.

Content

The curriculum that a student is required to master is the content. It is drawn from national, state and local standards and is assessed as a barometer of school performance. The classroom teacher must blend the standards, the curriculum guides of the district, materials and technology available to provide instruction that builds the foundation for learning (Tomlinson, et al., 2003). Examples of differentiated content are the use of materials of varied readability and/or interest, providing multiple ways to access and present ideas/and information, modeling, providing organizers for note taking and using reading buddies (Tomlinson &.Eidson, 2003). The district in which Beta is a part of provides pacing guides for the English curriculum that outlines for teachers what material to cover and a timeline to follow for the year's instruction.

Curriculum resources available for each of the state standards are available on the district's intranet instruction website. In addition, this site also contains sample graphic organizers, foldables, note taking models and mind maps.

When asked about differentiating content for students with disabilities, the Teams tended to give examples of instruction where they felt they had differentiated content rather cite the many ways they specifically do so. Team 1 stated that they break instruction down into chucks. The general education teacher stated that she kept a classroom library with a wide variety of reading levels available for sustained silent reading time. The general education teacher told about a class that had difficulty in making connections when reading. She describes making a visual representation of the concept and working with student interest to solidify their understanding,

> On this bulletin board, what I did, I took everything off of there and I put a big map of the United States. And as they finished their book, I had cut-out shapes and they would have to pick a shape and they would put the title of the book, the author, their name and they would have to connect that somewhere with different colored yarn to where in the states the story was taking place. If it was outside the states, they could to a Google map or whatever on the computer and they'd have to search for the location. If it was a fantasy location, they had to draw a picture of it – where would it be? – If it was on the globe – where would it be? … I had strings all over the place and the students would say well "[sic] it doesn't say where it took place." Really, does it tell anything about a beach? Or do they have to wear heavy coats?

There were only two examples of differentiated content found when observing Team 1 rating a score of *Some* on the observation checklist. A library of books of different reading levels was available for use during silent reading and the material was presented both auditorily and visually. The lesson presented during observation covered the use of prepositional phrases in poetry. The special education teacher reviewed the material from the class the day before and

discussed the difference between prepositional phrases and sentences. She then used the overhead to have students read aloud poems that were written using prepositional phrases.

Both the special education teacher and the general education teacher from Team 2 stated they differentiated content by reading things to students and making use of audio CDs of material. The special education teacher stated that, "But we also look at whatever we ask them to read to look if there are complex, complex compound sentences. Some of them have trouble with the relationships." As stated previously, Team 2 utilizes reading buddies to work with reading text. The general education teacher also added that understanding vocabulary was an area of difficulty for the students. The first observation was of a vocabulary lesson in which the special education teacher modeled examples of using context clues to discover the meaning of words. In reference to that activity, the special education teacher continued, "But it's that balance between the kids that might have a higher level vocabulary picking the high enough words but with (creating) a low enough sentence so that they can interpret the meaning." The general education teacher stated that she had adapted this same lesson to use with the students in her honors class. During the observations, Team 2 showed *Some* differentiation by content. A demonstration of differentiation of content was evident in the second observation through the teachers' reminders to the students to use their own resources. Each student had access to writing resources contained in their notebooks or could refer to posters in the room about writing when asked to write three sentences on one of two topics presented. This represented the use of providing the students multiple ways of accessing information as a way to differentiate content. As mentioned previously, Team 2 also varied content by interest by allowing student choice of genre for a

reading project. Like other teams, they have a classroom library that students can access with books of varying reading levels.

Team 3's general education teacher felt that language arts content was easier to differentiate than other subjects like science and social studies. She stated that they could use any vehicle they wanted to use to teach skills. The general education teacher described how knowing student interest helps them differentiate the content, "And we can't always chose a whole class reading instruction based on everybody's interest but what we do because we know their interest (is) we can connect them to what we're reading. So it may not be a story that everyone would pick up and read but it's the one we're going to use for instruction, its either in our book or we find a way to connect the kids to reading – so that's our job." Team 3 also utilized a class library with books of various reading levels for the students to choose for sustained silent reading. Team 3 showed *Some* differentiation in the area of content in the observations. An excellent example occurred in the first observation. The students were participating in sustained silent reading time (SSR). Each student was working on a Tic-Tac-Toe contract of activities to complete on their SSR books. These books were chosen by the students to match their own interest and guided by the teachers to choose an instructional reading level. The second observation took place in the block in which the students went to lunch. Prior to lunch the special education teacher gave instruction on character traits using the digital projector. When the students returned she modeled how to use inferences to highlight important facts about a character. The students then were guided to create a study guide out of sticky notes to review the different genres of literature. Once that activity was completed, the general education teacher led instruction for a pre-writing

lesson. The general education teacher modeled the writing process and explained to the students the expectations for this assignment for the next day's class. Similar to Team 2, in the second observation, the teachers referred their students to their writing folders as a resource to use during the writing process and created a new resource for literature genres. Auditory, visual and hands on instruction were instructional practices used during the observations which showed *Some* differentiation of content.

Team 4 had difficulty answering how they differentiated content for students with disabilities. I had to give them examples of what differentiated content would look like while being very careful to not lead the team to any certain answer. The examples that they gave during the interview involved change of the content made for the whole class; for example using an abbreviated I Have a Dream Speech by Martin Luther King or beginning the nine weeks with simpler texts increasing to more difficult as the term progressed. It was evident that the content presented in class was the same content for everyone and that nothing was done differently for disabled or non-disabled students. During the first observation came the team's only example of content differentiation. The general education teacher used the digital projector to provide notes to the class on how to write a story summary while lecturing on that topic. At the end of the lesson, she told the students that she would also copy her notes and present them to the students for an additional reference. The use of multiple means for the students to access the information constituted differentiation of content.

During the observations for Team 5 there was no evidence of differentiation of content during the lessons. For both observations a quick grammar review was completed using the

overhead projector with the general education teacher providing instruction. As observers we discussed whether this constituted the use of multiple means to access information and determined as the activities appeared to be review, there was not a differentiation of content, just visual and auditory presentation of content already presented. In discussing meeting the readiness needs of students, the general education teacher stated that they try to vary the levels of text that is read during guided reading. In response to the question concerning differentiation of content during the interview session, both teachers indicated that because of meeting standards it was difficult to differentiate the content as much as they would like. They explained a new computer program that they will soon have access to that will enable them to differentiate the content for writing assignments. Team 5 also shared when talking about readiness levels, the use of reading buddies, "Sometimes they're not confident to read with someone else because their level is so low. So if we paired them with someone that's um, they may be slow in reading … they can help each other a little better and they feel a little more confident. And we also read with them and try to listen to them read." The Team also stated that they use different strategies such as allowing the students to draw an answer instead of writing accessing multiple modes of expression.

Team 6 was able to describe an activity that exemplified differentiation of content. The general education teacher explained,

> There is a version, which, was created for the lower readers so we did [sic] differentiation. We put them in groups and it wasn't just the (multisensory students) – we put our heads together and said these are the kids that are lower or slower processing, so we just split the class in half, so we took turns. …One day I was in reading the regular version and she was outside reading the lower version and then she and I flip-flopped so they wouldn't think - oh I'm in the dumb group because I have (special education teacher). So we just kept flip-

> flopping. And we also, for the low kids, … we read from the higher version that was at grade level to show them the difference between [sic] (the) description, because the other one was more like a summary and they left out a lot of the suspense.

The special education teacher continued by saying, "(the lower level) it wasn't as visual. … We found that the lower group, they totally got the story; they wouldn't have gotten the story without (the summary) but then there was, they were feeling lost, so then we ended up reading to them (the higher level)." Team 6 showed some differentiation of content during the observations. In the first observation the general education teacher led vocabulary review done as a game of Bingo. The special education teacher wrote each clue on the board as the general education teacher called it out adding any additional hints the general education teacher gave. To meet various learning styles, the clues were given both auditorily and visually.

During the second observation the main activity did not appear to be differentiation of content. The teachers offered further explanation during the interview to describe the activity. The instruction was led by the special education teacher modeling the process of writing sentences using the overhead projector. The general education teacher sat at her desk, interjecting comments, preparing the next activity. The special education teacher gave examples of sentences and modeled for the class on the overhead projector. The general education teacher challenged the students by asking the students to write a more complex sentence with several verbs. The special education teacher asked a student to write a sentence on the overhead. After several students gave examples, the general education teacher broke the students into to small groups and explained the next activity. Each group was given four sentence strips to place in chronological order. The students were allowed to moved different stations and begin. During

the interview, the general education teacher explained that the each of the different stations contained a different level of task. Beginning with simple sentences and progressing to an entire paragraph, the students were asked to put the sentences in chronological order. The general education teacher stated this activity, through the use of cooperative learning groups, allowed them to vary the content and have the students dialogue with each other as they made decisions about the order of the sentences. As previously noted, Team 6 stated in the interview that they pick different genres when selecting reading material for the class in order to address student interest and allow students to choose magazines, books or comic books to read during sustained silent reading. .

Table 11 summarizes the examples of differentiation in content seen in the observations and described by Teams during the interview sessions. An area of strength at Beta, most teams reportedly used visual and auditory means to present material and all but Team 5 was observed doing so. Team 2 reported and demonstrated the most examples of differentiating content.

Table 11

Examples of differentiation in content from observations and interviews

Examples	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Varied readability of materials		X	X	X	X	X
Varied interest of materials	X	X	X			X
Providing organizers for notes/information		X	X			
Reading buddies		X			X	
Modeling		X	X			X
Multiple modes to access ideas and present information	X	X	X	X	X	X

Process

The process of instruction is how the student is to learn or the activities the student will engage in to master the content (Tomlinson, 1999, 2000). Content and process are very closely related. To provide distinction between the two, Tomlinson & Eidson (2003) explain that process begins once the teacher has stopped instructing and asks the student to take the information and make meaning out of the material that has been presented. They also provide descriptions of types of differentiation of process as follows:

- Tiered activities – activities at different levels of difficulty with the same goal of mastery

- Allowing student choice in whether to work (alone, pair or small group)
- Use both like-readiness and mixed-readiness work groups
- Allowing students to express learning through multiple modes
- Scaffolding instruction (study guides, comprehension strategies, modeling, guided lecture, and multimodal teaching.

For three of the teams, the special education teacher pulled a small group for multisensory reading instruction. This was not reported as an incident of differentiation of process since the classes themselves were not observed and therefore how these classes differentiated the process other than that of the general education class could not be done reliably. It does although show an effort of differentiation for readiness by providing specially designed instruction in reading for students who are performing well below grade level.

Team 1 showed no evidence of the differentiation of process during the observation sessions. In describing differentiation of process during the interviews, the general education teacher spoke of presenting material through different modes and using different strategies. She indicated that she allowed students to read books on their own level during self-selected reading (SSR).

Allowing for choice and different modes of student expression were described by Team 2 during the interview. The general education teacher stated that they utilized hands on activities and manipulatives. She also described the choice that students are allowed in choosing the genre of book they desire in completing reading projects. “We have a library of books that they can choose from, they can bring something from home, and they can check something out of the

library." The special education teacher added, "During their reading project, they can read that book at home for their home reading log and they can read it in here for their SSR time and . . . fill out your paperwork while you are reading." The special education teacher described one student with memory problems for which she remembered differentiating process, ". . . except when it got to visual motor integration she was in the superior range. . . If she could draw it, she remembered it. (Working with vocabulary words), 'I said (student) – let's just try it without drawing – you know it – you're smart.' The next day - time I met with her and tested her on the vocabulary words – zip- didn't remember a thing. 'Ok – you know best- let's draw' that's why I shared . . . with (student) when you need to memorize something [sic]- like a vocabulary word – you need to write it out like five times." Mentioned earlier as a way to differentiate process, was Team 2's use of reading buddies was demonstrated for the observers.

In illustrating how they differentiate for process, the general education teacher of Team 3 made clear that differentiating in their class was not just for the students with disabilities, but for all their students. Explaining how they differentiate through process, the general education teacher said, "It could be that some children are just going to tell us orally. Some are going struggle with writing, if they tell us a short paragraph, rather than a long paragraph or on the computer rather than handwritten or draw a picture . . . ." One of the frustrations she expressed was that on a recent benchmark test the skill of summarizing was assessed. She stated that some of the students missed that part of the test because of the multiple choice format. "But they can write a summary, they can do a comic strip, they have shown us in many ways they can summarize, that's the skill. So my question has always been are we testing the content or are we

testing the process?" She continued by saying, "I think it's the process that kills them, not always, some, yes, the content, but not most of the time, it's the process because we don't learn. We say differentiate, differentiate, process, content do it in your classroom, but when it comes to the test it should be the content that's the same, not necessarily the process." During the observations, the use of the Tic-Tac-Toe board selection of products for book reports was an example of a tiered activity. Different options at different levels of difficulty were in each square of the Tic-Tac-Board but the goal was the mastery of the skills not how the student chose to show mastery.

The special education teacher for Team 4 gave details on how they differentiate for process as allowing the students to have multiple options in how the students express their learning, "Well, I think often times they have a choice. I mean even like the assignment that was given today, about incorporating or about having to write a story . . . but it's not necessarily this is the format that you follow. It's any format; it can be a song, poem, a story, as long as they've met the criteria of symbolism and theme." During the observations there was no observed differentiation of process during either session. During the first observation, the general education teacher led instruction by reading a novel to the class. After that, both teachers circulated through the room to assist students as they worked on answering questions on what was read. During the second observation, the general education teacher was inputting grades and assisting students with determining missing assignments while the special education teacher returned graded papers and gathered work to be graded. Students worked independently on completing unfinished assignments or read silently until class change. As Class 2 entered, the

general education teacher began a quiz review session using the digital projector. The special education teacher walked around the class checking for homework. Student participation was solicited by the general education teacher. Once the review was complete the general education teacher reviewed the rules for taking quizzes with the class. The special education teacher took a small group of students out of the class to be tested in a separate area. The process was the same for all the students.

The general education teacher for Team 5 stated in response to how they differentiate for process, that this was the area in which they really pulled in different types of activities at different levels. She said, "But we do a lot of different types of things to help engage them at different levels and it's partly for everybody, but it's also for the students with disabilities because they're always there when we're planning, you know, to meet their needs." In defining differentiated instruction, she listed ways is which differentiation of process was taking place in the class that week as described in her previous quote. During the second observation, we saw an example of differentiation of process. The general education teacher passed out a novel and directed students to choose their own partner and either read out loud together one page at time or each read silently and then talk about what they had read.

For Team 6, what drives differentiation of process are the learning styles of the students. The general education teacher stated that they try to address all three learning styles auditory, visual and tactile with activities and they rarely move on from a topic without using all three. Description has been given previously of the lesson of observation two in which the tiered activity on chronological order took place. Also discussed was the Team's description of

dividing the class by readiness level when reading a short story for which a lower level version was utilized. Table 12 summarizes examples of differentiation in process based on information from observations and interviews.

Table 12

Examples of Differentiation in Process from Observations and Interviews

	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Tiered Activities			X		X	X
Using multiple modes for student expression		X	X	X	X	X
Allowing student choice in working alone, in pairs or independently					X	
Like and mixed readiness work groups		X				
Readiness or Interest based small group instruction	X					X

Product

Product is how the student is to demonstrate what he or she has come to know, understand and apply (Tomlinson, 1999; Tomlinson & Eidson, 2003). Examples of differentiation of product would be: tiered product assignments, visual, auditory or kinesthetic

product options, allowing students to use a range of media or formats to express their knowledge, connection of learning and interest, offering a variety of assignment tasks, offering the scaffolding of tasks and giving students rubrics based on grade level expectations and individual learning needs.

The most commonly used method of differentiation of product among all the teams was by connecting learning and the individual interest of the students. All of the classes allowed student choice in reading material for conferences with the teacher, projects and book reports. This allowed differentiation of content and differentiation of product. The students were allowed to read a book at their own level to demonstrate their knowledge of skills such as identifying plot, characters and conflict. The students were allowed to demonstrate mastery of literary skills through a book that they had chosen based on their own interest. The students were allowed time to read these selections during the sustained silent reading time (SSR).

The use of rubrics as a reference for students to fully understand the expected outcome for an assigned project was used by most of the teams. Only Team 1 did not refer to the use of a rubric. Of the teams that cited use of rubrics, all teams except for Team 4 shared a rubric with me that was used with assignments that were either observed in class or discussed during the interview. Team 1 used tiered product assignments as example of differentiation of product. The special education teacher explained varying expectations for students by saying, “We seldom say we’re asking everybody to have eight prepositional phrases, oh – you only have to have five; but some kids you’re going to require much more vivid vocabulary and you won’t accept just (adjectives like) big and small – others if they can put big and small (that’s) all right.” The

general education teacher pointed out that as a teacher, you that you can't be rigid and expect the same performance from everyone.

Allowing students a wide range of media and formats to express their knowledge was described by Teams 2, 3, 4, 5 and 6 as ways of differentiating product. Team 2 explained that the current book report assignment allowed students to choose either to make a diorama, Power Point or board game to illustrate the two most important events in the story. The general education teacher for Team 3 described how they assess at the end of a unit of study, "We don't give many tests at the end of the units or anything. It's more or less; we have to give some multiple choice because they have to practice (SOLs). Like doing a comic strip or the Claymation was at the end of our folklore unit. I mean that tells us as much as anything that they got what we were doing." The special education teacher for Team 4 felt that the student learning the skill was the important thing, not the product. The general education teacher for Team 4 added, "As long as they can express it, use it and apply it." Their example of differentiating product was a writing assignment where the students could be in any format such as a song or poem. The general education teacher for Team 5 listed numerous methods that they use to assess students, "We do foldables, quizzes; we do journal prompts and answer [sic] short questions, review questions and we do all kinds of partner readings and whole class readings and silent readings. [sic] we do testing and projects and we're doing an essay that relates to Touching Spirit Bear not the whole essay, just a pre-writing for it so we try, we try to pull it all in." Team 6 gave the example of the alternative book reports that they assign twice a year in place of doing a summary. The current assignment was to create a cereal box and on it talk about the plot, setting

and theme. The expectation was that the students were getting the content but applying it through their choice how to show their understanding on the cereal box.

Team 2 gave an example of scaffolding tasks as differentiation of product. The book report assignment that they shared with me contained structure for the students in helping them plan to have the assignment completed by the due date. Four different project slips were given to each student. The general education teacher explained,

> So the first slip is basically their parents become aware that they have the project and that they are choosing whatever genre. The second one is telling them that they have now finished their book which is due the day their book is supposed to be back at the library. The third one is saying that they're completing their form which is, you know, basically their book report and that they are working on their speech. And the fourth one basically tells us which of the products they are going to make…the diorama, the board game or the Power Point. . and they are working on their speech.

The special education teacher also pointed out that the directions for the assignment were also on the school website along with pictures of sample finished projects and the directions on how to save and load their Power Point. This provided an additional resource which the students could uses as a resource. Table 13 summarizes examples of differentiation of product from the observations and interviews.

Table 13

Examples of Differentiation in Product from Observations and Interviews

	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Tiered product assignments	X					
Allowing student a wide range of media, formats and tasks to express their knowledge		X	X	X	X	X
Connect learning and individual interest	X	X	X	X	X	X
Scaffolding of tasks		X				
Rubrics based on grade level expectations and individual learning needs		X	X	X	X	X

To end the interview, I asked if there was anything else that the Teams wanted to share regarding the instructional practices and routines in reading they used to meet the varying individual needs of students with disabilities. Team 1 wished that there was some time in the daily schedule to offer remediation, not only to the students with disabilities but for anyone who might need it. They cited other schools who were doing something similar during the lunch time period with programs they would like to emulate. Team 2 wanted to add that they incorporated group work and strived to have the students compete with themselves to make improvement. The

general education teacher from Team 3 said she felt that more often than not they, "instead of focusing on their disability, focus on their ability . . . focus on what they can do well . . . using their strengths and their abilities." Team 4 talked about how all the students are their students and that they switch off on everything. The general education teacher provided this example, "I'll come up with a graphic organizer to help somebody learn information and she'll teach the lesson. Or she'll come up with the sheet to help disseminate the information and I'll use it." Being able to learn from their fellow teachers particularly from other schools was a concern of Team 5. They suggested time to visit other schools or having more time to talk with other teachers when they were attending trainings. Team 6 wanted to add that they were proponents of cooperative learning and interactive note taking. The general education teacher said, "We try to think outside the box and like I said (special education teacher) is great about coming up with ideas and applying them to what we are doing. And I like to be open to all the stuff she brings."

Cross-Case Findings

Examining the definition of differentiated instruction and the examples of content, process and product observed and identified gave an image of the understanding and application of differentiated instruction each team possessed. Looking at the data for each team developed its holistic portrait. This allowed me to see if patterns of similarities and differences emerged among teams.

Team 1

In reviewing Team 1's knowledge of the definition of differentiated instruction, they were able to identify only readiness and process as two of the six aspects within the definition.

The general education teacher referred to the zone of proximal development or readiness level by saying that differentiation is giving each child what they need at the time they need it. The special education teacher included modifying assignments as needed which embodied differentiation of process. During the observation, Team 1 demonstrated only *Some* differentiation of content. As far as demonstrating knowledge of differentiation of content during the observation, the material was presented both auditorily and visually. As part of the interview, the Team noted that it was important to know their student's interests and did allow student choice based on interest for reading material. The Team demonstrated no examples of differentiation of process and product during the observation. The general education teacher stated that the students could read at their own level during the silent sustained reading time. The only example of differentiation of product given by Team 1 was tiered product assignments. Team 1's observation exemplified the weakest presentation of differentiation by any Team and few examples of content, process and product were described in the interview session.

Team 2

Student readiness and learning profile were the aspects identified in Team 2's definition of differentiated instruction. During the observations, Team 2 showed *Some* differentiation in each area content, process and product. Team 2 described or demonstrated six examples of differentiation of content including varying interest and readability of materials, modeling instruction, using multiple modes of instruction, utilizing reading buddies and providing organizers for notes and information. Although this was the most of any team, they demonstrated and described the fewest examples of differentiation of process, using multiple modes for student

expressing and readiness or interest small group instruction. Three examples of product were demonstrated and described by Team 2, allowing students to use many modes of expression to demonstrate knowledge, connecting student interest and learning and scaffolding of tasks. A comprehensive examination of the data indicated that Team 2's knowledge and application of differentiated instruction was extensive.

Team 3

The general education teacher for Team 3 was familiar with Carol Tomlinson's work and stated that she owned several of her books. Naming readiness, learning profile, content and product as aspects of differentiation, Team 3 gave one of the most comprehensive definitions of any Team. Team 3 demonstrated *Some* differentiation in all three areas of content, process and product during the observations. The examples of differentiation of content evident through the observations and interviews were varied readability and interest of materials, providing organizers for notes, modeling of instruction, and using multiple modes to present information. Examples of process included using tiered activities and allowing multiple modes for student expression. Differentiation of product was exemplified through allowing students wide range of media, formats and tasks to express their knowledge, connecting learning and student interest and using rubrics based on grade level expectations and individual learning needs. Team 3 not only demonstrated ample conceptual knowledge of differentiation, but also demonstrated it in their classroom.

Team 4

Readiness, learning profile and process were included in Team 4's definition of differentiated instruction. During the observations, Team 4 showed *Some* differentiation in content and product. When looking for examples of differentiation of content, Team 4 discussed the readability of materials and demonstrated using multiple modes to present information. Like most of the other teams, differentiation of product was exemplified through allowing students wide range of media, formats and tasks to express their knowledge, connecting learning and student interest and using rubrics based on grade level expectations and individual learning needs. There was no evidence of differentiation of process during the observation. The only example of differentiation of process cited in the interview was using multiple modes for student expression. Team 4's data showed a narrow understanding and limited application of differentiated instruction.

Team 5

The definition of differentiated instruction given by Team 5 included readiness, interest, learning profile and process. This was one of the strongest definitions of any of the teams. There were no examples of differentiation of content during the observation for Team 5. The examples given during the interview were varied readability of material and the use of reading buddies. Team 5 showed *Some* examples of differentiation of process and product during the observations. Allowing student choice in working alone, in pairs or independently was observed as an example of differentiation of process. During the interview the team gave the use of tiered activities and using multiple modes for student expression as examples of differentiating process.

During the observation, the team differentiated product by providing students a grading rubric. During the interview the examples of connecting student interest and learning and allowing students to express their knowledge in different formats were given. Team 5's understanding of the definition of differentiated instruction was much stronger than what was evident in the observations and somewhat stronger than what was cited as examples in the interview.

Team 6

The definition that contained the most aspects of differentiation was given by Team 6, leaving out only product. This Team showed *Some* examples in all three areas product, process and product during the observation. One of the best examples given of differentiation of product was the team's description of using the same text for instruction with different levels of readability. In addition, the general education teacher described how she had varied the content by giving groups sentences of different difficulty during the observed class activity on sequencing. During that same observation, the special education teacher modeled sentence writing for the class. Having reading materials available for the students that appeal to a wide variety of interests was discussed in the interview. Examples of differentiation of process included using tiered activities, allowing multiple modes of expression and readiness or interest based small group instruction. Examples of differentiation of product were evident from the observations and interviews through allowing students wide range of media, formats and tasks to express their knowledge, connecting learning and student interest and using rubrics based on grade level expectations and individual learning needs. Team 6's strong grasp on the concept of

differentiation is indicated through their thorough definition and excellent examples of differentiation of content.

Similarities and Differences Between Teams

The holistic picture of each Team indicates that some common threads exist among them. Through examination of team characteristics and team responses an aggregate picture of a team's capacity to differentiate emerges. Teams 2 and 3 noted participation in both school and district level professional development. During the observations, teams 2, 3, and 6 shared responsibility for instruction. Teams 2, 3 and 6 were strong in examples of differentiation of content not only in number observed and/or pointed out during the interview, but also in quality. Teams 1 and 4 each showed no examples of differentiation of process during their observations and both were only able to give one example of differentiation of process during the interview sessions. They also were not able to name more than three of the aspects of differentiation in their definitions. These two teams showed a weak level of application of differentiation. Team 5's was able to give a good description of how differentiated instruction could be applied. Teams 3, 5 and 6 mentioned at least four of the six aspects (content, process, product, readiness, interest, and learning profile) in their definition representing a strong understanding of the concept of differentiation. The three teams, 2, 3, and 6 which seemed to possess the highest comfort levels in applying differentiated instruction represented grades 6, 7, and 8 respectively. The grade level instructed or training attended did not seem to have any relationship to the team's knowledge or application of differentiated instruction. Table 14 summarizes team characteristics and Table 15 summarizes team responses.

Table 14

Comparison of team characteristics

Characteristics	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Grade	6	6	7	8	8	7
Participated in professional development on School level	Yes	Yes	Yes	Yes	Yes	No
Participated in professional development on District level	No	Yes	Yes	No	No	Yes
Teacher leading instruction during observation	Special	Both	Both	General	General	Both

Table 15

Comparison of team responses

Responses	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Observation rating for differentiation by content	Some	Some	Some	Some	None	Some
Observation rating for differentiation by process	None	Some	Some	None	Some	Some
Observation rating for differentiation by product	None	Some	Some	Some	Some	Some
Application of differentiation as explained during interview	Weak	Strong	Strong	Weak	Good	Strong
Strength of definition of differentiation	Weak	Weak	Strong	Weak	Strong	Strong

Although the same special education teacher was a member of Teams 1 and 2, the responses to interview questions and the class activities observed were very different. While Team 1's overall demonstration of knowledge and application of differentiation was weak, Team 2's was much more comprehensive. The general education teacher for Team 1 was the chief respondent during their interview and the special education teacher was the chief respondent during Team 2's interview. Team 2's interview was held prior to Team 1's. It appeared, although, as if the Team 1's general education teacher was quite comfortable in providing

responses with limited input from the special education teacher. It is possible that the special education teacher felt she had already participated in an interview and therefore allowed the general education teacher to take the lead. When the special education led the instruction in observtion1, the general education teacher participated very little. During the second observation, the general education teacher gave the instructions to the students and the special educator used proximity control to monitor students and made some suggestions on how to complete the activity to the students. It is unclear what contributed to the difference of implementation of differentiated instruction between the two teams might be, but it is likely two of the factors could be the working relationship between the collaborating teachers and the experience of the two general education teachers.

Emerging Themes

This study focused on teacher knowledge and application of differentiated instruction. Two separate themes emerged while analyzing the data; the relationship between instruction in reading and writing and the relationship between the collaborative partners.

Reading and Writing Instruction

An English curriculum requires students to develop literacy knowledge, skills, and competencies through understanding and applying critical processes while accessing a broad range of texts. During the observations and the interviews for this study it was evident that there was fluid instruction of reading skills and writing skills, with neither taught in isolation. Since I asked to observe reading instruction, I did not expect that many of the observations would also contain the amount of instruction in writing that was given. Team 1's activity was writing poems

with prepositions, Team 3 modeled writing a personal essay, Team 4 instructed in writing a summary and Team 6 modeled the sentence writing process. When asked how reading instruction influenced writing instruction, the general education teacher for Team 1 stated, "I believe it goes hand in hand. They get their ideas from what they know. Because you can't write about what you don't know. What they read - they learn about and that can be reading in different classrooms. It can be at home when they are looking at newspapers and magazines. They bring what they read into their writing, because that's what they learn about when they read. . . ."

The Relationship Between the Collaborative Pairs

During the interviews and observations each Team appeared to have a positive relationship with each other. There was a shared responsibility for teaching and learning not only with each other but with their students. Tomlinson & Eidson (2003) call the learning environment "the weather in the classroom" (p. 11). The teachers influence the learning environment by providing visible and invisible structure. When two teachers work collaboratively, it is the environment that each works to maintain and keep stable. Each of the classrooms was observed near the end of the first semester of the year. It was appeared that the rules and routines were firmly in place and well known to the students. The system that the teachers used during instruction was well rehearsed and there never seemed to be a question as to who was doing what in any of the observations. In the classrooms of Team 3 and Team 4, the teachers' desks were adjoining. In Team 5's room the teachers shared the same workspace.

The special education teacher from Team 3 shared how they communicate with each other during instruction. “A lot of it comes midstream; we see that something isn’t working so we need [sic] (to) change it.” Team 6’s general education teacher said, “I really depend on her for the ideas when it comes to that kind of stuff. And she’s got great ideas, so a lot of times she’ll come to me and say ‘hey, why don’t we try this’ and I’ll say ‘well ok, this is the content’, you know, wanting to teach with and we just mesh our ideas together.” The special education teacher added, “When it doesn’t fall flat, it’s like, oh you mean we’re actually like bouncing this ball back and forth, instead (of) I throw you a ball and it just sort of falls.” Again the general education teacher said, “I don’t think that either one of us have been like, even stuff I suggest, she’s like ‘do you think we can try it this way for these kinds of learners?’ –I’m like - I wouldn’t have thought of that. So it’s really great I think to have that.”

Summary

Six teams of collaborative teachers at one middle school participated in this study of teacher knowledge and application of differentiated instruction in reading. This middle school was chosen as the study site because of the marked increase in scores of students with disabilities on end of year tests on state standards. There were two teams of teachers for each grade level 6th, 7th, and 8th. Two observations and an interview were conducted with each team. Observations were conducted to look for examples of differentiated instruction within a class lesson. The goal of the interviews was to find out how teachers plan how to differentiate lessons and what data they use to help them make decisions when planning those lessons. Three of the special education teachers pulled small groups to provide specialized instruction in multisensory reading

strategies. The instruction during the observations was shared between the two teachers for all teams except 4 and 5. In three of the interviews the general education teacher was volunteered the most answers. In one interview it was the special education teacher and for the two others, the Teams answered equally. In defining differentiated instruction each Team cited student readiness as part of their definition. Five out of six of the teams included learning profile and process in their definitions. Only one mentioned content and one mentioned product.
The teachers each knew they had received training in differentiation but were unable to give many specifics about the training; what year it took place, who delivered it or what was the topic.

Each of the Teams cited the Standards of Learning Tests and the Developmental Reading Assessment as data used to plan instruction by student readiness. Cumulative assessments such as benchmark tests were also used by four of the six teams. Three of the teams cited the student's IEP as a data source and three cited using a standardized reading assessment. The online data management system was mentioned by three of the teachers as a source for SOL data and bench mark test scores. The most common sources of data to determine interest were the use of an interest survey and talking to students. Allowing student choice and referring to student chosen topics in writing was indicated by three of the six teams as sources of data. Information from IEP's and a learning style survey were cited by three Teams as data to determine learning profile. Only one team used eligibility testing done to determine if a student is a student with a disability as a data source. Team 6 used three sources of data, the most of any team.

An area of strength at Beta, differentiating content, was evidenced by every Team except Team 5, receiving a score of *Some* which indicates one to five examples were noted in the

observation. Each Team reportedly used visual and auditory means to present material and all but Team 5 was observed doing so. Each Team except for Team 1 discussed varying the readability of materials. Modeling and varying the interest of materials were cited by three of the Teams as data sources. Team 2 reported and demonstrated the most examples of differentiating content followed consecutively by Team 3 and Team 6.

In differentiating process, all Teams except for Teams 1 and 4 scored *Some* while those Teams showed no evidence of differentiation of process. Only Team 1 did not mention in the interview using multiple modes for student expression. Tiered activities were used by three of the teams to differentiate process. Team 6 shared the most examples using tiered activities, multiple modes of student expression and readiness or interest based small group instruction.

Each of the teams except for Team 1, when differentiating for product, allowed students choice of media formats and tasks to demonstrate their knowledge and connect learning and individual interest. Team 1 used tiered assignments, individualizing expectations for students in expressing their knowledge of the content. Four of the teams utilized rubrics in assisting students in understanding how to meet grade level standards. Team 2 shared an example of scaffolding for a book report project. Only Team 1 did not demonstrate differentiation of product during the observations.

Examining the data from each Team holistically allowed me to identify which Teams were able to demonstrate understanding and application of differentiated instruction. Data from Teams 2, 3, and 6 indicated that these Teams implemented differentiated instruction in their classrooms. Teams 1 and 4 did not express a comprehensive understanding of differentiation or

explain or demonstrate its use in the classroom. Team 5's conceptual understanding of differentiated instruction was superior to the actual practice in the classroom during the observation.

Emerging themes from the data analysis were the relationship between instruction in reading and writing and the relationship between the collaborative teaching partners. During the observations and the interviews there was fluid instruction of reading skills and writing skills, with neither taught in isolation. Many of the observations included writing lessons. The relationship between collaborative teaching partners appeared to be positive with each sharing responsibility for student learning. There was not a separation of duties based on whether the student had a disability. Rather the Teams made a point of mentioning that they worked with all the students.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

A qualitative case study design was used to gather and analyze data to determine if differentiated instruction has been used in classrooms where there has been a reduction achievement gaps over a period of time as evidenced by improved achievement of standardized tests. Data was also gathered to measure teacher knowledge of the definition and practice of differentiated instruction. Six collaborative teams from one middle school were observed and interviewed to determine what data teachers have available to differentiate instruction for students with disabilities and how they apply that data. The data examined specifically related to differentiation according to readiness, interest and learning profile in the areas of content, process and product. Examining teacher behavior and instructional techniques can uncover what is happening in classrooms to achieve positive results. The research questions addressed in this study were:

1) What data do teachers have access to in order to determine appropriate specialized instruction needed to meet the individualized needs of middle school students with disabilities in reading?

2) How do middle school teachers use data to individualize instruction to meet the readiness levels, learning profiles, and interest levels of students with disabilities during reading instruction?

3) How do middle school teachers individualize the content, process, and product of a lesson to meet the needs of students with disabilities during reading instruction?

This chapter contains conclusions drawn for each of the research questions and themes that emerged during the analysis of the data. Future implications for this research for administrators in schools and districts will be discussed. The limitations of this study and recommendations for future research will conclude this chapter.

Conclusions

This research involved a case study of a middle school who has achieved a reduction in the achievement gap between students with disabilities and their non-disabled peers. Each Team expressed interest in why their classrooms had been chosen for the research. When told that it was based on the SOL scores for disabled and non-disabled students over the past three years, the teachers acknowledged that they were aware that at Beta the achievement gap was decreasing. Many of the Teams stated that they were excited to have an opportunity to demonstrate the instruction going on in their classrooms. Therefore, I feel this research is a good representation of all of the teachers' understanding and application of differentiated instruction.

What Data do Teachers Access

In order to understand the process of planning instruction, the first research question asked, "What data teachers have access to in order to determine appropriate specialized instruction needed to meet the individualized needs of middle school students with disabilities in reading?" Prior to beginning the interview sessions, a team of instructional specialists and I met to generate a list of the data sources available to teachers in the district. A wide variety of data sources were discussed and a list was developed that outlined the common sources across kindergarten through 12th grade. Common sources of data included: previous report cards,

previous scores from administration of the Standards of Learning (SOL), Developmental Reading Assessment (DRA), standardized educational and psychological testing administered to determine eligibility for special education services, curriculum based assessments including benchmark tests, information from student's Individual Education Plan (IEP), student input, parent input, and previous teacher reports. Elementary, middle and high each also had specific data which applied only to those specific grade levels. It was determined that on the middle school level, the student's selection of elective courses and participation in extra-curricular activities such as sports and clubs provide additional information about the student. The information gathered from the Teams on the data that they used to plan instruction fit under these basic categories for most of the sources stated.

The teachers at Beta commonly identified accessing the same data sources and on the whole accessed them for the same reasons. This could be the result of emphasis placed on the use of these sources by the school administration and the school division. The Standards of Learning Tests and Developmental Reading Assessment appear to strongly influence instructional decisions. The present level of an IEP was not considered a source of data for student interest by any of the teams. The limited emphasis on the IEP throughout the interviews was surprising. This may be because the Teams' indicated that they differentiated instruction for the entire class and not just those students with disabilities. Determining student interest through talking with students seemed especially important to the teachers at Beta. It is probable that this is the result of a shared philosophy of the teachers to build relationships with their students.

How Teachers Use Data to Individualize Instruction

Knowing what data is available is the foundation for differentiating instruction. Using that data to make instructional decisions allows the teacher to build a framework of instruction individual to each student. The second research question asked, "How do middle school teachers use data to individualize instruction to meet the readiness levels, learning profiles, and interest levels of students with disabilities during reading instruction?" During the interviews, the teachers described the specific data available but explained how they used that data in very general terms. For example, Team 6's special education teacher said, "I'll use the beginning data, that I have collected [sic] and then that guides me (as to) what I am instructing." Previous references have been made to how the Teams had difficulty separating how they differentiate for all students from how they differentiate for students with disabilities. Therefore, discussion will be given specifically how the teachers reported using data for students with disabilities and for how they reported using data for all students.

Students with disabilities

The IEP should be one of the main data sources for a student with a disability. This source of data was identified by every Team except Team 1. At Beta, the decision on which students are pulled out for multisensory reading instruction is driven by the student's reading readiness level and learning profile through the IEP. This fact was not referenced by any Team. The general education teacher from Team 5 gave the most thorough description of using the IEP as data to know a student's learning profile. She explains, "Because there's some good information usually in the IEP about what they do well [sic] what their strengths and weakness are and so (we) go

through and highlight that information and try to keep that in mind. Yeah, and you know of course for the students with disabilities in terms of learning styles we have to know if they have decoding or if they need extra time [sic] or if they need help writing or that kind of thing. We take that information into account."

Assessments, formative and summative provide data on student readiness. The DRA is completed for each student in the beginning of the year. It is repeated more frequently for the students with special needs. It provides a score for reading fluency and comprehension. It is the practice in Beta's district to include this score in the present level of performance of the student's IEP. The Teams stated that they used this information to find text on the student's instructional level for them to read during the SSR time and also to assign students a reading buddy.

All students

Since the Teams spoke about data and practice for all students, discussion of the use of data sources encompasses students with disabilities. The general education teacher for Team 3 said, "So I have to say that there isn't really anything we do differently with kids with disabilities because what it is, is the kid with the need. Whether they have a disability or not I just forget." The special education teacher for Team 5 made a similar comment, "lots of time it's not even the special ed kids that (are) not getting concepts. Sometimes they're getting it and it's the kids without the IEP that aren't. . . ." When asked during the interview about whether they differentiated data between students with disabilities and other students the special education teacher for Team 1 said, "it's like we said in Team 2's class – we don't know is that person (a student with a disability) – you know, we don't know. If they didn't separate into two charts

there would be a lot of times we couldn't tell which one's mine and which one's hers." The general education teacher from Team 1 stated that the only thing that she looked at when she gives a test back is whether the student did well or not.

Formative assessments in the form of pretests were identified by Teams 1, 2, and 6 as influencing instruction by student readiness levels. Team 4 used poor performance on quizzes as data to show what material needed to be retaught. Summative assessments such as benchmark tests provide data on what skills have been mastered in preparation for the SOL tests allowing for remediation for students who have demonstrated they have not mastered a skill.

Student conferencing as a source of data for readiness was described by the general education teacher for Team 1 as "We've got a sheet where you check off, they did really well on a summary, (and) they know how to do that. They're doing really well on making connections or (they) [sic] need to work on connections so you go back and revisit it the next time you talk to them. . . . We sit down and we talk and this is when they prove to me this is what they know, this is what they don't know."

Data that is used to determine student interest according to the Teams largely comes from student input. The general education teacher from Team 1 stated that she suggests books to students based on what the student is already choosing to read. The special education teacher from Team 3 said, "And (to) find out what they like to read and try to find – she and I will bring in books – buy books and bring them in if the kids says – in fact one of the student has a list of books that he wants. [sic] finding out what they like to read and then having those styles for them at their grade level. We try to do that." Since there is some choice in the texts that the teachers

use to teach content, some teams use the information that they know about student interest to choose materials for instruction. The general education teacher for Team 6 illustrated the use of student interest to drive instruction by saying, "We did an interest survey to, to figure out what kinds of things interest them so we can at least pick stories that will um kind of cater to keep them, I guess, occupied and on task."

Individualizing Content, Process and Product

I had hoped that data for the third research question, "How do middle school teachers individualize the content, process, and product of a lesson to meet the needs of students with disabilities during reading instruction?" would be more evident during the observations. As it turned out, data collected during the interviews were more representative of how the Teams differentiate for content, process and product. Although the question specifically looked at students with disabilities, the Teams answered the interview questions based on their instruction for all students. Observing two classes of reading instruction did not provide ample time for Teams to use all of the examples of differentiation shared in the interviews and leaves some question of whether the teams differentiate as much as they indicated. I was able to see some differentiation of process during the observations but heard more about differentiation of content and product during the interviews. Based on the number of examples, the Teams were best able to demonstrate and describe differentiation of content and product.

The teachers at Beta varied the content primarily by providing reading materials of varying readability and by using multiple modes for students to access and present information. Particularly, Teams 2, 3, and 6 gave strong examples of differentiating by readability and interest

and was observed modeling instructions for students during the observations. The sustained silent reading time was utilized in each classroom as a time when students could read books that matched their own interest on their own reading level. All of the teams except for Team 5 utilized visual and auditory presentation methods during the observations. Team 3 and Team 6 were observed implementing lessons that included a hands-on activity. Three of the classes used small group instruction in multisensory reading strategies based on student reading level. Team 6 exhibited a strong understanding of the differentiation of content during the interview when they discussed how they had used two different reading levels of the same story in instruction. The general education teacher summarized how they differentiate by saying, "We try to think outside of the box and do fun, high interest activities as much as we can. Neither of us likes to stand up and lecture and the kids don't like it either, so we're both the kind of people who would rather have fun."Process and activity are terms that are sometimes used interchangeably, but process in the context of differentiated instruction requires the influence of student readiness, interest and learning profile (Tomlinson & Eidson, 2003). Differentiation of process was evidenced by examples of the use of multiple modes of student expression by every Team except for Team 1. The use of tiered activities was evidence of differentiation of process for Teams 3, 5, and 6. The special education teacher for Team 3 described an example of a tiered activity, "One of the things the kids like a lot is Tic-Tac-Toe. We have 9 activities on a grid and they choose any three they would like to do based on their SSR book. It could be [sic] making a poster about the book, it could be writing a changing the ending to the story . . . so they are using all different types of media to create the assignment. That way we know they are understanding, (being) able to

summarize, comprehend, know their characters, plot, conflict, everything about their stories without having to give them a paper/pencil test."

Differentiation of product at Beta for all but Team 1 was described by connecting student learning and individual interest and by allowing students a wide range of media formats and tasks to express their knowledge. Team 1 stated that they used tiered product assignments where different levels of expectations for mastery of the concept were illustrated through using vivid vocabulary in a writing assignment. The more advanced students were expected to use more descriptive adjectives. Most Teams used rubrics to outline expectations for assignments.

The data collected indicated that four of the Teams at Beta were able to provide various examples of differentiation by content, process and product. Teams 1 and 4 did not offer as many examples nor were as many observed in their classes. Overall, differentiated instruction does occur in each of the six classes but the Teams demonstrate different levels of proficiency. The general education teacher of Team 3 described how she and the special education teacher worked together to differentiate instruction by stating,

> If we weren't good at flying by the seat of our pants we could not do what we are doing. But that comes, the reason we can do that comes from time spent understanding the premises of differentiated instruction, understanding why it's important, knowing how we do it. Still learning as we go, learning from the kids, but it is so, a lot of its trial and error. A lot of it is based on the kids. We have a good foundation of what works and yes, we have things that we do over and over, but we just don't do the same thing in the same way.

The special education teacher continued, "From last year, what might have worked for one class last year, (might not work) [sic] not so much this year, we do different things."

The Connection Between Reading and Writing Instruction

As observed at Beta, reading and writing instruction was fluid, with students writing about what they had read and reading their own writing. Lessons in sentence structure and writing were observed in the classrooms of Teams 1, 2, 3, 4 and 6. A balanced approach to literacy instruction has been embraced by Beta's district. This type of approach takes place when the student is given instruction in decoding and comprehension through both reading and writing text (Manset-Williamson & Nelson 2005). Support for the use of writing as key component of middle school literacy instruction is supported through research (Biancorosa and Snow, 2004; Salinger, 2003). Salinger (2003) states, "Discussion, direct instruction, and practice activities on composition can, and should, strengthen instruction on the mechanics of language and text structure that is offered as part of reading instruction. Teachers need to make the link between writing and reading instruction as seamless as possible so that students see the purpose of what they have been learning and the ways in which their understandings of skills and strategies in both areas reinforce each other" (p.84). By utilizing writing instruction to teach reading, the teachers at Beta are utilizing best instructional practice.

The Collaborative Model

The interactions viewed between the Teams were positive, respectful and supportive of each other. This is one component of a differentiated learning environment. Flexible use of classroom space, time and materials are other characteristics (Tomlinson & Eidson, 2003). For four of the interviews, one teacher took the lead in answering questions. The other teacher supported and provided more information congruent to the answer given by the lead responder. Two of the teams responded equally to the questions with both teachers providing their own distinct answers to unite a joint response. In analysis of my field notes for the observations, the

working relationship of the Teams was not competitive in nature even when the other teacher did the whole of the instruction. Each supported the other by interjecting comments, providing proximity control to students, observing student work and assisting with transitioning from one activity to the other. Each teacher appeared at ease with the instructional relationship with their partner. It must be taken into account that the behavior observed may have been influenced by the presence of the observers in the classroom. Being in tune with the classroom environment, Team 6 discussed how they work together to allow flexible movement in the classroom. The general education teacher in talking about kinesthetic learners said, "Those are the kids we actually, usually, try and space them out around the sides and back because we found that a couple of them, are like, so antsy they just want to stand at their desk and write so they like can rock back and forth. And we're totally fine with that." Few examples of Team 5's ability to differentiate during the two observations were evident, but their overall knowledge and examples given during the interview showed a good understanding of the concept. Since this is the first year of collaboration for this Team, hopefully they will become more adept at implementing what they know about differentiation.

Implications for Leaders in Education

(Tomlinson, et al., 2008) outlines the key elements of differentiation that school leaders should comprehend: respecting individuals, owning student success, building community, providing high-quality curriculum, assessing to inform instruction, implementing flexible classroom routines, creating varied avenues to learning and sharing responsibility for teaching and learning (p.3). It is as important for the school board and administrators as well as teachers

embrace the philosophy of differentiation if it is to be done with fidelity to reach the goal of success for all students.

School Based Leaders

As instructional leader of the school, the principal must insure that the milieu of the school encourages teachers to provide the instruction that will enable all students to achieve. He must hold his teachers to a high standard while providing them opportunities to refine their skills in the art of teaching. Based on the responses of the teacher interviews, training on the school level at Beta was provided and spoken of in a positive manner, but it had not been memorable enough for the teachers to clearly describe what the training had covered or when it happened. School wide training was provided during the 2006-2007 and 2007-2008 school years on the topics of differentiation and collaboration. School wide and department trainings should continue but with some consideration of follow-up trainings to reinforce the skills and strategies covered. Professional learning communities are one way in which a group of teachers can participate in an in-depth study of a particular topic or use that time to extend trainings. For Beta, training in how to differentiate process could possibly be one area of focus.

The consistency of working with one teacher over time solidifies the teaching relationship. Team 5 possessed a firm knowledge of how to differentiate content and product, but was not strong in demonstrating differentiation in the classroom. One possibility for this may be that this is the first year that they have collaborated together. Teams 2, 3 and 6 were all confident in their understanding of differentiation and were able to demonstrate and describe examples.

These Teams have previously worked as collaborative teams. School leaders should look at supporting collaborative teams through allowing them to develop as a team over time.

Providing time to for the collaborative teachers to plan together allows them to work together to develop lessons based on the students' individual needs. Team 1 and 2 said that they planned after school two days a week. Team 5's general education teacher described planning with her collaborative teacher last year by saying, "But last year I worked (another teacher) and her block that she wasn't with me she was doing science and social studies and she felt like she wasn't really a part of this class because she didn't have time to plan with them." Findings from research by Hertberg-Davis & Brighton (2006) indicated that, "Teachers needed administrator support—both in terms of resources and emotional support—to feel comfortable with differentiating curriculum, instruction, and assessment. Effective implementation of differentiation required an administrator with both the desire to see change occur and the belief that change was possible" (p. 99).

District Level Leaders

For district level leaders, the responsibilities for supporting differentiation are the same as school based leaders but the focus should be on support not only for specific schools, but directed to the division as a whole. According to the Beta teachers interviewed, district trainings were less memorable than school trainings. Although the scope of this study looked at differentiation in reading, the same strategies of differentiation can be applied to any subject area. Cross content training on assessing student readiness, interest and learning profile could build a community of common goals for the district in embracing differentiation strategies.

Developing a plan for trainings with ongoing follow-up and review would prevent the one shot training that is quickly forgotten. The district must also provide a high quality curriculum that allows for teaching for understanding, teaching for transfer to other contexts and supports students with all levels of need (Tomlinson & Eidson, 2003).

Briefly touched on was the use of the online data management system the district has implemented. Use of this system as a data source for teachers would keep student information readily accessible wherever network computer access was available within the schools. Additional training is needed for teachers in how to use the information contained within the system so that teachers are better able to use and analyze the information stored there.

Limitations

A qualitative case study of observations and interviews allowed me multiple sources of data to analyze, but also provides limitations for this study. I followed the design protocol for this study in selecting the site and participants and in conducting the observations and interviews, but I caution that assertions cannot be made because of limitations. The population sample for this study was twelve teachers comprising six collaborative teams. Four of the six teams demonstrated knowledge and application of differentiated instruction. To make generalizations from a sample size this small. The generalizability of a case study design is difficult as the results based on a small group of people may not be representative of the larger population (McMillan, 2004).

There is a possibility that the observers' presence during the observations somehow affected the behavior of the participants influencing the data (Patton, 2002). Also affecting the

data was also the limited number of activities that could be observed during the time frame of the observations. The data from the interviews could contribute to the limitations of this study. Patton (2002) lists several ways in which the participant's responses can be affected such as: error due to participant recall, participant anxiety and the reaction of the participant to the interviewer.

Beta's SOL scores for all students are commensurate to the scores for the district overall. The transferability of a case study refers to the degree to which the results of the research can be generalized or transferred to other contexts or settings (Writing at Colorado State University, 2010). The site chosen limits the transferability of this research because the characteristics of the site such as its demographics, training received, and philosophy of balanced literacy makes it difficult to transfer the results to other schools.

Recommendations for Future Research

Recommendation 1

If replicating this study, including observations of more class sessions could provide opportunities for the researchers to witness more evidence of differentiation in content, process and product. An alternative study could be on that focuses more intently on collaborative teams conducting a series of observations and interviews over time. This would provide an opportunity for a continuous process of observing and then using the interview sessions to follow-up on what was observed and probe to gain deeper understanding of the teams' instruction. Another consideration would be to expand the study by examining lesson plans and student's Individual

Education Plans as archival data to determine how the teachers plan for the specific needs of students with disabilities.

Recommendation 2

Additional research is needed in the results of a systematic training plan for teachers in differentiated instruction. One way to analyze this is to see if the strategies and methods teachers are trained in are actually applied in the classroom. Another would be to interview teachers after a period of several years to determine the impact the training had on their instructional methods. This research could provide information needed to provide effective staff development.

Summary

This qualitative case study examined the instructional practices of twelve collaborative middle school reading teachers through observations and interviews to determine their knowledge and application of differentiated instruction. The Individuals with Disabilities Education Act and No Child Left Behind Act have increased access and academic expectations for students with disabilities. A gap between the achievement of students with disabilities and their non-disabled peers is a point of accountability measured as part of No Child Left Behind. This middle school was chosen as the study site because of the decrease in the achievement gap for students with disabilities on end of year tests on state standards. Differentiated instruction is a teaching practice and methodology that educators claim are successful in raising academic achievement levels and closing that gap.

A review of the literature was completed to determine what empirical validation exists for the practice of differentiated instruction. Limited evidence was found as support for the

practice of differentiation. Relevant literature related to federal regulation, the inclusion of students with disabilities in the general education setting, reading instruction and middle school students and the concept of differentiation was reviewed. The tenets of differentiated instruction, based on the work of Carol Ann Tomlinson, set forth that content, process and product can be differentiated by student readiness, interest and learning profile.

The data analysis showed that there was overall a comprehensive knowledge of what differentiation is, what data should be used to plan for differentiated assignments and how differentiated instruction can be implemented. The limited number of observations decreased the chance that much of what was discussed in the interviews was actually seen in the classroom. Emerging themes from the data analysis were the relationship between instruction in reading and writing and the relationship between the collaborative teaching partners. The results of this study will enable districts to see how teacher knowledge about differentiation effects how it is implemented in the classroom and has further implications for training and staff development.

This research contributes to the body of knowledge of educational practice and instructional leadership. The results show that knowledge and application of differentiated instruction did exist in a middle school that has been able to decrease the achievement gap between students with disabilities and their non-disabled peers. Any generalization of these findings should be done so with caution due to the small number of participants in this study. It is unlikely that this differentiated instruction is the only contributing factor, but it does indicate that it should be considered as one. The results also indicate that instructional leaders that support collaborative teaching teams and provide training in instructional techniques are making

an investment whose results will be seen over time. Additional research could expand upon this study by examining artifacts such as lesson plans and IEPs in addition to observations and interviews would provide information on how teachers use data to drive instruction based on student need.

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Appendix A

TEACHER INFORMATION LETTER

Dear first name, last name,

I am conducting a qualitative study that examines the specialized reading instruction for students with disabilities in your collaborative general education classroom.

By inviting you to participate in this study I am asking you to:

1. allow two observations to be conducted in your classroom
2. give me permission for me to interview you and your collaborative partner and to audiotape the interview
3. give me permission to use the data collected as a basis for the research dissertation

All information is confidential and any information used will not disclose names, specific schools, or specific school systems.

Your assistance is greatly appreciated and information specific to you will be shared upon completion of this research.

Sincerely,

Lauran Ziegler
804-839-5711

Appendix B

RESEARCH SUBJECT INFORMATION AND CONSENT FORM

TITLE: DIFFERENTIATING READING INSTRUCTION FOR SPECIAL EDUCATION STUDENTS IN AN INCLUSIVE MIDDLE SCHOOL: COMPARING TEACHER KNOWLEDGE AND APPLICATION

VCU IRB NO.:HM12165

This consent form may contain words that you do not understand. Please ask the study staff to explain any words that you do not clearly understand. You may take home an unsigned copy of this consent form to think about or discuss with family or friends before making your decision.

PURPOSE OF THE STUDY

The purpose of the study is to determine whether schools that have shown improved achievement on standardized tests have in fact implemented specialized instruction designed to meet individual learner needs.

You are being asked to participate in this study because you are a collaborative teacher of English at Beta Middle School.

DESCRIPTION OF THE STUDY AND YOUR INVOLVEMENT

If you decide to be in this research study, you will be asked to sign this consent form after you have had all your questions answered and understand what will happen to you.

In this study you will be asked to participate in two observations that will occur during you collaborative English class, each lasting from one to two hours. Two observers will conduct the observations using an observation checklist. In addition following the last observation you will be asked to participate in an interview session with your collaborative teaching partner lasting approximately 45 minutes. One interviewer will conduct the session. In the interview you will be asked to discuss how you plan for student instruction. The interview will be tape recorded to be sure to get everyone's ideas, but no names will be recorded on the tape. Direct quotes in your own language will be used only with a pseudonym and will reveal no identifying information.

Significant new findings developed during the course of the research which may relate to your willingness to continue participation will be provided to you.

RISKS AND DISCOMFORTS

You do not have to answer any interview questions you do not want to talk about, and you may refuse to do so at any time.

BENEFITS TO YOU AND OTHERS

You may not get any direct benefit from this study, but, the information we learn from people in this study may help us design better staff development and appropriate modes of support for teachers and schools.

COSTS

There are no costs for participating in this study other than the time you will spend in the interview session.

CONFIDENTIALITY

Potentially identifiable information about you will consist of observation checklists and notes, interview notes. Data is being collected only for research purposes. Your data will be identified by ID numbers and records in a locked file cabinet. All personal identifying information will be kept in password protected files and these files will be deleted one year after completion of the research and destroyed at that time. Other records such as observation checklists and interview notes and recordings will be kept in a locked file cabinet for one year after the study ends and will be destroyed at that time. Access to all data will be limited to study personnel. A data and safety monitoring plan is established.

We will not tell anyone the answers you give us; however, information from the study and information and the consent form signed by you may be looked at or copied for research or legal purposes by Virginia Commonwealth University.

What we find from this study may be presented at meetings or published in papers, but you name will not ever be used in these presentations or papers.

The interview sessions will be audio taped, but no names will be recorded. At the beginning of the session, all members will be asked to use initials only so that no names are recorded. The

tapes and the notes will be stored in a locked cabinet. After the information from the tapes is typed up, the tapes will be destroyed.

VOLUNTARY PARTICIPATION AND WITHDRAWAL

You do not have to participate in this study. If you choose to participate, you may stop at any time without any penalty. You may also choose not to answer particular questions that are asked in the study.

Your participation in this study may be stopped at any time by the study staff without your consent. The reasons might include:

- the study staff thinks it necessary for your health or safety;
- administrative reasons require your withdrawal.

QUESTIONS

In the future, you may have questions about your participation in this study. If you have any questions, complaints, or concerns about the research, contact:

Dr. Whitney Sherman
Assistant Professor
School of Education
Virginia Commonwealth University
1015 West Main Street
P.O. Box 842020
Richmond, Virginia 23284-2020
Telephone: 804-828-8724

If you have any questions about your rights as a participant in this study, you may contact:

Office for Research
Virginia Commonwealth University
800 East Leigh Street, Suite 113
P.O. Box 980568
Richmond, VA 23298
Telephone: 804-827-2157

You may also contact this number for general questions, concerns or complaints about the research. Please call this number if you cannot reach the research team or wish to talk to

someone else. Additional information about participation in research studies can be found at http://www.research.vcu.edu/irb/volunteers.htm.

CONSENT

I have been given the chance to read this consent form. I understand the information about this study. Questions that I wanted to ask about the study have been answered. My signature says that I am willing to participate in this study. I will receive a copy of the consent form once I have agreed to participate.

Participant name printed	Participant signature	Date

_____

Name of Person Conducting Informed Consent Discussion / Witness (Printed)

_____ _____

Signature of Person Conducting Informed Consent Discussion / Witness — Date

_____ _____

Principal Investigator Signature (if different from above) — Date

Appendix C

DIFFERENTIATED INSTRUCTION
CLASSROOM OBSERVATION FORM

I. Planning

PREPARATION FOR AND RESPONSE TO LEARNER NEEDS	**Strong**	**Some**	**None**
1. Showed proactive preparation for a variety of student needs.			
2. Attended appropriately to students who struggle with learning (LD, ELL, reading etc.)			
3. Attended appropriately to students with physical/behavioral challenges.			
4. Attended appropriately to advanced students.			
Comments:			

II. Implementation

INSTRUCTIONAL PRACITICES AND CLASSROOM ROUTINES	**Strong**	**Some**	**None**
1. Varied student groupings: individual, pairs, small groups.			
2. Used multiple modes of instruction, with emphasis on active learning.			
3. Made flexible use of classroom space, time, materials.			
4. Communicated clear directions for multiple tasks.			
5. Provided effective rules/routines that supported individual needs.			
6. Emphasis on completion against self, not other students.			
Comments:			

III. Implementation

EVIDENCE OF DIFFERENTIATION	Strong	Some	None
1. Content: e.g. materials of varied readability and/or interest, multiple ways to access ideas/information; etc.			
2. Process: e.g. tiering; contracts; compacting; readiness-based small group instruction; different homework; choices about how to work (alone, pair, small group); tasks in multiple modes; variety of scaffolding; etc.			
3. Products: e.g. product assignments with multiple modes of expression; with choices about how to work (alone, pairs, small groups); opportunity to connect learning with individual interests; variety of assessment tasks; variety of scaffolding; etc.			
Comments:			

Adapted from 1.15.06 Classroom Observation Form-DI—used with permission
Acknowledgements: This instrument was created with Carol Tomlinson by Strategic Research L.L.C. as part of a program evaluation contracted by the Richland 2 School District in Columbia, South Carolina. Inquiries should be addressed to Strategic Rsrch@aol.com

Appendix D

Interview Question Guide

Framework Questions

1. What is your definition of differentiated instruction?

2. What do you think is important for you to know about students when planning lessons?

3. Have you attended any training on differentiated instruction? If so, which ones? How have they influenced your teaching? Can you give an example?

Assessment: What data do teachers have access to when planning differentiated reading lessons?

4. Describe you have data you use to assess student readiness levels? How do you gain access to that information ? Please give an example.

5. Describe you have data you use to assess student interest? How do you gain access to that information ? Please give an example.

6. Describe you have data you use to assess student learning profiles? How do you gain access to that information? Please give an example.

7. Describe data you use gained prior to instruction, during instruction and as a culminating activity. Please give some examples if applicable.

Planning: How is data used to differentiate reading instruction for students with disabilities?

8. How do you use data to meet the needs of varying readiness levels of students with disabilities during reading instruction? Please give an example of a time you have done this.

9. How do you use data to meet the needs of varying interest levels of students with disabilities during reading instruction? Please give an example of a time you have done this.

10. How do you use data to meet the needs of the varying learning profiles of students with disabilities during reading instruction? Please give an example of a time you have done this.

Implementation: How do teachers differentiate reading instruction for students with disabilities?

11. Carol Ann Tomlinson's definition of **content** as related to differentiated instruction is what the student needs to learn or how the student will get access to the information. Based on this definition, how do you differentiate the content of your lessons in reading to meet the needs of students with disabilities?

12. Carol Ann Tomlinson's definition of **process** as related to differentiated instruction is the activities in which the student engages in order to make sense of or master the content. Based on this definition, how do you differentiate the process of your lessons in reading to meet the needs of students with disabilities?

13. Carol Ann Tomlinson's definition of **product** a related to differentiated instruction are the culminating projects that ask the student to rehearse, apply, and extend what he or she has learned in a unit. Based on this definition, how do you differentiate the required products of your lessons in reading to meet the needs of students with disabilities?

Summary Question:

14. Do you have anything else you would like to share regarding the instructional practices and routines in reading you use to meet the varying individualized needs of students with disabilities?

Appendix E

Table of specifications for observations

	Question 1 Assessment	Question 2 Planning	Question 3 Implementation
Readiness	4	7	
Interest	5	8	
Learning Profile	6	9	
Content			11
Product			12
Process			13

Appendix F

Table of Specifications for Interview Questions

	Question 1 Assessment	Question 2 Planning	Question 3 Implementation
Readiness		I-1,2	
Interest			
Learning Profile		I-3,4	
Content			III-1
Product			II-6, III-2
Process			II-1,2,3,4,5 III-3

Appendix G

Table of specifications for coding

	Question 1 Assessment	Question 2 Planning	Question 3 Implementation
Readiness	A-R	P-R	
Interest	A-I	P-I	
Learning Profile	A-LP	P-LP	
Content			I-C
Product			I-Proc
Process			I-Prod

Vita

Lauran Ellis Ziegler was born in Lincolnton, North Carolina and graduated from West Lincoln Senior High School in 1977. Ms. Ziegler received her Bachelor of Arts in psychology from the University of North Carolina, Chapel Hill in 1981 and Masters in Education, Special Education from Virginia Commonwealth University, Richmond, Virginia in 1988.

Ms. Ziegler has been employed by Chesterfield County Schools since 1995 and currently holds the position of Instructional Specialist in the Exceptional Education Department. Prior to assuming this position in 2007, Ms. Ziegler worked as a Special Education Liaison in Chesterfield County Public Schools. For thirteen years, she was a teacher for students with emotional disabilities in Chesterfield County Public Schools and Hanover County Public Schools.