ABSTRACT

Pamela Hardy Walthall, AN ANALYTIC EXAMINATION OF DIFFERENTIATED INSTRUCTION IN THIRD, FOURTH, AND FIFTH GRADE READING CLASSES IN WILSON COUNTY SCHOOLS (Under the direction of Dr. James O. McDowelle). Department of Educational Leadership, November 2017.

Differentiated instruction (DI) is an approach to instruction that requires that classroom teachers design lessons that address the needs of individual learners. As a result of local and national reporting on reading achievement levels in elementary schools, and illiteracy among adults in communities small and large throughout the nation, educators continue to grapple with how to increase reading skills for more students. The purpose of this study was to determine the extent to which DI in elementary schools impacted End-of-grade Reading Test results for students in grades three, four, and five in the Wilson County Schools (WCS) district. For three consecutive years in WCS, student achievement percentages on the End-of-Grade Reading Test illustrated stagnant growth for students in grades three, four, and five. Despite district efforts, little to no growth occurred. The investigator of this study sought to determine the extent to which the differentiated instruction captured in the classroom learning environment impacted student achievement on the End-of-Grade Reading Test. Based on the findings of this study, the impact of differentiated instruction on student achievement in reading in third, fourth, and fifth grade classrooms in the Wilson County Schools district was inconclusive, and, therefore, could not be determined.

AN ANALYTIC EXAMINATION OF DIFFERENTIATED INSTRUCTION IN THIRD, FOURTH, AND FIFTH GRADE READING CLASSES IN WILSON COUNTY SCHOOLS

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AN ANALYTIC EXAMINATION OF DIFFERENTIATED INSTRUCTION IN THIRD, FOURTH, AND FIFTH GRADE READING CLASSES IN WILSON COUNTY SCHOOLS

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DEDICATION

To my husband, Rick, whose integrity laid the foundation for our sons, Gerod Le'Vel and Chase McKenzie, to stand with their father to support me through the wonderful challenges of this work that began so long ago in the quiet curiosities of a child. I dedicate this work to them with love and gratitude. To my father, Owen Hardy, whose one liner still rings with me even now, "What did you learn in school today?", and to my mother, Bertha Hardy, whose stable mind and steady hand created a home where God was first, and where her love took care of all the rest - I give them my honor. To my sister, Linda, who found a way to steal me away to the library, and who awakened my love for learning, I owe her the road I have taken; and to my other siblings Chee-chee, Willie, JoAnn, Bonnie, Gina, and Tammie, who are my best friends - I am grateful for their unconditional love, laughter, and support. And finally, to my brother, Carl, who mounted *wings* too soon, I send to him the white dove that dazed us both in the country woods on a cold, gray evening to let him know that we are all still together.

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CHAPTER ONE: INTRODUCTION

Federal and state legislation has provided funding for nearly five decades to support efforts to improve literacy skills for students across the nation, and yet, only minimal improvement has been made in the United States (States, 2011). Despite the commentary that "reading standards are regarded by many as the true yardstick by which to measure school effectiveness," public schools across America continue to experience poor reading achievement levels (Mays, 2012). The challenge of reading skill development is the reflection of a variety of reasons why students may not close their individual learning gap by the time they are to exit their years in elementary school. Some of these students, for example, may have a specific language difficulty, a disability, processing deficits, trauma, or poor parenting. In fact, many of these students may have had poor teaching. Many of the students fail to experience continuous growth, which causes them to fall behind their peers, sometimes by semesters, sometimes by grade levels, making remediation difficult for teachers (Learning, 2014). Too many learning gaps can lead to educational deficits that will prove detrimental to college and career readiness. Regardless of the reason, if these learning gaps are not treated, they will become barriers to what would be subsequent learning in school and in life. In effect, students exit school, but not at a proficient reading level (Goldman, 2012), leaving them unprepared to cultivate a productive future because they are simply unable to read.

North Carolina End-of-Grade Reading Test for Elementary Students

For three years prior to 2015-16, performance results on the North Carolina End-of-Grade Reading Test (NC EOG) for students in the third, fourth, and fifth grades illustrated subpar performance for approximately half the students in the fourteen elementary schools in the Wilson County Schools district. As illustrated in Figure 1, for the three consecutive years prior to

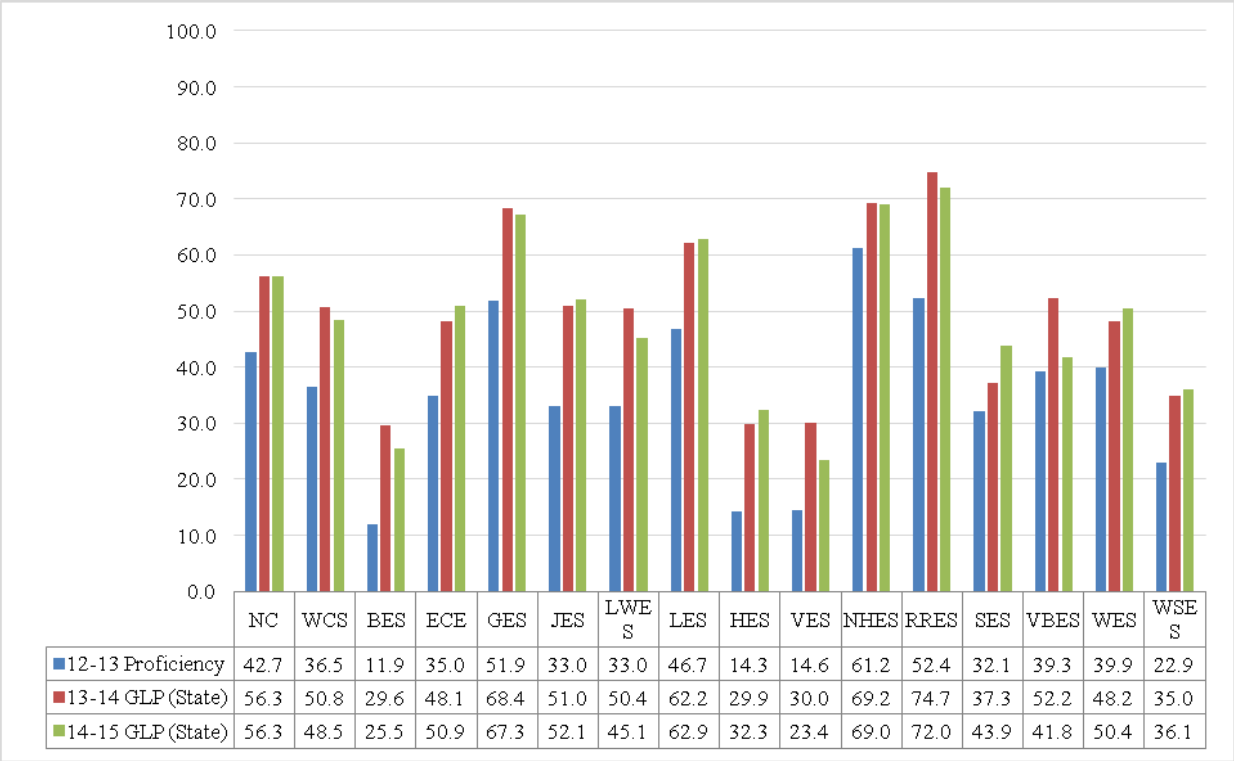
academic year 2015-16, the NC EOG Reading Test data showed that Wilson County Schools (WCS) performed below the state average. Ten of the fourteen schools did not meet the state average for each of these years, and the data for the last two of the three reports showed that this group of students in WCS who met proficiency standards decreased, while the state average remained stable. This report reflected what the federal government had already acknowledged – that schools in the United States were doing a poor job of teaching literacy (Guisbond, Neill, & Shaeffer, 2012).

As illustrated in Figure 1, 48.5% of the students in third, fourth, and fifth grade classes in 2014-15 met proficiency standards, which was lower than the percentage of students who met the standards in the previous year. That number represented fewer than half the students in the elementary schools who completed the NC EOG Reading Test.

In an effort to meet the demands of the No Child Left Behind Act of 2001 to improve reading skills, WCS district leaders provided school administrators with a variety of programs and resources. These resources remained available to teachers in the WCS district for 2015-16 to support their efforts to differentiate instruction in reading for *all* students. Regardless of the efforts of administrators and teachers across the district, the district report card for the elementary schools in Wilson County indicated a decline in reading achievement levels for students in third, fourth, and fifth grades (see Figure 1).

Differentiated Instruction

Carol Ann Tomlinson, an educator who is considered an expert on differentiation, defines differentiated instruction as the teacher "making sure each student learns what he or she should learn by establishing clear goals, assessing persistently to see where each student is relative to



	NC	WCS	BES	ECE	GES	JES	LWES	LES	HES	VES	NHES	RRES	SES	VBES	WES	WSES
12-13 Proficiency	42.7	36.5	11.9	35.0	51.9	33.0	33.0	46.7	14.3	14.6	61.2	52.4	32.1	39.3	39.9	22.9
13-14 GLP (State)	56.3	50.8	29.6	48.1	68.4	51.0	50.4	62.2	29.9	30.0	69.2	74.7	37.3	52.2	48.2	35.0
14-15 GLP (State)	56.3	48.5	25.5	50.9	67.3	52.1	45.1	62.9	32.3	23.4	69.0	72.0	43.9	41.8	50.4	36.1

Note. The North Carolina Department of Public Instruction (NCDPI) implemented a new NC EOG reading assessment and new cut scores in 2012-13. In 2013-14, NCDPI implemented new grade level proficiency (GLP) standards. Adapted from the North Carolina Department of Public Instruction, Testing and Accountability, 2012-13 and 2013-14.

Figure 1. Wilson County Schools NC EOG reading test results for grades 3, 4, and 5.

the goals, and adjusting instruction based on assessment information so that each student can learn as much as possible and as efficiently as possible" (Tomlinson, 2010, p. 3).

In a classroom that has differentiated instruction, the teacher engages the students in a variety of approaches to *content, process,* and *product* to respond to student differences in readiness, interests, and learning (Tomlinson, 2001). "At its most basic level, differentiation consists of the efforts of teachers to respond to variance among learners in the classroom. A teacher who designs his or lessons to meet the individual needs of a student or group of students with the intention to create the best learning opportunity possible, then he or she is differentiating instruction (Tomlinson, 2000b). Tomlinson suggests here that whenever a teacher deliberately carries out his or her instruction to meet the students where they are, monitoring and adjusting as needed, he or she is differentiating instruction. Tomlinson's idea of teaching and learning also suggests that differentiation exists in every classroom each day in a variety of forms.

Differentiated instruction, as Tomlinson explains her definition, addresses goal setting. Tomlinson adds, however, features of the teaching and learning process that offer the teacher options to meet the needs of individual learners. In addition to specific goal setting, she adds that the teacher is to engage in a restructuring of lessons and continuous assessment. These tools require that the teacher considers the students' readiness and learning styles. This concept suggests that teachers extend their thinking beyond re-teaching. Tomlinson further emphasizes that differentiation is not a strategy, but rather a way of thinking and learning that gives teachers a unique approach to reform traditional teaching and learning practices. It is a commitment to a philosophy that will motivate students by meeting them where they are and getting them where they need to go, whether they are advanced learners, struggling students, or students from varied backgrounds and cultures (Tomlinson & Allan, 2000). Considering that teachers practice

differentiated instruction, a more detailed explanation of the *content*, *process*, and *product* is necessary to examine potential barriers to continuous improvement in reading in the elementary school classrooms in WCS, and will be further discussed in the literature review.

Classroom Environments and Teacher Effectiveness

Research shows that the impact of just one teacher on a student can shape the course of that child's future. In 2012, RAND, which is a leading research corporation, found that teachers are the single most influential aspect of student achievement in reading. Teachers are at least twice as likely to make a difference for students than any other school factor, including leadership. Also in 2012, a study by Harvard economists tracked 2.5 million students for over 20 years from fourth grade to adulthood. The findings of the study revealed that an effective teacher can impact a student's preparedness for college and increase his or her chances to earn higher pay. The flipside of the study also unveiled that an ineffective or bad teacher can have the opposite impact. The research also shows that students drop out or leave school because of teacher behaviors and attitudes that humiliate and hurt students (Parker, 2013). Researchers and educators continue to explore teacher evaluation instruments that can be used to accurately screen the classroom environment because of the potential positive or negative impact that a teacher can have on students (Bruno, 2015).

Effective Learning Environments Observation Tool

The high-quality teacher shortage may have left principals feeling vulnerable to teacher retention rather than to teacher quality. For example, Bruno (2015) reports in *The Importance of Teacher Supply to Education Reform* that eight states made significant efforts to utilize evaluation tools considered effective for school reform. The results showed that over 90% of the teachers were rated effective or highly effective. However, these ratings did not align with

student outcomes in reading whereas performance for large numbers of children showed that they were not proficient. Cases such as these suggest that the factors other than quality teaching influenced the teacher ratings (Bruno, 2015).

The North Carolina Schools Report Card data reflects these findings. For the 2014-15 school year, the average percent for teacher effectiveness in the elementary schools was 58.4% proficient, and 38.9% accomplished. At the same time, the elementary overall North Carolina achievement level for students in reading for third, fourth, and fifth grade students was 50.1%. Teacher effectiveness and student performance were not congruent among the elementary schools. As a result of this incongruence based on the NCEES, the Effective Learning Environments Observation Tool (ELEOT) was used to assess the classroom environments of the elementary schools in the WCS district.

In 2015-16, the Wilson County Schools district met AdvancED standards for accreditation. The AdvancED team leaders used the ELEOT as a component of the accreditation process. According to the chief executive officer for operations, the ELEOT was the instrument suggested to the superintendent and the senior staff members by the AdvancED accreditation team to gather information about the classroom learning environments throughout the district, and that the expectation to use the ELEOT was to be communicated to each principal in early 2015-16 (E. Davis, personal communication, July 16, 2017). In the fall of 2015-16, the assistant superintendent for instruction communicated to all principals that they were required to use the ELEOT as the walk-through observation instrument to gather and communicate to the teacher information about the classroom learning environments. In terms of observation reporting, the information gathered by the AdvancED accreditation team would align with the information gathered by the school site administrators since both groups would have used the ELEOT.

The ELEOT is a tool that is designed to focus the observer on the learner and how he is engaged in his environment. At the same time, Tomlinson suggests that the teacher differentiates instruction to meet the needs of the individual learners. Both the ELEOT and differentiated instruction require that the observer and the teacher attend to how all students are engaged in learning (AdvancED, 2013; Tomlinson, 2000b).

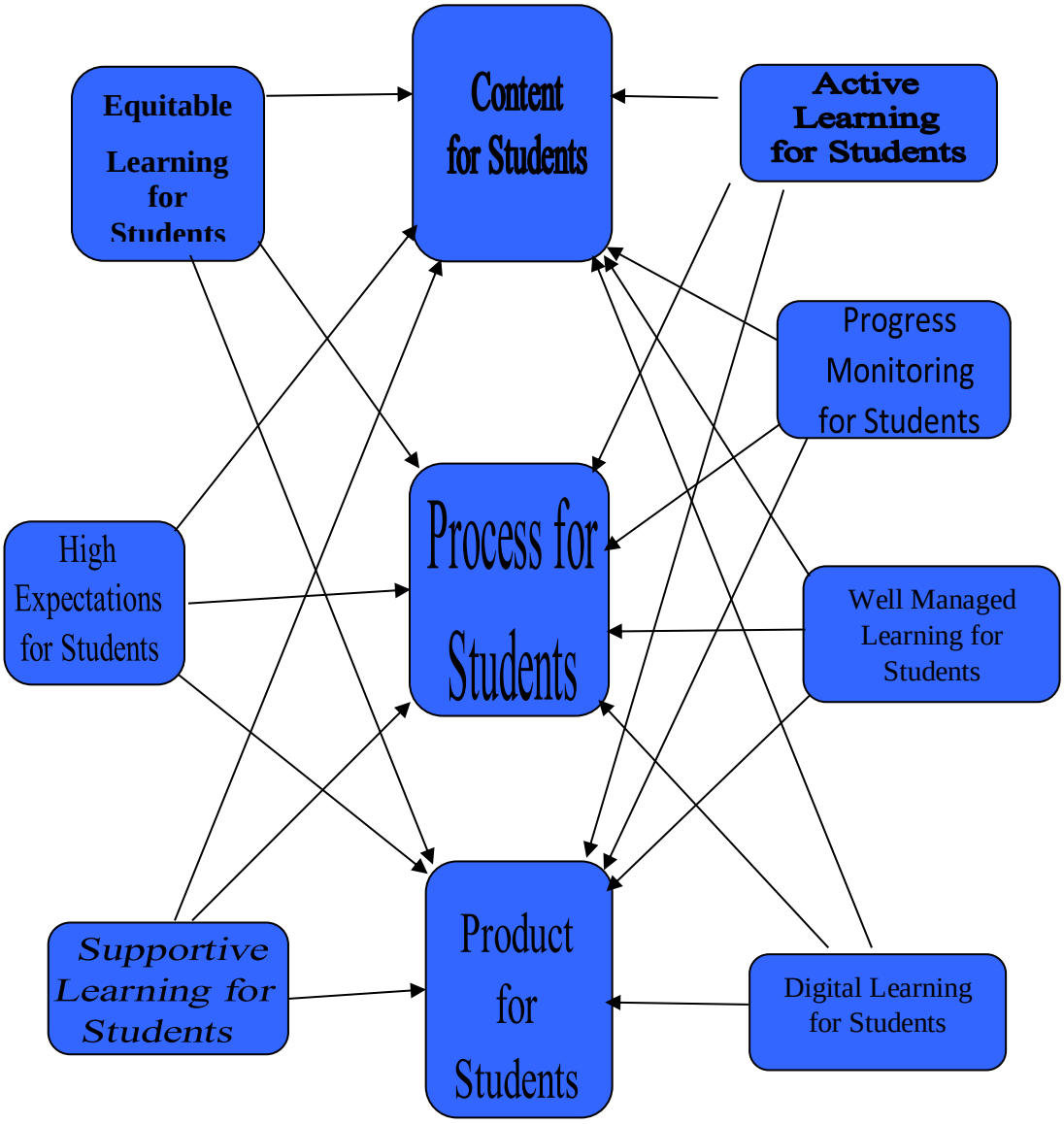
In 2012, the ELEOT was added to the list of resources available in the AdvancED Accreditation and Diagnostic Reviews (Dawson, 2014). The ELEOT is an instrument that enables administrators and teachers to examine classroom environments for their effectiveness across seven domains of student engagement (Holladay, 2016). The focus of the observer is on the student rather than on the teacher. The data reflects the extent to which students are engaged in activities that demonstrate knowledge and behaviors that are conducive to effective learning. The tool provides an aggregate picture for an entire school, and, at the same time, can be used in content-specific ways as opposed to providing ratings of individual teachers. ELEOT can provide a lens through which the observer can analyze student behaviors across seven domains as they engage in the classroom content, process, and product of a lesson.

The ELEOT is organized into seven learning domains. Thirty items make up the domains, each of which allows a pathway through which the observer can examine student engagement in the content, process, and outcomes. The instrument is learning focused. The ELEOT measures the extent to which there exists observable evidence (or no evidence) that students are engaged in the content, process, and product of a classroom during a defined period as measured on a four-point scale (1 being “not observed;” 4 being “very evident”). The environments examined during the observations are:

- High Expectations;
- Equitable Learning;
- Supportive Learning;
- Active Learning;
- Progress Monitoring and Feedback;
- Well-Managed Learning; and
- Digital Learning (Dawson, 2014).

The observers must be trained, and spend at least 20 minutes per visit in each classroom. They record their observations on the ELEOT template which is comprised of the domains and the corresponding items. The data are uploaded, and are then available to the teacher for review (AdvancED, 2013). According to Matt Dawson (2014), an analysis of the ELEOT confirms the reliability and validity of the measure's ability to accurately reflect classroom practices in individual classrooms across a school on a given day.

The principals in the fourteen elementary schools in Wilson County used the ELEOT to examine classroom environments for differentiated instruction. They observed the classroom *content*, the *process* or instructional activities, and the *product* across the seven domains as presented in Figure 2. This illustration is a representation of differentiation in the classroom environment in terms of *content*, *process*, and *product*, and the seven domains of ELEOT through which these areas might be viewed (Tomlinson, 2012; AdvancED, 2013). The focus of the principal through the ELEOT instrument was on the learner-centered classroom, about how well the classroom was designed to engage the students in active learning, using individual monitoring and feedback, and blending technology to encourage more student-led activities. The principals and teachers collaborated about the observation of the teacher's work in terms of



Note. Adapted from Tomlinson (2012) and AdvancED (Retrieved from https://advanc-ed.org/).

Figure 2. ELEOT Logic Model for differentiated instruction.

the extent to which their classroom environments were equitable, set and supported high expectations, addressed the needs of all learners, and managed the learning (Holladay, 2016).

History of the Problem

National Perspective

The United States' educational system has failed to keep up with the pace of literacy improvement in public schools (Carnegie Council on Advancing Adolescent Literacy, 2010). Perspectives on the results of schools have raised public awareness and growing concerns for the future of the nation, particularly in the area of teaching and learning. The impact of reading achievement on individual lifestyles, communities, and the economy has people asking that society members examine possible causes and potential risks of students who may not be able to meet the demands of a global world in the 21st century. The following research based statistics listed below are available to inform decision making, and to raise awareness of the negative impact of illiteracy on communities in the United States:

- 44 million adults are unable to read a simple story to their children;
- 50% of adults cannot read a book written at an eighth-grade level;
- 45 million adults are functionally illiterate and read below a 5th grade level;
- 44% of American adults do not read a book in a year;
- 6 out of 10 households do not buy a single book in a year;
- 3 out of 4 people on welfare cannot read;
- 3 out of 5 people in American prisons cannot read;
- 85% of juvenile offenders have problems reading; and
- 20% of Americans read below the level needed to earn a living wage (Literacy, 2016).

The National Assessment of Educational Progress (NAEP), an organization that reports reading assessment data for grades 4, 8, and 12 and is sometimes referred to as The Nation's Report Card, defines reading as "an active and complex process that involves: (a) understanding written text, (b) developing and interpreting meaning, and (c) using meaning as appropriate to type of text, purpose, and situation (Conner-Tadros, 2014, p. 2). Research results show that 68% of *all* students in fourth grade who participated in the NAEP assessment performed *below* the proficiency standard in reading (NAEP, 2015). These results appear to be no surprise when it is reported by Education Data Express, a reporting resource that compiles data about elementary and secondary schools in the United States, that readiness for fourth grade reading or English Language Arts (ELA), based on third grade performance, has not been demonstrated (ED Express). Similarly, based on its 2013-14 statistics, NAEP also reported that only 44% of the students who participated in the North Carolina State Test in Reading performed at or above the level of proficiency. In 2007, NAEP also reported that the National Scale Score (NSS) for reading in grade four was 220, with North Carolina's at 218. The highest possible score is 500 (NAEP, 2015). Academic success of the student depends on their reading skills (Stevens, 2010).

Public perceptions vary on reasons for the 68% of students who in the 2013 NAEP report scored below basic proficiency standards in 4th grade reading (NAEP). The authors of *The Bell Curve* (1994) explain that in societies in America, intelligence varies. Human intelligence is influenced by factors that are genetic and environmental, and that these factors directly impact how individuals handle their finances, jobs, and how they achieve (Herrnstein & Murray, 1994). This information suggests that student performance in reading is linked to their environment and their genes, impacting their motivation, character, and relationships, which include their school peers, teachers, and other school leaders. Although any one or combination of these

explanations, classroom instruction can appeal to each of them since they are features that may be within any one student or group of individual students.

Illiteracy has been a long-standing problem with much attention brought in the 1990s by reports about the risk of the nation. The movement to reform schools emerged strongly in the 1980s with the alarming tone of A Nation at Risk, laying the foundation for raising expectations and higher standards for all students (Birman, 2013). This document set the alarm for reform.

North Carolina Efforts to Reform

In May 1995, North Carolina leaders decided to initiate changes in public education with The New ABCs of Public education. NCDPI's "The ABCs Accountability Model" outlined a framework for North Carolina's "Strategic Plan for Excellent Schools." The plan identified areas considered foundational to the restructuring of education in North Carolina with five priorities:

- high student performance;
- healthy students in safe, orderly and caring schools;
- quality teachers, administrators, and staff;
- strong family, community, and business support; and
- effective and efficient operations (NCDPI).

North Carolina State Board of Education proposed the plan to improve student achievement, and put into effect the School-Based Management and Accountability Program, called the ABCs. One hundred eight schools piloted the ABCs model, representing ten of the 115 school districts in North Carolina. In 1996-97, schools with grades K-8 began implementation that focused on student growth and performance. Reading was one of the areas targeted for student improvement. Incentive awards were given to schools achieving exemplary growth. In

1997-98, schools designated as low-performing were provided assistance teams for additional support. Growth for K-8 schools could be slightly below 50% at or above grade level and not receive any penalties for low-performance. At the same time, the *No Recognition* was changed to *Adequate Performance* for schools designated as low-performing. Alternative schools or special schools were not included in the identification of low-performing schools. The following year, the NCDPI website established a Report Card for the ABCs of Public Education. Among other revisions, changes were made to grade 3 growth measures in 1998-99. The year after, a Writing Assessment Task Force was established, and the ABCs documentation was made available on the NCDPI Accountability website. In 2001-02, the term exemplary growth was replaced with high growth, and growth/gain was replaced with growth (NCDPI, 2011).

The years that followed reflect continued restructuring to meet the demands of challenges of continuous improvement. A focus on ABC growth formulas, computer skills, writing in selected grade levels and courses and the renaming of progress recognition titles were included among the revisions. The ABCs Accountability Model was North Carolina's school improvement plan to target accountability to performance measures with a strong focus on high educational standards, and on overseeing that school districts could operate with as much local control as possible (NCDPI, 2011).

On June 2, 2010, North Carolina adopted the Common Core State Standards in K-12, and efforts to implement the new standards began immediately, and were in full effect, which later impacted the accountability model. The accountability model was also impacted by the READY Initiative, which served to connect improvement initiatives since 2007, and was accelerated with the Race to the Top funding, whereas North Carolina received a federal grant of $400 million to continue its efforts to improve student achievement. In 2013-14, a fifth level of achievement was

added. With this additional achievement level, the State data reporting reflected five levels of achievement in student proficiency rather than the previous four levels (NCDPI, 2016).

State efforts to improve the educational teaching and learning environment continue. State objectives to integrate technology in support of this effort exist to meet the demands of the 21st century (NCDPI 2016). Although these efforts made by public school leaders may have met the needs of some students across the state of North Carolina, many students in the Wilson County Schools district continue to struggle with meeting the needs of all students. This is evident in the NC EOG Reading results for students in the fourteen elementary schools in the Wilson County Schools district.

Common Core State Standards

Districts managed to function under the scope of these efforts to reform, with few able to catch on to one reform effort before another piece settled into place. The push for rigor, relevance, and relationships opened a conversation about children that appealed to the social and emotional intelligence of learning, rather than just to the academic rhetoric of content. The Common Core State Standards set a new mark for educators to increase student achievement.

North Carolina and the Common Core State Standards

In an effort to target continuous improvement in student learning, North Carolina and forty-four other states along with the District of Columbia have adopted the Common Core State Standards (CCSS), the content of which focuses on a demonstration of comprehension in skills so that the student can be prepared for success in the subsequent grade level (Wat, 2012). These states have enlisted in this adoption in an attempt to better prepare students to develop skills that are competitive to their peers in the United States and in other countries (CCSS, 2012). The

CCSS provide teachers the pathway to teach students writing and speaking skills to communicate thought processes, to construct arguments, and to solve complex problems (CCSS, 2012).

North Carolina is reported to rank at 29th in fourth grade reading and in the bottom 10 states for per pupil funding (NAEP, 2014). With NAEP reporting that 68% of all fourth grade students in the United States perform below the national standard for reading proficiency, only one-third of students in the elementary schools are prepared to exit fourth grade (NAEP, 2012). The English Language Arts (ELA) standards in the CCSS are designed to develop literacy skills that students need to transition into the workforce, colleges, and careers. The ELA standards are to address the students' need to develop critical thinking skills, and reading strategies to decipher text, discern evidence to support types of reasoning (Common Core State Standards Initiative: Preparing America's Students for College and Career, 2012). Educators and leaders in North Carolina believe that education in the state is headed in the right direction to improve school performance (CCSS Initiative, 2012).

Wilson County Schools Profile and Educational Trends

The Wilson County Schools district is located in rural North Carolina approximately 40 miles east of Raleigh. In 2015-16, the 373-square mile school district was populated with 741 teachers, including 46 elementary school teachers, and 665 additional staff members that included aides, school counselors, media specialists, and other support personnel. These employees served grades that spanned from pre-kindergarten to 13 in 25 schools, which included three high, six middle, and fourteen elementary schools, one early college, and one alternative school. The district had 12,386 students enrolled. This population represented over 9,000 African Americans, 8,500 Whites, 40 American Indians, 75 Asians, 4 Pacific Islanders, 285 students of two or more races, and 774 of other races. Of these students, 684 were identified as English

Language Learners (ELL), and 1,222 as participants in the Exceptional Children's Program (National Center for Educational Statistics, 2016).

The Wilson County Schools district provides a core instructional program for all students, since North Carolina was one of the 45 states that adopted the Common Core State Standards in 2012. The district leaders demonstrated their commitment to the success of the CCSS by providing comprehensive support designed to meet the needs of all learners. The support included, but was not limited to, a variety of resources structured to support the classroom learning environment. The resources included

- The K-12 Intervention Plan;
- The K-12 Writing Plan;
- The Balanced Assessment Initiative; and
- The Balanced Literacy Program (WCS).

In school year 2012-13, Wilson County Schools was introduced to the student performance results using North Carolina's new READY accountability model. This model featured academic growth rates and the percentage of students who scored proficient on the NC EOG Reading Tests (NC Report Cards, J. Atkinson and William Cobey, Jr., 2013). The results of that model began a new assessment with new cut scores. The following year, 2013-14, the new Grade Level Proficiency was introduced (GLP). The percentage of students proficient in reading in third, fourth, and a fifth-grade classes was reported at 36.5% in 2013, and at 50.8% in 2014. The increase in the percentage of students at these grade levels who scored proficient was demonstrably significant, with improvement at 14.3%. The following year, however, the percentage of students in third grade who showed improvement increased only .2% while students in fourth and fifth grades decreased. As illustrated in Figure 1, the percentage of

students who met proficiency standards began to decline, with the district falling below the state average in reading for three consecutive years.

Causes and Cost of the Problem

There are many factors that cause students to leave school illiterate and unprepared for their future are many. Students may be in schools that lack funding to operate efficiently and effectively with resources and staffing. Other students may be subjected to ill-prepared teachers or teachers who have low expectations, or they may live in an environment that lacks healthy parent involvement. The reasons for poor achievement could be physical or emotional. These factors can impede learning and continuous progress. "The ability to read and write is fundamental to leading a full and productive life," stated Arnold Schwarzenegger in a question and answer session at the Hispanic Journalists' 25th Annual Convention (Literacy Project Foundation, 2008). The productive life may not be so promising for far too many students according to former Secretary of State Colin Powell. Around 70% of students, Powell reports, graduate on time with a high school diploma, while about 1.2 million drop out each year. When these many students drop out of high school, "it's more than a problem, it's a catastrophe" (Literary Project Foundation, 2008). The problem of illiteracy translates into billions of dollars lost annually in the United States (Carnegie, 2010). The impact of poor reading achievement threatens individual lifestyles, communities, the labor force, and the nation's ability to compete in a global economy.

Problem of Practice

In the fourteen elementary schools in WCS, the Problem of Practice was that each year for the three years prior to 2015-16, approximately half the students in third, fourth, and fifth grades failed to meet proficiency standards, which reflected that the students who failed were illiterate

(see Figure 1). In an effort to increase achievement levels for students in third, fourth, and fifth grades in the fourteen elementary schools, the superintendent and other district leaders had implemented a variety of resources designed to differentiate instruction. Over a period of several years students in the elementary schools had been participants in a variety of reading programs. These programs have now receded to a new wave of approaches to student learning. Students in third, fourth, and fifth grades now have access to blended learning, where technology is integrated with the content to provide students choices or options as to how they want to engage in learning; guided reading, where students work in small groups on a common process and product; and independent reading resources, where students interact independently with the reading resource.

Performance results on the NC EOG Reading Test for students in the third, fourth, and fifth grades in WCS illustrated stagnant growth in reading achievement. All students in third, fourth, and fifth grades have access to the content, process, and products in the classrooms and through pull-out programs. The classroom environments in the elementary schools in WCS reflect teacher and student access to a variety of reading resources, and yet, the NC EOG Reading Test results point growth that is stagnant in the number of students who meet proficiency standards.

The purpose of the study was to examine differentiated instruction in the classroom learning environment to determine its impact on student achievement in reading for third, fourth, and fifth grade students in WCS. The Effective Learning Environment Observation Tool was used to investigate differentiated instruction in the classroom as it was demonstrated in the content, process, and products across the seven domains of the observation instrument, as illustrated in the NC EOG Reading Test Results and ELEOT sample matrix in Table 1.

In summary, overall achievement levels in reading had remained below state percentages for students in third, fourth, and fifth grades in the fourteen elementary schools throughout the Wilson County Schools district. If this problem is addressed effectively, then more students will reach higher levels of achievement in reading. Higher levels of achievement in reading for more students would mean that these students would demonstrate (a) meaningful engagement in tasks, (b) skills development that is reflected in improved grades, (c) that more would meet state standards at or above grade level, and (d) that the stagnate trends may phase into a continuous pattern of more students reaching higher achievement levels in all areas. The impact of effectively addressing the problem may also build individual educator capacity to influence more students in years to come.

Study Questions

Essential to the Problem of Practice were three questions that guided the results of the process.

1. To what extent were third, fourth, and fifth grade students engaged in differentiated instruction in terms of content, process, and product when measured against the domains of the effective learning environment observation tool?
2. To what extent did teachers differentiate instruction to meet the needs of all learners?
3. To what extent did differentiated instruction impact student achievement in reading in third, fourth, and fifth grade classrooms?

Analytic Examination Study

This Problem of Practice investigated the impact of differentiated instruction in reading on third, fourth, and fifth grade student achievement in the Wilson County Schools district, Wilson, North Carolina. Student data was collected using the NC EOG Reading Test

Table 1

NC EOG Reading Test and ELEOT Sample Data Matrix for Grades 3, 4, and 5

Wilson County Elementary Schools (WCES)	Equitable Learning (EL)	High Expectations (HE)	Supportive Learning (SL)	Active Learning (AL)	Progress Monitoring (PM)	Well-Managed Learning (WML)	Digital Learning (DL)	ELEOT SCORES	WCES NC EOGs
BES									
ECES									
GES									
HES									
JES									
LWES									
LES									
NHES									
RRES									
SES									
VES									
VBES									

Table 1 (continued)

Wilson County Elementary Schools (WCES)	Equitable Learning (EL)	High Expectations (HE)	Supportive Learning (SL)	Active Learning (AL)	Progress Monitoring (PM)	Well-Managed Learning (WML)	Digital Learning (DL)	ELEOT SCORES	WCES NC EOGs
WES									
WSES									

Note. 1-Not Observed; 2-Somewhat Evident; 3-Evident; 4-Very Evident.

developmental scale scores and achievement levels and the results of the ELEOT used by the administrator in each of the fourteen elementary schools in WCS.

The study facilitator used an analytic examination study approach to evaluate the differentiated instruction using a quantitative model to examine the data. The data was examined to determine the impact of differentiated instruction on students in third, fourth, and fifth grades. The NC EOG Reading Test data was examined through the lens of the seven domains of the ELEOT for the level of student engagement in differentiated instruction.

The NC EOG Reading Test data and the ELEOT data was compiled from the fourteen elementary schools. Table 1 is used to represent the collected quantitative data. Other tables or figures are generated to illustrate the same content, but are designed to present the data in different formats. The purpose of the varied illustrations was to provide the study facilitator more than one way to analyze the data. The study facilitator used the quantitative data to examine the *content*, *process*, and *product* across the seven domains of the ELEOT. The information from the examination was used to address the study questions.

Definitions of Terms

Achievement Gap – The difference between the performance of low-income and minority students on standardized tests as compared with their peer groups (United States, 2014).

Achievement Levels – Student achievement on North Carolina's NC EOG tests is reported by achievement levels. There are five achievement levels that denote command of knowledge and skills. Level 1 denotes Limited Command; Level 2 denotes Partial Command; Level 3 denotes Sufficient Command, Level 4 denotes Solid Command, Level 5 denotes Superior Command (North Carolina Report Cards, 2013).

AdvancED - the parent organization for the North Central Association Commission on Accreditation and School Improvement (NCA CASI), Northwest Accreditation Commission (NWAC) and the Southern Association of Colleges and Schools Council on Accreditation and School Improvement (SACS CASI).

Concept Map - A conceptual diagram is a diagram that depicts suggested relationships between concepts. It is a graphical tool that instructional designers, engineers, technical writers, and others use to organize and structure knowledge. A concept map typically represents ideas and information as boxes or circles, which it connects with labeled arrows in a downward-branching hierarchical structure. The relationship between concepts can be articulated in linking phrases such as causes, requires, or contributes to (Retrieved from https://en.wikipedia.org/wiki/Concept_map).

Common Core State Standards – "A set of high-quality academic standards in mathematics and English language arts" (Common Core State Standards Initiative, 2012).

Disaggregated Data – Disaggregation is the separation of the whole into parts. In education, this term means that assessment results are sorted by groups of students who are from racial and ethnic minority groups, economically disadvantaged, who have disabilities, or who are Limited English Proficient. This practice allows parents and teachers to see how each student group is performing (United States, 2014).

Effective Learning Environment Observation Tool (ELEOT) - The ELEOT is comprised of 30 items organized in seven learning environments based on a review of widely used observation instruments. ELEOT measures the extent to which there is observable evidence (or no evidence) that students are engaged in certain activities or demonstrate certain knowledge, attitudes and/or dispositions in a classroom as measured on a four-point scale (1 being "not

observed;" 4 being "very evident". The observation time suggested to complete the observation is 20 minutes (AdvancED, 2013).

NC End-of-Grade Tests – North Carolina's state-developed standardized tests for grades 3-8 are given in the final three weeks of the school (North Carolina Report Cards, 2013).

Highly Qualified Teacher – A Highly Qualified teacher is defined as one who has obtained full state teacher certification or has passed the state teacher licensing examination and holds a license to teach in the state and holds a minimum of a bachelor's degree; and has demonstrated subject area competence in each of the academic subjects in which the teacher teaches (North Carolina Report Cards, 2013).

Learning Environment - The context in which student learning occurs with a thematic overlay, e.g., an Equitable Learning Environment, High Expectations Environment, etc. The items included in each of the environments are "evidence" that students are engaging in or experiencing an environment that is conducive to learning that focuses on several important themes including equity, high expectations, support of learning, active learning, progress monitoring and provision of feedback, well-managed, and digital (AdvancED, 2013).

No Child Left Behind Act – A law which was passed by George W. Bush and his administration was a reauthorization of the Elementary and Secondary Education Act by the United States Congress. It included provisions that target the needs of students are identified as disadvantages. It set forth that high expectations established by a standards-based curriculum that was measurable would impact higher levels of achievement for all students (Retrieved from https://en.wikipedia.org/wiki/No_Child_Left_Behind_Act).

Race to the Top-The Race to the Top Grant of 2009 initiated that states focus their efforts to improve student learning on four specific areas:

- Adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy;
- Building data systems that measure student growth and success, and inform teachers and principals about how they can improve instruction;
- Recruiting, developing, rewarding, and retaining effective teachers and principals, especially where they are needed most; and
- Turning around our lowest-achieving schools (United States Department of Education, 2004).

The Elementary and Secondary Education Act (ESEA) – Refers to the principle federal law affecting education from kindergarten through high school. ESEA is designed to improve student achievement and close achievement gaps. States are required to develop challenging academic standards, to educate all students to 100% proficiency by 2014, and to create and implement a single, statewide accountability system (United States, 2014).

Title I – Title I provides federal funding for schools to help students who are behind academically or at risk of falling behind. Funding is based on the number of low-income children in a school, generally those eligible for the free lunch program. Title I is intended to not replace state and district funds. Schools receiving Title I monies are supposed to involve parents in deciding how these funds are spent and in reviewing programs (North Carolina Report Cards, 2013).

CHAPTER TWO: LITERATURE REVIEW

The literature presented in this review reflects an exploration of research that is related to differentiated instruction. It consists of four basic sections: Differentiated Instruction Defined, DI and Concept Mapping, the Classroom Learning Environment of Differentiated Instruction, and Differentiated Instruction and Theories of Knowledge. The research based work of several authors who are educators, psychologists, or researchers is discussed to allow for a contextual view of the foundational and developmental commentaries about differentiated instruction. Attention is given to the work of forerunner in education Professor Carol Ann Tomlinson, who sets forth a definition of differentiation that is cited and explained by other authors in this review. As noted in Chapter 1, Tomlinson defines differentiated instruction as "making sure each student learns what he or she should learn by establishing clear goals, assessing persistently to see where each student is relative to the goals, and adjusting instruction based on assessment information so that each student can learn as much as possible and as efficiently as possible" (Tomlinson, 2010).

Differentiated Instruction Defined

"Differentiated instruction is based upon the concept that the teacher is the facilitator of information, while students take the primary role of expanding their knowledge through research" (Robinson, Maldonado, & Whaley, 2014, p. 5). This commentary adds another feature to help define the concept of differentiation. In practical terms for this aspect of differentiated instruction the teacher may plan lessons that allow for students to extend their knowledge regardless of skill level or ability. The teacher would be available to the students according to lesson design, whereas students could be guided through correction, affirmation, or questioning. The idea of the student as the researcher suggests that students work either collaboratively or

independently, while the teacher uses inquiry or delving to move the students to higher performance.

This idea of the teacher as facilitator is also embedded in the explanation of differentiation shared by author Brenda Logan in her work "Examining Differentiation: Teachers Respond." About differentiation she states that "the principles are adapted from Carol Ann Tomlinson, and simply echo that teachers should focus on the essentials in learning, should attend to student differences, should collaborate with students on learning, and should not separate assessment from learning" (Logan, 2011, p. 2). This perspective suggests that the content be evaluated in terms of what the student needs to know, his or her uniqueness, the learning criteria, and the measurability of the instructional design. Built into this view is the option to use formative assessments to guide planning, strategies, and grouping. In fact, this interpretation may seem a familiar practice in many classrooms already, since it is common to see both whole group and small group instruction in classrooms.

Like Logan's idea of differentiated instruction, Holli M. Levy suggests that the "core of differentiated instruction is flexibility in content, process, and product based on student strengths, needs, and learning styles" (Levy, 2008, p. 162). She adds that differentiated instruction "is a set of strategies that will help teachers meet each child where they are when they enter class and move them forward as far as possible on their educational path" (Levy, 2008, p. 162). The *individuality or unique needs* is emphasized here in terms of knowing the student's readiness, and how to design lessons that can move him or her to mastery or beyond. All students are different. They differ in ability, experiences, culture, gender, and the list can continue. The uniqueness or individuality of each student is another aspect that is considered by a component

of differentiation, and is necessary to determine the tools or the methods needed to address the student differences.

In their article "Differentiated Reading Instruction: What and How," Ankrum and Bean provide a perspective of what differentiation is that aligns with both Logan's and Levy's commentary on its meaning. "Since teachers in non-differentiated classrooms often focus on the average learners, students of high ability or low ability do not receive instruction to adequately improve their reading ability" (Ankram & Bean, 2007, p. 134). What the teacher needs to address also adds to how differentiation is explained. The teacher must know the required reading content, the ability or skill levels of the students to determine grouping, the pacing needed to deliver the lessons, and the management of the lesson design are presented in the context of a classroom setting that serves as an example of a differentiated teaching and learning environment. The authors add to their discussion a perspective of the frequency and use of resources in the differentiated classroom. They add that "no simple formula exists that details what to do with each group of children," and make the point that "there is evidence that providing all students with the same reading instruction can be detrimental to student achievement" (Ankram & Bean, 2007, p. 134). However, much like Logan and Levy, Ankram and Bean purport that differentiation as an instructional design can better serve *all* students. The variety of authors here illustrate that differentiated instruction can be explained in several ways. It appears that these authors have supported the concept differentiated instruction, with the learner at the center or focus of instruction. It also seems that they suggest that it is a practice that can improve performance outcomes for all learners. Included in these proponents of differentiated instruction is one of the 21st century's acclaimed advocates of differentiation University of Virginia professor Carol Ann Tomlinson.

Carol Ann Tomlinson, a prolific educator whose service focuses on academic development of all students, supports the notion that differentiation is "not a recipe for teaching. It is not an instructional strategy. It is not what a teacher does when he or she has time. It is a way of thinking about teaching and learning" (Tomlinson, 2000b). She proposes in her article "Differentiation of Instruction in the Elementary Grades*"* that because children learn in different ways, especially in the elementary grades, teachers need to recognize and attend to the various needs of students. She continues her discussion with suggesting that the teachers must ensure that the curriculum is clearly focused on the components of the discipline, that student activities are designed to challenge them at the appropriate level, that they are actively engaged in learning, and that the lessons are developed to create joy and satisfaction in learning (Tomlinson, 2000a). She and Allan add that differentiation in education is defined as "a teacher's reacting responsively to a learner's needs" (Tomlinson & Allan, 2000, p. 4).

Tomlinson's view on differentiation in the classroom and how it is presented in this source is similar to Ankram's and Bean's thinking, and the thinking of authors' works discussed earlier, on differences among students and how their needs may be met. Tomlinson, however, seems to present a discussion of differentiation that frames a deeper understanding of the concept. Tomlinson's article "Reconcilable Differences? Standards-based Teaching and Differentiation*"* emphasizes that differentiation is not a strategy. This article addresses standards-based teaching in context of student variance in the classroom. Her perspective invites the reader to think about instruction designed to prepare students to pass a test based on standards, and to question if the standards reflect knowledge, understandings, and skills. Tomlinson shares information on not only differentiated instruction, but also on both negative and positive cases that involve a standards-based approach to instruction and student outcomes.

Tomlinson's account on how to think about differentiation in the classroom is an approach to teaching and learning that she suggests teachers use to create and improve instructional practices and student achievement in the classroom, particularly when the alternative is to continue the pathway that leads to little to no growth.

"Teachers can create differentiated, personalized, or responsive classrooms in a number of ways" (Tomlinson & Allan, 2000, p. 2). This commentary on differentiation ties in with Tomlinson's less concrete suggestion cited earlier that differentiation is a way of thinking. Co-authors Tomlinson and Allan both also say that "in the context of education, we define differentiation as a teacher's reacting responsively to a learner's needs" (Tomlinson & Allan, p. 4). These authors provide further clarification that "differentiation is simply attending to the learning needs of a student or small group of students rather than the more typical pattern of teaching the class as though all individuals in it were basically alike" (Tomlinson & Allan, 2000, p. 4). The discussions on differentiation when viewed collectively appear to suggest that the way to think about differentiated classrooms is to understand that the student is at the center of instruction.

Students in differentiated classrooms are set up to interact with the content, potentially each other, and the teacher. In addition to the framework that Tomlinson's model provides, Logan offers some "possibilities for modifying content, process, and products," which include such items as the teacher selecting a variety of books to accommodate a variety of reading levels, learning centers, or have students design a model or game, respectively (Logan, 2011, p. 3).

Differentiated Instruction and Concept Mapping

As stated earlier, Tomlinson defines differentiation as "making sure each student learns what he or she should learn by establishing clear goals, assessing persistently to see where each

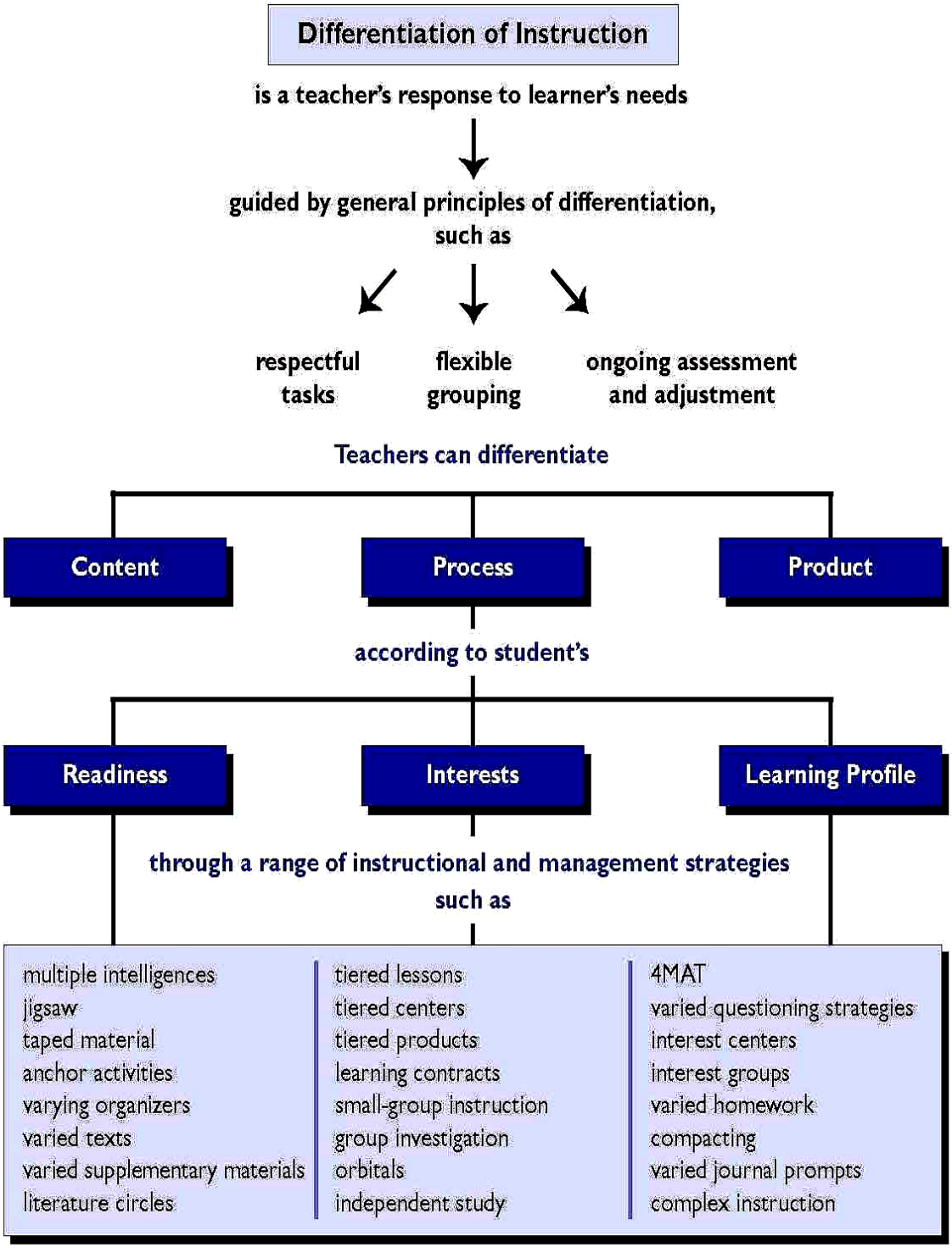
student is relative to the goals, and adjusting instruction based on assessment information so that each student can learn as much as possible and as efficiently as possible" (Tomlinson, 2010). This definition encompasses not only the perspectives of the authors noted in this review of literature, but it also allows for a foundational definition of DI that appears common among these authors. Tomlinson translates this definition into an illustration of DI as a way of thinking, and presents it as The Tomlinson Model in Figure 3 (Tomlinson, 2012). Tomlinson's definition of DI illustrated with the concept map suggests that instruction should be focused on *content*, *process,* and *product.*

Content

The term *content* may be clarified as what the teacher plans for the students to learn**.** The teacher may select skills, concepts or issues, facts, perspectives, principles, or any aspect related to the standards that each student is to master. The teacher will also select the materials or resources to support the content. The aspects of the subject and support materials can be structured by the teacher to provide pathways for students to access what is to be learned (Tomlinson, 2000a).

Process

The term *process* is defined as the *activity* in which the student participates. The activity determines how the student is engaged in the learning – how he or she makes sense of the facts, concepts, or skills. The process is how the student is set up to engage in the content. An activity that is effective involves the student in a task or set of tasks that are essential to the learning goal. An effective activity or task generally involves students in using an essential skill to come to understand an essential idea, and is clearly focused on a learning goal. A teacher can differentiate



Note. Adapted from Tomlinson (2001).

Figure 3. The concept map for differentiation of instruction entitled The Tomlinson Model.

an activity or process by, for example, providing the student with options at differing levels of difficulty or based on differing student interests, which may give the students choices about how they express what they learn. The choices are varied to appeal to the students' interests or learning styles (Tomlinson, 2000a). Some of the ways a teacher might differentiate process include

- using tiered activities through which all learners work with the same important understandings and skills, but proceed with different levels of support, challenge, or complexity;
    - using texts or novels at more than one reading level;
    - presenting information through both whole-to-part and part-to-whole approaches;
    - using a variety of reading-buddy arrangements to support and challenge students working with text materials;
    - re-teaching students who need another demonstration, or exempting students who already demonstrate mastery from reading a chapter or from sitting through a re-teaching session; and
    - using texts, computer programs, tape recorders, and videos as a way of conveying key concepts to varied learners (Tomlinson, 2000a).

Products

The term *products* is defined as the item or outcome of the activity that a student can use to demonstrate what he or she has learned, come to understand, and is able to do. A product can be, for example, a project that portrays an interpretation of a major event, portfolio of student work, or an exhibit of real-world problems that draw on knowledge and understanding. The product can be the result of activities in which the student has been engaged in over a short or

long period of time, and it reflects what each individual student has learned, and what each can do. It can demonstrate extended learning of the content. Among the ways to differentiate products are to

- allow students to help design products around essential learning goals;
- encourage students to express what they have learned in varied ways;
- allow for varied working arrangements (for example, working alone or as part of a team to complete the product);
- provide or encourage use of varied types of resources in preparing products;
- provide product assignments at varying degrees of difficulty to match student readiness;
- use a wide variety of kinds of assessments; and
- work with students to develop rubrics of quality that allow for demonstration of both whole-class and individual goals (Tomlinson, 2000a).

As illustrated in Figure 3, the Content, Process, and Product are essentially the *what is to be taught*, the *how it is to be taught*, and the *what was the outcome of the teaching*, respectively. In practical terms, these phrases mean that *what is to be taught* is the skill taken from the CCSS, *how these skills are to be taught*, the instructional activities, and *outcomes* are *the tangible performance results* of the instructional activities. Despite having access to a balanced approach to literacy and resources to plan lessons that include content, processes, and products as described by Tomlinson, administrators and teachers at the elementary schools in WCS continue to struggle with improvement in reading achievement outcomes.

Although the primary focus of differentiated instruction is the *content, process,* and *product,* it is important to highlight additional features of the Tomlinson Model which are key to

the study, and that these other components of differentiated instruction are explained in more detail. Figure 3 suggests that there are some key principles that help guide differentiated instruction as a classroom practice by

- having all students work with respectful activities – tasks that are engaging and interesting;
- making sure that the differentiated classroom is flexible;
- planning differentiation that stems from effective and ongoing assessment of learner needs;
- ensuring that elements of content can be differentiated (the content remains the same, teacher planning and student access to learning are different);
- verifying that the processes or activities is how the learner comes to make sense of, understand, and own key facts;
- assuring that the product refers to items a student can use to demonstrate what he or she has come to know, understand, and be able to do as the result of an extended period of study;
- checking that the student's readiness level is determined by his or her engagement at the appropriate levels of difficulty;
- determining students' interests by the aligning key skills and a curriculum segment with topics that intrigue students; and
- assessing the student's learning profile (Tomlinson & Allan, 2000, p. 8).

Respectful tasks are those that challenge each student with "flexibility in task complexity" and are designed to engage the student. This means that the activities are designed to have the student increase or develop his current knowledge. The complexity is built in the

extended learning. Next, classrooms that use flexible grouping utilize whole-class, small-group, and individual explorations. The grouping is determined by an assessment of each student's skill level. Finally, ongoing assessment is the relationship that a teacher has whereas he can see "everything that a student says or creates as useful information both in understanding that particular learner and in crafting instruction" (Tomlinson & Allan, 2000, p. 7). In this feature of the figure the teacher is continually in a state of interactive communication with the students. Three features serve as the key principles that set the foundation that guides differentiation.

The content, process, and product make up the actual instructional design in the flexible grouping. Learning activities within the frame of flexible groups provide a structured instructional support design for students who convey the need for classroom content to be hands on and meaningful and often express interest in working with their peers, rather than individually completing worksheets This concept of learning activities merges with the idea of Tomlinson's and Allan's respectful tasks. Again, the task design is based on the individual student's learning needs, which in this model are determined by the student's *readiness* to work with a skill, *interest* in a topic, and *learning profile* which may be shaped by such things as culture, gender, or learning styles (Tomlinson & Allan, 2000).

The concept map in the form of the Tomlinson Model presents a practical approach to differentiated instruction that may be used as a guide to create a plan to implement it into the classroom. It not only represents a way to think about and plan for meeting the needs of all students, but it also includes a component to evaluate its success (Tomlinson & Allan, 2000). Another perspective for interpretation of this illustration is that the examples presented are general and that each concept may be designed to fit or meet the needs of the student population.

For this Problem of Practice, this concept map appears to provide flexibility of options to approach instruction that can be designed and applied to the classroom setting.

It is important to emphasize that the terms in the Tomlinson Model are conceptual or abstract, and that they allow for concrete representations that can provide solidarity and structure to differentiated instruction. The concept map in this study was used as a framework through which to view features of differentiated instruction in the classroom learning environment. It illustrates the general principles that govern differentiated instruction which are respectful tasks, flexible grouping, and ongoing assessment. Each educator or researcher cited in this review of literature shares features or ideas about differentiated instruction and student engagement that serve to help to clarify its meaning. Differentiated instruction is a concept that has its foundations in the studies of researchers who explored teaching and learning, and child development decades ago. These studies have continued, and several of the ideas and findings are discussed to emphasize the development of what is defined by Tomlinson as differentiated instruction.

The Classroom Learning Environment

Tomlinson (2012) asserts that no teacher should be expected to display all the features of differentiated instruction at any one given time, and that the attributes of differentiated instruction are elements that teachers should work at and demonstrate in their classrooms. Tomlinson is suggesting here that differentiated instruction is a continuous effort to establish and sustain a student-centered learning environment. The shift from a focus on teachers to a focus on student engagement in learning is to make sure that the students are responding to and benefiting from various activities and environments that should be evident in all classroom settings (AdvancED, 2013).

With this idea of the classroom environment, it is important that teachers receive feedback on the extent to which their learning environments are conducive to high expectations, well-managed behaviors and activities, that they address student needs, and that they are equitable (AdvancED, 2013). In 2012, the Effective Learning Environments Observation Tool (ELEOT) became a part of AdvancED (Dawson, 2014).

The ELEOT is made up items that are organized in seven learning environments in the classroom. The content of the ELEOT reflects aspects of observation tools such as those developed by Marzano and the Classroom Assessment Scoring System (CLASS). The domains address student engagement, including digital learning as set forth by the International Society for Technology in Education (ISTE) Standards. In essence, the ELEOT measures the extent to which there is observable evidence (or no evidence) that students are engaged in certain activities or demonstrate certain knowledge, attitudes and/or dispositions in a classroom during a defined period of time as measured on a four-point scale (1 being "not observed;" 4 being "very evident")" (Dawson, 2014).

The ELEOT has been used to observe over 45,000 classroom environments (Dawson, 2014). The data from these observations have been disaggregated and used to give feedback to schools on students. The data can be used to provide information about trends in schools and to inform decision-making about instructional activities in classrooms. The ELEOT gives school leaders the ability to access an individual teacher, select a subject and grade level, and insert the time of the classroom visit, and then upload the completed observation to the AdvancED site and to the teacher for immediate feedback (Dawson, 2014).

The ELEOT training requires that evidence for each of the 30 items across the seven domains be observed at a minimum of 20 minutes. Some items during the observation period

may not be evident. “The two most important elements of this process are to observe as many individual learners as possible while also observing the overall setting/context (as opposed to focusing on one learner) and to score the items fairly and appropriately” (AdvancED, n.d.). Although individual teacher feedback using the ELEOT is important, emphasis is placed on the total collection of all classroom observation ratings because this is the information that provides an overview of the evidence of effective learning environments created across each individual school.

The ELEOT was designed to assist educators with understanding to what degree students are engaged in their classroom learning environment. The purpose of the tool is not to evaluate the performance of teachers. However, the student engagement data collected can inform both the observer and the teacher about the effectiveness of the lesson planning (AdvancED, 2013).

Differentiated Instruction and Theories of Knowledge

Fundamental aspects of differentiated instruction can be linked to theories of knowledge that date back to the first decades of the 20th century. Its foundation is based on the theory of constructivism, according to Lora Robinson et al., who presented her views at the annual Mid-South Educational Research (MSERA) conference based on her 2014 report, “Perceptions about Implementation of Differentiated Instruction.” She references constructivist theorist John Dewey, considered an American genius who revolutionized education, and Jean Piaget, a renowned psychologist who studied how children learn, as both who share insights foundational to an analysis of differentiation. Both Dewey and Piaget agree that learning is constructed prior experiences (Robinson, Maldonado, & Whaley, 2014). As explained by Ultanir (2012), Dewey asserts that “active participation and self-direction by students are imperative and learner’s experience and worldview are critical to problem-solving education” (p. 201). Piaget proposes

that “Essential functions of the mind are formed by developing a foundation consisting of understanding and innovation and constructing reality” (Piaget, 1971, p. 27). Both Dewey’s and Piaget’s theories imply two common factors. Learning is a process, and can result when prior knowledge exists in the learner. The significance of constructivism is how it underscores differentiation. As Robinson (2014) suggests, students can be successful in the differentiated classroom if the lessons are based on what students already know, and if they are meaningful in content.

Teaching and learning in the twenty-first century may be linked to the progressive movement of education at the turn of the 20th century. According to Dewey and other educators, educational practices at that time needed to change. As noted in author Melvin C. Baker’s “Foundations of Dewey’s Educational Theory,” written in 1955, Dewey presents his ideas that challenged the traditional education and schooling. He asserts that “children are to be allowed to institute the expression of their impulses and then are guided through the process of a complete act of experiencing” (Baker, 1955, p. 24). He also believed that learning occurs because of the interaction of the child with the environment. He considered this concept true for both adults and children, and that the knowledge gained from the experience affirms that education is holistically a living experience. As explained by Ultanir (2012), Dewey asserts that “active participation and self-direction by students are imperative and learner’s experience and worldview are critical to problem-solving education” (p. 201). Piaget proposes that “Essential functions of the mind are formed by developing a foundation consisting of understanding and innovation and constructing reality” (Piaget, 1971, p. 27). Both Dewey’s and Piaget’s theories imply two common factors. Learning is a process, and can result when prior knowledge exists in the learner. The significance of constructivism is how it underscores differentiation. As Robinson (2014) suggests, students

can be successful in the differentiated classroom if the lessons are based on what students already know, and if they are meaningful in content.

Teaching and learning in the twenty-first century can be linked to the progressive movement of education at the turn of the 20th century. According to Dewey and other educators, educational practices at that time needed to change. As noted in author Melvin C. Baker's "Foundations of Dewey's Educational Theory," written in 1955, Dewey presents his ideas that challenged the traditional education and schooling. He asserts that "children are to be allowed to institute the expression of their impulses and then are guided through the process of a complete act of experiencing" (Baker, 1955, p. 24). He also believed that learning occurs because of the interaction of the child with the environment. He considered this concept true for both adults and children, and that the knowledge gained from the experience affirms that education is holistically a living experience. It is through language and communication, experiences, and conditions that growth occurs, but that the growth can be impacted in desirable or undesirable ways. He proposed that the environment of classrooms, or schooling, can limit the wider educational setting, which is the life experience setting itself, which is immersed with the known and the unknown. This insight into learning can open educators to a broader view than can be experienced for both teachers and students in the context of a classroom, and can speak to the relevance or connection between classroom learning and life experiences.

Dewey's information on learning is essential to the meaning of differentiated instruction since constructivism allows the building of experiences and those experiences contribute to learning. Differentiated instruction can be an approach to improvement in student achievement with Dewey's concepts as a foundational link to 21st century instruction and learning to broaden the base for teachers to meet the various needs of students in classrooms today. As noted in

Baker's account of Dewey's work, "fruition of his inquiries is shown in his formulation of the problem of education and in his hypothesizing for the solution of this problem" (Dewey, 1955, p. 7). Content needs to be made relevant, and the relevance can be made a direct variable among lesson design. Problems in education call for solutions, and solutions can mean a change in the current trajectory of how educators plan to engage students in instructional practices that impact learning.

The existence of historical theories about teaching and learning have served to make significant contributions to current ideals about how students learn and classroom environments that may influence student achievement. In the article "Millennial Expectations, Constructivist Theory, and Changes in a Teacher Preparation Course," Timothy L. Carter explains that "a constructivist environment should place the learner in an active role in the learning process" (Carter, 2009, p. 27). Scholars for several decades have presented features that add to what is considered differentiation, especially since efforts to increase student performance have for many years and continue to remain a focus for educators. Inherent in the idea of differentiation is the opportunity for educators to develop practical strategies to teach children that result in meaningful outcomes. Differentiated instruction as explained by researchers in this review may be the approach to teaching and learning that will be the key to accomplish the goal of increased achievement for more students. The challenge of differentiation, based on the literature, is to transform ideas, concepts, and theory into instruction that is practical in content, process, and outcomes. Proponents of differentiated instruction suggest that the outcomes will yield positive results in performance for all students.

CHAPTER THREE: METHODOLOGY

The purpose of this study was to examine differentiated instruction in the classroom learning environment to determine its impact on student achievement in reading for third, fourth, and fifth grade students in the fourteen elementary schools in the Wilson County Schools district. Since differentiated instruction is not a program, but rather a way of thinking (Tomlinson, 2010, p. 3), an analytic examination approach to the concept of differentiated instruction is the method that the study facilitator used to determine the results of the classroom environments observed in each of the fourteen elementary schools. This approach may be defined as "(1) a separating or breaking up of any whole into its parts, esp. with an examination of these parts to find out their nature, proportion, function, interrelationship, etc., (2) any detailed examination, (3) a statement of the results of this process" (Analysis, 2017). This definition was applied as an approach to this study, which was translated into a methodology, with the ELEOT observation and the NC EOG Reading Test data making up the key components of the whole by having

- collected and recorded the ELEOT data in Table 1 for each of the fourteen elementary schools;
- collected and recorded the NC EOG Reading Test results in Table 1 for each of the fourteen elementary schools;
- represented the NC EOG Reading Test data and the ELEOT data in Table 1 in different ways;
- examined the interrelationship between the ELEOT data and the NC EOG Reading Test data as illustrated by selected representations of data for each of the fourteen elementary schools; and

- reported a statement of the results of this process as an analytic examination of the data that served to address the study questions.

The objective of the analytic examination approach was to gather information that could be analyzed based on its various representations that permit verifiable conclusions that addressed the study questions.

This analytic examination approach to this study did not include any statistical procedures by any participant in the study, including the study facilitator. Neither did it include any interpretation or explanation of how the results were calculated for the NC EOG Reading Test or the ELEOT data. All data that was analytically examined was collected from the AdvancED for the ELEOT, and from the North Carolina Department of Public Instruction Testing and Accountability through the Wilson County Schools Administrative Office with permission granted by the superintendent or his designee. The goal was to collect and review the AdvancED ELEOT reports and the NC EOG assessment results for the fourteen elementary schools, present the information in a format appropriate for analytic observation, and to address the study questions based on the qualitative data analyses.

The ELEOT instrument used to generate the data for analysis was the Effective Learning Environment Observation Tool (ELEOT). The ELEOT was used by the administrator at each of the fourteen elementary schools to observe differentiated instruction of content, process, and products across the seven domains of the observation instrument. The identification of the participants and the research study data remained confidential during the analyses and will be secured, destroyed, or both when the analyses are inactive or complete.

Confidentiality of Data

The data for this investigation of differentiated instruction in the fourteen elementary schools was collected from the AdvancED database and the North Carolina Department of Testing and Accountability through the Wilson County Schools Administrative Office with permission of the WCS superintendent. Each administrator was required to complete ELEOT observations in each reading classroom environment at his or her school site. Once the administrator had completed each observation, he or she submitted it electronically to AdvancED. AdvancED calculated the data for each set of school observations submitted, and generated an average score on a scale of 1 to 4 for each of the seven domains for each school. The calculated results for each school was entered into Table 1. The data from the ELEOT, which measured the level of student engagement in classroom activities, and the data from the NC EOG Reading Test for third, fourth, and fifth grade students, was analytically examined. The conclusions from the analyses served to address the study questions of the Problem of Practice.

Study Questions

Essential to the study were three questions that guided the outcomes of the process.

1. To what extent were third, fourth, and fifth grade students engaged in differentiated instruction in terms of content, process, and product when measured against the domains of the Effective Learning Environment Observation Tool?
2. To what extent did teachers differentiate instruction to meet the needs of all learners?
3. To what extent did differentiated instruction impact student achievement in reading in third, fourth, and fifth grade classrooms?

North Carolina End-of -Grade Reading Test Data Analysis

This study included the NC EOG Reading Test data from the third, fourth, and fifth grade classes in the fourteen elementary schools in the Wilson County Schools district in Wilson County, North Carolina. The data was compiled in numerical representation only, and did not require any information about the individual administrators, teachers, or students. The data collected was generated by AdvancED and the WCS Department of Testing and Accountability with permission granted for its access by the superintendent. No data was collected directly from the school administrators, teachers, or students. The name of each school remained confidential, and was represented in a form other than its original identification title. The data represented a population that included a total enrollment of 2,807 students who represent a variety of races and ethnicities, and who collectively speak several different of languages (National Center for Education Statistics, 2011). All data that were collected from AdvancED and the WCS Department of Testing and Accountability remained in a secured container and location when it was not in use.

The data represented the performance of students who were in the regular education reading classes, and who participated in either the English as a Second Language (ESL), Academically and Intellectually Gifted (AIG), the Exceptional Children (EC) program, or in any combination of the three programs. The district required that teachers use the mClass Read3D program to progress monitor and administer benchmark reading assessments to all third-grade students in the fourteen elementary schools. The mClass Read3D benchmark tool was not available to teachers and students in fifth grade classrooms in WCS. The district leaders required that all students in third, fourth, and fifth grades participate in the district reading benchmark

assessments. All teachers were provided the Common Core State Standards framework to plan classroom instruction.

The data represented the work of the teachers who planned and created the classroom learning environment for the third, fourth, and fifth grade reading classes. Each teacher was categorized as a full-time WCS employee. Each teacher was identified in the WCS PowerSchool database as the Teacher-of-Record for any one or combination of classroom groups of students in either the third, fourth, or fifth grade. The teachers of record were not identified by name. Only the data for each teacher-of-record was used in this study. A list of teacher professional development trainings required by the district since the implementation of the CCSS was collected from the WCS Department of Organizational Development to inform the study of teacher training in differentiating instruction (see Appendix C). Each teacher-of-record for students in the third or fourth grade must have received training in the mClass Read3D benchmark assessment tool for reading. The names of the teachers were not revealed in this study.

The data represented the administrator of each school who completed the ELEOT observations at his or her school site. Each administrator was categorized as a full-time Wilson County Schools employee licensed by the North Carolina Department of Instruction in K-12 administration. He or she was required by AdvancED to receive training in the Effective Learning Environment Observation Tool (ELEOT). A list of principal professional development trainings required by the district since the implementation of the CCSS was collected from the WCS Department of Organizational Development (see Appendix C).

Information that served to identify principals, teachers, and students who were connected to the data to be collected in this study was not requested. Finally, any materials that

could have been used to identify any individual represented by the data will be destroyed by shredding or incineration at the close of the study.

Data Analysis

The data for this study was examined for the level of student engagement in differentiated instruction. The data from the ELEOT observations and the NC EOG Reading Test results for each of the fourteen elementary schools was collected, examined, and analyzed. The NC EOG Reading Test results from the year under study was examined against the ELEOT results for each school to determine the level of student engagement in differentiated instruction. A total NC EOG Reading Test percent of students proficient in reading and an ELEOT level of engagement percentage was included in the examination. The NC EOG Reading Test and ELEOT data allowed for an examination of student engagement in differentiated instruction, and to what extent it impacted the percentage of students proficient on the NC EOG Reading Test. Table 2 provides the NC EOG Reading Test proficiency standards for third, fourth, and fifth grade reading. The NC EOG Reading Test is designed to assess reading development as outlined in the key features of the assessment (see Table 2). The key features are

- the assessment of reading and knowledge of vocabulary are assessed by having students read selections and then answer questions directly related to the selections;
- the selections on the tests are chosen to reflect the variety of actual reading done by students in and out of the classroom; and

Table 2

North Carolina Proficiency Standards for Grades 3-5

Achievement Level	Meets On-Grade-Level Proficiency Standard	Meets College-and-Career Readiness Standard
Level 5 denotes Superior Command of knowledge and skills	Yes	Yes
Level 4 denotes Solid Command of knowledge and skills	Yes	Yes
Level 3 denotes Sufficient Command of knowledge and skills	Yes	No
Level 2 denotes Partial Command of knowledge and skills	No	No
Level 1 denotes Limited Command of knowledge and skills	No	No

Note. NCDPI North Carolina Testing Program.

- selections that include both literary and informational texts. Literary texts include fiction, poetry, drama, and literary nonfiction, such as biographies, letters, journals, and essays. Informational texts include content areas (art, science, mathematics, social studies, etc.) and consumer/practical selections (pamphlets, recipes, how-to, etc.).

CHAPTER FOUR: ANALYSIS OF DATA

The purpose of this study, as presented in Chapter One, was to examine differentiated instruction in the fourteen elementary schools in the Wilson County Schools district to determine its impact on reading achievement on third, fourth, and fifth grade students. Achievement levels in reading for the elementary schools in the district had remained below the state proficiency average for three consecutive years prior to the 2015-16 school year (see Figure 1). For each of these years, ten of the elementary schools did not meet the state average. WCS district leaders had implemented a variety of resources to support teachers in their efforts to increase the number of students who perform at or above the state proficiency levels. Despite the availability of programs and materials, student performance remained subpar to state standards. The stagnant low achievement percentages underscored the need to examine the classroom learning environment more closely for instructional practices rather than for instructional tools. Observations of classroom environments would mean there would need to be a clear focus on instructional practices designed to engage students. Since the problem of practice for this study was embedded in the NC EOG Reading Test results three consecutive years prior to academic year 2015-16, whereas students remained stagnant in meeting proficiency standards, then an examination of how students were engaged in the reading became the focus of the study.

An examination of differentiated instruction in reading classes for students in third, fourth, and fifth grades to determine its impact on reading achievement was identified by the investigator as the focus of this study. The three study questions that follow were essential to underscore the purpose and the process of the study.

1. To what extent were third, fourth, and fifth grade students engaged in differentiated instruction in terms of content, process, and product when measured against the domains of the effective learning environment observation tool?
2. To what extent did teachers differentiate instruction to meet the needs of all learners?
3. To what extent did differentiated instruction impact student achievement in reading in third, fourth, and fifth grade classrooms?

To accomplish the goal of the study, the ELEOT and the NC EOG Reading Test data for WCS students in grades three, four, and five for academic year 2015-16 were compiled and examined. The data are generated in the form of a matrix to represent and support the findings, and the findings will be used to address the study questions.

Chapter Four presents an analytic examination of the data. A restatement of the problem in this chapter served to recapture the focus of the study as it was introduced in Chapter One, and an explanation of the research design functions to outline how the study was executed. An examination of the data is presented in four sections that describe the components that make up the study. The first of the four sections describes the ELEOT and NC EOG data matrix, the second section describes the ELEOT data, the third section describes the NC EOG Reading Test data, and the fourth addresses the study questions.

Statement of the Problem

As presented in Chapter One, the fourteen elementary schools in the Wilson County Schools district for three consecutive years prior to 2015-16, showed that approximately half the students in third, fourth, and fifth grades failed to meet proficiency standards. In an effort to increase achievement levels for these students, the superintendent and other district leaders provided a variety of resources to school based educators to design instruction to meet the needs

of *all* students. Both teachers and students in third, fourth, and fifth grade classrooms had been given: (1) direct access to technology to integrate with the content, (2) guided reading, where students work in small groups on reading skills, and (3) and individualized reading resources, where students engage with the reading resources independently. The purpose of these three provisions was to have classroom instructional practices designed to differentiate lessons to meet the needs of students who were not accessing the curriculum at or above the level of proficiency. As a result of these provisions, the classroom environments in the elementary schools in WCS reflected teacher and student access to a variety of reading resources. The NC EOG Reading Test results continued to illustrate stagnant growth with too many students performing below state proficiency levels.

Based on the NC EOG Reading Test results in Figure 3, the purpose of the study was to examine differentiated instruction in the classroom learning environment to determine its potential impact on student achievement in reading for third, fourth, and fifth grade students in the fourteen elementary schools in the Wilson County Schools district. The principal at each of the fourteen elementary schools used the Effective Learning Environment Observation Tool to investigate differentiated instruction in the classroom as it was demonstrated in the content, process, and products across the seven domains of the observation instrument, and the NC EOG Reading Test data are collected as the mark against which to measure its impact.

Study Design and Methodology

An analytic examination approach to the concept of differentiated instruction is the method that the investigator used to carry out the study of the classroom environments observed in each of the fourteen elementary schools in the Wilson County Schools district. In Chapter Three, this approach was defined as "(1) a separating or breaking up of any whole into its parts,

especially with an examination of these parts to find out their nature, proportion, function, interrelationship, etc., (2) any detailed examination, (3) a statement of the results of this process" (Analysis, 2017). This definition of an analytic examination was applied as an approach to this study, and was translated into a methodology. The Effective Learning Environment Observation Tool observation data generated by the principal at each of the fourteen elementary schools, and the NC EOG Reading Test data made up the key components of the whole by:

- collecting and recording the ELEOT data for academic year 2015-16 in a matrix for each of the fourteen elementary schools;
- collecting and recording the NC EOG Reading Test results for academic year 2015-16 in a matrix for each of the fourteen elementary schools;
- representing the NC EOG Reading Test data and the ELEOT data in a matrix in a variety of formats to present the data in separate parts to allow for an examination;
- examining the interrelationship between the ELEOT data and the NC EOG Reading Test data as illustrated by separate representations of data for each of the fourteen elementary schools; and
- reporting a statement of the findings of this process as the results of an analysis of the interrelationships of the parts of the data that were used by the investigator to address the study questions.

The objective of the analytic examination approach was to gather information that could be analyzed based on its various representations that permitted the investigator to provide information that could be used to address the study questions.

This analytic examination approach to this study did not include any statistical procedures by any participant in the study. The instrument that was used to generate the data for

analysis is the Effective Learning Environment Observation Tool. The ELEOT was used by the administrator at each of the fourteen elementary schools to observe differentiated instruction of content, process, and products across the seven domains of the observation instrument. The identification of the participants and the study data remained confidential and secured during the analyses. All study materials used in the study will be destroyed when the analyses are inactive or complete.

Data Collection and Analyses

The data for this investigation of differentiated instruction in the fourteen elementary schools was collected from the AdvancED database and the North Carolina Department of Testing and Accountability through the Wilson County Schools Administrative Office with permission of the WCS superintendent. Each administrator was required to complete observations of the learning environment using the ELEOT in each reading classroom at his or her school site in the Wilson County Schools district during the 2015-16 academic school year. Each principal submitted the scores for each classroom observation to AdvancED by electronic transmission. AdvancED compiled and calculated the data for each set of school observations submitted. The calculated results for each school were collected by the investigator and recorded in a matrix.

The data from the ELEOT, which captured the level of student engagement in classroom activities based on the observations of the school principal, and the data from the NC EOG Reading Test for third, fourth, and fifth grade students, were studied by the investigator using an analytic examination methodology. The analytic examination methodology allowed for a separation of parts, an examination of those parts, and an analysis of the information gleaned from the study of those parts. The parts included three sections. The first was an examination of

the ELEOT data, the second was an examination of the NC EOG Reading Test data, and the third was an examination of both the ELEOT and the NC EOG Reading Test data and their interrelationship. The purpose of the examinations was to study the information, analyze it, and determine the impact of differentiated instruction on the NC EOG Reading Test results for students in third, fourth, and fifth grade classrooms in the Wilson County Schools district. The information gathered from the analyses was used to address the study questions.

1. To what extent were third, fourth, and fifth grade students engaged in differentiated instruction in terms of content, process, and product when measured against the domains of the effective learning environment observation tool?
2. To what extent did teachers differentiate instruction to meet the needs of all learners?
3. To what extent did differentiated instruction impact student achievement in reading in third, fourth, and fifth grade classrooms?

The ELEOT and the NC EOG Reading Test data were compiled in a format to examine, analyze, and draw conclusions from the analyses. The analyses were guided by the three questions which focused on student engagement in differentiated activities, teacher lesson design that reflected differentiated lessons, and the impact of the differentiated instruction on student achievement on the NC EOG Reading Test for third, fourth, and fifth grade students. An examination of the data is presented in four sections that describe the format of the data and how it is presented, along with the findings as a result of the analyses. The first of the four sections describes the ELEOT and the NC EOG Reading Test data matrix, the second section describes the ELEOT data, the third section describes the NC EOG Reading Test data, and the fourth addresses the study questions.

Section 1: The ELEOT and NC EOG Reading Matrix

As noted in Chapter One, the ELEOT and the NC EOG Reading Test results for academic year 2015-16 were collected, and are illustrated in Table 3. The illustration includes the seven domains and results of the ELEOT administered by the principal at each of the fourteen elementary schools, along with each school's corresponding End-of Grade Reading test percentages for academic year 2015-16. The principal at each of the fourteen elementary schools used the ELEOT to observe third, fourth, and fifth grade reading classrooms during academic year 2015-16. The observations were designed to capture instruction in the classroom and how it met the needs of all the students, and to give feedback to the teacher on what was observed. The feedback was to be discussed between the principal and teacher in terms of content, process, and products across the seven domains of the ELEOT instrument.

The ELEOT and principal observation data collection. The data represented the principal of each school who completed the ELEOT observations at his or her school site (see Appendix D). Each administrator was categorized as a full-time Wilson County Schools employee. Each administrator was a licensed by the North Carolina Department of Instruction in K-12 administration. He or she was required by AdvancED to receive training in the Effective Learning Environment Observation Tool (ELEOT). A list of professional development opportunities, some offered and some required by district leadership, was collected from the WCS Department of Organizational Development (see Appendix C).

The ELEOT observation data generated by the principal at each of the fourteen elementary schools in WCS served as a representation of the number of classroom observations, and the extent to which students were engaged in the learning environment across the seven domains of the ELEOT. The data from the principal observations in reading classrooms was

Table 3

Effective Learning Environment Observation Tool and NC EOG Reading Test Results for Grades 3, 4, and 5 for Academic Year 2015-16

Wilson County Elementary Schools (WCES)	Equitable Learning (EL)	High Expectations (HE)	Supportive Learning (SL)	Active Learning (AL)	Progress Monitoring, 17(PM)	Well-Managed Learning (WML)	Digital Learning (DL)	ELEOT SCORES	WCES NC Reading EOGs Percent Proficient
BES	2.36	2.71	2.95	2.75	2.78	2.93	1.17	2.60	24.90%
ECES	3.15	3.16	3.41	3.21	3.10	3.53	1.54	3.09	46.60%
GES	2.70	3.00	3.22	2.91	3.31	3.31	1.82	2.97	59.40%
HES	2.37	2.46	2.79	2.64	2.35	2.81	1.45	2.46	30.50%
JES	3.23	3.23	3.34	3.33	3.03	3.30	2.23	3.14	46.10%
LWES	1.85	1.85	2.02	2.23	1.50	2.51	1.52	1.93	50.90%
LES	2.93	3.47	3.67	3.18	3.29	3.52	1.65	3.20	53.40%
NHES	3.03	3.13	3.41	3.18	3.06	3.46	2.30	3.13	64.30%
RRES	2.60	3.00	3.40	3.19	3.09	3.29	1.72	2.97	73.20%
SES	3.48	3.41	3.64	3.65	3.44	3.66	2.43	3.43	38.20%
VES	2.31	2.29	2.67	2.30	2.29	2.51	1.34	2.30	20.00%
VBES	2.91	3.12	3.41	3.36	3.32	3.26	2.40	3.11	38.80%
WES	2.31	2.29	2.68	2.64	2.31	2.87	1.04	2.37	47.30%
WSES	2.50	2.55	2.79	2.44	2.63	2.70	1.48	2.50	29.30%
Elementary Mean								2.80	45.80%

Note. NC EOG Reading (NC EOG) test data source Testing and Accountability 2015-16. Effective Learning Environment Observation Tool (ELEOT) scores for 2015-16, and score scale, 1-Not Observed; 2-Somewhat Evident; 3-Evident; 4-Very Evident.

submitted to the teacher after each classroom learning-environment observation. Teachers received immediate feedback from the principal, with a follow-up discussion of the observation. The WCS fourteen elementary schools' reading classrooms ELEOT observation data was compiled by AdvancED, and was made available to the district. The study investigator requested and received the ELEOT observation data from the assistant superintendent of instruction with permission from the Wilson County Schools' superintendent.

The ELEOT and teacher data collection. During academic year 2015-16, teachers-of-record were provided by the Department of Organizational Development and school site Title I funds to participate in staff development opportunities. Each teacher-of-record for students in the third or fourth grade were required to receive training in the mClass Read3D benchmark assessment tool for reading. Teachers also participated in a variety of staff development activities that offered skill development in classroom instruction designed to meet the needs of all students (see Appendix C).

The data represents the work of the teachers who planned and created the classroom learning environment for the third, fourth, and fifth grade reading classes. Each teacher was identified in the WCS PowerSchool database as the Teacher-of-record for any one or combination of classroom groups of students in either the third, fourth, or fifth grade. The teachers of record in this study were not identified by name. Only the NC EOG Reading Test data for each teacher-of-record was used in this study.

The NC EOG reading test data collection. This study included the NC EOG Reading Test data from the third, fourth, and fifth grade classes in the fourteen elementary schools in the Wilson County Schools district in Wilson County, North Carolina. The testing coordinator at each of the fourteen elementary schools administered the NC EOG Reading Test. Each student's

test information was collected by the test coordinator at the school site, who then submitted the test materials to the district level coordinator to process the results. Each school's summative data results in reading were compiled and stored in a secure computer based file. Only WCS personnel identified by the superintendent were granted access to the secure site. The principal at each of the fourteen elementary schools was granted access to the secure site.

The data are represented in numerical form only, and neither required nor utilized any information that would reveal or compromise the identity of the individual administrators, teachers, or students. With permission granted by the superintendent of WCS, Dr. Lane Mills, the NC EOG Reading Test data for academic year 2015-16 were collected from the WCS Department of Testing and Accountability (see Appendix B). No data were collected directly from the fourteen elementary school administrators, teachers, or students. The name of each school remained confidential, and is represented in a form other than its original identification title. The data represent a diverse student population that includes a total enrollment of 2,807 students who collectively speak several different of languages (NCES, 2016). All data collected from the WCS Department of Testing and Accountability remained and continues to remain in a secured container and location when not in use during the study.

The NC EOG reading test data representation and student profiles. The NC EOG Reading Test data for academic year 2015-16 represents the performance of students who were in the regular education reading classes, and who participated in either the English as a Second Language (ESL), Academically and Intellectually Gifted (AIG), the Exceptional Children (EC) program, or in any combination of the three programs. The district required that teachers use the mClass Read3D program to progress monitor student growth and administer benchmark reading assessments to all third-grade students in the fourteen elementary schools

during academic year 2015-16. In addition to students in third grade reading classes, the mClass Read3D benchmark assessment tool was available to identified fourth-grade classroom This tool was not available to teachers and students in fifth grade classrooms in WCS. The superintendent required that all students in third, fourth, and fifth grades participate in some form of a reading benchmark assessment. All teachers are provided the Common Core State Standards framework created by the WCS Instructional Services Department and school teachers to plan classroom instruction.

Section 2: Description of the ELEOT Data

The ELEOT was used as the lens through which each principal in the WCS fourteen elementary schools to capture teacher and student activity within the classroom learning environment. The ELEOT was used for observations as a requirement by the district. The district leaders decided to use the ELEOT because it was the same observation tool used by the AdvancED representatives to observe classroom learning environments and to use the information gathered from the observations to determine district accreditation. As outlined by the ELEOT, the observation tool is organized in seven learning environments or domains, and is designed primarily to measure the extent to which there exists observable evidence (or no evidence) that students are engaged in the content, process, and outcomes of a classroom during a defined period as measured by the ELEOT four-point scale. These seven domains served as the lens through which each administrator would capture the differentiated instruction in the learning environment.

Each of the seven domains that make up the ELEOT includes features that allow for the observer to capture differentiated instruction within the classroom learning environment. The Equitable Learning Domain (EL) includes differentiated learning activities, and the High

Expectations (HE) asks that the observer look for challenging but attainable tasks. That the tasks are *attainable* suggest that the student work is designed and implemented at the appropriate level of student readiness (AdvancED, 2013). Supportive Learning (SL) offers that the observer look for alternative instruction and feedback at the student's appropriate level of preparedness, which also addresses observation of how individual student needs are met. The Active Learning (AL) domain avails the observer to look for small group behaviors – listening, questioning, responding and applying, all of which are student-centered behaviors (AdvancED, 2013). Progress Monitoring (PM) asks that the observer look for how performance is set up for continuous feedback on skill attainment. Well-Managed Learning (WML) requires that the observer focus on student-centered activities that can allow an observation of how students interact with each other (AdvancED, 2013). Finally, Digital Learning (DL) permits an observation of how the teacher has designed lessons that engage students in technology (AdvancED, 2013). The observer is to look for *how* students utilize the technology resources in terms of individualized student engagement. Each domain permits the observer an opportunity to examine the classroom learning environment for instruction designed to address the needs of the individual learner.

Section 3: Description of the NC EOG Reading Test Data

The NC EOG Reading Test data used in this study reflects the results of assessments created under the guidelines of NCDPI. Educators throughout North Carolina were recruited and trained to write test items. The diversity of the test writers and their knowledge of standards was addressed prior to selection. The test was comprised of 52 multiple-choice items. The reading selections were comprised of authentic informational and literary text based on the North Carolina standards. Knowledge of vocabulary was context based. Vocabulary knowledge was

assessed indirectly through terms embedded in the context of the selections (NCDPI, 2015). The tests were built on a proficiency scale ranging from 1 to 5 (see Table 2).

The NC EOG Reading Test data reflect the reading results for all students in grades three, four, and five enrolled in WCS during academic year 2015-16 who participated in the state test as shown in Table 3. This set of data is a representation of each of the fourteen elementary schools and the percentage of students who demonstrated achievement at or above the state proficiency level on the NC EOG Reading Test. The WCS Testing and Accountability Department trained school site testing coordinators on the testing procedures based on state guidelines. Information that could be used to identify principals, teachers, and students was not included in this study.

Section 4: Study Questions

This study was an investigation of the impact of differentiated instruction in reading on third, fourth, and fifth grade student achievement in the Wilson County Schools district, Wilson, North Carolina. Student data were collected that included the NC EOG Reading Test results and the ELEOT scores for 2015-16. The ELEOT was used to observe and collect information about the classroom learning environment by the principal in each of the fourteen elementary schools in WCS. The data was examined and analyzed to determine the impact of differentiated instruction on students in third, fourth, and fifth grades. As outlined in Chapter One, Table 1 was used to collect and present the quantitative data. Other tables or figures were generated using Table 1 to illustrate the same content to support the data analysis. The quantitative data was examined for descriptive features to ensure fidelity of data collection, and then analyzed across the seven domains of the ELEOT and the NC EOG Reading Test results. The information from

the examination was used to address the study questions. The study questions listed were addressed as Study Question One, Study Question Two, and Study Question Three.

Study question one. *To what extent were third, fourth, and fifth grade students engaged in differentiated instruction in terms of content, process, and product when measured against the domains of the Effective Learning Environment Observation Tool*?

Table 4 is a representation of the ELEOT data for academic year 2015-16 for the fourteen elementary schools in Wilson County Schools. As shown in Table 4, the ELEOT scores printed in bold and italicized represent the schools in the Wilson County Schools district where student engagement in differentiated instruction was almost non-existent. Eight of the fourteen schools' results reported that their levels of student engagement in differentiated instruction was between the rating of 1.0 and 2.99, *Not Observed* to *Somewhat Evident*. The ratings for these schools indicate that student engagement in student-centered learning activities was minimal. The ELEOT is designed to measure the extent to which students are engaged in the classroom learning environment (Dawson, 2014).

According to Carol Tomlinson, the learning environment consists of the activities in the classroom so that students have a variety of ways to access information, make sense of it, and communicate what they have acquired (Tomlinson, 2001). The ELEOT provides seven domains, or multiple options, through which to examine what is happening in the classrooms (AdvancED, 2013).

Based on the ELEOT results for 2015-16, fewer than half, or 43%, of the elementary schools provided evidence that third, fourth, and fifth grade students were engaged in differentiated instruction in the classroom learning environments. Also, the average for the ELEOT scores for the fourteen elementary schools is 2.8. Using the scoring scale for the

Table 4

Student and Teacher Engagement in Differentiated Instruction: The Effective Learning Environment Observation Tool Scores and NC EOG Reading Test Results for Grades 3, 4, and 5 2015-2016

Wilson County Elementary Schools (WCES)	Equitable Learning (EL)	High Expectations (HE)	Supportive Learning (SL)	Active Learning (AL)	Progress Monitoring, (PM)	Well-Managed Learning (WML)	Digital Learning (DL)	ELEOT SCORES	WCES NC Reading EOGs Percent Proficient
BES	2.36	2.71	2.95	2.75	2.78	2.93	1.17	***2.60***	24.90%
ECES	3.15	3.16	3.41	3.21	3.10	3.53	1.54	3.09	46.60%
GES	2.70	3.00	3.22	2.91	3.31	3.31	1.82	***2.97***	59.40%
HES	2.37	2.46	2.79	2.64	2.35	2.81	1.45	***2.46***	30.50%
JES	3.23	3.23	3.34	3.33	3.03	3.30	2.23	3.14	46.10%
LWES	1.85	1.85	2.02	2.23	1.50	2.51	1.52	***1.93***	50.90%
LES	2.93	3.47	3.67	3.18	3.29	3.52	1.65	3.20	53.40%
NHES	3.03	3.13	3.41	3.18	3.06	3.46	2.30	3.13	64.30%
RRES	2.60	3.00	3.40	3.19	3.09	3.29	1.72	***2.97***	73.20%
SES	3.48	3.41	3.64	3.65	3.44	3.66	2.43	3.43	38.20%
VES	2.31	2.29	2.67	2.30	2.29	2.51	1.34	***2.30***	20.00%
VBES	2.91	3.12	3.41	3.36	3.32	3.26	2.40	3.11	38.80%
WES	2.31	2.29	2.68	2.64	2.31	2.87	1.04	***2.37***	47.30%
WSES	2.50	2.55	2.79	2.44	2.63	2.70	1.48	***2.50***	29.30%
Elementary Mean								2.80	45.80%

Note. NC EOG Reading (NC EOG) test data source Testing and Accountability 2015-16. Effective Learning Environment Observation Tool (ELEOT) scores 2015-16, and score scale: 1-Not Observed; 2-Somewhat Evident; 3-Evident; 4-Very Evident. ELEOT scores 1.0 to 2.99 printed in bold and italicized; ELEOT scores 3.0 to 4.0 and NC EOG results above district mean underlined.

ELEOT, this average would reflect a rating of *Somewhat Evident*. To address question one, the extent to which students were engaged in differentiated instruction is minimal in over half, or 57%, of the fourteen elementary schools' reading classrooms in the Wilson County Schools district.

Study question two. *To what extent did teachers differentiate instruction to meet the needs of all learners*?

As shown in Table 4, the ELEOT scores printed in bold and italicized represent the schools in the Wilson County Schools district where teacher planning for differentiated instruction was almost non-existent, minimal, or non-observable. Also, Table 4 illustrates that the four elementary schools underlined, along with their corresponding ELEOT scores of *Evident* and the NC EOG Reading test results higher than the district average, indicate that there existed clear evidence of differentiated instruction in the classrooms observed, and that teachers planned lessons that addressed the needs of all students at a somewhat high level.

The ELEOT provides seven domains that include opportunities to look for differentiated instruction in the learning environment. An examination of the ELEOT data illustrated that eight of the fourteen schools' scores for teacher planning for differentiated instruction was between the rating of 1 and 2.99, *Not Observed* to *Somewhat Evident*. These schools are printed in bold and italicized. The scores for these eight schools indicate that the teachers designed lessons that lacked the characteristics of differentiated instruction.

Six of the elementary schools' results, on the other hand, illustrated that their level of student engagement in differentiated instruction was between the scores of 3.0 and 4.0, *Evident* to *Very Evident*. These ratings indicate that teachers in the six other schools created lessons that included features of differentiated instruction. The level of student engagement in these schools

was *Evident to Very evident* in the majority of the domains. However, based on these six schools, fewer than half, or 43%, of the elementary schools provided evidence that teachers had prepared lessons that were differentiated to meet the needs of third, fourth, and fifth grade students in the reading classroom learning environment. Also, the average for the ELEOT scores for the fourteen elementary schools was 2.8. Using the scoring scale for the ELEOT, this average would reflect a rating of *Somewhat Evident*. To address question two, the extent to which teachers differentiate instruction to meet the needs of all learners was found minimal in over half, or 57%, of the fourteen elementary schools' reading classrooms in the Wilson County Schools district.

Study question three. *To what extent did differentiated instruction impact student achievement in reading in third, fourth, and fifth grade classrooms*?

Table 4 provides information to determine the extent to which differentiated instruction impacted student achievement in the in the fourteen elementary schools in the Wilson County Schools district. The schools printed in bold and italicized represent the schools in the district where teacher planning for differentiated instruction was almost non-existent. The four elementary schools underlined, along with their corresponding ELEOT scores of *Evident* and the NC EOG Reading Test results higher than the district average indicate that there existed clear evidence of differentiated instruction in the classrooms observed. In these four schools it seems reasonable to conclude that the evidence of differentiated instruction positively impacted the student achievement levels in reading.

Also as shown in Table 4, eight of the fourteen elementary schools indicated that teacher planning for differentiated instruction and student engagement in student-centered learning were given scores between 1.0 and 2.99, *Not Observed to Somewhat Observed*. As shown in the NC EOG Reading Test results, four of these same schools performed above the district mean

percentage, and the other four, fell below district percentages. Six of the fourteen elementary schools indicated that teacher planning for differentiated instruction and student engagement in student-centered learning was rated between 3.09 and 3.43, *Evident.* According to the NC EOG Reading Test results, four of the six schools exceeded the district percentage, and the other two schools fell far below both the district percentages. The data illustrated in Table 4 supports the following points:

- The evidence that differentiated instruction exists in all classrooms is inconsistent.
- The evidence that some schools performed above and some below the district percentage of students who performed at or above proficiency standards in schools where differentiated instruction was observed as almost non-existent suggests that the impact of differentiated instruction in classrooms observed in these schools cannot be determined.
- The evidence that some schools performed above and some below the district percentage of students at or above proficiency standards in schools where differentiated instruction was evident suggests that the impact of differentiated instruction in classrooms observed in these schools cannot be determined.

Furthermore, the average ELEOT score was 2.8, suggesting that student-centered learning or differentiated instruction across the seven domains was *somewhat evident*. The NC EOG Reading Test results at 45.8% for the district suggests that fewer than half of the students in the fourteen elementary schools scored above proficiency levels. This information could suggest that the large number of students who did not meet the reading proficiency standard at or above grade level was a result of minimal differentiated instruction as observed in the classroom learning environment by the principals.

Based on the inconsistency of data that suggests that differentiated instruction was evident in all the classrooms observed in the fourteen elementary schools, and the evidence that the performance of the schools fell both above and below district percentages for the number of students meeting proficiency levels in reading on the NC EOG Reading Test, the extent to which differentiated instruction impacted student achievement in reading in third, fourth, and fifth grade classrooms in the Wilson County Schools district cannot be determined.

Study Observations

The ELEOT data is the result of principals in the Wilson County Schools fourteen elementary schools who observed classroom learning environments in reading during the 2015-16 academic school year. The observation ratings were assigned by the principal on the ELEOT rating scale of 1 to 4, 1-Not Observed, 2-Somewhat Evident, 3-Evident, and 4-Very Evident. Overall ratings for the fourteen elementary schools ranged from 1.93 to 3.43, with a mean of 2.80. The average overall ratings for some schools indicated that little to no student-centered engagement was observed, whereas in others, student engagement across the majority of domains was evident. The ELEOT observation results for all schools illustrate that the use of technology under the domain of Digital Learning was generally not observed in reading classrooms. The range for Digital Learning for the fourteen schools is reported at 1.04 to 2.5. All other observation reports suggest that student engagement in learning was *somewhat evident* to *evident* across the other six ELEOT domains. The NC EOG Reading Test data results indicate a range of 20.0% to 73.2%, with a mean of 45.8% proficient in reading. The following points can be emphasized for consideration:

- That differentiated instruction that meets the needs of all learners is *evident* in the third, fourth, and fifth grade classrooms in the fourteen elementary schools is inconsistent.
- The evidence that some schools performed above and some below the district percentage of students who performed at or above proficiency standards in schools where differentiated instruction was observed as almost non-existent suggests that the impact of differentiated instruction in classrooms observed in these schools cannot be determined.
- The evidence that some schools performed above and some below the district percentage of students at or above proficiency standards in schools where differentiated instruction was evident suggests that the impact of differentiated instruction in classrooms observed in these schools cannot be determined.

The evidence that differentiated instruction is inconsistent in terms of the classrooms observations leaves the task of concrete determination of its impact on student achievement inconclusive.

Summary

Chapter Four served as an analytic examination of the Effective Learning Environment Observation Tool scores and the NC EOG Reading Test results for the fourteen elementary schools in the Wilson County Schools district for academic year 2015-16. The data from the ELEOT observations and the NC EOG Reading Test results for each of the fourteen elementary schools was collected, examined, and analyzed by the investigator. The NC EOG Reading Test results from the year under study was examined against the ELEOT scores for each school to determine the extent of student engagement in differentiated instruction, the extent to which

teachers differentiated instruction in the classroom, and the extent to which the differentiated instruction impacted student achievement in reading. A total NC EOG Reading Test percentage of students who met proficiency standards at or above grade level and the average score for the fourteen elementary schools from the ELEOT were included in the analyses (see Table 3).

The findings were a result of the analyses data as examined in three parts to address the three questions. Based on the inconsistency of data that suggests that teachers designed reading lessons that were differentiated was *evident* in all fourteen elementary schools, and the inconsistency of data that the percentages of students reading at or above proficiency levels at each of the fourteen elementary, the extent to which differentiated instruction impacted student achievement in reading in third, fourth, and fifth grade classrooms in Wilson County Schools cannot be determined.

CHAPTER FIVE: SUMMARY, RECOMMENDATIONS, AND CONCLUSIONS

For three consecutive years prior to 2015-16, performance results on the North Carolina NC EOG Reading Test for students in the third, fourth, and fifth grades illustrated achievement levels below proficiency standards for approximately half the students in the fourteen elementary schools in the Wilson County Schools district (see Figure 1). Of the fourteen elementary schools, ten did not meet the state average for each of these years.

This study was proposed as an investigation of the impact of differentiated instruction and its impact on the NC EOG Reading Test results for students in third, fourth and fifth grades in the Wilson County Schools district during academic year 2015-16. The study required an examination of differentiated in the classroom learning environment. Based on the review of literature, the investigator used Tomlinson's definition of differentiated instruction since it is clear and concise, and describes the core concept of differentiated instruction, and represents a meaning that reflects the various explanations set forth by both researchers and educators. The Tomlinson Model was selected to define and frame differentiated instruction, and was presented in Chapter Two as a concept map for differentiation (see Figure 3). The investigator collected the Effective Learning Environment Observation Tool scores and the NC EOG Reading Test results as the data resources for the study.

Three questions were developed to address the problem stagnant low achievement in reading for students in third, fourth, and fifth grades in the fourteen elementary schools in the Wilson County Schools district. They were (1) To what extent are third, fourth, and fifth grade students engaged in differentiated instruction in terms of content, process, and product when measured against the domains of the effective learning environment observation tool?, (2) To what extent do teachers differentiate instruction to meet the needs of all learners?, and (3) To

what extent does differentiated instruction impact student achievement in reading in third, fourth, and fifth grade classrooms? The study facilitator used an analytic examination approach to study the data. The NC EOG Reading Test data were examined through the lens of the seven domains of the ELEOT as represented in the matrix to address the study questions.

The findings were a result of an examination of the ELEOT and the NC EOG Reading Test data. The ELEOT and the NC EOG Reading Test data were examined to determine the extent to which classroom observations suggested that students were engaged in differentiated instruction, the extent to which teachers differentiated instruction for the classroom learning environment, and the extent to which differentiated instruction impacted student achievement levels on the NC EOG for third, fourth, and fifth grade students. Based on the inconsistency of data that suggested that teachers designed reading lessons that were differentiated was *evident* in all fourteen elementary schools, and the inconsistency of data that the percentages of students reading at or above proficiency levels at each of the fourteen elementary schools, the extent to which differentiated instruction impacted student achievement in reading in third, fourth, and fifth grade classrooms in the Wilson County Schools district could not be determined.

As illustrated in Table 5, the NC EOG Reading Test data reflected results not much different from those of previous years. In 2015-16, the percentage of students in third, fourth, and fifth grades who performed at or above proficiency levels declined. Although four of the fourteen elementary schools performed above the state percentage of students who performed at or above the proficiency standard for reading, the nine other schools were reported below. In academic year 2015-16, the NC EOG Reading Test state percentage of students who met proficiency standards was reported at 56.9%, while the district percentage was reported at 45.8. As noted in Chapter One, the district report for the elementary schools in the Wilson County

Table 5

Wilson County Schools NC EOG Reading Test Results for Grades 3, 4, and 5

NC EOG Reading Test Year	State	District
2012-13	42.7%	36.5%
2013-14	56.3%	50.8%
2014-15	56.3%	48.5%
2015-16	56.9%	45.8%

Note. A new NC EOG reading assessment and new cut scores were implemented in 2012-13. In 2013-14, NCDPI implemented new grade level proficiency (GLP) standards. Adapted from the North Carolina Department of Public Instruction, Testing and Accountability, 2012-2016.

Schools district indicated a decline in reading achievement levels for students in third, fourth, and fifth grades. As illustrated in the data for 2015-16, the stagnation continued.

The Literature

The literature collected in this study served to explore research that spanned several decades and that appeared to contribute to the concept of differentiated instruction and its potential impact on student achievement. The literature was reviewed in four sections: Differentiated Instruction Defined, DI and Concept Mapping, the Classroom Learning Environment of Differentiated Instruction, and Differentiated Instruction and Theories of Knowledge. The four sections were presented to establish a clear definition of differentiated instruction, frame the meaning of differentiated instruction using the concept mapping approach in the form of The Tomlinson Model, and the classroom learning environment to set the stage for reader's view as an observer of differentiated instruction when implemented. The final section of the four was designed to underscore differentiated instruction with the fundamental work of several authors who are educators, psychologists, or researchers who historically served as proponents of the concept.

Professor Carol Ann Tomlinson set forth a definition of differentiation that encompasses theories of other authors in this review. As noted in Chapter One, Tomlinson defines differentiated instruction as "making sure each student learns what he or she should learn by establishing clear goals, assessing persistently to see where each student is relative to the goals, and adjusting instruction based on assessment information so that each student can learn as much as possible and as efficiently as possible" (Tomlinson, 2010).

Analytic Examination Cautions

The study of differentiated instruction and its impact on student achievement leaves several implications about teaching and learning. Because some of the fourteen schools in this study demonstrated achievement levels at or above the state proficiency level, the performance of these schools could be credited to the differentiated instruction in the classroom. Other implications emerge when the observations are considered. There are two areas that may be given attention that are significant based on the responses to the first two study questions presented in Chapter One. These areas are student engagement and the classroom learning environment.

In response to *study questions one and two,* the findings suggested that the extent to which students were engaged in differentiated instruction and to which teachers prepared lessons that were differentiated was minimal in over half the fourteen elementary schools' reading classroom learning environments in Wilson County Schools. If differentiated instruction meets the needs of all learners, then these findings may generate the following concerns:

- All students may not respond to the differentiated instruction designed by the teacher;
- Teachers may not plan lessons that provided a variety of ways for *all* students to access the content;
- Other factors such as classroom management may have prevent student access to the differentiated instruction; and
- Observations may not captured the differentiated opportunities for *all* students.
- Some teachers may have need training in differentiated instruction;
- Teachers who are aware or who have been trained may decide that differentiated instruction is too difficult to implement;

- Teachers may have a mindset of low expectations;
- Teachers may perceive students as having barriers too difficult to remove, and therefore, may believe that their preparation is useless.
- Some principals may need training in differentiated instruction to observe the practices of the learning environment

Limitations of the study lead to additional items to consider that can raise caution. It is important to emphasize that as referenced in Chapter One, factors other than quality teaching may influence the teacher ratings (Bruno, 2015). Principals may sometimes rate teachers as more effective than what is observed to retain them. The results of these ratings often do not reflect high student achievement. The literature reviewed in Chapter Two of this study presented educators who propose that differentiated instruction is essential to meeting the needs of all learners. The findings in this study give way to several implications which suggest that differentiated instruction needs to be further explored.

Assumptions

To begin the study with the idea that differentiated instruction is a concept clearly defined and could be easily assessed during classroom observations was challenged throughout the process of the study. The initial step of identifying the problem of practice, which led directly to the need for a clear definition of differentiated instruction, became clear in terms of communicating a clear definition when the investigator reviewed the literature. The literature review made clear ideas about teaching and learning that were explored decades ago, and were foundational to the current theories on differentiated instruction. Also, the assumption that an observation tool could capture classroom practices to fidelity because of the features of the tool

itself raise questions about the preparedness of principals to recognize differentiated instruction, and teachers to prepare lessons that were differentiated and applied to the classroom learning environment. Finally, the assumption that differentiated instruction could be measured through observations to the extent that it could be determined the reason for student achievement became evident to the investigator. The investigators' assumptions were challenged by the process of the study. The findings of the study resulted as indicators, not fact, of the impact of differentiated instruction on student achievement in reading.

Recommendations

Based on the inconsistency of data that suggested that teachers designed reading lessons that were differentiated was *evident* in all fourteen elementary schools, and the inconsistency of data that the percentages of students reading at or above proficiency levels at each of the fourteen elementary schools, the extent to which differentiated instruction impacted student achievement in reading in third, fourth, and fifth grade classrooms in the Wilson County Schools district could not be determined, and therefore, the following three recommendations are presented.

Recommendation One

The first recommendation is that there is a need for all teachers to participate in training on differentiated instruction lesson planning that focuses on meeting the needs of all individual students. The findings suggested that the extent to which students were engaged in differentiated instruction, and the extent to which teachers prepared lessons that were differentiated were minimal in over half the fourteen elementary schools' reading classroom learning environments for students in third, fourth, and fifth grades in Wilson County Schools. The results illustrated that little to no differentiated instruction was evident in many of the classrooms observed by the principal at each school site. Similarly, overall student achievement in reading for students in

third, fourth, and fifth grades were reported below the state mean for the percentage of proficiency for 2015-16. Among the fourteen schools, however, there were several that were reported as having a percentage of proficiency above the state mean, and several of these schools also were observed as demonstrating that differentiated instruction was *evident.* This information indicates that the lesson plans with a focus on differentiated instruction and application of the plan and student achievement in some of the schools is evident, and that other schools could potentially benefit from training on how to differentiate lessons and apply them to the classroom learning environment.

Recommendation Two

The second recommendation is that there is a need for all principals to participate in training on differentiated instruction lesson planning that focuses on meeting the needs of *all* individual students. The principals assigned to each of the fourteen elementary schools in the Wilson County Schools district observed student engagement in learning across the seven domains of the Effective Learning Environment Observation Tool. Each domain provided a lens through which the principal to *see* differentiated instruction in action during the observation. The scores for ELEOT observations for each school, however, were inconsistent. Over half the fourteen elementary schools' average scores suggested that there was *little* to *no evidence* that differentiated instruction was observed in these schools. On the other hand, there were schools that showed evidence of differentiated instruction in the classroom, and these schools NC EOG Reading Test results were higher than the state mean percentage of students proficient. This information indicates, but does not substantiate, that principals may benefit from on-going training on what differentiated instruction in the classroom learning environment.

Recommendation Three

The third recommendation is that there is a need for a district team review of the observation tools that principals are required to use, and how these tools are used to capture teacher and student interaction that is considered either effective or ineffective in the classroom learning environment observed. The evidence that some schools performed above and some below the district mean for the percentage of students at or above the proficiency level for reading, and the inconsistent evidence that differentiated instruction exists in the classrooms observed may suggest that the observation tools may need to be reviewed. The district team would review observation tools to examine how each is used to capture the student engagement in terms of *evidence* in the classroom learning environment. The goal would not be a focus on changing the instrument, but on the team members gaining insight on what administrators currently see as effective instructional practices, and about what each component of each observation tool is asking the observer to *look for*. The inconsistencies among the both the observation data for each school and the NC EOG Reading Test results suggest that what is considered effective instruction in the classroom learning environment may be beneficial to principals, teachers, and to students.

Conclusions

The purpose of the study was to determine the extent to which differentiated instruction in the classroom learning environment impacted student achievement in reading for third, fourth, and fifth grade students in the fourteen elementary schools in the Wilson County Schools district. After examination, the classroom observation data and NC EOG Reading Test data for academic year 2015-16 was found to be inconsistent. The conclusion that teachers did not differentiate their lessons to meet the needs of all learners could not be drawn for all the schools, and

therefore, could serve as a rationale for some of the inconsistency. That students were engaged in learning at a minimal level in only some of the classrooms observed could also serve as a rationale for the inconsistency. The conclusion can be made that the extent to which students were engaged in lessons that were differentiated could not be determined because of the inconsistency of the data, and, therefore, cannot be determined. In conclusion, the study of the impact of differentiated instruction has generated information that does not conclusively support that differentiated instruction positively impacts student achievement in reading for students in third, fourth, and fifth grade classrooms.

Epilogue

The Wilson County Schools' district leaders have provided school principals and teachers a variety of programs and resources. These resources remain available to teachers in the WCS district to support educator efforts to improve achievement levels of proficiency in reading for all students currently enrolled. There has been growth in some areas in all the elementary schools, and high growth in a few. However, the overall academic achievement levels for proficiency in reading at the fourteen elementary schools continue to remain a challenge.

Educators and researchers who are proponents of differentiated instruction make the claim that teachers who design lessons so that each student can access the content, make sense of the material through a process, and develop products that demonstrate that the learning intended was acquired will influence higher achievement levels for more students. In many classrooms, the approach to teaching and learning continues to be traditional, where uniform instruction, although differentiated to meet the needs of some learners, remains a practice familiar in classrooms across the nation (Tomlinson, 2001). Perspectives on the results of schools have

raised public awareness and growing concerns for the future of the nation, particularly in the area of teaching and learning.

The United States' educational system has failed to keep up with the pace of literacy improvement in public schools (Carnegie Corporation of New York, 2010). In the early 1990s North Carolina State Board of Education initiated a plan to improve student achievement, and yet, the reading achievement levels continue to reflect performance that is subpar. Could differentiated instruction be the pathway to continuous improvement for all students? Educators continue to try to figure out a way to make the shift from a *one size fits all* approach to teaching and learning in the classroom to differentiated instruction (Tomlinson, 2001). According to Edward Graham (2013), people need to do what they know works, because this is what will make schools work for every student.

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APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

Notification of Initial Approval: Expedited

From: Social/Behavioral IRB

To: Pamela Walthall

CC:

Jim McDowelle

Date: 10/12/2017

Re: UMCIRB 17-001815
An Examination of DI in WCS

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 10/12/2017 to 10/11/2018. The research study is eligible for review under expedited category # 5. The Chairperson (or designee) deemed this study no more than minimal risk.

Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The Investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Name	Description
AN ANALYTIC EXAMINATION OF DIFFERENTIATED INSTRUCTION IN THIRD, FOURTH, AND FIFTH GRADE READING CLASSES IN WILSON COUNTY SCHOOLS	Study Protocol or Grant Application

Study.PI Name:
Study.Co-Investigators:

APPENDIX B: SUPERINTENDENT'S STUDY APPROVAL LETTER

GARDNERS ELEMENTARY SCHOOL

5404 NC 42 HWY. EAST

ELM CITY, NC 27822

Gardners Grows Great kids!

Pamela Walthall, Principal **Phone # (252) 399-7920**
Lisa Ellis, Secretary **Fax# (252) 399-7895**

May 6, 2017

Dr. Mills,

It is the requirement of the East Carolina University Educational Leadership Doctoral Program that I attain your approval for a topic for study as the Problem of Practice (POP). The scope of the POP is to identify a problem within the Local Education Agency (LEA), investigate it, report the findings, and to make recommendations based on the study.

I have identified the POP as the lack of sustained and continuous growth in reading for students in third, fourth, and fifth grades. The number of students who perform at or above proficiency level is declining as indicated by the End-of-Grade Reading Test for students in the fourteen elementary schools in the LEA. The study will be an examination of differentiated instruction in reading in third, fourth, and fifth grade classrooms to determine its impact on achievement in reading. The tool that each principal will use to examine the classrooms is the Effective Learning Environment Observation Tool (eleot), the instrument required by district leadership that focuses on student engagement in the learning environment. The study will include a naming and framing of the problem, a review of literature, a methodology to carry out the study, findings, and recommendations.

My request to you as Superintendent of Wilson County Schools is that you support this study by signing this letter or by way of a written response to this item.

I will submit additional information at your request.

Thank you.

Respectfully,

Pamela Walthall, Principal

✓ APPROVE
___ DISAPPROVE

Signature L B Mills Date 5/8/17
Dr. Lane Mills, Superintendent

APPENDIX C: WILSON COUNTY SCHOOLS PROFESSIONAL DEVELOPMENT OPPORTUNITIES FOR PRINCIPALS AND TEACHERS 2015-16

Course #	Course Title
2260	WCS 2015-16: Thinking Maps: A Language for Leadership
2341	WCS 2015-16: Augustine Literacy Project
2451	WCS 2015-16: NCCAT Teaching generation Z-Active & Digital Learning
2560	WCS 2015-16: Reading 3D Training for New Hires
2662	WCS 2015-16: Write From the Beginning...and Beyond
2715	WCS 2015-16: Reading Instruction Teaching Support (RITS) Sessions
2775	WCS 2015-16: ELL Instructional Practices
2803	WCS 2015-16: AIG Conference at ECU
2813	WCS 2015-16: Moby Max Refresher Training
2832	WCS 2015-16 Reading 3D Training
2845	WCS 2015-16: Reading Foundations
2869	WCS 2015-16 Guiding Questions (Thinking Maps)
2873	WCS 2015-16: District Teams Establishing Baselines for Student Success-Math
2876	WCS 2015-16: NCEES Wikispace Principal READY Sessions
2892	WCS 2015-2016 Effective ELL Instructional Practices
3142	WCS 2015-16: K-2 Math Assessment Training
3210	WCS 2015-16: K-5 Math: District Teams Establishing Baselines for Students
3236	WCS 2015-16: Best Practices in Writing Instruction Institute
3237	WCS 2015-16: Read Aloud Project
3318	WCS 2015-16: HillWrite
3324	WCS 2015-2016 Effective ELL Instructional Practices
3327	WCS 2015-2016 How to Teach Rigor for High Priority Schools
3399	WCS 2015-16: i-Ready Understanding Data
3403	WCS 2015-16: Literacy Success in a World of Higher Standards

3437	WCS 2015-16: NCDPI Master Literacy Training
3481	WCS 2015-16: 2015 Fall Principal READY Training
3799	WCS 2015-16 Singapore Math
3916	WCS 2015-16: Multi-tiered System of Support
4070	WCS 2015-16: Max Thompson Training
4078	WCS 2015-2016 Thinking Maps Training for Returning Staff review/application
4079	WCS 2015-16: Growing Success for ELLs
4107	WCS 2015-16: NC Dual Language/Immersion (DL/I) Administrator Seminar
4143	WCS 2015-16: Collaborative Conference for Student Achievement
4153	WCS 2015-16: Assistant Principal READY -East
4154	WCS 2015-16: NC Association for the Gifted & Talented State Conference
4217	WCS 2015-16: Learning Focused Lesson Planning Workshop
4224	WCS 2015-16: Master Literacy Training
4283	WCS 2015-16: Spring NCCAT
4392	WCS 2015-16: NCASA Conference on Educational Leadership
4404	WCS 2015-16 Foundations of Reading
4414	WCS 2015-16: Principal READY Training
4415	WCS 2015-16: Empowering Principals to be Instructional Leaders
4417	WCS 2015-16: Effective English Language Learners Instructional Practices
4571	WCS 2015-16: Literacy Across Content Areas
4585	WCS 2015-16: Reaching Reluctant Readers: Bringing Boys to Books
4716	WCS 2015-16: NCDPI K-3 Literacy
4717	WCS 2015-16: Foundations of Reading Fall
4761	WCS 2015-16: Foundations of Math
4762	WCS 2015-16: The Novel Engineering Literacy Program
4870	WCS 2015-16: Thinking Maps Modules (Group A)
4871	WCS 2015-16: Thinking Maps Modules (Group B)
4872	WCS 2015-16: Thinking Maps Modules (Group C)

4879	WCS 2015-16: NC Reading Conference
5091	WCS 2015-16: Math Foundations- State level training
5092	WCS 2015-16: i-Ready Symposium
5097	WCS 2015-16: Literacy Training
5459	WCS 2015-16: 2016 Spring Principal READY Training
6003	WCS 2015-16: Number Sense Training

APPENDIX D: THE EFFECTIVE LEARNING ENVIRONMENT

OBSERVATION TOOL (ELEOT) SEVEN DOMAINS

The purpose of the ELEOT is to help identify evidence of the classroom setting and activities that are conducive to student learning. The ELEOT consists of seven domains. Each domain has items that focus the observer on aspects of the domain as it is reflected in the classroom environment. The observer scores information in each domain based on the ELEOT rating scale of 1-Not Observed; 2-Somewhat Evident; 3-Evident; and 4-Very Evident. The results of observations captured by the ELEOT is intended to provide feedback on student engagement in the learning environment (AdvancED, 2013).

Domain A: Equitable Learning for Students

- Has differentiated learning opportunities and activities that meet his/her needs.
- Has equal access to classroom discussions, activities, resources, technology, and support.
- Knows that rules and consequences are fair, clear, and consistently applied.
- Has ongoing opportunities to learn about their own and others' backgrounds/cultures.

Domain B: High Expectations for students

- Knows and strives to meet the high expectations established by the teacher.
- Is tasked with activities and learning that are challenging but attainable.
- Is provided exemplars of high quality work.
- Is engaged in rigorous coursework, discussions, and/or tasks.
- Is asked and responds to questions that require higher order thinking.

Domain C: Supportive Learning for Students

- Demonstrates or expresses that learning experiences are positive.
- Demonstrates positive attitude about the classroom and learning.
- Takes risks in learning (without fear of negative feedback).
- Is provided support and assistance to understand content and accomplish tasks.
- Is provided additional/alternative instruction and feedback at the appropriate level.

Domain D: Active Learning for Students

- Has several opportunities to engage in discussions with teacher and other students.
- Makes connections from content to real-life experiences.
- Is actively engaged in the learning activities.

Domain E: Progress Monitoring for Students

- Is asked and/or quizzed about individual progress/learning.
- Responds to teacher feedback to improve understanding.
- Demonstrates or verbalizes understanding of the lesson/content.
- Understands how his/her work is assessed.
- Has opportunities to revise/improve work based on feedback.

Domain F: Well-Managed Learning for Students

Speaks and interacts respectfully with teacher(s) and peers.
Follows classroom rules and works well with others.
Transitions smoothly and efficiently to activities.
Collaborates with other students during student-centered activities.
Knows classroom routine, behavioral expectations and consequences.

Domain G: Digital Learning

Uses digital tools/technology to gather, evaluate, and/or use information for learning.
Uses digital tools/technology to conduct research, solve problems, and/or create work.
Uses digital tools/technology to communicate and work collaboratively for learning.