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Teachers' Perceptions of Differentiated Learning for At-Risk Second-Grade Students in Reading

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COLLEGE OF EDUCATION

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2016

Abstract

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Walden University, 2008

BA, Charleston Southern University, 2004

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Students were performing below grade level in reading, fluency, and comprehension in a suburban school in South Carolina. The purpose of this study was to explore the perceptions of teachers about their preferred differentiated instruction approach (face-to-face vs. computer-based) to meet the needs of at-risk students in 2nd grade. The underlying theoretical framework was drawn from constructivist theory, observation theory, and social development theory. The study questions were on teachers' perceptions of the best form of differentiation, improved reading based on peer socialization in face-to-face instruction, and benefits and limitations of a computer-based approach. The study was a single case study design, with qualitative data from 10 participants; the tools included an attitudinal questionnaire, focus groups, and interviews. Data sources were triangulated and analyzed for emergent themes. The results showed that teachers perceived differentiation as a positive approach to meeting students' needs with a preference for a face-to-face approach because it provided direct contact with the student, but computer-based approach had an advantage in compiling data. The teachers faced challenges using face-to-face instruction, including time management, planning, administrative support, and lack of professional development opportunities. The challenges led to a recommendation for professional development. This study supports positive social change in that educators may apply the results to their efforts to develop student skills in reading, fluency, and comprehension, thus increasing students' opportunities for success and productivity in society.

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Dedication

I dedicate this project study to my husband, Robert Cordes; daughter, Gabrielle Alisa Cordes; parents, James and Betty Sabb; coworkers; extended family; and friends. Your sacrifice and unwavering support are greatly appreciated. You have tolerated many days, evenings, holidays, and weekends of me spending vast amounts of time conducting research. I pray that you understand my commitment to this process and education and use my experience as a guide toward motivation and high expectations for your future endeavors.

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Section 1: The Problem

Introduction

Educators and school leaders are charged with finding the best way to use resources to provide services to students and improve student achievement, which may promote better performance for schools. States throughout the United States require teachers to be certified and highly qualified; however, these requirements do not address teacher effectiveness or the quality of instructional practices. An educator may be highly qualified but unable to teach students in a way that will improve student achievement (Murnane & Steele, 2007). Leaders need to focus on educators' instructional practices in order to improve student performance. Individualized instruction offers educators an opportunity to design unique programs that respond to the needs of each student, especially in the case of at-risk-students (National Dropout Prevention Center/Network, 2013). With the need for individualized plans noted in the No Child Left Behind Act (NCLB), educators capable of effectively designing and using the plans will have an advantage in meeting the requirements of education and helping their students perform better. Differentiated instruction is one instructional strategy that has been used to meet the variety of student learning needs in schools; it offers hope for improved individual achievement based on improved teacher effectiveness (Levy, 2008). Within an individualized instruction model, differentiated instruction enables teachers to work within the capabilities and needs of the student. Using the model, teachers can promote their students' academic achievement.

Differentiated Instruction

Differentiated instruction is considered one of the best possible practices to provide classrooms with educational equality and produce academic excellence. Documentation is available on differentiated instruction approaches in classroom practices; these approaches are intended to allow teachers to meet students where they are and bring them to the level where they need to be by providing multiple pathways to the same destination (Jackson, 2010). The approach involves a number of teaching practices designed to identify the needs of learners. When instruction is differentiated, teachers recognize that one method may not cater to all students and thus develop various styles. Differentiated instruction can be a difficult strategy for teachers to understand in its entirety, and for some teachers it is a challenge to practice because it involves matching the instruction with individual students' needs (Landrum & McDuffie, 2010). The approach is used to address individual student needs for academic proficiency in the area of reading. Differentiated instruction reflects an understanding that every student is different and focuses on the concept of teaching each student in a variety of ways that will help each achieve academically (Sherman, 2009; Tomlinson, 2009). In using differentiated instruction, educators have an opportunity to respond to the cognitive, demographic, and ethnic diversity of students and their abilities to achieve purposeful learning (Hawkins, 2009). When a teacher differentiates reading instruction, this "means that a teacher is approaching the literacy curriculum and her students with a responsive disposition—an orientation to planning, decision-making, curriculum selection and instructional flow that is flexible and opportunistic" (Tobin, 2008, p. 160). A

differentiated instructional strategy can prompt teachers to deliver instruction to meet the learning needs of all students.

Use of differentiated instruction makes it possible to bring at-risk students and students with special needs into the regular classroom through the inclusion model. Following legislation ensuring that all students have an opportunity for education such as NCLB, the inclusion model provides a way to bring students with various learning challenges and even exceptional students into the general education scenario (Fenty, Miller, & Lampi, 2008). Differentiation of instruction makes inclusion possible because the educator is able to plan for all students, considering individual needs and capabilities (Piquette, 2012). The educator simultaneously plans for the students, ensuring that the curriculum reflects the goals of each student and his or her needs.

In an inclusive classroom, an educator deals with students with different levels of capability. These levels are instrumental in defining the range of content, processes, and products of the curriculum in a differentiated classroom (Tomlinson & Parrish, 2013). The teacher decides on the knowledge the students will need to acquire depending on their level and works with the students toward achieving set goals that will be visible in their academic outcomes. The use of differentiation in an inclusive classroom becomes easier with the incorporation of assistive technology.

In the era of technology, it is possible to combine differentiated instruction with technological assistance in the inclusive classroom to maximize benefits to students. According to Tenkely (2013), technology can facilitate differentiated instruction in every lesson by making it possible to pace the lesson to fit the level of learning of each student.

Using technology, teachers can assign their students tasks that are interesting for them and that encourage learning. Technology such as computers increases the level of interest in the lesson. The goal of incorporating technology into teaching is to help individuals with their schoolwork. There are many school systems using computer-based learning to help students improve their academic skills. Numerous studies have shown that technology promises to improve student achievement (Tenkely, 2013).

This section of the project study includes defining the problem, presenting the rationale for the study, listing pertinent definitions, describing the problem's significance, putting forth the guiding research questions, reviewing pertinent literature, explaining implications of the study, and summarizing the information presented

Definition of the Problem

The problem addressed in this project study was below-grade-level student performance in reading, fluency, and comprehension in a suburban school district in South Carolina. The suburban school was the case study for this project study. Teachers had been working on identifying a strategy that would help their learners achieve grade-level skills. Results from students based on development reading assessment, student-reading inventory, and dynamic indicators of basic early literacy skills illustrated students' poor performance, indicating that 23% of students in 2^{nd} grade were reading below grade level. Teachers were under pressure to ensure that all of their students passed assessments regardless of their backgrounds, capabilities, and needs. Therefore, educators needed to identify an instruction strategy that would help to increase the number of students reading at grade level. A possible solution identified in South Carolina was the

implementation of differentiated instruction. For example, one school implemented differentiated instruction within an inclusive classroom in order to improve student language proficiency. The school had students from different backgrounds, the majority of whom were African American, followed by multiracial, Pacific Islander, Hispanic, and American Indian (South Carolina State Department of Education, 2014). Implementation of differentiated instruction would thus be instrumental in helping teachers accommodate the diverse needs of a diverse student body.

Despite the possible benefits of using differentiated instruction, a problem existed in understanding the perceptions of teachers regarding the use of differentiated instruction to support at-risk readers, especially concerning their preferred implementation model (face-to-face vs. computer-aided differentiation). The teachers in South Carolina were using various forms of differentiated instruction, including computer-based learning and face-to-face instruction. Depending on the needs of the student and the perceptions of the teacher regarding styles of differentiated instruction, a teacher may choose the style he or she feels best represents his or her goals.

Various groups involved in education can help to identify how differentiated instruction can be useful to different groups of learners. A key way to identify the efficacy of an approach is to identify positive perceptions of it among teachers. Teachers are stakeholders who train for, plan, and implement differentiated instruction. Teachers are in classrooms implementing this strategy each day. It is important to gain teachers' perceptions on the instructional strategies that are being used to improve students' reading performance. This project study explored teachers' attitudes and perceptions of

traditional and computer-aided differentiated instruction strategies for at-risk 2nd grade reading students.

Differentiated instruction is perceived throughout the academic community as an important tool to serve at-risk students (Patternson, Connolly, & Ritter, 2009). In a classroom, teachers have students representing individual differences in social and academic background. Of interest to this study was students' academic background. In inclusive settings, classrooms are diverse, requiring teachers to extend their skills and abilities toward accommodating all students and meeting their learning needs. Prior to inclusion, class populations were often homogenously grouped, and students had similar capabilities. Individualization was needed for various student needs, but teachers were not required to individualize plans or to define a curriculum that could respond to multiple needs (Tomlinson & Imbeau, 2010). With the introduction of inclusive settings, teachers have been required to accommodate all students, giving every child an equal chance at obtaining an education. Differentiated instruction offers a way to meet the learning needs of all students.

The benefit of using differentiated instruction is enhanced academic performance for struggling students (Bailey & Williams-Black, 2008). Differentiated instruction provides a reliable way to cater to specific student needs. An advantage to consider is that differentiated instruction increases opportunities for high student achievement (Chamberlin & Powers, 2010). This benefit, however, is specific to the teacher's ability to use this approach effectively.

A challenge in the use of differentiated instruction is teachers' lack of training (Finley, 2008). Training is essential in ensuring that teachers are aware of the elements they need to include in their differentiated classroom. When differentiating in the classroom, teachers need knowledge of how to determine student needs, and of how to ensure that each student benefits from the classroom. For example, in an inclusive classroom where the teacher interacts with students with varying needs and capabilities, teacher training makes it possible for the teacher to be effective for each student, thus achieving the projected benefit of enhanced student achievement.

Differentiated instruction provides a powerful tool capable of helping teachers meet the needs of each learner. For example, teachers can use differentiated instruction in addition to regular teaching strategies to mediate literacy challenges among their students (Walker-Dalhouse et al., 2009). This project study was conducted to assess the use of differentiated instruction in promoting reading fluency. Reading plays a significant role in a child's academic achievement. For example, reading fluency influences reading ability and comprehension (Bashir & Hook, 2009). Achieving fluency helps a reader in recognition of words and encourages decoding, hence improving comprehension (Rasinski, Rikli, & Johnston, 2009). Failure to achieve reading fluency and comprehension can have a negative impact on the academic achievement of a student.

At-risk readers can particularly benefit from differentiated instruction because it focuses on fixing the areas that challenge students by promoting modification of product, process, and content to fit student needs (Cennamo, Ross, & Ertmer, 2012). Challenges facing at-risk students go beyond the need to read at grade level. At-risk students'

problems may include challenges meeting targets for other classes as well (Allington, 2011). Poor achievement in other classes relates to at-risk students lacking reading skills or proficiency that would benefit them in other courses.

Rationale

The rationale for the study was that as teachers work in an environment that requires greater accountability for students' performance as specified in laws such as NCLB (2001), it becomes important to recognize and use appropriate teaching strategies. Examining teachers' attitudes toward differentiated instruction methods using computer-aided or face-to-face instruction provides an opportunity to identify the efficacy of such strategies. This may, in turn, provide instructors with a useful model of instruction. Differentiating instruction is helpful in promoting better student achievement in areas such as test scores. Improved scores come from students focusing on those areas in which they need help. The teacher focuses on helping the students based on their specific needs. In an assessment of various studies on the use of differentiated instruction, Huebner (2010) found that differentiation was useful for students with different abilities. For example, students with severe or mild learning disabilities who received differentiated instruction were likely to improve their learning outcomes, especially when the delivery of instruction occurred in small groups. Similarly, high-performing students taught using a differentiated curriculum showed significantly higher achievement compared to their colleagues using a non-differentiated curriculum. When used to improve reading among elementary students, differentiation has had a positive impact on students' decoding, phonemic and comprehension skills (Hubner, 2010).

Evidence of the Problem at the Local Level

In a suburban school district in a southeastern state in the United States, South Carolina, teachers were implementing various instructional models toward increasing the reading proficiency of at-risk 2nd grade students. The school district structured classes within an inclusive model, and teachers were mandated to provide differentiated instruction. Students were receiving differentiated instruction through two methods: face-to-face direct teacher instruction based on teacher-developed materials and a computer-based program (CLO). Table 1 contains data on four 2nd grade classes at the study site, supporting the need for differentiated instruction.

Table 1

Number of Students Scoring Below Average on the Developmental Reading Assessment, Student Reading Inventory, and Dynamic Indicators of Basic Early Literacy Skills, 2011-2012

Class	Number of at-risk readers
Class B	7/20
Class C	6/23
Class D	5/22
Class E	7/19
Second grade total	25/84 = 30%

Note. The number column indicates the particular number of students who scored below grade average, as reported by the district Developmental Reading Assessment and Dynamic Indicators of Basic Early Literacy Skills assessments for 2011–2012 compared to the entire number of students in the class.

All 108 2nd grade students receive differentiated instruction in a heterogeneous, inclusive setting. However, this study focused on teachers' perceptions of the form of differentiated instruction that was most helpful in increasing the performance of skills for the 25 at-risk students scoring below average on assessments. At the school where this research was conducted, classroom teachers were expressing concerns about their self-efficacy and the use of the instructional mandates being fostered by the district. Information obtained from the school principle indicated that teachers were unsure of the academic validity of each of the differentiation strategies being offered to at-risk students for instructional reading improvement. This research addressed the core question of how teachers involved in differentiated instruction perceived the effects of the strategies being used to hone at-risk students' skills. Students may be unable to comprehend the material they read due to various reading difficulties; thus, teachers differentiate content to conform to students' reading levels. Teachers at the study site constructed their own developmental lessons for direct instruction, based on state standards and the local curriculum. Face-to-face differentiated instruction was offered through small-group instruction, with a ratio of students to teachers of 5:1. The teacher provided materials at the appropriate level and taught skills in the small-group setting, which included independent and group practice in addition to fluency practice. When students were not receiving direct instruction, they received differentiated instruction through the district-funded CLO. Use of CLO provided students with reading lessons and fluency practice on an individual level. The computer-based lessons offered instruction with examples for students to follow through independent practice.

Beginning in 2004, implementation of differentiated instruction became mandatory in the local setting. Teachers working at the school site took a weeklong, 7-hours-a-day workshop to learn how to properly differentiate instruction. The workshop focused on the skills of phonemic awareness, fluency, comprehension, vocabulary, and assessment. Each day, the workshop focused on a skill and provided techniques and question-and-answer sessions. It was not until 2008 that the CLO computer program was implemented to provide students of all levels with differentiated instruction. Teachers were trained in 2 days with four sessions each day to ensure the proper use of the program and thus to achieve the greatest success from its implementation with 2nd grade students.

Once the computer program was introduced to teachers, it was expected that both formats of differentiation would be used. The program was instituted but had not yet been assessed to reveal its success. Differentiated instruction occurred for 1 hour each week through CLO. However, at-risk students received 30 minutes of face-to-face differentiated instruction and 30 minutes of CLO daily. During face-to-face differentiated instruction, teachers were able to assess students daily or weekly on a focused skill through written and verbal responses. Students were given a five-question test when instruction on the skill was complete. The skill could be tested the same day or at the end of the week, depending on when the student finished the lesson on the skill. This study may enable the district to understand whether teachers view CLO as a viable alternative to face-to-face instruction for teaching reading to at-risk 2nd grade students. Teachers using differentiated instruction need training in the use of differentiated instructional

strategies. They also need to feel self-efficacious in their ability to determine the strategies that promote positive academic outcomes for students.

When 2nd grade students are performing below grade level in reading, they are considered *at-risk.* Students who fall into this at-risk category can have problems in reading, literacy fluency, and comprehension. Students performing below grade level in reading are typically less likely to have an understanding of the regular curriculum and require long-term support. These students tend to fall behind their peers in literacy achievement and knowledge of the curriculum. Having a low literacy level could be a cause for poor self-esteem and underachievement in other subject areas (Cooke, Kretlow, & Helf, 2010).In assessing student achievement, a variety of standardized tests are used to provide an overall picture of students' abilities. At the local level, students were assessed by 2nd grade reading scores that were measured by archival data collected for the 2011-2012 school year through the Developmental Reading Assessment (DRA, 2012), Student Reading Inventory (2012), and Dynamic Indicators of Basic Early Literacy Skills (2012). In the 2011-2012 school year, it was noted that there was a large number of at-risk students reading below the proficiency level in the inclusively structured classroom setting. The classroom setting contained students with various levels of reading proficiency. Table 2 indicates the number of at-risk students served in inclusive classrooms.

The setting was an elementary school in a high-performing suburban school district in South Carolina with an enrollment of 715 students for the 2011-2012 school year, as shown in Table 2.

Table 2

Student Demographics in the Suburban School

Demographics	School population
American Indian	6
Asian or Pacific Islander	25
African American	377
Hispanic	14
Multiracial	43
Caucasian	250
Paid lunch	178
Free lunch	272
Reduced lunch fee	265

Note. Adapted from "No Child Left Behind (NCLP) Adequate Yearly Progress (AYP)," by(South Carolina State Department of Education, 2014, retrieved from http://ed.sc.gov/data/ayp/

The local need to discern teachers' perceptions as to which differentiated instruction program worked best to support 2nd grade at-risk readers. During recent professional development training on differentiated learning, several teachers expressed concern that using the computer program limited students' interactions with one another as expressed in an interview with a teacher at the one of the schools. After the professional development that focused on face-to-face differentiated learning strategies,

some teachers expressed interest in seeing which of the two strategies for differentiation, face-to-face or computer-based learning, better served the at-risk 2nd grade population in reading instruction.

Evidence of the Problem From the Professional Literature

According to social cognitive theory, watching others helps one to learn, understand, and perform a particular behavior (Bandura, 1986). Educational systems that use a computer-based learning system may reflect that individuals will observe their own abilities to perform and then will develop this understanding and a sense of self-efficacy. It is hoped that students will also improve their skills through repeated-performance learning. In their study, Meyer et al. (2011) found that use of a computer-based program helped students to self-regulate their learning at their own pace, therefore promoting interactions among personal, behavioral, and environmental influences.

The literature provides various characteristics that contribute to the below-level reader. Students who lack the ability to read fluently on grade level also lack the ability to comprehend the information, thereby becoming at-risk readers (Allington, 2011). The problems of at-risk readers are not isolated to reading but impact other subject areas as well. At-risk readers are able to participate in differentiated instruction for learning, which entails modification in product, process, and content necessary to help students gain the necessary reading skills to improve their proficiency in reading and thus in other subject areas.

The National Assessment of Educational Progress (NAEP) provided data that gave an indication of how South Carolina was performing in reading. In 2011, about 29%

of fourth grade students who were non-English speakers scored above proficient level, which was lower than the national rate of 35% (National Council of La Raza, 2014). The English speakers performed worse at 20%, although this was better than the national percentage, which was 7%. Based on the state assessment scores, the number of fourth graders who met the established reading standards was 70% for 2011-2012. Based on both scores, a considerable number of students (about 30%) remained below English reading standards for the state assessment.

The South Carolina Education Oversight Committee (2012) provided data for reading from third to eighth grade showing low performance for many students that echoed the NAEP findings. For example, third grade performance for the 2011 Palmetto Assessment of State Standards showed that 88.6% of students achieved the set standards, leaving out 21.4%. The scores differed among groups of students, such as Caucasian (93.4%), African American (81.6%), and Hispanic (85.6%). The National Council of La Raza (2014) noted that about 80% of students in Grades K-12 were Spanish speakers, indicating that many students were speaking English as a second language. These results indicated that more than 20% of students in Grades 3 and 4 were reading below grade level. Based on the accountability attribute in teaching, teachers have the responsibility to address this issue by identifying the most appropriate teaching strategy, especially given the implications of poor reading fluency.

Evidence shows that developing reading fluency is crucial for children as they move away from focusing on words and recognition to reading, making connections to comprehension (Bashir & Hook, 2009). Fluency, phonics, and comprehension are

automatically connected in reading. If a reader has not achieved the ability to automatically recognize words, the reader will use a significant amount of cognitive ability to decode words. This expending of energy to consciously decode words negatively affects comprehension (Rasinski, Rikli, & Johnston, 2009).

A student having the ability to understand and react to ideas in reading reaches the ultimate goal of reading, which is to comprehend and learn from text. It is important for teachers to understand that fluency is an essential component that produces this capability (Nichols, Rupley, & Rasinski, 2009). Classroom instruction that focuses on increasing fluency helps to build and increase reading comprehension (Shwanenflugel et al., 2009). When students develop comprehension capabilities, they attain some level of control in their fluency and decoding (Connors, 2009).

The entire school district differentiates instruction for reading and literacy based on the two strategies discussed here. Because all classes use the inclusion classroom structure model, differentiated instruction is emphasized. Differentiated instruction in the areas of reading and literacy is implemented in a small-group setting. The teacher in the differentiated instructional process addresses skills for students based on the best methods of building on previous knowledge and making improvements for each individual student (Tyner, 2009). Classroom teachers are routinely faced with several students and challenges in literacy; to effectively address each student's individual needs as a learner, teachers incorporate the differentiated instruction strategy (Compton-Lilly, 2009). Differentiated instruction is a powerful scaffold in literacy. Strategies that can be incorporated into differentiated instruction are varied text centers and small group

sessions (Magee & Breaux, 2013). The small-group sessions are led by the teacher to teach and improve skills on the students' reading level.

Educators implement differentiated instruction that is based on data to help mediate literacy problems for students (Walker-Dalhouse et al., 2009). Some teachers incorporate differentiated instruction in addition to grade-level reading by using the format of phonological processing (oral blending and segmenting activities). Others use word-study fluency practice (sequence of skills, sounds, blending, and repeated sight-words review), vocabulary (reviewing vocabulary from text), fluency connected with the text (repeated reading in text and practicing decoding words), and comprehension (applying comprehension strategies to the text; Wonder-McDowell, 2010). Incorporating differentiated instruction is a strategy that can help in meeting the needs of all learners on various levels (Ankrum & Bean, 2008).

Differentiated instruction may be viewed as a lesson that teachers provide to achieve multiple avenues for students to reach identified goals. It is based on each student's level of learning and incorporates each student's learning styles (King-Shaver, 2008). Differentiated instruction provides students with the opportunity in the whole-group classroom setting to receive instruction based on their levels of academic acuity (Servilio, 2009). The teacher can modify the lesson, teach students on their reading level, and provide material such as texts and assessments on the level appropriate for each individual student.

Computerized reading programs are tools that provide additional literacy academic support for students. The programs provide assessments for students to begin

working at the appropriate level: above average, average, or below average. Computerized programs then create an academic plan to help students achieve academic success. CLO is a reading educational software program that is incorporated as a form of differentiated instruction. Students advance through the program by consecutively following the prescribed path of instruction, based on the results of their individual assessment. Students are recommended to spend three 40-minute sessions each week. The lesson pattern flows as follows: a pre-reading activity to introduce the skill or strategy, a digital presentation of the story, and a comprehension exercise that focuses on the skill. Two assessments are available to diagnose accomplishments, assessing mastery of the objective referenced material of key skills taught. Mastery is considered to have been achieved with a score of 70%, and if students do not achieve mastery, the lesson is retaught until students master the material (Cobb, 2010).

Assessments are highly valuable tools in education because they can serve as the foundation for instruction and the key to differentiated instruction. Assessments also facilitate the continuous monitoring of students' growth, strengths, and weaknesses. Appropriate use of assessments is "highly effective for influencing student learning and differentiating instruction tailored to individual student profiles" (Risko & Walker-Dalhouse, 2010, p. 420). One-minute fluency assessments are reliable in identifying students who are at-risk of experiencing reading difficulty (Deeney, 2010). In addition, these brief assessment measures help educators identify students who cannot read accurately and quickly.

In addition to being able to read fluently, students must be able to comprehend what they are reading. Reading is the foundation of academic success, and every subject area correlates with reading and comprehension. To test students' reading and comprehension levels, teachers may use the DRA. The DRA is an acceptable alternative to a formative, multiple-choice literacy assessment because it can assist teachers in making more credible and summative decisions (Burgin & Hughes, 2009). It measures reading ability and comprehension through the process of retelling and a comprehension interview (Burgin & Hughes, 2009). After analyzing the data for all students in the class, the teacher can use DRA results to form differentiated instruction groups.

Teachers can use research to improve their instructional strategies, helping students meet their reading needs. Teachers can enhance instruction by incorporating the findings from current research (Allen & Hancock, 2008). The self-assessment tool also allows students to remediate their learning by modeling the teacher. Using self-assessments is ideal for differentiated instruction on all levels. Self-assessment is an appropriate tool for all ages because it gives students some control over their learning and helps teachers support the change in students' needs (Bingham, Holbrook, & Meyers, 2010).Achieved reading fluency contributes considerably to a student's capability to understand other lessons because it promotes better comprehension. Teachers' responses through differentiated lessons provide students with opportunities to enhance their skills by addressing specific and individual needs. However, a question remains on the most appropriate method of differentiation. This study was developed to respond to this question by understanding the use of computer-based and face-to-face differentiation, and

then making recommendations on the best strategy based on the outcome of seeking teachers' perceptions.

Definitions

At-risk readers: This term refers to students struggling with achieving reading objectives set within specific progressive levels in decoding, fluency, and comprehension of presented materials. *Struggling readers* are those who are unable to keep up with other students in the classroom and require additional help when they read material on their current grade level (McKeena, 2002).

At-risk students: This term describes learners experiencing challenges in academic performance and/or those having behavioral problems that affect their schoolwork (Vandesy & Sanders, 2008).

Constructivism: The theory that learners are able to develop meaning from knowledge collected socially and individually for themselves (Pritchard, 2009).

Differentiated instruction: The classroom practice in which teachers create a classroom learning environment based on instruction that meets the needs of all learners, based on each person's own unique learning needs (Tomlinson & Imbeau, 2010).

Heterogeneous or mixed-ability grouping: A process of placing students with varying characteristics, based on students' abilities, prior knowledge, and aptitude, into the same classroom, but with clearly differentiated sections. It is also referenced by special educators as *inclusion* (Benjamin, 2002).

No Child Left Behind: The act signed into law in 2002 that authorized use of standardized tests for all students from Grades 3 to 8 in reading and mathematics. It was

reauthorizing the Elementary and Secondary Education Act. The legislation set proficiency targets that all schools needed to achieve; failure could lead to punitive measures such as loss of employment for the staff and the school being taken over by state agencies. The target was to improve student outcomes in all demographic groups by ensuring that educators became accountable for the process (Gewirtz, 2009).

Zone of proximal development: This refers to a circumscribed range in which children can learn using learning tasks. The range has two extreme ends: t one end, tasks can be completed independently; at the other end, learning tasks cannot be completed even with assistance. The zone of proximal development is the most productive area that ranges in the middle, where children can learn with the help or modeling of others. This is the area in which children can achieve and learn (Graves, Juel, & Graves, 2006).

Significance

The importance of this study rests in its potential to increase understanding of teachers' perceptions of the best means of instruction for at-risk students to improve their reading skills. Evaluating the process of reading instruction in classrooms can help in determining the most effective methods. Differentiated instruction can improve students' reading skills throughout their education. Students' ability to develop and acquire reading skills during participation in differentiated instruction may have an impact on academic achievement throughout the elementary school years (Hall & Piazza, 2008). As teachers analyze the perception of the various strategies associated with differentiated instruction, they also discover the major characteristics of instruction that motivate at-risk students

during the learning process. Therefore, this study creates an opportunity for teachers to expand their understanding of how their instructional approaches affect at-risk readers.

The results of the project study have the potential to create positive social change by helping students become productive citizens in their communities, thereby aiding the continuous effort of today's educators to improve student achievement in subjects such as reading while decreasing the achievement gap. Advocates of the National Standards Movement proposed that educational standards should be rigorous, related to the technological forces that will mold the 21st century, and provide a fair and equitable basis for evaluation (Reeves, 2008). Improving student reading is important for helping students achieve the skills that will promote their effectiveness in society.

Many school leaders across America are now discussing the changes needed to close the achievement gap caused by educational policies, curricula, teacher qualifications, and other common denominators that affect student achievement (Davenport & Anderson, 2002). The instructional practices of educators are critical aspects of student performance in reading. Researchers have reported that differentiated instruction has the ability to help at-risk students. Snow, Burns, and Griffin (1998) concluded that young learners make significant progress in organized classrooms where teachers use effective teaching strategies and materials. Various sources indicate the need for educators to acknowledge the differences that exist among students in a single classroom (Cennamo, Ross, & Ertmer, 2010).

Recent research has indicated that the structure of differentiated instruction correlates with NCLB (2001). The law requires educators to dissect student performance

data into various categories in an effort to analyze student needs among groups and subgroups (Beecher & Sweeny, 2008), allowing teachers to develop effective instruction to meet the needs of the various learners in the classroom. Differentiation may allow teachers to identify factors that affect the quality of learning of each student. Differentiation may provide students the opportunity to become engaged in the learning process at their own readiness level. The improvement of a student's reading level generally results in the ability of the learner to comprehend and process information in other disciplines as well.

Guiding/Research Question

The following research questions guided the process of the project study:

1. What are teachers' perceptions of the best form of differentiated instruction when comparing a technologically based strategy to a face-to-face strategy in the suburban school in South Carolina?
2. What are the perceptions of teachers in 2nd grade on reading improvement through the peer socialization generated by face-to-face instruction?
3. What are teachers' perceptions of the pros and cons of the implementation of the CLO computer program?

Review of the Literature

The process of data collection for this literature review involved general Internet search; electronic database search in EBSCOhost, ProQuest and Google Scholar; and library books. The search phrases used to conduct the study *included differentiated instruction, teaching strategies, face-to-face teaching, computer-based instruction,*

teaching at-risk students, inclusive classrooms, at-risk students in inclusive classrooms, using differentiated instruction for at-risk student, using differentiated instruction in inclusive classrooms, and *content, product, and process in differentiated instruction*. Other search phrases were *constructivism theory*, *constructivism in learning*, *social development theory*, *observational theory,* and phrases relating these to learning, especially differentiated learning. Differentiated instruction was the critical focus of the search; hence, I combined the different search options with *differentiated instruction*, such as *computer-based learning in differentiated instruction* and *face-to-face learning in differentiated instruction*.

Theoretical Framework

Various learning theories support the need for educators to identify learning styles that best suit the needs of students. The subsequent sections identify the development of a theoretical framework and moves on to differentiated instruction.

Understanding constructivist theory.

Learning is the result of mental construction involving the development of new information and addition to an individual's knowledge, understanding, and skills. Individuals learn best when they actively construct their own understanding (Biggs & Tang, 2011). The four areas of learning—knowledge, concepts, skills, and attitudes—are incorporated in school lessons as students learn factual information, learn to understand new ideas, learn skills that are mental and physical, and learn to develop new attitudes in relation to their environment (Pritchard, 2009).

Constructivist theory arose from Bruner's (1996) idea that people construct their knowledge based on personal experience. Students are prepared to be able to solve problems in a complex environment (Bruner, 1996). Constructivist theory indicates that students are more active in building and creating knowledge, individually and socially, based on their experiences and interpretations (Al-Huneidi & Schreurs, 2012). In addition, the teacher has the role of understanding how students interpret knowledge to better guide them to refine their understanding and interpretation, thereby improving students' learned-knowledge quality.

Constructivist theory supports the differentiated instruction teaching method, in which students are encouraged to use prior knowledge and experiences, applying them to newly presented information (Bruner, 1966). During face-to-face differentiated instruction, the teacher is able to select materials that are appropriate for students and their abilities. The teacher is then able to present the material to the students and help guide them through the lesson in an effort to help students internalize and master the skill presented.

Constructivism supports differentiated instruction by recognizing that education needs to meet the needs of the learner and that, therefore, the role of the teacher is to identify teaching strategies that fit the learner's needs (Nations, 2008). Both constructivism and differentiated learning use the concept of promoting learners needs. Under constructivism, this is possible by recognizing that students participate actively in learning and have needs and expectations from the learning experience. Instruction strategies respond to the needs and expectations of students. Underlying differentiated

learning is the teacher's ability to accommodate the differences represented in the classroom while meeting the unique needs of each child (Hall, Strangman, & Meyer, 2011). Rather than using a general teaching strategy under the assumption that one strategy will fit all students, the teacher identifies strategies that will benefit each student, but without segregating and alienating students. Use of differentiated instruction, especially within constructivism, requires recognition of the differences among students while observing inclusion (Tobin & McInnes, 2008). As addressed under inclusion, differentiated instruction is useful for students at-risk of reading deficiency, but within the regular classroom. NCLB (2001) promoted inclusion to provide children with similar education opportunities. The goal was to ensure accessibility for all children. Use of inclusion helps to promote the concept behind constructivism and differentiated instruction.

Observational learning theory.

Observational learning theory supports differentiated instruction, proposing that students produce work based on the observation of others (Bandura, 1977). During face-to-face differentiated instruction, students are able to observe the teacher modeling the skill, in addition to being able to observe peers during small-group instruction. The underlying concept of observational learning theory is learning by observing the behavior of others, where others become models of behavior (Franzoi, 2011). Students thus may pick up behavior by observing their teachers. They do this through encoding behavior. Teachers using differentiated learning, especially in a face-to-face setting, can impart wanted skills and behavior through modeling. For example, students learning language

may benefit by observing how the teacher works with difficult words such as through practice of words, repetition, or dividing complex words into manageable chunks.

Through modeling, teachers are able to assist students in learning many responses to various settings. An interesting aspect of modeling is that the teacher may seem to be pursuing his or her interest as opposed to teaching, and thus the students may copy this behavior because there has been no direct teaching (Shaffer, 2009). However, when modeling, it is important for teachers to limit behavior to characteristics that will be helpful for the student. In learning reading, this includes avoiding insulting words, even when such words could be interesting and thus facilitate student interest in learning.

Social development theory.

The application of social development theory and the zone of proximal development ensures that the focus of instruction is on a student's ability to learn, which leads to potential success. Social interaction is critical in that students can learn some skills independently and perform other skills with assistance (Vygotsky, 1978). Face-to-face differentiated instruction provides students with assistance, and small groups provide social interaction relating to the skill.

Social learning theory promotes use of routine activities to support learning. Its usage in differentiated learning thus requires the teacher to identify activities considered routine. Such activities might include increased storybook reading during reading lessons or working in groups. The important aspect is to be able to identify routine activities. Akers and Jensen (2011) noted that a challenge exists in identification of routine activities

that will not contribute to other negative outcomes in learning such as victimizing learners, which can arise in group work.

Embedded in social learning theory is the concept that learning is an attribute of processes, interaction, and operating within an environment that promotes certain behavior (Pritchard & Woollard, 2010). The importance of this theory to differentiated instruction involves facilitation of interaction. It highlights the usefulness of interaction in learning to promote acceptable behavior and discredit other activities. Based on social learning theory, the role of the teacher is to identify ways to encourage students to appreciate classroom activities through interaction and encourage students to interact with various situations presented in the classroom.

The above theoretical framework lays the foundation for understanding the need for differentiated instruction as discussed subsequently. The constructivist theory based on its tenets is the most useful for the current study, as it encourages instructors to help students establish skills and attitudes that can promote learning and better understanding of presented materials. Differentiated instruction has the capacity to promote this aspect but requires teachers to identify implementation processes that will promote positive outcomes. Understanding teachers' perceptions of differentiation can be useful in understanding the way teachers help their students to perform better.

Differentiated Instruction

The following discussion outlines the development of differentiated instruction in education reform. It shows the factors that prompted educators to begin differentiating. The discussion includes a section on what differentiated instruction entails.

Background on the beginning of differentiated instruction.

The roots of differentiated instruction can be traced to the one-room schoolhouse (Tomlinson, Brimijoin, & Narvaez, 2008), which included students of various ages. In this schoolhouse, teachers had the challenge of providing instruction to students of various ability levels. Students should not be treated as having the same needs and modes of learning because they many learn differently and at different levels. Education need to reflect what sparks the student interest, as this would better develop particular talents and knowledge (Plato, 2009, p. 253)

The origins of the United States—its independence and pursuit of happiness for all individuals—were intertwined in a national identity. Renowned author Thorea, noted that a person could experience things in a different way than his neighbors, which he described as hearing "a different drummer" (Thoreau, 1854/2004, p. 305). His advice was that one could dance to the music that one heard rather than try to keep up with the others. His words were not written as a one-time prescription for all people; they grew to become a text for understanding the American character.

Thoreau's (1854/2004) ideas stood in sharp contrast to the methods of education adopted for American children. In the 1830s and 1840s, educators supported universal education as a way to build character and create patriotic citizens. As stated by Spring (2008), the set goals of education included assimilation and conformity.

The selected model of education in American schools continued to develop throughout the 19th century, taking on a distinct character defined by bureaucracy and hierarchy similar to that of the business environment. The goal was to prepare young

people to take on adult roles in business and in the increasingly industrial world. Schools adopted the Prussian way of education to promote efficiency and uniformity. The attraction to this model was that it placed students based on age with the assumption that children of the same age had similar learning needs and capabilities (Spring, 2008).

In the next century, educators began experimenting with other approaches to education such as fostering self-regulation. The model developed in the 20th century by Dewey and Neill proposed teaching without a schedule and giving students the choice to attend classes (Neill, 1960). The goal was to help learners find their own niche by using less standardized and more individualized teaching (Plato, 2009). The choice of teaching method was specific to what educators wanted to achieve, such as letting students train their minds and decide whether they wanted to attain an education.

As instruction methods have changed, some schools have changed their models, whereas others have chosen to retain a traditional or conventional model of instruction. The conventional schooling model involves a clearly defined and universal number of minutes per class, student age as the basis for placement in each grade level, and a defined number of lessons for each day. It is further involves a defined and universal number of courses that learners have to take to earn credits to help them graduate (Dutta, 2010). The conventional approach has been the basis for a universal model of education in Americ$_a$ (Spring, 2008). A key characteristic of the structure of conventional education has been the placement of students in different sections if they have special needs. This has served to maintain the age element in a single classroom, but it has not been appropriate for students with varying capabilities. Placing students based on year, grade

level, and academic ability has helped educators to maintain a uniform level of teaching and to promote appropriate instruction or academic support (Padma, 2008). However, it has also made it harder to track achievement and the educational needs of all students equally. Researchers have shown that this approach served capable students well but did not meet the needs of struggling students.

A problem with this model of teaching is that the teacher is the central point and the source of knowledge, with students acting as passive participants (Hadzimehmedagic & Akbarov, 2013). This undermines the possible contribution of students to the learning process and fails to develop critical thinking and problem-solving skills among students. Boumova (2008) confirmed that teachers using conventional instruction become knowledge vessels, with students memorizing presented information rather than working to produce skills. Furthermore, emphasis is on performance, which teachers measure through oral reception or written examination. The students thus lack incentive to go beyond what the teacher requires.

The process of tracking is useful in identifying different means of instruction used in private and public institutions of learning, or among students and between classrooms within a school (Sadker & Zittleman, 2010). Tracking students with similar abilities together contributes to the development of students in honors classes reading significantly more. As noted by Sadker and Zittleman (2010) the students that engage in tracking are able to engage in instructional dialogue, and write more than other students.

Schools in America began reconstructing classrooms in response to the limitations of tracking, bringing in heterogeneous or mixed-ability learners. The argument in favor of

inclusion was that it helped in engaging all students in similar, challenging tasks and provided an opportunity for stronger students to help weaker ones, thus stimulating and supporting them to work on complex situations (Burris & Garrity, 2008). This approach was shown to enhance individuals' self-esteem but did not address the achievement gap in American schools (Burris & Garrity, 2008). As noted by Poole (2008), some pupils continued to struggle, whether in tracked or heterogeneous classrooms. The reason was that although the education system changed the approach of teaching, it did not change the form of instruction to accommodate the different needs of learners. Therefore, poor performance continued. Various Supreme Court cases such as *Lau v. Nicholas* highlighted this issue, noting that simply giving students the same opportunities or resources did not translate into varying outcomes (Alexander, 2008). The Court appreciated that inclusion led to use of the same curriculum, books, and class time but noted that it did not mean that all individuals learned in the same way.

Researchers exploring the limitations of education have noted that it is unreasonable to expect all students to perform in the same way because all students start at their own pace and capability (Alexander, 2008; Poole, 2008). A tracking system allows students to begin their learning process at different points, which serves to ensure that some students remain behind their peers in the long term. This outcome is at odds with the democratic vision of this country, which suggests that, with effort, students can achieve higher stations in life, especially within the policy of ensuring that all children attain equitable learning (Petrilli, 2011). However, putting all students together is also challenging because the teacher has to find ways to ensure that students reading at a

higher level continue to learn while looking for ways to improve the ability of those reading at a lower level.

Into the latter part of the 20th century, political views began focusing more on bringing equity and excellence into the education sector. For example, members of the conservative movement felt that the system, though having an outer structure of uniformity, did not have adequate standards in place and did not promote accountability (Borek, 2008). America was at the same time moving toward a push for schools to have higher output and for students to perform better. Policymakers in the federal government came up with the idea of reauthorizing the Elementary and Secondary Education Act, culminating in NCLB of 2001(Gewirtz, 2009).

After 8 years of the implementation of the NCLB (2001), ability gaps remained among American students. Petrilli (2011) provided the example of fourth grade students, where some students' scores based on the National Assessment of Education Progress were considerably high ranking in the top 10%, and read well compared to their colleagues in the same age cohorts. Others in the classroom could barely decode phonemes. Teachers took initiative toward improving reading by raising their expectations of students' performance. The teachers however did not expect that every child, no matter the handicap or background, could be ready for college by the age of 18 (Trani & Irvine, 2010). The authors noted that it is unreasonable to expect all students to perform within the expectations set in NCLB (2001) considering differing backgrounds and other contributing circumstances.

Coming across from this section is that if the nation is committed to providing students with excellence and equity, educators must find a way to accommodate the needs of all students. Schools need to find a way to incorporate uniformed standards in the curriculum and change content-based strategies to promote learning for all students regardless of capabilities. The goal of education is to ensure each child gains the skills needed to be successful in the 21st century. Differentiated instruction for offers an appropriate approach for making needed alterations.

Review of Current Literature

Differentiated instruction.

Educators have found that to increase academic performance for struggling students, differentiated instruction is the most reliable way to give students what they need (Bailey & Williams-Black, 2008). Research suggested that using differentiated instruction within the rigors of education was very important to schools in maintaining high student achievement (Chamberlin & Powers, 2010). According to Tomlinson (2010), differentiation is first a mindset and secondly a set of practices. Teachers respond to students' needs shaped by the teacher's mindset, which is the teacher's belief that students have the ability to grow and learn. Bricker (2008) also realized the importance of the teacher's mindset. If teachers believed that a student's efforts outweighed their ability, based on past performance, then teachers could transcend the barriers of traditional forms of academic tracking, and help students of all levels and abilities be successful. When teachers did not focus on growth, students were likely to sense that teachers saw them

less as agents of their own growth and more as victims of locked abilities (Wood & Blanton, 2009).

The teacher's mindset about differentiation is that students are unique individuals, not pieces of a puzzle. This means that they learn in different ways, at different rates, and respond to different motivations. Instructional approaches must adapt to the student, rather than the student being forced to fit a model of instruction. According to Tomlinson and Imbeau (2010), differentiation requires teachers to find an point of entry that reflects the learning outcomes, and to make instructional plans designed to help students achieve a mastery level relative to the set outcomes.

With adoption of that mindset, certain practices are very important. One practice is the teacher's consistent, and continued modification of ways of instruction to help different learners meet their needs through a safe and welcoming classroom surrounding (Tomlinson, 2008). The alteration of teaching methods means for many educators a change in teaching style and culture of the classroom. For traditionally trained teachers, the lesson was created one way, delivered only one way, and that was the way that worked best for the teachers and their teaching style (Rock, Gregg, Ellis, & Gable, 2008). However, a need exists for changing instruction style in the inclusive classroom to increase teaching effectiveness. An example of alterations is talking to students about their feelings or opinions, and if possible to sit with them to identify what they are going through. In addition, an effective teacher needs to listen to the learners, and find out their interests. Such actions are useful in helping the teacher make instructional choices.

Differentiated instruction refers to a collection of ideas, strategies, and common knowledge rather than a define program. Teachers have the liberty to make changes in their practices based on needs of individual learners. However, they need to ensure that each topic is related to formative assessment lesson design, and classroom management. The concept joins different attributes to make a comprehensive teaching strategy useful for different students with varying capacities.

Various elements guide the use of differentiation. Tomlinson (2012) outlined five elemental aspects for effective differentiation including a supportive learning environment, high quality curriculum that focuses on building student understanding of materials presented, and ongoing assessment to inform instruction. Continuous assessment helps to determine whether the students are reaching the class objectives. Other elements were instruction that responds to student differences, and leadership and flexible classroom management. Based on the five elements differentiated-instruction involves more than adaptation to the curriculum materials or teaching, but touched every area of the schooling process.

The fourth item on the list is still a focus of many teachers' concerns (Duggar, 2008). Teachers may agree that responding to student differences is important, but may not know how to address different needs. In an effort to make strategies more manageable for teachers, Tomlinson (2010) arranged the strategies in three categories, namely content, process and product, and explained the reasons and methods for differentiation. The first element, content, refers to the various facts and concepts that teachers will include in a lesson but with variations based on the diversity of students. Process denotes

the selected techniques of facilitating the differentiation, while product refers to the tests and modes of assessment that the instructor may choose to determine if the student is ready for completion of the topic. The last attribute relies heavily on modification. If teachers are going to teach content slightly differently, they must have a variety of tools that are reliable for assessing students' ability to understand formatively, and summatively. Assessment is an ongoing and inseparable component of instruction (Finson, Ormsbee, & Jensen, 2011). Data from assessments can indicate a teacher's misalignment in classroom instruction and educational objectives.

Teachers are advised to assess the most successful strategies when creating a differentiated classroom through examination of daily and weekly outcomes (Hamm & Adams, 2013). Such effort will contribute to understanding student motivations, and performance based on academic readiness, incentives and styles of learning. For this outcome, the assessment should be given before the unit of instruction begins.

Students learning ability is a construct of their background, experiences, commitment, and attitude toward school, which affect their readiness to learn. Teachers should understand that students have different levels of knowledge, which has been qualified through neuroscience that learners have varying preconceptions that affect their (Lucariello, 2013). Diagnostics and pre-assessments at the beginning of the year become critical tools for teachers.

Educators can choose to change content, process, and product based on assessed readiness of students, and can include various topics that would help students improve such as supplement work (Tomlinson, 2010). Such content from the teacher would

motivate students at an accelerated pace for learning and systematically concrete forms of assessments or activities, such as open ended or abstract. Students come to school with various personal interests. Teachers who are effective often engage in, and modify lessons to make connections with students and their interests (Hamm & Adams, 2013). This practice can be simple, with teachers referencing topics that interest students in classroom discussion, and connecting topics of interest to the curriculum whenever possible. It can be complex to make these connections to topics of interest.

Finally, students come to school with personal strengths and preferences for how they learn, and their preferences may or may not connect with traditional classroom instruction or a particular teaching style. According to literature, everyone has different ways of learning and different concepts that make them feel comfortable (Goldstein, 2012). A person learns based on how he or she internalizes and concentrates on materials presented. The instruction strategy promotes the process of internalization especially if the teaching style helps the student feel relaxed.

Theorists have found numerous approaches to divide and present teaching models among them focusing on student learning by defining whether one learns better through participation or observation. An alternative is examining if pupils appreciate a more holistic way. Another may study if students obtain information visually, or orally. One of the better known explicators of learning styles is a four stage learning process containing experience, observation, conceptualization, and experimentation developed by David Kolb (Freedman & Stumpf, 1980). Kolb (1984) created a four-quadrant organization of learning styles, using instruction in two forms: active and concrete abstract. Gardner

(1983) is one of the most well-known advocates of learning styles, described as "multiple intelligence." Gardner identified eight forms of intelligence or ways to learn, ranging from verbal-linguistic to musical rhythmic and naturalistic.

Scholars taught principles to teachers that came from studying social constructivism and the work of Vygotsky (Tomlinson, 2010). Vygotsky (1978) built on Piaget's (1962) work in cognitive development to highlight the role of social development in learning theory. Vygotsky (1978) explained there are two planes to a child's development:

> Any function in the child's cultural development appears twice, or in two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an inter-psychological category, and then within the child as an intrapschychological category. This is equally true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition. (p. 163)

A social plane in the consciousness of a child is formed from interaction with others, and affects the internal speech of thinking. For Vygotsky, the elements of participation and collaboration with others are essential components of constructivist learning in which children begin to make meaning of their world (Woolfolk, 2009).

Vygotsky's theory of learning centers on the learning effects of differentiated instruction, found in his understanding of the zone of proximal development (ZPD). According to Vygotsky (1978), the ZPD is "the distance between the actual developmental level as determined by individual problem solving and the level of

potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). The ZPD is an example of social constructivism and learning theory interrelating in the classroom. In the ZPD, students are able to grow and gain a better understanding of an initial concept or skill, so more knowledge can be built or constructed (Woolfolk, 2009). The ZPD is a critical tool in differentiated instruction, allowing teachers to find a starting point for each student's learning needs, so that students' learning potential can be developed.

Learning styles and the way they are categorized are personal and reflect the way a learner's mind operates. Learning styles may be presented as being either visual or auditory, or, in a more complex analysis, as being a unique combination of 18 basic elements, ranging from the environment to one's emotional and physical state (Gurian, 2011). By a recent count, more than 71 methods can be used to categorize and organize learning styles (Pashler, McDaniel, Rohrer, & Bjork, 2008).

Educators should not teach children the same way; educators should seek to make a connection between instruction and the way in which a student learns best. However, authors who work in learning styles caution educators against using a student's preferences or strengths to the exclusion of other learning styles. Even though a student may learn more visually than verbally, that student would still need the experience and practice of other learning styles. One learning style should not become a crutch for students (Turville, 2008).

Teachers must account for students' readiness, interests, and learning styles in conjunction with their content, process, and product skills. The overall task requires

marked assimilation, and data synthesis. Holistically viewed, differentiated instruction includes developing appropriate lesson plans, and then changing the traditional role of the instructor from being a dispenser of knowledge to being an organizer of learning opportunities (Bender, 2009). In addition, it means changing the classroom from being focused on delivery and receipt of content to focusing on working collaboratively to reach a common goal. Differentiated instruction requires the teacher to adopt a different role from traditional learning. For example, in conventional instruction the teacher provides assignments, but in differentiated instruction he or she ensures active involvement of students in the learning process.

Differentiated instruction: Philosophical framework.

Differentiated instruction is a philosophy whose approach to teaching is exemplified through active support of the learning of all students using strategic assessment, thoughtful planning and targeted, flexible instruction (Tomlinson & Parrish, 2010). The concept involves restructuring the classroom to provide learners with multiple opportunities for learning. Through such opportunities, students have access to information, processing, and are able to express acquired knowledge. According to Alberta Education (2013), many teachers incorporate differentiated instruction in their classroom through activities such as giving students pre-tests to help them plan learning activities or through variant presentations. This way they help students learn at school and in their own time.

Underlying the implementation of differentiated instruction is the need for closing the achievement gap in schools (Santamaria, 2009). Teachers have the task of

accountability, where they are responsible for the achievement of their students. Implementation of differentiated instruction shows teachers' efforts to reconcile expectations in educational standards, with accountability imperatives that reflect the needs of all students (DuPont, 2009; U.S. Department of Education, 2008). Accountability means that the teacher considers the different learning needs and abilities of the students.

Accountability in education is a movement that arose between the 1970s, and the 1980s promoting the need for teachers to reconsider their mission in teaching (Kretovics, 2011). The imperative was for teachers to observe their accountability to different stakeholders in the education sector, including the government, parents, and students. The movement promoted the view that teachers needed to enhance student achievement by improving content, student expectations, quality in teaching, and time used in learning. The implementation of the NCLB (2001) solidified the move toward increased accountability by emphasizing that all students show achievement in their education (New Jersey Department of Education, 2010). Providing for accountability in education law intensified the pressure on teachers to establish better instructional approaches that could promote student achievement (Great Schools Staff, 2011). Differentiated instruction offers teachers a system to achieve accountability and enhance student achievement. Since the strategy meets the different needs of students, it is useful in meeting the performance standards of students at-risk and those experiencing marginalization.

Differentiated instruction: Growth and development.

Scholars have criticized differentiated instruction since the mid-1990s. The literature on differentiated instruction has been the basis of a variety of professional development programs and research on student learning (Huebner, 2010) because differentiated instruction may be the most difficult educational challenge to close the achievement gap (Beecher & Sweeny, 2008). However, the use of differentiated instruction to increase mathematics and reading ability has shown promising results (Smith & Turner, 2012; Servilio, 2009), which have been areas of concentration for educational leaders for decades.

According to Christenson, Horn, and Johnson (2008), the use of instructional technology might provide a greater promise for effective implementation of differentiated instruction. Technology can be used in innovative ways to customize learning models in instructional programs. Schools may be able to offer more personalized choices, moving schools toward a new era of creativity and flexibility (Davidson & Goldber, 2009; Zhao, 2009; Hargreaves & Shirley, 2008). The more involved the principal is at leading differentiated instruction, the more involved teachers will become in the learning climate (Tomlison, Brimijoin, & Narvaez, 2008).

Instructional Strategies

The use of differentiated instruction requires the grouping of similar needs and identifying strategies then putting them into a coherent plan for classroom teachers. Flow charts and acronyms help teachers and researchers remember how to communicate different elements of the practice. An example is the mnemonic REACH that stands for five steps to help teachers in modifying instruction (Rock, Gregg, Ellis, & Grable, 2008).

REACH stands for Reflect on what motivated the student and the student's level of readiness, Evaluate the curriculum to be taught, Analyze the learning styles and abilities of students, Craft a lesson that is research based, and Hone in on the data collected.

In differentiated instruction, learning styles can be combined in various ways. For example, the instruction process can encompass content, process, and product, which enables the instructor to vary instructional strategies to reflect the needs, and skills of the students (Cennamo, Ross, & Ertmer, 2012). The role of the teacher is to provide students with different assessments that align to their interests and reflect their learning style. One may consider the use of groups as a way to present content based on ability, and providing different levels of materials. Teaching the groups differently could then differentiate the process. For instance, a teacher may also differentiate the product through use of assignments developed for individual groups based on the content the team is undertaking.

The differentiation of lessons and output based on the interest of students is not complicated. The teacher groups students based on interest, not on ability, and provides assignments geared toward the interest of students; however, the assignment remains connected to the larger concept of required curriculum. Teachers of all subjects might be able to find computer programs used for the delivery of instruction, and applied to practice for students who enjoy online learning (Bennet, Maton, & Kervin, 2008). Some students may learn more through a game than a textbook lesson.

Flexible grouping is important in differentiating instruction. Teachers often group students by ability (Gibson, 2011). Some contexts offer opportunities for student groups

to be based on interest, ability, or learning style. Students master some academic content better when working with a classmate. The diversity of students in classrooms and the way they learn demands a large menu of instructional choices.

Flexible grouping by teachers in the elementary grades often involves making learning stations in the classroom that contain different activities or assignments (Gibson, 2011). The teacher assigned students to a particular station or allowed them to choose the station. At times, students may be able to visit multiple stations because they are given independence, thereby giving teachers time to move throughout the classroom helping learners in their group stations (Avci, Yuksel, Soyer, & Balikciglu, 2009). The role of stations could however be a more chaotic approach to teaching compared to direct instruction; however, students often achieve higher levels of focus by doing station work.

An additional strategy for differentiating student work product is the mnemonic RAFT; this concept can accommodate student interests and abilities while maintaining rigorous forms of expectation (Heacox, 2009). The mnemonic RAFT stands for Role, Audience, Format, and Topic. A teacher can offer many different versions by varying elements, allowing modification for student response by creating a different activity. RAFT consists of creating a topic, offering students a variety of roles to play, and allowing the audience to speak. RAFT provides a wide variety of ways for students to demonstrate their understanding of the material.

Many strategies can assist teachers in differentiating classroom instruction; however, the danger is to consider differentiation as an approach that is based on a collection of tactics instead of looking at it as a holistic process of learning. Agreeably,

alternatives exist such as activity-based learning that could be more enjoyable for the students, but may not effectively underscore learner needs leading to a disconnected classroom (Tobin, 2008). Another issue is that teachers may feel they are not ready to leave textbook based teaching methods and traditional forms of classroom instruction.

Students At-Risk for Low Reading Proficiency

Teachers implementing differentiated instruction encounter students at-risk of reading deficiency. The teachers structure their interventions to respond to the difficulties the student is having. Vadasy and Sanders (2008) noted that many students in the United States require additional assistance from early on to read with specific help on leading alphabetic and decoding skills to promote reading outcomes. Children at-risk of reading difficulties have various background factors affecting them including socio economic, emotional, and academic factors. One social factor is introducing students to a new language other than their primary language (Wise & Chen, 2010), such as students learning English as a Second language. Academic factors include inconsistency in teaching English language, which makes it difficult for students to become sensitive to sound structure of words that the students need to read successfully (Vadasy & Sanders, 2008). Children at most risk of reading deficiency are those from non-English speaking communities or families, and they experience the most difficulties in acquiring early skills for reading English language (Haynes, 2012). Additionally, students from poverty and minority groups experience additional challenges in reading acquisition, especially when their socio-economic status combines with having a poor English background.

Serving At-Risk Students in an Inclusive Setting

Inclusion of students with learning difficulties is an ongoing trend in general education (Fenty, Miller, & Lampi, 2008). The decision for inclusion emerges from research outcomes that show the benefits of inclusion, and a shift in attitude on education of persons with disabilities (Bui, Quirk, Almazan, & Valenti, 2010; Konza, 2008). The role of inclusion was to normalize education for students with disabilities. It provided them with an opportunity to participate in normal classrooms up to the level where their disabilities allowed normal participation. Much literature on inclusion focuses on inclusion of students with disabilities (Bui et al., 2010; Fenty et al., 2008; Konza, 2008); however, some authors recommend inclusion for students with specific learning difficulties, and other students experiencing marginalization in their education (Winter & O'Raw, 2010). The second aspect of inclusion has been providing students with an opportunity to overcome barriers in learning. Educators facilitate student participation thus ensuring all students have an opportunity to learn in an inclusive classroom. Students further receive necessary resources to promote their participation in a regular classroom.

The definition of inclusion is an education process that allows instruction of students with disabilities along with their peers in the general classroom (Rouse, 2009). The concept of inclusion emerged from the concept of integration, which referred to a learning strategy in the 1980s defined by placement of students with special needs in the general classroom. Inclusion extends the conceptualization of integration to include the quality of education and other aspects of schooling. Inclusion is thus a model promoting participation of students in school, and recognizing that schools have an obligation to accept each student to their educational processes. Inclusion refers to a model of

education that denounces exclusion and segregation of students irrespective of the reason, and promotes participation of all students in schools of their choice, which facilitates meaningful learning especially for students at-risk of exclusion. Factors that can promote segregation include student ability, language status, disability, and other discriminatory factors such as gender, race, religion, sexuality, and socio-economic outcomes. Advocates of inclusion reform in education policy need to formulate learning environments capable of meeting the learning needs of a diverse student population. Inclusion is more specific on the requirements of schools and education systems compared to integration.

Research on inclusion mainly focuses on inclusion of children with disabilities (Bergin, 2013; Linn, 2011; McCray & McHatton, 2011; Jordan, 2008; Holodick, 2008). Other studies on inclusion have been on general conceptualization rather than specific to special needs students (Ainscow, Booth, & Dyson, 2013; Casale-Giannola, 2011; Yesilbursa & Barton, 2011; Pickard, 2009). The literature provides an indication of the possible benefits and challenges of inclusion at different levels of education.

The development of inclusion came from its benefits especially in comparison to exclusion (Ainscow et al., 2013). For example, exclusion causes marginalization, and contributes to underachievement of students. In contrast, inclusion promotes positive outcomes through improvement of student participation in education, showing compassion, and equity. Ainscow et al. (2013) identified a concern in implementation of inclusion that could undermine its effectiveness. Inclusion is mainly associated with students with special needs, and is used in responding to children with discipline issues.

The reason stems from comparison of inclusion versus exclusion. Exclusion in the 1980s arose in the Education Act to refer to temporary or permanent exclusion of students with disciplinary problems. Inclusion thus arose as the contra notion, to refer to integration of students with special needs including behavioral challenges into the regular classroom.

Inclusion evolved to represent a concept of overcoming discrimination, and disadvantages that could affect students vulnerable to exclusion (Allen & Cowdery, 2012). As such, the model promoted access to services for students with special educational needs, those with disabilities, and other disadvantaged groups. This represents a critical advantage of inclusion, which is opening access to educational services for all groups of students, especially those vulnerable to discrimination within a system that allows exclusion. Confirming that inclusion promotes accessibility, Holodick (2008) stated that it opened up ways to ensure students with disabilities to become part of the system. Prior to the inclusion, the education system considered students with disabilities unable to fit in the regular classroom. Inclusion provided a way to accommodate students with diverse needs including those with special needs within one class setting.

The highest benefit of inclusion seems to be its ability to promote student involvement (Armstrong et al., 2013; Bergin, 2013; Pickard, 2009). Inclusion ensures all students have an opportunity to participate in education. This prepares students for greater participation in the future. This benefit aligns to the principles of NCLB (2001) and Individuals with Disabilities Education Improvement Act (IDEA, 2004), which have promoted the inclusion of students with special needs in the general classroom.

According to McCray and McHatton (2011) by 2004, about 96% of students with disabilities were part of the regular classroom, with about 52.1% of these spending their day in the general education setting.

Despite its advantages, inclusion faces much criticism that needs addressing to promote better application. One criticism is that inclusion cannot effectively cater to some students such as the deaf (Armstrong, Armstrong, & Spandagou, 2010). This criticism stems from recognition that separation is inescapable for some groups such as the deaf thus denying the underlying conceptualization of inclusion. One challenge to inclusion stems from this criticism: the focus of inclusion is to provide for the average needs, and abilities of students in a mainstream classroom. This approach is ineffective when focusing on the learning outcomes of students outside the average spectrum, including exceptional students and those with disabilities.

Another challenge to inclusion is cost implications. Effective implementation of inclusion requires states, and school districts to be aware of the need for inclusion and its benefits to the disabled, the non-disabled and the benefits to the economy versus the costs (Deiner, 2010). Schools operate within limited resources. Despite the resource availability, the society requires schools to meet the educational needs of all students. Rieser (2008) states that research shows inclusive is cost efficient, cost effective, and promotes equity. It also increases the opportunities for increased achievement, and performance for all students encouraging its adoption. However, the need to consider costs of implementation within the available resources remains a concern.

Further challenging inclusion is difficulty in supervising. The model of inclusion requires the teacher to respond to all activities in the classroom. For some teachers, it can be difficult to supervise and evaluate the students' performances while ensuring each student remains on task (Casale-Giannola, 2011). The challenge arises from the diversity of the classroom. An arising concern is that some students could be off-task or idle when the teacher is working with other students.

Teachers experience problems and doubts in the implementation of inclusion (Jordan, 2008). To overcome such doubts it is important to train teachers to handle effectively the requirements of an inclusive education model. Inclusion means teaching diverse students. Not all teachers may be equipped adequately to handle the diversity. Training is therefore critical to effective inclusion. McCray and McHatton (2011) offered similar perceptions on educator training noting that as more students with disabilities become part of the regular classroom, a need exists to prepare teachers to work with all learners. This means being able to work with exceptional students, those with special needs, and average students, and attain positive achievements for all groups.

Implementing Differentiated Instruction in Inclusive Classrooms

As inclusion becomes an important model in the general classroom, teachers need to identify instructional strategies that can effectively accommodate the diversity of the classroom (LDA Education Committee, 2011). Differentiated instruction provides such a strategy because it is student centered and focuses on helping students meet their learning goals with the teacher responding to the student needs (Tomlinson, 2008). Using differentiated instruction makes it possible for teachers to effectively meet the needs of

all students despite the range of diversity in the classroom (Tomlinson & Parrish, 2013). The needs of the students determine the content, process, and product in the inclusive classroom when using differentiated learning (Larson & Keiper, 2011; O'Meara, 2010). Through selected content, instruction process, and expectations, can help the teacher define the appropriate strategy within differentiated instruction. Other elements are principles guiding differentiation including tasks, curriculum quality, flexible grouping, continued assessment, and building a community feeling.

Content. This refers to the knowledge students need to acquire and understand in response to rigorous instruction (Cennamo et al., 2012). Critical to determining content is the knowledge of the teacher in synthesizing tests, standards and guides. The goal of the teacher is to develop knowledge, understanding, and skills beneficial to enabling students to solve problems and simple questions. As students become familiar with simple questions, the teacher can then upgrade the content to reflect increasing complexity in knowledge, and skill requirement and acquisition. When working through content identification, the teacher needs to recognize that students have differing readiness, and learning profiles. This will enable the teacher to differentiate content to reflect the needs of the students.

Process. Eady (2008) notes the problem in differentiating between process, and content but explains process as starting when a student makes a personal connection to information and activities presented toward acquisition of specific knowledge and skills. LDA Education Committee (2011) explained process simply as encouraging critical

thinking. Process emerges from students asking the question why and developing a style that will promote the differentiation process.

Product. This refers to the results of learning, which can be evident through verbal, tangible elements, and active engagement (O'Meara, 2010). Product shows that the students understood the content and developed application. As students develop, the teacher can enlarge the challenges, variety, and choices to increase expectation.

Literature shows that differentiated instruction is applicable in various classrooms in the general education sector (D'Amico & Gallaway, 2010; Rouse, 2010; D'Amico & Gallaway, 2008; Gray, 2008). In inclusion classrooms, differentiation can mean the ability of the school to provide meaningful, and successful learning experiences to all the students. The reason is that differentiated instruction acknowledges variance of students, which is critical in an inclusive classroom that contains students with different learning abilities, interests, and levels of skills.

When incorporating differentiated instruction in the inclusion classroom, teachers need to note that the process requires preparation of the classroom to accommodate differentiation. According to Patternson, Connolly, and Ritter (2009) application of differentiated instruction in their classroom required restructuring. This involved first identifying the need for differentiation. The teachers noted that their class required another instruction model other than the traditional lecture intensive model they had been using. The traditional model was not effective in stimulating learning especially for students that found the class boring. They decided to restructure the class by dividing the students into four groups comprising of four to five students. The teachers considered

students' characteristics including gender, ethnicity, academic ability, and personality when making the groups. Such considerations were important to ensure that the groups facilitated social interaction among the students and helped them learn together. The teachers formed instructional methods including collaborative group work that would ensure the students worked together, and used peer tutoring. The activities allowed students to work together, helping each other understand presented content, and form important constructs to process presented information. The teachers developed their instruction model to accommodate the differences among the students. They achieved more learning, with students enjoying their classes, and putting in more effort. Santangelo and Tomlinson (2009) supported the indication that differentiated instruction support practices that enhance attentiveness, and help students enjoy the class and pursue personal learning.

Combining inclusion with differentiated instruction provides educators with a joined model capable of meeting the principles of NCLB (2001) and IDEA (2004) of ensuring every child has an equal opportunity at education. However, to achieve maximum benefits of differentiated instruction even within an inclusive environment, it is important for teachers to receive the necessary training that will enable them to work effectively.

The instructional model for differentiated instruction in an inclusive classroom setting shows effort to approach education so all learners, even those with potential learning concerns are given the least limited instructional learning environment. Implementation of a differentiated learning instructional model can use two basic

programs; namely, face-to-face for direct instruction in small groups and computer-based instruction, using CLO (2010). Face-to-face differentiated instruction consists of a teacher conducting reading lessons to a small group of students through face-to-face instruction based on the student's readiness level (Tyner & Green, 2012). The teacher provides a lesson on a skill composed of material based on the student's readiness level. Throughout the lesson, the teacher uses questions designed to check for understanding. The question design reflects the needs of the student that the lesson seeks to meet. The final assignment allows all students the opportunity to master the lesson objective through alteration of the instruction to meet the skill level of the student. The goal of using small groups in instruction is to assist on assessment of student knowledge of the content based on the readiness level.

Prior to receiving face-to-face differentiated instruction, students are given a formative assessment that requires a written response about the skill taught during direct instruction. The testing question format may contain multiple choice, fill in the blank, and or open response questions. If students are unable to attain competency levels and are considered insufficient to reach lesson objectives during whole class direct instruction, then they receive differentiated instruction. During face-to-face differentiated instruction, content is taught to students in a small group on a level that is academically appropriate for the students in the group. During small group time, students are asked questions verbally and are encouraged to talk with group members through the lesson (Walpole & McKenna, 2009). Additionally the teacher checks for understanding throughout the lesson. At the completion of differentiated instruction, students are given a formative

assessment on the skill. If mastery is not met, students will receive further intensive face-to-face differentiated instruction with new material and assessments until mastery is achieved.

Students who use CLO are given ongoing formative assessments for each lesson. The computer teaches the student content through a variety of games and interactive software programs. At the completion of each lesson, students are given an assessment in the form of multiple choice or fill in the blank questions. Students failing to gain appropriate competency in a task are directed to retake the lesson and are retested until mastery is achieved. The lessons and assessments are different each time. The student is unable to move on until mastery is met.

Management Systems: Direct Instruction and Computer-Based Learning

Direct instruction is a teaching model that involves the teacher directing the instruction from one lesson to the next within a fixed time, and represents a formal lesson (Hollingsworth & Ybarra, 2009). It represents a classroom management system that involves conceptualization of the performance of the students into goals and tasks, and breaking the tasks into manageable components. It also involves developing training activities that ensure students master each subcomponent of the lesson objectives. In direct instruction, teachers also arrange learning into items that facilitate adequate transfer from one component to another and achievement of prerequisite learning. Students need to meet the prerequisite requirements before advancing to the next level of learning. Crawford, Engemann and Engelmann (2009) explained the steps of direct instruction by identifying it as a general approach that is comprised of explanations, small

steps in learning, ongoing reviews, many interactions between the teacher and the students, and choral responses. The model offers using a framework for teaching at-risk students with challenges such as in reading and mathematics. The effectiveness of the model is in helping control students through management procedures, placing students in sequential instruction, scheduling lessons, and training teachers to be effective.

Direct instruction maximizes instructional time and reduces opportunities for disruptiveness by ensuring students are occupied with routines and activities for example by using a three step lesson format (Rathvon, 2008). The three-step lesson is comprised of the teacher showing visuals on expectations, checking on whether students understood, and modeling behavior. The goal is to promote attention and reduce students' misbehavior.

Direct instruction has four programs including Engelmann-Becker Direct Instruction Program, Engelmann-Becker Project Follow Through Project, Hunter's Program for Direct Instruction, and the Montessori Mathematics Program (Nelson, Benner, & Mooney, 2008). The first program promoted the idea of creating student readiness through behavior reinforcements and individual instruction rather than waiting for the student to become ready to learn (Berns, 2013). Such preparation was possible despite the students' intelligence quotient or background. The teacher or school would determine the content, and curriculum planning, and then promote content mastery.

The second program, Engelmann Becker Project Follow Through Project or the Bereiter Engelmann was a direct instruction design for preschool students from low-income families (Marshall, 2010). The basis of the program was that students from low-

income backgrounds were at-risk of lagging behind in language development, which further translated into challenges understanding school content. The program comprised of: a curriculum design, classroom management techniques, and ways to foster development of IQ and improving achievement. The third program was a revision on the second to afford wider application to elementary schools for students with challenges in reading, language, and arithmetic. Berns (2013) noted that the revised program stressed hard work, attention, and achievement in the three areas. When using direct instruction, expectation is for students to be attentive, quiet, and responsive to the teacher without any unnecessary interruptions or leaving their seats without permission.

The fourth program introduced a student- centered approach to direct learning. The previous models focused on the teacher. Montessori identified that the student is an important stakeholder in education that demands respect and adults should not impose their ideas on them (Harris, 2009). The move was toward allowing students to educate themselves rather than being recipients with minimum analysis of content. Within the Montessori model, the role of the teacher turned from where his/her work was to pass knowledge to one of facilitation. The teacher provided a learning environment that responded to the needs of the students. The teacher further modeled student behavior to promote reception of schoolwork. However, the program had a shortcoming in that the teacher could only promote learning when the student seemed receptive but leaves the students alone when they became unobservant. Its main advantage is that learning is self-directed with the teacher as a facilitator.

Direct instruction is a process oriented model of education (Hope, 2008). This calls for teachers to understand processes in learning environments. However, Hope identified that practicing teachers lack critical understanding of applicable process standards, and face roadblocks in effective implementation. Some of the processes and standards are those in NCLB (2001). To promote effectiveness, teachers need training in process standards in service and at pre-service. Practicing teachers can receive training in service, while student teachers can receive training as a course in their curriculum.

The application of direct instruction can be diverse; as Zayac (2008) identified it can be used for students with delayed reading. Direct instruction helps such students to increase acquisition of reading skills, but mainly in older students with higher functioning from different backgrounds. Bessick (2008) identified similar benefits for students that were repeating courses, with a target of achieving improved critical thinking skills, and academic achievement, although it was not evident whether direct instruction was useful for younger students especially those with lower functioning. Low functioning students are those with low cognitive functionality. Glover, McLaughlin, Derby, and Gower (2010) suggested that direct instruction is successful for students with learning disabilities when used with a flashcard system. The study showed direct instruction promoted improved mastery, but the outcome seems related to the flashcard system.

The limitations identified in direct instruction promote the need for modifying the model to make it effective for different types of students. Hamm and Adams (2008) suggested differentiating within the direct instruction, which would ensure engagement of all learners in class activities. Differentiation would also promote students remaining on

task and focused on their learning through presentation of interesting materials and engaging students. In direct instruction, students that are more apt at capturing the essence of the lesson benefit more with lower performing students losing. The teacher may also focus more on those students able to respond to questions. Using differentiated instruction gives a chance to all students.

Computer-based learning is another form of an education management system important to this discussion based on computer-assisted learning being an alternative to face-to-face instruction in differentiated instruction. Computer-based learning is applicable and successful in different learning areas for both instruction and testing (Watson & Watson, 2011; Protopapas, Skaloumbakas, & Bali, 2008). Soleimani, Sarkhosh, and Gahhari (2012) found computer-assisted instruction effective in testing elementary English. An example of a useful program in computer-based instruction is compass learning, an internet-based software program that uses differentiated instruction (Cobb, 2010). The program allows students to work together and shows improved student achievement in reading skills. Another program is story mapping, facilitated by Kidspiration software (Wade, Boon, & Spencer, 2010). The software enhances reading comprehension skills and grammar. Results on the use of the program showed significant increase in participant comprehension levels.

Computer-based instruction is comprised of the use of processes. The process is artificially defined through planned events and a controlled learning environment (Gibbons & Fairweather, 2010). In the classroom, the teacher has the responsibility of designing an environment that will promote student participation and skills acquisition.

The design requires identification of both concrete and abstract attributes that will support the system.

Preparing Teachers for Differentiated Instruction

Researchers recognize the importance of preparing teachers toward achieving effective differentiated instruction (Dimitriadou, Nari, & Palaiologou, 2012; Bricker, 2008). The previous section also identified the need for training teachers to incorporate differentiated instruction such as in an inclusive classroom. Teacher education programs have an especially significant role in preparing teachers to develop practices that respond to the needs of the society and those of their students (Finley, 2008). Part of the training includes preparing teachers to accommodate and meet the needs of a diverse student population.

Hall (2011) identified that a challenge exists in preparing teachers in differentiated instruction. Finley (2008) examined elements needed in formulating an effective transfer model for differentiated instruction from university to elementary classrooms, which provided indications for instruction. Appropriate differentiation would include mutual instruction, theory and strategies student teachers gained from courses and their mentors, field experiences, combined planning of differentiated lessons, and using reflection for professional growth. Teachers that receive training in pre-service on differentiated instruction such as from their mentors are able to utilize the approach effectively. Preparing teachers promotes their possibility of using differentiated instruction effectively and developing appropriate lessons as well as learning objectives.

The school environment is changing with increasing diversity in the student population, and increased need for accountability bringing in the use of differentiated instruction as an initiative to improve learning achievement (Bricker, 2008). Teacher preparation to be effective in this environment is comprised of helping with instruction planning. Teachers receiving training in differentiated instruction promote efficiency in teaching. Differentiated instruction would then be a tool to meet student diversity.

Other ways of preparing teachers for differentiated instruction are in-service. In-service preparation is comprised of professional development, which shows teachers how to plan and implement a differentiated classroom. In-service preparation encourages teachers to adopt a long-term commitment to differentiated instruction, and provides support mechanisms such as mentors training teachers in differentiated instruction (Fox & Hoffman, 2011). In service preparation requires schools to have diverse systems that support knowledge and implementation of differentiated instruction.

Dimitriadou et al. (2012) identified the perception of teachers by assessing their experiences in training for differentiated instruction showing that teachers have positive experiences from training because they receive the knowledge and skills to enable them to enact effective instructional strategies. Teachers showed that from the training they attained procedural parameters that made them effective as tutors in different classroom contexts including the use of differentiated instruction. Training acted as an effective vehicle for differentiation of teaching.

More evidence on the perceived efficacy of implementing differentiated instruction based on the experiences of teachers showed the importance of teachers'

preparation programs (Casey & Gable, 2012). Such programs promote a positive relationship between self-efficacy and feelings of preparedness. Poor preparedness of teachers contributed to contradictory differentiation, misinformation, and poor classroom management skills, which then led to unintentional implementation of surface level differentiation. Training promoted deeper structure differentiation, which would be more effective in meeting the goals of differentiated instruction.

The use of direct instruction or computer-based instruction offers teachers two approaches to the implementation of differentiated instruction. Teachers can identify the method that offers the most benefit when deciding on the most appropriate model. This section shows possible shortcomings in the use of direct instruction, but also its advantages to student achievement. The computer-based discussion promotes its application in testing and teaching.

Teacher Perception of Differentiated Instruction

Research on teacher perception of differentiated instruction seems mixed, with some positive outcomes noted but also a lack of connection between teachers' beliefs and practices of differentiation (Santngelo & Tomlinson, 2012). Teachers seem to appreciate that differentiated instruction will promote a positive outcome for their students. For example, in a case study by the National Reading Technical Assistance Center (2010) teachers were appreciative of differentiated instruction and its impact on their students. Through differentiation, they found they could effectively monitor the progress of the students, with additional monitoring for the at-risk students. Teachers could also combine

available data and with the outcomes of previous programs to help address student problem from the onset.

Influence teacher perception of differentiated instruction was their preparedness. Teachers with better certification in the use of differentiation had greater confidence in their abilities to effectively use the strategy and thus a positive attitude toward differentiated instruction (Casey & Gable, 2012). Training in the use of differentiation meant that teachers understood the different levels of applying differentiated instruction, management of the classroom, and they were better prepared. However, Rodriguez (2012) presented the view that significant differences did not exist between teachers with experience and the novice teachers in how they perceived differentiated instruction. Despite this differences could exist in how the teachers implemented differentiation.

An aspect to note in the use of differentiated instruction is that the perception of educators will depend on their preconceived beliefs about the strategy, and their experience with it (Whipple, 2012). For teachers that received training in differentiation, they have a greater likelihood of appreciating the strategy compared to those meeting the strategy in the field. Further, if a teacher is working with others that may have confusion about differentiation, they may also face uncertainty in the use of differentiated instruction. The underlying beliefs in the use of differentiated instruction thus arises from the experiences a teacher may have had during training and practice.

Although the above discussion provides an indication unto the perception of teachers on differentiated instruction, the available research is minimal. The search failed to provide adequate research directed at teacher perception, although some research on

student perception was available (Palmer & Maag, 2010). The research gap thus leads to an inconclusive assessment of teacher perception. The current study will be useful in responding to this gap.

Implications

This qualitative project study will seek to understand teachers' perceptions of face-to-face differentiated instruction and computer-based differentiated instruction as ways to promote student achievement in reading. The literature review shows that teachers have accountability under NCLB (2001) and IDEA (2004) to enhance achievement for all students under an inclusive model of education. The legislative framework recognizes the exclusion of students at-risk of underperforming because of their background and abilities. Inclusion ensures equal opportunities for all students irrespective of background and their education capabilities. The role of the teacher is to ensure they can perform at equal levels with others. The move in education toward greater inclusion of students with different abilities puts additional pressure on teachers to identify instructional strategies that will meet effectively the needs of the students. Differentiated instruction provides teachers with an instruction strategy that will meet the needs of a diverse student population. Teaching strategies can be face-to-face or computer-based instruction. The review identified challenges in using differentiated instruction, where teachers lack appropriate knowledge. The current study thus needs to recognize the limitations of preparedness in the application of differentiated instruction and the effect such a limitation may have on the findings. The current research will show how teachers are able to meet the shortcomings of student performance through

differentiated instruction as an approach that is student centered, with the teacher acting as a facilitator. This project study may lead to the development of understanding of what teachers feel about differentiated instruction and to better understand teachers perception on the use of face-to-face and computer-based approaches in the implementation of differentiation. The data collection process will be useful in responding to the concerns identified herein.

Summary

This qualitative project study will focus on teachers' perceptions of face-to-face differentiated instruction and computer-based instruction. Differentiated instruction provides students the opportunity to learn in a way that meets their individual needs (Tomlinson, 2008). Teachers find it very difficult to differentiate their instruction (Bricker, 2008; Finley, 2008). Therefore, gaining insight into various difficulties and exploring them in an in-depth manner can provide important information to improve instruction for learners. Section 2 provides a review of the methodology of research for this project.

The literature review was progressive. To ease the process of analysis for the review, it was important to examine the sources within the respective subject. For example, analysis of information on at-risk students was categorized into that group, which happened for all other subtopics. During the writing process, it became evident that I had reached saturation point. At various points of the report writing process, I looked for additional information but noted the lack of new or relevant information useful in theory development. The next section of the project study outlines the method of study

utilized to collected data needed in responding to the study problem outlined in this section.

Section 2: The Methodology

Introduction

This qualitative project study used an exploratory approach. The methodology section offers insight into the research design, addressing how the qualitative design was relevant for the project study. The section includes a discussion of how the project used a case study design during the data collection process. Data collection techniques, which included interviews, questionnaires, and a focus group, are also presented. This chapter includes an outline of the sampling process and participants.

Qualitative Research Design

The case study design originated from the purpose of the study, which was to describe the attitudes and perceptions of 2nd grade teachers about the best way to differentiate instruction for at-risk 2nd grade students. A case study design was ideal for this project study because it offered a source of in-depth ideas about the behavior of participants within a real-life situation. As explained by Yin (2012), a case study approach results from the desire to conduct an up-close and in-depth analysis of a single unit toward creating a better understanding of the context involved and thus learning about behavior and its meaning. Further, the approach uses a real-world case set in a natural environment. For this project study, a suburban school in South Carolina was the natural setting for the study, with 11 teachers approached to provide pertinent information about the choice of differentiated instruction in the school. In alignment to the case study approach, the inquiry was empirical and focused on a contemporary issue affecting the American school population in South Carolina. The choice of a single

setting for the investigation was based on the assumption that the features identified in the institution were integral to understanding the students' performance and the response of teachers to improve outcomes. Yin (1981) highlighted the use of a single case study setting as a possible avenue for understanding significant issues about a case issue. I expected that the case study for this project study would have a similar benefit. A single case study design refers to a qualitative approach that involves exploration of an issue, such as use of differentiation within a selected context using different sources of data such as interviews and focus groups (Baxter & Jack, 2008). For the project study, the single case study occurred in a suburban school in South Carolina, focusing on teachers' perspectives on differentiated instruction.

The qualitative approach was selected as the best suited for the task due to its focus on gaining insight and exploring in depth the study topic (Hancock, Ockleford, & Windridge, 2009). Use of the qualitative approach gave the advantage of systematically examining the experiences of the teacher participants and the meaning they gave the occurrences (Creswell & Clark, 2013). I felt that the qualitative approach enabled me to critically analyze teachers' perceptions of differentiated instruction for at-risk students in 2nd grade in the area of reading. The benefit of the qualitative research approach was that I could ask the participants broad questions targeted at identifying the images that they developed from their understanding of the various aspects of the research questions.

One alternative to a qualitative design is the quantitative approach. For the project study, I felt that a quantitative design would not have been appropriate because of the targeted information, which was in-depth and explorative, thus requiring the data

collection method to have the inherent capability to collect such information. A quantitative approach focuses more on statistically significant data than on exploration (Thomas, 2003). Quantitative research finds descriptions, tests relationships, and examines cause and effect based on statistical information. The project study did not require showing statistical significance but was intended to explain the occurrence of differentiated instruction in meeting the needs of at-risk 2nd grade students. The explanations therefore involved defining the reasons that prompted teachers to choose to implement differentiated instruction for their classrooms.

Another alternative would have been to use mixed methods, which would have involved using both qualitative and quantitative data collection methods. The benefit of using a mixed approach is that it provides self-augmenting data through specific tools, with the qualitative data augmenting the quantitative and vice versa (Creswell & Clark, 2013). Although mixed approaches would have worked for this study, I felt that the qualitative approach was sufficient because the study did not require the quantitative aspect that would result from the mixed approach.

When conducting a qualitative case study, a researcher has the option of choosing among exploratory, descriptive, and causal research designs (Creswell & Clark, 2013). The exploratory design involves gaining insights and ideas based on an in-depth analysis. Exploratory research is intended to develop a better understanding of the factors or elements involved in a situation (Babbie, 2012). The project study used the exploratory approach within a single case study that involved a limited number of teachers from a suburban school in South Carolina.

A single case study was beneficial in that it allowed me to gain in-depth information about the use of differentiated instruction and its benefits for students who had challenges with reading. I had an opportunity to consider the different elements arising from the topic, including the challenges that the teachers experienced, a comparison of face-to-face and computer-based approaches to differentiated instruction, and the reasons that teacher's preferred one approach over the other. Additionally, the use of a small number of participants was useful because it led to a concentration on only those teachers who had the relevant experience and thus information related to differentiated instruction for 2nd grade learners. Through the selection criteria as presented in the sampling section of this project study, I endeavored to select persons who could provide in-depth information about the study. I believed that such a sample would be most helpful in developing meaning concerning teachers' perceptions of differentiated instruction for at-risk students and teachers' preference for either face-to-face or computer-based approaches. Used in this manner, the exploratory approach was useful in confirming possibilities involved in a phenomenon. This facilitated decision-making about the best option regarding differentiated instruction, leading to a choice of the option that would best work for at-risk 2nd grade students. I was exploring the perceptions of teachers about different areas of differentiated strategies as they applied to their classrooms and considered aspects such as planning, implementation, and evaluation. I also asked the teachers to comment on student outcomes following their exposure to differentiated instruction. My target for the project study was 10 teachers who would give insight into educator perceptions of using face-to-face instruction

compared to a computerized program for differentiated instruction in reading. I obtained a sample of eleven teachers, although only 10 were able to complete fully the data collection process fully.

The reason for choosing a single case study was that it offered the advantage of examining in detail the selected example of the case under study (Creswell & Clark, 2013). For the project study, my expectation was that the teachers would provide details about using either face-to-face instruction or CLO in differentiated instruction, and the perceived advantage of each for at-risk students. When using case analysis, I had the option of using other methods of exploration such as interviews and focus groups as presented in this project study.

Using a case study in this project offered the opportunity to capture professional perceptions from the teachers, thus creating an understanding of the possible causes for teachers to choose differentiated instruction strategies. The findings were used in showing the circumstances preceding the choice of differentiated instruction, whether face-to-face or computer-based. The assumption was that teachers chose differentiated instruction because of the challenges faced by their students.

An advantage of employing a single case study approach in this project study was that the subjects provided detailed information that might not have been easy to gain in other approaches such as questionnaires. The data were richer and in depth. Another advantage was that I was able to identify various methods that could provide information, including questionnaires and interviews. A consideration in the use of case studies is that the data may not be generalized, which limits the applicability of the information.

However, my intention for the project was not to generalize the information but to understand how teachers perceived differentiated instruction, thus minimizing the importance of this limitation.

Participants

The final sample for the project study was 11 teachers from a suburban school district in South Carolina. For teachers to qualify to participate in the study, they needed to have taught for at least 5 years, which I used as a criterion to confirm that the teachers had the professional academic background and knowledge of child development needed to respond adequately to the research questions. The inclusion criteria also addressed the number of years they had taught 2nd grade. I requested information on the teachers' professional background to provide insight into their teaching and use of differentiated instruction. The elements I considered as relevant to their experience included instructional activities; delivery, planning, and implementation; and the way in which they used information gathered during implementation to facilitate effective lesson planning for at-risk students.

The sampling procedure was purposive sampling, which involved selecting participants based on their ability to provide relevant information on the issue under study (Babbie, 2012). This means that I considered whether I would have access to the participants during the data collection period and the capability of the participants to provide the required information. In the use of a convenience sample, I did not take any steps toward checking whether the sample was representative. Nonetheless, I felt that convenience sampling was appropriate for the exploratory research under a qualitative

design. The reason was that the design was subjective in nature and required information based on individual interpretation rather than a generalized idea. In addition, given that the study was a case study, using convenience sampling meant that I would be able to ensure that the persons included had a direct relationship with the issue under study, as they would be describing their experiences.

The qualifications of the teachers for this study were that they were involved in teaching reading to 2nd grade students, although I was aware that the teachers were not reading specialists. I put into consideration the number of years the teachers had taught in elementary education, which needed to have been 5 or more, and how much of this time they had been usin$_g$ differentiated instruction, including both face-to-face instruction and computer-based instruction. The school provided the teachers with training in differentiated instruction through a 1-week, 8-hours-per-day course over the summer and engaged in refresher courses completed once a month for 3-hours throughout the school year. I expected that the training sessions gave them the knowledge needed to facilitate differentiated instruction for 2nd grade students.

The single case study involved a suburban school in South Carolina. I chose the school based on accessibility. I had access to the suburban school district from which the participating teachers were selected, ensuring access to the participants. I am a teacher within the district; thus, choosing participants within the suburban district was convenient for the project study. I liaised with the principal of the school during the participant selection process. To ensure willingness to participate, I requested that the teachers sign an informed consent form agreeing to take part in the study. I contacted all participants

individually to request that they participate in the study and explained the requirements of the study, such as the purpose and use of the findings. The consent form was distributed for ethical purposes to confirm that the participants understood the purpose of the study, understood their role, and received satisfactory answers to any arising questions. I established researcher-participant rapport from the initial meeting with the participants to ensure that the participants were comfortable enough with me to provide the required information.

I provided the participants with pertinent information about the study, including the reason for the study, which was to examine the teachers' perceptions of the best approaches to differentiated instruction as a way to facilitate the informed consider. I also addressed the various methods of data collection that were used to ensure that I received the teachers' willing participation in the questionnaire, focus groups, and interviews. The participants were allowed to withdraw from the research at any point without any effect on their personal rights. I found that this provision applied when I began with 11 willing participants but ended up with 10 completing the entire research cycle. The 11th participant, as stipulated in the consent form, only indicated the need to terminate.

An issue that I considered important during the consenting stage was assuring the teachers that I would not be using personally identifiable information, although I did include information such as their background in teaching and qualifications. Rather than using the names of the teachers, I used assigned numbers, namely ESGT 1, ESGT 2, ESGT 3, and so forth. ESGT stood for *elementary 2nd grade teacher*. I requested that the participants agree to the use of such information. Based on the ethical requirement that a

researcher should not harm participants, I made the participants aware that I would not use their names and informed them about using the pseudonyms. Furthermore, the research did not require sensitive information. All information required was on the practical experience of teachers using differentiated instruction.

As indicated on the consent form, I assured the participants of confidentiality in the entire research process from data collection to reporting, which I facilitated through protection of the information collected. The information may, however, be accessible to supervisors, as the study is of an academic nature. The consent form included this possibility to protect me from any ethical challenges that could arise from releasing the data to another person. Other persons not involved with the study will, however, not have access to the raw data.

Data Collection

The data collection procedures involved three techniques as described in this section: focus groups, interviews, and questionnaires. The reason for using the different forms of data collection was to allow triangulation of the data. Using various tools further provided a greater opportunity to obtain an array of pertinent information useful in responding to the study requirements. Data collection began with the attitudinal questionnaire, followed by the focus groups, and ending with the interviews.

Attitudinal Questionnaire

The questionnaire, composed of seventeen questions based on the concepts of differentiated instruction, was designed by Tomlinson and Allen (2000). The questionnaire was self administered. I had confidence that the participants were able to

read and understand the study questions based on their qualifications. I further believed that self -administering the questionnaire would give the participants freedom to answer the questionnaire at their convenience. They also had more time to consider their responses compared to when they were responding to an interviewer. I delivered the questionnaire to the participants and asked them to bring it back using a marked envelope delivered with the questionnaire. The participants returned the questionnaire to my classroom within the school district.

The questionnaire, attached in Appendix D, contained open-ended questions that participants took about 10 minutes to answer. The tool began with a section explaining the study, its purpose, the role of the respondents, and my expectations as the researcher. The introduction included contact information in case the participants needed to check the validity of the study and it had my contact information. The questionnaire had three question categories. The first was a demographic section with four questions about the participating teachers' experiences, including years of teaching, age group taught, subject area, and school community. The second section addressed background information with seven questions that focused on the form of instruction the teachers used, namely technology-based differentiated instruction and face-to-face instruction. It included questions on the administration's expectations of differentiation and pros and cons of differentiation. The third section was on implementation challenges with two questions that examined teachers' perceptions of the role of support and emerging challenges in differentiation.

The use of a questionnaire in research mainly occurs in quantitative studies or those using mixed methods. The appropriateness of the questionnaire in this project study despite being qualitative was that the focus was on the participant's attitudes rather than establishing any statistical connections. The questionnaire was an important component to the case study as differentiated instruction to provide a background in which teachers responded without my presence, because differentiated instruction is often a controversial topic among teachers. I believed that the questionnaire was helpful in obtaining honest, anonymous responses, which would better help me revise the interview protocol so the most probative questions can be used, and the most informative, naturalistic information can be gained in the short time-frame of the interview. As noted on the heading, the questionnaire was attitudinal meaning it examined the teachers' experiences with differentiated instruction and its practices in the 2nd grade. The consideration reflected planning and assessment, working with diverse learners, and the teaching strategies adopted by the teachers. The purpose of an attitudinal questionnaire is to examine the participants' feelings about something, which can be completed by giving the respondents a list of statements to rate or agree with. The project study therefore used a rating system, where participants were asked to indicate their feelings based on the rating scale. The benefits of using an attitudinal questionnaire for the project study was that it helped in identifying the factors that influence teacher decision making and identifying ways to facilitate better decision making mechanisms.

The questionnaire format had different advantages and disadvantages that I considered important during its application. The advantages included the cost of data

collection. Compared to other data collection tools such as interviewing, questionnaires were cheaper because I was only required to identify a way to deliver the questionnaires and get them completed then returned. I therefore did not need to factor in logistical issues arising in other tools such as interviewing and focus groups.

Another advantage was that the approach was convenient for the respondents and me. As explained previously, the questionnaire was self-administered thus eliminating the need for the participants and interviewer to meet. The convenience extended to the participant answering the questionnaire on his or her own, and at his or her own pace. My role was to provide the questionnaire and indicate the deadline for submission to ensure the participants were able to return the questionnaire on time.

The use of the questionnaire tool however had some disadvantages, including the possibility of participants failing to return the questionnaire or complete all the questions. I requested the participants to respond to all the study questions as appropriate, but recognized that sometimes respondents may intentionally fail to answer some questions. The participant also had the liberty to decide not to answer a question after completing the rest of the questionnaire or might forget to complete the question that they jumped initially. The respondents do not have an obligation to answer all the questions as I was depending on their good will, especially as the study did not bring in monetary or tangible rewards. Another issue was that the participants might have completed the but failed to return it on time indicated. I therefore encouraged the participants to return the questionnaire on time, and even contacted them before the deadline. It was important to receive the ten completed questionnaires especially considering the sample size was

small. As the questionnaire responses were anonymous, I recognized that I may not achieve an eventual follow-up to the specific person that answered the question. However, using the other data collection tools, I could ask the participants for insight into any of the responses that were unclear. To achieve this, I needed to read the answers prior to conducting the interviews or focus groups, hence the need to receive all the completed questionnaires on time. I received 10 fully completed questionnaire on a timely manner.

The approximate time that it took to complete the questionnaire was 10 minutes and the participants would return the completed tool within one week of receiving it. The directions of responding to the questionnaire were that the participants should not write their name on the questionnaire to maintain anonymity in the responses. The anonymity element was not crucial in the data collection process as I know the participants. However, by asking the participants not to include their names, it increased the possibility of the participants answering the questions truthfully, although I was not expecting them to lie. The participants dropped the completed questionnaire in a marked envelope. I did not open the envelopes until all the questionnaires were returned thus increasing the element of maintaining anonymity.

Focus Group

The focus group approach followed the semi-structured interviews where I used open-ended questions as posted in Appendix C under the focus group interview guide. The open ended questions were useful for the project study as they acted as a guide on how to pursue the discussion. The structure left it open for me to formulate follow up questions or change the wording depending on the discussion. The questions included

any gaps identified in the questionnaire responses to help me have a complete overview when making the conclusions of the findings. The group discussion involved the ten teachers that completed and returned the questionnaire. The purpose of the focus groups was to define how the teachers made their decisions based on the planning and implementation of differentiated instruction. Focus groups provided a strong data collection tool because of the interaction among the participants (Hatch, 2010). An element I found useful was that interviewing in focus groups did not revolve around asking questions but on participants discussing their feelings about the topic. This occurred through creation of a conversation between the participants that began with a question. My role as the interviewer was to create an environment that encouraged discussion such as by asking probing questions and then guiding the discussion.

The advantage I noted about using a focus group was that it provided concentrated data on differentiated instruction implementation and planning (Hatch, 2010). Having a focus group was helpful in having the teachers discuss their experiences with differentiated instruction. The discussion included their ability to implement differentiated instruction and the way receiving training in differentiated strategies contributed towards their capability in differentiating. Noted in the study problem was that differentiated instruction was occurring within inclusive classrooms. Through the discussion, teachers noted the implications of differentiating within an inclusive classroom and if differentiated instruction was helpful for at-risk students. I sought to learn whether differentiated strategies were useful in developing reading skills among at-risk students. Another benefit of using focus groups in this study was that I was able to

ask the participants about how they defined at-risk students and then decided on the appropriate strategies based on the challenges faced by the student. Part of the discussion was on the use of face-to-face instruction and computer-based learning. I directed the discussion toward comments on the decision to use either face-to-face or computer-based learning, and the benefits the teachers perceived of each method. This informed the recommendations on the better strategy in differentiated instruction for at-risk students.

The focus group structure as presented in Appendix C began with statement of the research purpose, followed by explanation of what the focus group sought to achieve, which was to create a better understanding of the benefits and challenges associated with using differentiated instruction. After ensuring the participants understood the prerequisites of the study, I posed the introductory question "can you please tell me your level of teaching experience, where you have taught, and the age group of the students". This was followed by the main question "when you hear the term differentiated instruction, what is the first thought that comes to mind?" The question was followed by various probing questions about differentiated instruction including the experience of the participants in differentiation, challenges, whether they felt they had received adequate training in differentiation, the expectations of the administration, and their recommendations or suggestions about how to make differentiated instruction more effective for 2nd grade at-risk students. The questions moved on to the use of face-to-face instruction and technology based instruction, and asked which approach the teachers felt was more effective based on the needs of students, the one that prompted socialization better and their perceived benefits or challenges in a differentiated class.

The discussion occurred in my classroom, which was selected based on ease of access to the participants and because I was able to schedule the focus group within a time less likely to have interruptions during the school day. The focus group correlated with a time when students would not interrupt the discussion. The session lasted about an hour. I recorded the session, although I first obtained the permission of the participants. However, I took field notes recorded on a laptop in which I included reflections of body language such as agitation that I felt might provide more insight when completing the data analysis. Note taking is an important element used by researchers to note group dynamics such as in how the participants negotiate data and arise at conclusions (Hatch, 2010). I appreciated taking noted because I found that they acted as some sought of guideline on the immediate ideas that I captured during the discussion. They also helped in creating initial codes that I could used in the analysis, although the transcribed interviews were the primary focus.

The use of focus groups had notable advantages and disadvantages that influence their application. One advantage was that the group seemed to provide the participants with a sense of security that helped them in being more candid when responding to questions. As noted by Leung (2009) focus groups help participants to be more open and reflective compared to single interviews because it is a discussion (Leung, 2009). Another aspect I found useful was the within the group the participants had the opportunity to agree or disagree with each other, thus presenting ideas that they may not air in an individual interview. This helped me attain information that I may have overlooked or that participants may not have normally provided in individual interviews.

During the focus group I had a guiding list of questions, but I appreciated that sometimes the arising responses in the discussion can point towards another direction raising opportunity to attain rich and meaningful data. For example, because the teachers had undertaken classes of differentiation provided by the school I did not expect many would note lack of professional development, but this rose as an expected finding that created an opportunity for more follow up on what teachers would like to see implemented. The challenge with the rise of new direction was the probability that the flow of the interview may change unless I maintained a strong control without seeming overbearing. I noticed that while flexibility was somewhat useful for the discussion, I needed to maintain control to ensure the discussion responded to the identified questions, and that the discussion remained relevant to the topic of study. A concern I had at the beginning of the study and its planning stage was that the participants may know each other well as people that work in the same school district. I feared this may create friction where some participants may not want to share with the others for fear of how the rest of the group will perceive them. For example, I was aware that participants may choose not to speak much in the focus groups for fear that others may think them incompetent or be perceived as lacking in knowledge in some areas. This was a concern associated with sense of security projected in groups, especially when unsure about the various elements discussed in the group. To promote better group dynamics and help the teachers feel secure and comfortable with the group I began by explaining the importance of the discussion in obtaining information that would help teachers in the school and school district to formulate working strategies for differentiated instruction for at-risk students. I

was appealing to the desire of an educator to obtain information and skills that would make him or her more effective in their work. For example, I explained that the information provided would be to identify challenges faced by teachers in using differentiated instruction, the ways they overcome challenges, and challenges that they need assistance in overcoming. Therefore, I encouraged the participants to learn from the challenges experienced by each other, and the working solutions.

The use of focus groups in this study supplemented the data collected in the questionnaire. It was also an opportunity to ask for information on gaps noted in the questionnaire thus enriching the data. The questionnaire information was useful in generating the information to pursue in the personal interviews. To note is that the focus group did not act as preliminary research in constructing the personal interviews. However, I did use the group to note factors that the participants appeared reluctant to discuss within a group setting and ask follow up questions in the personal interviews, but to the specific individual. This made the note taking handy because I would note the reluctant person and the associated issue. I however ensured the discussion was exhaustive and follow up was only necessary when important gaps arose in the data generated.

Interviews

The ten participants that completed the attitudinal questionnaire and that participated in the focus group are the same that responded to the personal interviews. I used the book of Tomlinson and Allen (2000) *Leadership for differentiating schools and classroom* to develop the questions for the interviews, which are found in Appendix B as

the interview protocol. The reason for choosing this book was that the authors highlighted pertinent issues in the use of differentiated instruction. Examples of highlighted issues included the reasons for choosing to use differentiated instruction, the conditions needed for differentiation, strategies needed in the implementation, planning on how to differentiate, the aspects that need differentiation, and need for staff development to enable them support differentiation. Other aspects were establishing communication between parents and the community on the implementation of differentiation, and the process involved in differentiation. Example of questions were how differentiated classrooms were more responsive to the needs of all learners compared to non-differentiated classrooms, and the way teacher training and development enhanced their capacity to differentiate. The second question was a consideration for the need for staff development, and the things that teachers needed to learn to improve their capacity for differentiation. The guidelines were five but I asked follow-up questions to ensure the interviews covered a wide range of issues on differentiated instruction strategies. The focus of the questions was specifically on strategies of differentiated instruction and effectiveness for at-risk students having reading challenges. The goal was to obtain information on how such strategies promoted better academic achievement.

The interview sessions took approximately 30 minutes, in my classroom or a predetermined place. The participant and I agreed to meet outside the school area, especially if such a meeting place would increase the ease of the interview for the participant. I however considered the probability of the venue allowing for recording of the interviews and challenges in background noises prior to agreeing to another venue.

Another reason for choosing a quiet place was to ensure the session did not have any interruptions, which could affect the flow of the discussion. The participants signed a consent form agreeing to the recording of the interview session. The consent was similar to that signed to agree to participant in the study, although this was specific to agreeing I to record the session.

The interview protocol, attached as Appendix B had five questions. The protocol begin by explaining where the interview would take place, time, and that the interviews would be recorded. The participants were also informed in the introduction that they were to receive the interview transcripts. The five questions were how to ensure differentiated classrooms are responsive to the student needs, the role of teachers training in facilitating good or poor differentiation, tools used in differentiated instruction lesson plan, differences between face-to-face differentiation and computer-based instruction, and examples of differentiated instruction.

The advantages of using individual interviews for this project were that they offered an opportunity to probe complexities involved with the research topic, and uncovering issues that could create insight into the study (Klenke, 2008). These advantages arose because interviewees responded to the study questions with as much detail as they wanted to share. With my guidance, the participants were able to share their concerns and opened up about the implementation of differentiated instruction. This showed the challenges they were struggling with in identifying implementation strategies and ways of overcoming them. The focus groups augment the interviews by providing a session for follow-up questions.

My role of the researcher was critical in guiding the interview and maintaining the course of the discussion. I recognized that the participants may become carried away with the discussion as they explained their encounters, which could affect the quality of information collected. Without control of the session, I could easily collect minimal information in a 30 minutes conversation. My role was therefore to ensure the participants responded to the interview questions within the allocated time. If needed, I adjusted the interview questions to accommodate the direction of the interview. The change involved rewording the questions or even skipping a question if the participant responded to it when explaining the previous question. I needed to maintain a keen interest throughout the interview to identify questions that preempted or those that needed adjustment. Furthermore, it was important to note if the participants needed more explanation about a question. Unlike the attitudinal questionnaire, during the interviews I had the opportunity to expound on the questions if needed and to probe for details if an answer seems limited.

The disadvantage of the individual interviews was that they require investment in time (Kumar, 2008) because each took a minimum of 30 minutes. Another aspect of the time was that data analysis for interview questions was time consuming as it required transcribing and then understanding each interview as a unique story and working to connect them. Each interview was a single conversation, and thus I needed to treat the ten interviews as separate stories. This brought another limitation where due to the individual stories, interview responses had limited comparability (Klenke, 2008). While doing this, I needed to find connecting ideas between the stories to make the interview data useful in

answering the research problem. The information provided also depended on the reported behavior of the participant, which created the possibility that sometimes respondents might give the answers they felt I wanted, which could compromise the quality of the study. I prompted truthfulness through probing and clarification of answers if any doubts arise.

Data Collection Process

During the data collection process, I kept a research log to ensure the process flowed as intended. The attitudinal questionnaires were first in analysis, which took a week, and then I took another week to prepare for the focus group. The week involved enhancing the questions based on the findings of the questionnaires. To note is that I was not focusing on how many of the respondents were of a particular opinion but looking for gaps that the focus group could highlight. The focus group was approximately one hour. Using the notes written during the session, I identified any questions that may require additional information and incorporated such into the personal interviews. The personal interviews too about thirty minutes each.

After the focus group, and each interview session, I took notes of anything memorable noted during the sessions. This eased the data analysis process by ensuring that I was familiar with the data collected. The note taking was also be for identifying whether I missed any parts of the questions or needs additional research to assist in data interpretation. Although I did an intensive literature review in the first section of the project, the expectation was that as the project continued I would need additional reading into the subject to clarify issues or check for more information. This was helpful in

identifying new research in the area and their outcome. To note is that such evidence was useful in acknowledging development in the area of differentiated instruction strategies. However, as the study used primary data collected through the qualitative approach, any additional literature was not be used in the research. As noted in the first section, I reached data saturation with the literature review, meaning it may be difficult to identify new knowledge in the area within the published work, unless among recent publications. I was able to find the necessary information to complete the work successfully. For example, a large number of sources (86) used were recent publications, published between 2008 and 2014. The information included in the discussion was therefore recent and relevant. Within the last five years, it was be difficult to identify new arguments for differentiated instructions; hence, the identification of reaching data saturation.

During the data collection process, three ethical considerations were essential. These included informed consent, observing anonymity, and confidentiality of the data. The participants signed an informed consent form at the onset of the collection process. The informed consent provided the participants with pertinent information about the study including the purpose of the study, which is to explore the perception of teachers in using differentiated instruction strategies. The focus was on face-to-face and computer-based strategies. The form further explained the importance of responding to the research questions truthfully. The participants were informed that they may withdraw from the research at any point. I did not expect the participants to withdraw as the selection criteria was based on convenience. Considering that the sample was small in case one of the participants withdraw from the study, I would then have to replace him or her with

another participant selected using the same criteria. This would maintain the case analysis of the ten teachers.

Other considerations were to maintain confidentiality of the data during the data collection and analysis. As the project involved academic work, the supervisor may have access to the study data on request. However, the data did not be accessible to a third party. To facilitate this, I used a personal computer, to safeguard the information and backup all collected data online. The participants were also be assured of anonymity in the data reporting. This increased the usability of the data collected as readers were not be able to attribute it to a single case, but as the findings of an entire study. The participants received the assurances of anonymity and confidentiality in the consent form.

The Role of the Researcher

I was an active part of the research. This was in distribution of the questionnaires and conducting the focus group and interviews. To facilitate the role, I kept a personal journal highlighting reactions and reflections made during the research process. The reason for the journal was to help note any biases, assumptions, expectations, and experiences that could have an effect on the quality of the data collected. The journal was also useful for noting any developments in the skills needed for the data collection. For example, after the focus groups I had gained insight into the most critical skills needed for interviewing such as listening and asking probing questions. By noting such skills, I practiced before the interviews to ensure the sessions provide all the information targeted.

Data Analysis

The data analysis process started with the transcription of the focus group session and then transcribing the ten individual interviews. The transcription period was one week. I did the transcriptions on a personal laptop to ensure the safety of the data throughout the analysis process. However, the recording was kept in a compact disk for future reference if the need arises. The reason for choosing a disk was that it had a good capacity for storage without being corrupted, although it had a risk of scratching. The backup option was saving the recording on email. I did not expect to have to use the recording after the transcription but the backup was to safeguard the integrity of the research.

The analysis method for the qualitative data was thematic coding, which allowed the researcher to identify themes (Creswell, 2007). The thematic coding involved reading the transcripts and identifying common themes among the responses. As noted in the data collection procedure, it was challenging and time consuming because each interview is funique, and I needed to treat each session as an individual conversation even when seeking to find common attributes. To ease the process of data analysis, I had noted some arising themes during the data collection stage. Such themes acted as a guide on synthesizing the data.

The method of coding was open and axial coding. The process of open coding involved reading through the data severally and create tentative labels for groups of information in which the researcher summarizes what they felt was happening in the data. The labels did not come from preconceptions but from the meaning that the researcher

gets from the data. This was done through recording words of participants and establishing common words. Open coding essentially worked as a process of giving names to the concepts or ideas seen in the data collected. The first step in qualitative data analysis after transcription was open coding, in which the researcher went through the data and breaks it into pieces.

The second step was close examination of the data to form comparisons, and identifying similarities. This involved axial coding, which refers to identifying relationships in the codes developed during open coding. Axial coding involves finding connections in data. The researcher then marked the labels with appropriate labels that will become smaller in subsequent analysis. The identities created during the note taking were useful in development of both open and axial codes in that they created a starting point for the researcher. When taking notes, the researcher allocated feelings to expressions made by a teacher, which formed a baseline for the data analysis. Such labels did not act as preconceived ideas as they arose during the data collection process.

The codes were specific to the conversation. This meant that the researcher assigned codes to each interview individually and then merged the codes. This made the data manageable rather than the overwhelming nature of analyzing all the information together. After individual coding, I merged the codes specific to the questions. This meant the analysis of the first question and the related codes, and then subsequent questions. Dividing the work into questions ensured that I did not need to deal with the entire chunk of responses together, but with pieces. The pieces were manageable. I then connect the arising themes form the interviews to the focus group.

The second part of data analysis was the attitudinal questionnaires. The questionnaire had open-ended questions and thus the data analysis; hence, data analysis was thematic. The questionnaire had thirteen questions divided into three categories. The categories served as key themes during the data analysis process, as they were divided into background information, demographic, and implementation challenges.

The final stage of the data analysis was connecting the three tools based on the themes identified in each. The combination of the tools was essential for the triangulation of the data and thus facilitating validity of the study. This study involved methodological triangulation, which used multiple data collection methods in the same project including questionnaires, focus groups and interviews (Guion, Diehl, & McDonald, 2011). The researcher then compared the findings from the three sources to determine similarities in results. If the conclusions drawn from the different methods are the same, the researcher concludes that the study achieved validity. The combination of the tools stage involved identifying the various themes noted in each group, and comparing the themes to those in another tool. The expectation was that the tools would show similar findings.

Ensuring the validity of the findings was important in assuring the quality of the research. While triangulation provided the essential ingredient in promoting validity, the researcher had to ensure the data collection process followed the established protocol to promote reliability of the data, thus truthfulness and validity. The ethical stipulations for conducting research required that researcher pursued established measures for data collection and maintained the same in reporting. Trustworthiness reflected in the truthful presentation of the collected information. The reason that I chose to keep the data

collected for the study was that raw data as an essential part in confirming the reliability and validity of data. This meant that if another researcher analyzed the same information he or she would reach the same conclusion as that presented in the study. I will therefore keep the research data within the period stipulated in school guidelines to maintain the rigor of the study. As a researcher, I minimized on bias by ensuring that my results can be validated by another researcher using the same question. For this reason I asked another researcher to go through the established protocols ensuring that the questions were clear and reflect the purpose and questions established herein. I did this by following the research protocol as established.

Conclusion

The process of data collection for this study was single case study design. This chapter outlined the qualitative approach and the single case study design, and its application in this study. The qualitative design fit this study because it provided techniques to examine the perceptions and attitudes of the participants, which was the purpose of the current study. The explorative approach was part of qualitative design and provided the techniques needed to underscore participants' opinions about the issue under study. The method chosen under explorative approach was case study with data collected using attitudinal questionnaires, focus group, and individual interviews. The research participants were ten elementary school teachers with experience teaching reading in 2nd grade. Sampling process was convenience as I chose teachers from an accessible suburban school district. The first data collection tool included attitudinal questionnaires, which were self administered. The participants then participated in a one hour focus

group conducted by the researcher, and then individual interviews. The data analysis process was through open and axial coding, which facilitated identification of themes across the information collected. I facilitated research rigor through methodological triangulation. Ethical considerations during the research included informed consent, observing anonymity, and confidentiality of the data. The next section will highlight the findings from the focus group, interviews, and questionnaires as a group based on the identified themes.

Research Results

The purpose of this qualitative project study was to explore teachers' perceptions of traditional and computer-aided differentiated instruction strategies. The focus of the study was a suburban school in South Carolina, where teachers were implementing differentiated instruction to meet the needs of their students. The inquiry checked into the approach that teachers found provided better outcomes by answering three research questions, namely,

1. What are teachers' perceptions of the best form of differentiated instruction when comparing a technologically based strategy to a face-to-face strategy in the Suburban school in South Carolina?
2. What are the perceptions of teachers in grade two on reading improvement through the peer socialization generated by face-to-face instruction?
3. What are teachers' perceptions of the pro's and con's of the implementation of the CLO computer program?

I collected the data using focus groups, interviews, and attitudinal questionnaire; hence, I triangulated the information to find specific themes from the research. I began by transcribing the focus group and interview data into a Word document to allow for easier review of the information provided. Transcription also made it possible to identify emerging trends that were useful in organizing the information into themes. By using themes, I had the chance to identify common perceptions among the 2nd grade teachers that formed the basis of analysis. I then included the results of the attitudinal survey forming four themes for the research. These included: (a) Experience, (b) Teacher Perception, (c) Relationships, and (d) Experience of Differentiated Instruction

Additionally, I was able to identify four main themes from the participants' responses to their experiences with DI. A core part of the study was to examine the teachers' use of differentiated instruction and then determine the approach they thought most effective in promoting better student outcome. The four identified themes included: (a) familiarity with DI (b) the percentage of the day that teachers use DI, (c) the reason DI responsive, and (d) thoughts on DI.

Participants' Demographics

The sample of the project was elementary 2nd grade teachers (ESGT) with varying years of experience. The teachers that responded to the invitation to participate were 10 teachers; eight of the instructors had a Master's Degree certification, while the others had a Bachelor's Degree. The years of experience ranged from 5 years to 32 years. Four of the teachers had between 5-11 years of teaching experience, while two had between 12 and 15 years of experience, three had taught for 25, 26 and 28 years, and 1 teacher had 32 years of teaching experience. The number of years taught was not reflective of the certification; for example, two teachers with Bachelor's Degree had more than 10 years of teaching experience, while two others with Master's Degree had five years of experience. Table 3 provides the identified participant demographics.

Table 3

Participants

Pseudonym, elementary second grade teacher	Certification	Years of experience
ESGT 1	Master's degree	26
ESGT 2	Master's	32
ESGT 3	Master's	15
ESGT 4	Master's	5
ESGT 5	Bachelor's	8
ESGT 6	Master's	5
ESGT 7Master's 25		
ESGT 8	Master's	7
ESGT 9	Master's	12.
ESGT 10	Bachelor's	28

Note. The results presented are for 10 teachers who completed the entire research process.

Research Question 1: Perception on Best Approach to Differentiation

The first question investigated the teachers' perceptions on the best form of differentiated instruction when comparing a technologically based strategy to a face-to-face strategy in the suburban school in South Carolina. The responses showed three themes, a) experience with differentiated instruction, b) responsiveness, c) preference

Experiences with differentiated instruction. The experience of teachers with DI was diverse, but it was evident that majority of the participants were familiar with its use, and used it more than 60% of their class time, although some had higher usage depending on what they wanted to achieve. For example, when teachers wanted to ensure that the students were learning in their own way as the content was presented, the instructors used DI. The instructional design was that it met the instructional needs of the learner.

The teachers' responses about differentiated instruction provided insight into their familiarity with the approach, when they used it, their reasons for why it was responsive to student needs. Familiarity with the approach was classified as pretty high, high, very high, and extremely high, with ESGT 5 being highly specialized in special education classroom. Many of the participants n=8 used differentiated instruction at least more than 75% of the time in the class, with ESGT 3 having a remarkable 100% usage and ESGT 5 AT 85%, and ESGT 10 and ESGT 2 at 80%. The lowest score on usage was ESGT 1 at 40% followed by ESGT 9 at 50%. The other scored between 75 and 78%.

Responsiveness. The teachers provided reasons on why they used differentiated instruction and their thoughts on it being responsive. The general perception among the participants was that differentiated instruction helped teachers to understand the strengths

of their students and in ways that suit the learner as indicated by ESGT 2 that "differentiated classrooms are able to meet with each student to help them grow in the content area". Further as noted by ESGT 3 "the content is being presented to ensure that all students are learning in their own way" and ESGT 4 "they provide ability grouping and make learning fun and engaging for students" as well as ESGT 5 that "when the work is tailored to the students need, the student can be more successful." Further, as noted by ESGT 6 "it is more responsive because the lesson/books are leveled to that child's ability which is much more appropriate to teach children because it is a level they feel they are successful with."

The other teachers echoed these sentiments indicating that differentiated instruction ensured that the needs of the student were met at his or her instruction level. The teachers also gave their thoughts on why they felt instruction differentiation was responsive, which as noted in the subsequent statements showed varying perspectives on the reasons teachers may choose to use the approach. ESGT 1 stated that "it is an instruction design that presents content at the level of the child, but challenges them at the same time" also echoed by ESGT 3 that "lots of children of all levels in the same room are trying to learn the standard curriculum. Differentiated instruction is design so that it meets each on their instructional level." ESGT 4 and 8 agreed that differentiated instruction teachers assist students at their level because they are able to assess their needs and thus fill the gaps as well as make individualized lessons and assignments. It was evident that the issues of student level of learning and the extent to which differentiated instruction can help the student continued to play an important role.

Notably, the findings as presented above show that an important part in the experience of DI is meeting the needs of the students. Coming across from the data was that teachers used DI because its design was useful in providing instruction at the instructional of the student; furthermore, the materials used were also relevant to the student level. It was therefore more probable that students would enjoy learning because they were using a level at which they felt successful at. The approach helps assess the level of the student and feel in the gaps as needed, meaning that even though it encourages students to learn at their current level, it does increase the level of knowledge acquired by filling in gaps.

Preference. The study checked for the teachers perception of face-to-face differentiated instruction versus computer-based differentiated instruction, which raised five themes. They included (a) The teachers perception of the pro's for face-to-face differentiated instruction, (b) The teachers perception of the con's for face-to-face differentiated instruction, and (c) the teachers perception of the pro's for computer-based instruction. The other themes included (d) the cons of the teacher's perception for computer-based instruction, and (e) Teachers perception of the most beneficial strategy for students face-to-face or computer-based. The responses provided a comparable analysis of face-to-face and computer-based differentiated instruction, and then makes a conclusion on the approach that teachers perceived as most beneficial based on the advantages and disadvantages. The responses included the most beneficial approach based on a basic recommendation on those styles of teaching that the teachers perceive is useful to their needs and those of the students. The pros and cons offer insight into the

limitations that teachers perceive in using either face-to-face or computer-based DI and the perceive benefits.

The identified advantages of face-to-face instruction included having more individualized work and providing the students with more options on choosing their path, and offers better teacher insight to student's abilities and thus promoting better growth for the students. Another participant noted that because the teacher meets the student in small groups on a daily basis, one is able to teach students individual work and they are able to ask questions in a much smaller setting compared to the whole group. An advantage of face-to-face instruction that was common among the respondents was its smaller group setting provided for instruction that was more individualized and focused on the student, and that was better able to respond to the particular needs of the student. This meant that the teachers could work with each student and build their confidence. Another aspect was timeliness of instruction as noted by the participants that "teaching a student at his/her level and gaining realistic instructions. Well managed time consistency for the individual student leads to cohesive instruction," and that "face-to-face differentiated instruction time is extremely beneficial. It gives me the opportunity to work closely with students to ensure skills are mastered."

Other benefits noted were that teachers could immediately adjust and modify the lesson depending on the response of the student to instruction, divide the students into activity groups such as reading groups in which they worked with children that can read versus those that cannot read. The instructors can place the students in different groups with specific expectations that fit the level of the child. As noted by one participant

"expecting students to succeed at the level of another child is not realistic". The approach therefore was advantageous to both teachers and the students in terms of reaching realistic goals in learning.

Face-to-face differentiated instruction also has notable disadvantages identified by the participants. These included increasing the teacher's workload and challenges in time as noted by participants that it "seems to be more work for the teacher. Grading may be different as not all kids work on the exact same thing in the exact same way. That makes it tough to compare grades." Further, "time management can be a struggle because you are required to meet with all of the students on a daily basis in groups. If a student is still not grasping the content you may not be able to meet with them again until the following time." The feeling was that "the teacher is only person and sometimes it is overwhelming to meet with each student" and that "time constraints on lessons because of extensive data collection."

The participants also identified other challenges in addition to the issue of time. For example, two participants noted that "it is hampered by not having enough of the correct resources and materials" and "depending on the number of students and the varying level of need, you may not be able to get to each child." The issues of managing time to fit within the work that the teacher needed seemed to be of concern to many of the participants n=8. It also came across that face-to-face instruction meant more work for the teachers.

The second approach tested was computer-based learning that showed the teachers saw varying benefits and disadvantages based on their experiences. The

identified pros of computer-based learning included, “content is being presented in a way that students can not only understand but be able to manage”; “there are many programs in our school that are technological based that provides important content”; “students enjoy the animated instruction”; and that “objective presentation frees teacher and some children, and respond better to computer.” Other participants noted that computers made tracking of data easy, promoted use of individualized assessments or learning plan, engages the students, and does not have as much work for the students. The approach further has more readily available resources because of the many programs at the school.

The teachers however identified critical limitations in the use of computer-based learning, which provides important insight into the choice preferred by many of the respondents. The cons of computer-based approach included possible malfunction of the technology, skewed data, impersonal instruction, inconsistency, affects monitoring of students’ work in real time, and raises questions on whether a child did his or her best. Some of the notable distinct responses included that “a limited number of variables can modify presentation”, and that “sometimes the program provides activities that are too easy or hard for students.” Additionally, “a teacher must think very creatively in order to think of ways that can incorporate differentiated instruction in a technological base.”

The respondents picked the approach that they preferred, either face-to-face or computer-based learning. They also gave the reason for such preference. Those that chose face-to-face instruction did so because, the approach is “more personal and the teacher can test the students understanding in many or most instances.” Further, participants would “prefer face-to-face because I see how the children are learning and what areas

they are having problems with in achieving their goal. Children get more than enough technology in the computer lab and especially at home. They need social interaction and verbal skills to begin success in kindergarten."

The participants also noted that face-to-face approach is better because one can better read the students, and it made instruction "more functional, interactive and appropriate based on the child's responses" and that it "allowed for one on one time with your students". It further allows the teacher to "work with students, assess their needs, and provide support for problem areas." Face-to-face differentiated instruction was also considered "most beneficial to students because of the direct verbal feedback and the communication between student and teacher" and it was "more personal and the teacher can check the students understanding in many or most instances." Another participant noted the benefit of face-to-face instruction but was specific to note that the advantages were realized in a rotation approach in which students spent about "10 to 15 minutes working on a different task. Stations allow for differentiated instruction on a daily basis, a change of pace for students who bore easily, and make learning fun and meaningful."

None of the participants indicated a preference to computer-based learning, but some noted that both were useful, although as shown in the subsequent responses they tended to end up choosing face-to-face. For example, one participant noted that "I really like both. I enjoy face-to-face so that you can see the students process of thinking. It is also nice to have technology because it can store data on how students are doing." Another participant stated that "I feel both are great as long as the teacher is involved and working hard to collect data so instruction is optimized. While technology is an easier

step-up, I don't feel there is any program out there that could beat a face-to-face lesson on something a child needs. A teacher will be able to explain a lesson in more than one way or give an assignment based on individual needs as opposed to what a program offers. Again, both are great, but I give the edge to face-to-face." One of the participants that acknowledge both approaches are beneficial seemed to prefer computer-based technique, stating that "both have their usefulness. I think a combined approach is the best. However, technological based instruction can calculate data faster." The choice of computer-based instruction was therefore conditional.

Coming across from the findings was that although face-to-face DI seems to have considerable disadvantages in terms of the amount of work that the teacher needs to do and time management challenges, it still seems to be a preferred approach. Teachers prefer it because it provides better student centered instruction, and the teacher is able to keep track of each student by checking on their understanding immediately. Furthermore, in face-to-face DI the teacher can better identify the areas that the students are having challenges with and input them into target goals. The teachers' perception seems to be that face-to-face learning provided more benefits to the student compared to computer technology such as the social interaction and verbal skills. Furthermore, the student also gets to learn based on the responses of other students. Teachers also continually check on the student ensuring that they understand the lesson and the instructor can change the instruction to fit the student if the learner was having trouble.

The benefits shown in the face-to-face approach and the teachers perception does not however disregard the usefulness of computer-based learning because especially

because some students respond to this approach better compared to the face-to-face, and they enjoy the animated instruction. It nonetheless requires the teacher to be knowledgeable about using technology and understanding the attributes that can be better presented through technology compared to face-to-face. Teacher understanding of the program is important to ensure that the program used does not provide too easy or too hard tasks for the students, and to maintain continuous monitoring to ensure that the students complete the assigned tasks rather than just enjoy the program without learning.

Some teachers also showed a preference for using both approaches, which meant that they minimized the limitations experienced in each. The perception was that both can be useful as long as the teacher is involved and working to optimize instruction. Furthermore, a teacher would be able to present the content in more ways and thus give the student as much advantage as possible. Using technology also offers the opportunity of storing student data, while face-to-face facilitates assessment of student process thinking. Face-to-face DI nonetheless remained the preferred approach.

Research Question 2: Socialization

The second question considered the perceptions of teachers in grade two on reading improvement through the peer socialization generated by face-to-face instruction.

Relationship in computer-based and face-to-face differentiated instruction. Teachers were able to determine relationships between computer-based and faces to face differentiated instruction that resulted in two themes. They included (a) comparing traditional differentiated instruction to computer-based differentiated instruction and, (b) contrast traditional differentiated instruction to computer-based differentiated instruction.

The teachers gave statement that gave elements that they perceived made traditional DI different from computer-based instruction. The comparison and contract shows the knowledge that the teacher needs to sustain the learning process such as feeling comfortable with using the technology, and the implications in using each approach. The statements provided are specific feelings of the teachers in their understanding of traditional DI.

The study sought to understand the differences teachers saw in the use of face-to-face differentiated instruction or traditional approach in comparison to computer-based approach as a way to understand the impact on socialization. The participants identified the traditional approach as providing more opportunities for student socialization. As noted by ESGT 1, the traditional approach offered the children opportunities to develop relationships and skills when working together in small groups. The teacher agreed that computer technology was useful because the learners were in a period when technology was an important part of daily activities. Computer technology also helped students to work independently; nonetheless, traditional approach provided greater human connection.

ESGT 2, 3, 4, and 5 also noted that the traditional approach gave both teachers and students an opportunity to learn each other, in which the students understood that they were not the only ones undergoing a certain challenge, and teachers understood the needs of their students. For example, ESGT 2 stated “traditional DI is more beneficial because the teachers are getting exposure to how the children learn to read and understand the material being taught. Students are able to form friendships, and motivate

each other in the small group setting." According to ESGT 3 the students saw the challenges of their peers, "traditional DI is pulling students with common needs and providing intense skill instruction on students' levels. Students are able to see that they have peers that are the same as they are and everyone is unique in their own way". ESGT 5 recognized the traditional approach as useful in hearing the ideas of student, noting that "in traditional DI you are able to hear what the students is thinking, compared to computer-based you cannot hear what the student is thinking. Students are able to share ideas among the group and provide encouragement. The teachers seemed to agree on traditional DI being an approach that encourages lessons and assignments that are specific to the needs of the students, and promote academic success.

In contrast, the computer-based approach was noted as "preventing teachers from seeing the needs of the students, and all that teachers get out of it is data and that is not always trustworthy" as noted by ESGT 2. Further, ESGT 5 felt that "computer-based differentiated instruction leaves out the communication piece between teacher and students" as well as among the students. The approach however also has notable benefits; for example, ESGT 4 felt "on computer-based you are able to have computer-generated reports that seem more efficient" and ESGT 8 noted "with computer-based DI you are able to send students various assessments on their levels so instead of grouping students you can reach them at their level." The comparison between traditional and computer-based approaches showed that each had advantages, although the traditional approach offer greater possibility of socialization between peers, and between teachers and students.

The comparison showed that teachers perceived traditional DI as useful because it afforded goal setting, enabled the teacher to continually monitor what the students were doing and check the appropriateness of the materials used. It was also possible to make the teaching personalized based on the individualized needs of the student, skill acquisition intended, and the level of learning. An aspect that continually rose as important is tailoring instruction to the needs of the students.

Research Question 3: Teacher Perceptions of CLO

The third question checked for the teachers perceptions on the pro's and con's of using CLO computer program. The teachers identified different challenges in differentiated instruction that provided insight into the ways that they considered CLOs in comparison to face-to-face approach as advantageous or disadvantageous. Teachers had challenges regarding face-to-face differentiated instruction versus computer-based differentiated instruction, which raised four themes. They included (a) Time to incorporate differentiate instruction, (b) views for professional development, (c) planning to carry out differentiated instruction, and (d) administrative expectations for teachers.

Time management. The participants identified time management as the greatest challenge they experienced, as noted by ESGT 1 that the greatest challenges are time management because you do have to meet with each group for at least 10 minutes a day to the stations to be meaningful and planning out each group that you are planning to work with throughout the day. Finding time to work with all of my students daily is a challenge. It is also difficult to stay on top of the computer-based program making sure students are appropriately placed. Another participant (ESGT 2) continued with the trend,

indicating that time constraints in the day and added pressure of meeting a pacing guide as per district requirements, which was also posted by ESGT 4 that the time it takes to set it up and monitor it effectively. The respondents further identified other challenges that although associated with time, also highlighted additional problems. For example, ESGT 3 noted that "I think that the most difficult challenge for differentiating is trying to differentiate too much too fast. I feel you must start slow, with a subject that you know well. When you have mastered the class, move on to the next subject."

Professional development. The participants identified the importance of the school and district providing teachers with opportunities to obtain the skills needed. For example, ESGT 1 noted that professional development opportunities should always be available. If a teacher is given more time to learn about DI, and about how to incorporate it, I think DI would be incorporated more seamlessly in the day. I do think more PD should be made available. The same perception was echoed by ESGT 5 noting, "I think more professional development is much needed. There are many great ideas out there and professional development gives the opportunity to share."

Others noted that training made the teachers better because it provided the skills needed to differentiate. For example, ESGT 6 stated, "The way teachers are training and professional development opportunities does enhance the capacity of DI. More professional development opportunities should truly be made available so that teachers who are apprehensive about starting stations can or other forms of DI can gain the support they may need. Another participant, ESGT 8 echoed the though stating "Training is crucial to be able to differentiate properly for reading. Math is more difficult to

differentiate, but children that have problems are pulled for one on one or small group. ESGT 9 further stated that "I believe that additional training is always a wonderful opportunity for teachers to learn new ways to incorporate DI within the classroom. I believe that it would be beneficial for more opportunities to become available, especially for teachers that have started late into the school year." The respondent further noted that it professional development should be mandatory for any school that wanted to implement the approach. One participant that had taken DI classes emphasized that they were useful for teachers. ESGT 7 noted that "yes and yes. I took class in college dedicated to differentiated instruction. It HELPED. I also believe any time you can get opportunities to refine your skills as an educator, it is beneficial." As noted by ESGT 10, taking more classes would act as reminders for teachers about normal child development and expectations, because sometimes teachers may neglect development norms.

Planning. Teachers also faced a planning problem when using differentiated instruction, which was identified by three participants. ESGT 1 stated that "some challenges I have faced are planning lessons that are able to reach all students at their various levels and time management. I feel there may not always be enough time to meet all the students on their own needs. I know I try hard to group kids to better meet their needs but sometimes feel there can be more subgroups, but I just am not awarded time for more intensive guidance." It came across from the participants that they felt there was no enough time to meet the specific needs of each student each day. The planning issue reflected the challenge of time previously identified by the teachers.

Administrative expectation. Another challenge also connected to planning and time is administrative expectations in which the teachers felt that schools expected them to provide differentiated instruction all the time. ESGT 1 provided insight into this challenge stating "They expect differentiated instruction because it is a district expectation. Administration expects you to meet all learners' needs and you are expected to provide DI everyday." ESGT 2 continued the trend noting, "The administration expects differentiated lessons, assignments, and test in the special education setting 100%." ESGT 5 also felt that the administration expected the teacher to provide differentiated instruction throughout the day to meet student needs such as in small groups and in one on one sitting to make sure they were working toward being successful. However, ESGT 7 and 8 indicated that they believed the expectation for differentiation was only when using small groups instruction.

The challenges to differentiated instruction show limitations that teachers experience in implementation at the school. These are important in understanding issues that need to be addressed to facilitate better use of differentiated instruction whether in face-to-face or computer-based approach. These challenges undermine the effectiveness of the approach, and thus the need to deal with them.

One of the most meaningful challenges found in the study was about time management. The issue was also noted in the pros and cons of both face-to-face, and computer-based approaches completed before. It was noted that time management was an issue because the teachers needed to ensure that they met with the students on a daily basis when differentiating, and further there was much work in the process. Allocating

enough time to the differentiation was important to ensuring that the learning was meaning for each student. Additionally, teachers needed to meet their own classroom targets as well as those established by the district, which continued to strain their time. An element to add noted in the pros and cons was that time management was more an issue for face-to-face approach compared to computer-based instruction.

The second challenge noted in the study was professional development. All the participants were of the perception that it was important for teachers to receive additional professional development in the area of DI. This would be useful in ensuring the teachers understood the different tenets of differentiation, and putting in place the mechanisms for implementation. One participant noted that taking a class in the use of differentiation was helping in the long-term. The teachers noted that if schools prided themselves in using DI then they needed to put in place mechanisms for professional development or provide the teachers with opportunities for more learning. It was noted that schools identified the need for incorporating differentiation in their curriculum but failed to identify a similar need for teacher development.

The third challenge is planning, which seems to be a connection of time management issues, the need to meet individualized plans, meeting the requirements of the district, and meeting learners at their own needs. The teachers seemed to feel that the classrooms had students with different needs and levels of learning, which sometimes complicated the process of groupings, and added an extra weight on teachers meeting the needs of the student. An important challenge in the planning process achieving

everything that is needed within the time provided, showing that allocation of time was an important consideration in the differentiation process.

Another challenge noted in the findings was aligning the expectations of the administration with implementation. The teachers felt that the administration put pressure on them to differentiate and in areas such as special education, the differentiation was to be a hundred percentage. The administration expected the teachers to differentiate on a daily basis and work with both small groups and individuals. The challenge seemed to be reconciling what the teachers were able to do with the expectations of the school administration as well as that of the district. The findings were indicative that teachers were implementing differentiated instruction whether based on face-to-face instruction or computer-based approach but there were different attributes that needed addressing to achieve better outcomes.

Evidence of Quality

Assurance of quality for the study was through triangulation, which is an approach that allows the researcher to combine data from different sources as a way of verification. The technique involves the use of several approach to the study the same issue. I used focus groups, interviews, and attitudinal questionnaire to collect the data, and then triangulated the data first by an analysis of the interview and focus group transcripts, and then added the data from the attitudinal survey. From the combined data I was able to come up with common themes that showed how the teachers involved in the study perceived use of differentiated instruction and their perception of the best approach when comparing computer-based and face-to-face strategies to differentiation. I obtained

from the combined data four key themes, namely the experiences of the teachers in using differentiation, perception, relationships and socialization of students, and pros and cons of the technological based instruction and face-to-face approach.

Summary of Findings

The response to the first research question showed that teachers considered both technologically based strategy and face-to-face strategy useful in helping students. Each approach had its benefits, but teachers noted that face-to-face increased the work for the instructor because of the need to meet the students on a daily basis or work with them in individualized plan. Nonetheless, it was more personalized compared to technologically based. The participants considered the computer-based approach useful in collecting data, making learning interesting, and helping teach students within technologically that they were using in other forums. Based on the study responses it was evident that the teachers perceived face-to-face as the best approach to differentiation, but allowed for the benefits provided by computer-based teaching.

Responses on the role of face-to-face instruction in improving reading through peer socialization gave insight into how the interactive nature of this approach can be beneficial to students. The teachers perceived that face-to-face instruction promoted interaction between students, which helped students to see the problems their colleagues were facing and share in them. This helped encourage the students. Additionally, it gave an opportunity for interaction between the teacher and student, in which the instructor can understand the problems the student is undergoing. The approach thus provides a chance to better learn the level of the student, and promote individualized training.

In the third question, the teachers' identified the pro's and con's of the implementation of the CLO computer program. The computer-based approach was perceived as undermining an interaction between teachers and students thus making it harder to assess immediately the student level of learning. One important attribute of using computer-based learning noted in the contrast was that it was important for teachers to keep up with technology that students were using and incorporate them into learning. It came across that students were using technology in other areas and thus they should have the same in the classroom. computer-based approach further made it possible to reach students at the own level rather than group level. The teachers however felt that despite the need the approach had notable disadvantages, among them that it undermined teacher and student communication as well as with other students, made learning linear, there was a possible unreliability of data collected, and it still required the teacher to work more to sustain optimal student achievement. Some of the teachers were of the perception that there was no great different between traditional and computer-based approach but just different avenues of teaching with variations in teaching. The difference was only in that one was hands on and the other more generic.

Interpretation

The teachers that participated in the study provided their perception about the use of differentiated instruction to improve student reading outcomes, and their preference when comparing implementation using computer-based instruction and face-to-face approach. The findings showed that the teachers preferred face-to-face differentiated instruction because it enable the teachers to connect with the students, to check their

progressive, and provide them with individualized instruction based on their level. Additionally, the approach promoted student interaction through small groups. However, the participants noted that the approach had a challenge in time management and it increased the work for the teachers compared to computer-based instruction. Regardless of the challenges, face-to-face instruction emerged as the preferred approach for differentiation.

Conclusions

The data collected effectively responded to the study purpose showing a comparison of teachers perceptions of traditional and computer aided differentiated learning for at-risk 2nd grade students in reading. The results showed that the teachers used both approaches, and they all differentiated because the school expected them to offer differentiated instruction. Many however preferred the traditional approach, named in this study as face-to-face instruction in comparison to the computer aided approach because it gave them personal contact with the student thus learning about their challenges, and ensuring they have individualized learning as needed. The teachers used small groups when needed. They however noted that computer-based was beneficial in collecting data about the students, which can also aid the learning process.

Section 3: The Project

Introduction

Section 3 is a description of a program designed to address the concerns identified by the grade two teachers that participated in the research conducted at a suburban school in South Carolina. The findings provide insight into the perception of teachers about using differentiated instruction to assist students performing below grade level in reading, literacy fluency, and comprehension. The teachers indicated that they felt that differentiated instruction was a useful tool in assisting students. Face-to-face differentiation came across as the preferred approach; nonetheless, the issue addressed in the project focuses on the improvements that teachers need to make to ensure more effective differentiation when using face-to-face instruction or a computer-based approach when required. The teachers noted that they faced different challenges when using differentiation that included time management, planning, administrative expectations, and professional development. According to constructivist theory, learning occurs through acquisition of new information and adding to the information one already has to formulate a new understanding of knowledge (Al-Huneidi & Schreurs, 2012; Biggs & Tang, 2011). Social development theory also contributed to the formulation of the project because it relates to how students learn. From the work of Vygotsky (1978), social development theory encourages the adoption of instructional methods that focus on the ability of the student to learn, such as by facilitating social interaction to help the learner obtain skills without direct assistance. The need for knowledge development noted in education theory and the results in Section 2 led to the development of a 3-day

comprehensive workshop for elementary school teachers that incorporates time management and planning, building of peer and teacher/student relationships, and integration of both face-to-face and computer-based differentiation. The workshop also highlights best practices in professional development noted as critical by various authors (Bowdon, Massey, & Kregor, 2015; Desimone & Garet, 2015; Desmone & Stucky, 2014; Watts-Taffe et al., 2012; Youngs, 2013). Research has recognized professional development in differentiation instruction as critical to achieving better teacher efficacy by helping teachers acquire the content and the products needed for the approach as well as developing the processes (Dixon, Yssel, McConnel, & Harding, 2014). The South Carolina Association for Supervision and Curriculum Development (ASCD, 2016) has noted the importance of differentiation, identifying that as schools become more diverse, it is important for instructors to examine their beliefs and practices in supporting access to excellent learning for the spectrum of learners. The project on differentiated instruction therefore reflects recognition that South Carolina seeks to attain high learning standards for its students.

The arrangement of section 3 includes an overview of the project, including its goals and objectives as well as an analysis of the purpose of professional development as the core of the project. The overview provides the needed preliminary information about the project that lays the foundation for the workshop and the detailed plan later in the project. Following the overview is the literature review, which covers literature on professional development, including background on the concept, its theoretical framework, ways of achieving professional development, and how to achieve individual

development as a way to build capacity and thus output. The literature review provides insight on why teachers need professional development and thus shows the benefits of the workshop for the teachers. Another section of the project on planning and implementation includes an overview of the resources required for executing the project. This reflects the materials needed by the teachers and in the workshop and identifies possible barriers to implementation. Also included are implications for the district, presenting expectations for how the workshop will aid professional development, enable better delivery of differentiated instruction, and translate into better outcomes for students.

Overview of the Project

The qualitative study involved teachers from a suburban elementary school in South Carolina and provided insight into the challenges that teachers face, thus laying the foundation for this project. Notable challenges indicated in the study included the need for professional development, time management, expectations of the administration, and planning. The developed project focuses on a three-day professional development workshop because it incorporates the different challenges expressed by the teachers. Notably, a professional development workshop will provide teachers with the skills and capabilities they need to perform better in differentiated lessons. The workshop will run from 8:00 a.m. to 5:00 p.m. for the three days, with a 1-hour lunch break and 15 minutes of breaks in the morning sessions.

At the conclusion of the professional development workshop, the elementary school teachers will complete an evaluation form to assess the effectiveness of the

project. The goals of the project will be established and clearly stated from the onset, and the evaluation will be useful in assessing whether the workshop achieved them. The evaluation will also be useful in identifying elements that teachers feel should have been done differently, as well ay in indicating whether teachers feel that they should have had more time. It will also be an opportunity to obtain feedback on other elements that teachers would want to see implemented in professional development or topics that could be included other than the stated ones. From the evaluation, it will thus be possible to make recommendations for better professional development when seeking to enhance the capacity of teachers in differentiation. The following section provides a description of the project and goal followed by a section that addresses the rationale for the project followed by the literature review.

Description and Goals

The project responds to the established expectations of professional development. The workshop will thus include lessons that respond to (a) how to create differentiated lessons, b) use of groups and teams in the classroom, c) mining and implementing data collected through the computer systems, and d) facilitating access to high-quality learning for at-risk students. The teachers will also engage in practice sessions where they will work in teams to execute the lessons learnt. Also included will be sessions for "breaking the ice" and getting to know each other. These will involve e) pairing and role-playing with specific target areas and f) designing a feedback tool, especially a checklist of achievement.

The specific goal of the project will be to enable the teachers in the elementary school to obtain the skills that will enable them to plan and design differentiated instruction and to implement evaluation kits that show their achievement for set targets for at-risk students. The supporting goals will be a) to offer teachers time management skills when implementing differentiation, b) to facilitate planning in differentiation, c) to bridge the gap between administrative goals and teaching practice in differentiated instruction, and d) to link computer-based and face-to-face differentiated learning.

The first goal concerning time management and planning will focus on helping the teachers formulate ways in which they can plan content to deliver within one lesson. This will probably discourage teachers from being overambitious because the focus will be on planning lessonh that both teachers and students will have the capability to complete without undue strain. Effective time management also means planning every step of the class, including goals of the lesson, activities, and evaluation of the process. Teachers will be encouraged to establish each step of the lesson carefully, allocated time for role-playing or other task activities in the classroom.

The second goal will be to facilitate planning in differentiated lessons. Planning supports the issue of time management in that the teacher lays out the steps of the lesson. Each minute in the classroom needs to be well planned; otherwise, teachers may find that they allocate more time to activities that could be completed in less time and give less to those that need more time. Planning means that the teacher puts into consideration every activity and executes it accordingly. The effectiveness of the first and the second goals are mutually dependent.

The third goal, bridging the gap between administrative goals and teaching practice in differentiated instruction, reflects a recognition that teachers need to appreciate the expectations of management and that management, in turn, must appreciate the efforts of the teachers. The skills addressed in relation to this goal include how to identify the expectations of the administration and ensure that they are included in the work of the teacher. For example, if the administration expects differentiation in all classes, how does the teacher reconcile this into his or her execution without placing in jeopardy the needs of the students? This goal brings into perspective the different expectations of both groups and their implementation.

The fourth goal involves linking computer-based and face-to-face differentiated learning. As identified in the study, teachers today face continued use of computer technology, which is increasingly becoming part of children's lives and thus needs to be included in their learning. Furthermore, computers represent various advantages for teachers, such as the possibility of data collection, and thus may help teachers to understand the needs of their students and act on them. Nonetheless, face-to-face learning remains a preference of many teachers because of the connection it offers between the teacher and student, as well as among learners. The question therefore becomes how to help the teachers effectively integrate computer-based learning with face-to-face differentiation. This goal highlights ways in which teachers can use both forms for the advantage of the student. The connection between professional development and the four identified goals leads to the rationale of the project.

Rationale

The choice to develop a professional development workshop for this project came from a need to create an environment through which it would be possible to make differentiation more effective. In sections 1 and 2, it arose that in the use of differentiated instruction, it is of paramount importance to have a forum through which teachers can update their information to become more effective, especially because the focus for differentiation is on at-risk children. This group of students requires teachers that are aware of their needs and have the capability to meet these needs through lesson design and execution. Therefore, professional development offers a better opportunity in addressing the issues associated with achieving better outcomes for at-risk students.

The choice of a workshop as the model of delivery of the project came from the appreciation of a face-to-face approach. In contemporary professional development, a person can use various methods, including providing the teachers with a handbook that they can use and using an online or weminar setting. However, this approach did not provide an adequate setting for meeting the needs of the teachers as expressed in the study and based on personal experience. Hence, I chose a workshop, which would give opportunities for interaction with the teachers, actual practice sessions, and direct feedback during the pos-workshop evaluation and during the workshop. The other aspects would be more generic, and the expectations the teachers would use the materials provided, but in the case of a workshop, it is possible for the facilitator to check on the progress of participants' learning to ascertain whether the teachers do learn.

Review of the Literature

A wide range of literature is available that addresses the importance of professional development among teachers (Akiba & Wilkinson, 2016; Kazemi, Ghousseini, Cunard, & Turrou, 2016; Penuel, Sun, Frank, & Gallagher, 2012; Zepeda, 2012). Researchers have shown that professional development experience is essential for better performance in all areas of a teacher's work (Turner & Drake, 2016) and have identified its significance to differentiated instruction output (Haris, Graham, & Adkins, 2015; Ruzek, Hafen, Hamre, & Pianta, 2014; Levenson & Gal, 2013). bBackground information on professional development offers insight into the elements that are meaningful to the professional development concept, its theoretical framework, and its execution.

A gap noted when collecting information for the literature review was the unavailability of literature that directly focused on teacher development for differentiated instruction. Agreeably, this was implied (Desimone & Garet, 2015); nonetheless, some notable researchers directly correlated differentiated instruction and professional development (Dixon et al., 2014). The project thus provides a useful model for linking differentiation with professional development, which will show the attributes that teachers need to progress more effectively and ensure better student outcomes. Despite the identified gap, the following analysis provides critical insight into professional development as a larger topic in teaching practice and its execution, thus laying a conceptual foundation for the project.

Professional Development

Professional development is an important process in improving the skills and competencies of teachers and ensuring that they can perform outstandingly in their work (Florian, 2012). The concept further denotes a systematic process through which individuals come together to assess their contributions to student achievement and determine new ways to meet established goals (McMeeking, Orsi, & Cobb, 2012). Notably, unless administrators and institutions provide teachers with the opportunity to increase their knowledge, their process of teaching may continue to be redundant (Kennedy, 2016; Tatto, Andrews, Floden, & Richmond, 2016).However, such opportunities are also available through other avenues, such as workshops provided by other institutions. Therefore, teachers must also have the zeal to pursue professional development activities (Edwards, Sandoval, & McNamara, 2015). As noted by Amutha (2012), professional development for teachers both inside and outside school is designed to improve their teaching knowledge and skills. Therefore, all teachers should have as part of their career goals periodically obtaining professional development through formal and informal processes and activities. Professional development is especially important to teachers who are dealing with at-risk students because of the established targets and to teachers who want to cause significant change in student outcomes (Antoniou & Kryiakides, 2013). For example, teachers of at-risk students must understand the difficulties that their students are experiencing, the factors contributing to these problems, and ways through which they can help students to achieve better outcomes (Ainscow, Booth, & Dyson, 2013; Casale-Giannola, 2011; Haynes, 2012, Yesilbursa & Barton,

2011). Professional development offers an opportunity for teachers to explore what other teachers have been implementing and thus promotes better execution of instruction.

Literature indicates that growth and improvement in the education system do not at any moment occur without professional development (Hadar & Brody, 2013), although this must be accompanied by assessment of teacher readiness for development (Hanuscin, Cheng, Rebello, Sinha, & Muslu, 2014). The reason is that professional development forms the basis through which teachers can deepen their content knowledge, learn about changes occurring in pedagogical skills, and gain an understanding of new research results that they can use to make a difference in the lives of their students (Van Driel & Berry, 2012). Notably, professional development is a basis for skill training and obtaining additional information to facilitate better performance. It further provides an opportunity for teachers to reflect upon their previous execution of course instruction and determine ways that that they can make their instruction better based on what they learn from others as well as recent research.

Approaches to Teacher Professional Development

As noted by Oversby, McGregor, and Woodhouse (2013), it is important to have well-designed and thoughtful approaches to professional development for teachers if the process is to achieve positive results that will improve teaching and learning. Desimone and Garet (2015) support the importance of having an established approach to professional development as best practice in the process because this influences the nature and quality of professional development.

One approach arising in literature is one-time workshops, which Desimone and Garet (2015), and the U.S. Department of Education (2012) as the most common approach to teacher professional development in the United States. Although as the Department of Education indicates schools are recognizing that such as models does not provide for all the needs of professional training because they are short taking about 1 to 3 hours of a lecture. The topic also tends to be isolated. The challenge with this approach is that it does not provide sustained and content focused professional development, which is essential for effective on going training among the teachers. It is therefore advisable for the district, school, or the entity that is conducting the professional training to come up with an approach that meets the needs of the teacher in content development.

Another approach noted in literature is the use of technologically based professional development administered through video or webminar based on the target of the session (Desimone & Garet, 2015). Technology is increasingly becoming an important part of education and learning. For example, noted in the data analysis was the perception that teachers were forced to use computer-based differentiation because the students were already using them in other areas of their lives. Similarly, teachers were using computers for different things including teaching, and the same tool can be used into facilitating learning. In the case of a webminar the teachers participate in learning through an online setting where they are provided with materials and if possible have a session where they can communicate with each other. However, this can be impersonal as noted in the study. An important element to note in use of technology is that it opens up

doors for a connected and collaborative learning in which teachers engage with others in a flexible platform (Cameron & Miles, 2015).

Professional development may also involve lesson study, which is an approach that encourages collaboration among teachers. The approach originated from Japan, and it focuses on teaching as well as the practices of planning, implementing the lesson, observing and evaluating (Murata, Bofferding, Pothen, Taylor, & Wischnia, 2012). More so a lesson is research based, in which the teacher begins with formulating goals and a curriculum, followed by selecting a lesson, then conducting and observing the lesson, and then reflect on the lesson based on data generated in the class (Shuilleabhain, 2015). The reflection step moves on to revision of the lesson if needed and then repeating the process. Ultimately, as identified by Butler and Schnellert (2012) the collaboration promotes meaningful engagement with shifts in teacher's practice and learning thus causing a positive change in education. The notable aspect about lesson study is that demands for skills in teaching and thus teachers find they can exchange ideas on content, instruction design and the models they use of assessments and instruction.

Literature also considers the use of workshops and their efficacy in teacher professional development, which shows the need for such programs to transition from lectures that promote memorization and regurgitation to one that encourages critical thinking and application to meet the current drive toward accountability (Gulamhussein, 2013a). As found in a study by Almazroa, Aloraini, and Alshaye (2015), workshops are the most prevalent form of professional development approach. However, the workshops are changing in their nature to be more inclusive of the needs of the teacher both in

offering them support in content knowledge, and promoting the capability to teach and learn (Almazroa & Al-Shamrani, 2015). Previously, the approach has been considered ineffective although this seems to be more reflective of when the program takes a short time of delivery such as one day (Gulamhussein, 2013b). The method thus is useful but it requires greater consideration of the goals it seeks to meet and the content, and then the impact on teachers and students. The length also seems to an issue of concern. It is therefore, important that this project puts into considerations the limitations of the workshop model of professional development to ensure that the teachers obtain a higher chance of learning.

Designing Professional Development Program

The design on a professional training program is one of the core components of ensuring the success of the program and certifying that the teachers obtain executable knowledge (Luft & Hewson, 2014). Various researchers have identified the key elements that need to be included in professional development programs for teachers (El-Deghaidy, Mansour, & Alshamrani, 2014; Monsour, Alshamrani, Aldahmash, & Alqudah, 2013; Alshaye, 2013; Alshamrani, Aldahmash, Alqudah, & Alroshood, 2012). The identified content include a) pedagogical knowledge, b) content knowledge, c) information computer technology, and d) professional skills.

Among the arising considerations in development is content (Capps, Crawford, & Constas, 2012). In a study that assess content knowledge Heller, Darhler, Wong, Shonohara, and Miratrix (2012) found that such professional development courses helped to improve teachers and students scores, which was evident in trial and follow-up. Noted

from the study was that the content component helped in better cognitive appreciation about the abilities of the students.

Pedagogical knowledge as the second aspect encourages the deepening of the pedagogical content in which teachers obtain the information that will help them to pursue a more responsive curriculum, promote classroom management, assessment, and to accommodate the individual needs of students (Smith, Blake, Kelly, Gray, & McKie, 2013). Fernandez (2014) explains more about pedagogical knowledge stating that it shows the teacher does not only know the subject matter the lesson but understands it well enough for reaching. This further means that the teacher is able to provide analogies when required, give examples, explanations, and demonstrations. The use and application of the acquired knowledge is the testament to pedagogical knowledge.

The inclusion of the pertinent tenets to professional development ensure that the planned program meets the needs of the teachers and thus the students. As noted by Guskey (2012) one of the challenges of professional development is lack of proper planning, which results in dismal results. The reason is that the professional development providers plan for job embedded activities and assignments based on context or needs assessment, but fail to determine the purpose of the program, its cohesiveness, and direction. This means that the providers lack a well defined outlook on the reason why the participants are in the program. Planning is thus paramount to success professional development program as it determines the content, activities that the participants shall engage in, and the implications on their practice. Therefore, an effective professional development program is one that not only has well outlined goals and established content

but one that clearly outlines the reasons for the participants to be taking the program as a way to ensure they are engaged and will implement the new knowledge. Understanding the reason that teachers want to take the program is further useful in determining the goals of the professional development program based on the need for including the right content, activities, and format. The current project in professional development stems from the participants identification that they require professional development, as a platform in which they will learn about the changing knowledge in differentiated instruction and become better at implementing the approach. The knowledge of the teachers thus prompted the goals and activities of the project from this recognition.

Process of Planning for a Professional Development Program

A paper on *Creating Effective District Professional Development Plans* indicates that the theory behind professional development among teachers stems from the basic assumption that the teacher, school, and district want to meet a desired student achievement outcomes, and from this assumption derives the goals and approaches to teacher learning (My Learning Plan Inc., 2011). The planned professional development programs is thus a necessity to help educators to achieve the student goals, making the process job-like in which the teachers engage in related series of professional learning experiences tailored for their roles and designed to help them reach the district goals. However, professional development should be a systematic process that seeks to meet the learning needs of the students, provide teachers with new practices in education, offer organizational support, optimize learning for teachers, and ensure that the outcome for learning show acquired knowledge and skills (Guskey, 2014; Hirsh, 2012). These aspects

can be achieved through a gradual step by step planning of professional development in teaching that includes a) purpose and description of the program, b) the targeted learners, c) duration, and d) contact person.

Purpose and description of the program. When it comes to professional growth, teachers have the option of engaging in different learning opportunities such as reading recent publications or working with other teachers (The Alberta Teacher's Association, 2015). It is therefore the prerogative of the professional development planner to provide a well articulated reason that encourages teachers to engage in the program rather than take other options. This occurs by establishing the reason the professional development program exists and the goals it seeks to accomplish (Desimone & Garet, 2015; My Learning Inc., 2011). The program needs to show that it responds to the realities of the teacher and the students based on the planned intensity and the focus (Garet, 2012). Notably, each teacher may have a different reason for wanting to attend a professional development program, and thus it is upon the goals to reconcile the needs of the teacher with the content provided.

Targeted learner. A paramount aspect in professional development is understanding who the program wants to reach, such as determining their professional background and targets (Smith et al., 2013; Murata et al., 2012). The reason for needing to understand the learners is to facilitate planning for the activities that will be undertaking in the program, because such must be relevant to future achievements, or the challenges that a teacher is working toward correcting. Furthermore, adults have different learning goals and thus should not be assumed that their intentions for joining are similar.

Duration. As identified by Gulamhussein (2013b) one of the challenges facing professional development is the duration of the program in which some have been too short to meet effectively the needs of the participants. Therefore, the project duration must reflect the needs it seeks to meet, which brings into consideration that some programs will take days, weeks, months, or a year (My Learning Plan Inc. 2011). The developer can relate the purpose and goals of the project to the duration to ensure that the two variables correlate, thus promoting the effectiveness in meeting learner expectations.

Contact person. Persons planning for professional development programs may need to work with the school or the district to determine the goals and content that will be addressed in the program. Those that shows an interest in participating should have a specific sponsor to which they address their concerns or question, who need to be a person that clearly understands the proposed program, its mandate, and participant group (My Learning Plan Inc. 2011). The significant thing to note here is that the contact persons creates a connection between the program and the participants. These attributes will be part of the considerations made when planning for the project.

Content of the Project

The findings of the qualitative study indicated that elementary school teachers felt there was a need for professional development with specific focus on the implementation of differentiated instruction. The program would be useful in ensuring that tutors understood what entailed differentiated instruction and the ways to facilitate effective differentiation for at-risk learners in English. Furthermore, it was notable that a mark of a good school was one that provided its teachers with the opportunity for obtaining more

knowledge about their specific areas of teaching or on new programs. The teachers highlighted that the school and district expected them to offer differentiated instruction at all times. Therefore, professional development would be essential to ensure that the teachers learned about how to differentiate the curriculum, ways to incorporate computer-based approach, and other aspects of differentiated instruction.

The study led to the identification of specific problems that would be addressed in a professional development program that was relevant to the teachers involved in the study. These included experienced challenges with time management and planning, integration of computer and face-to-face approaches, and administration's expectations. The challenges mainly reflect the experiences in execution of face-to-face differentiated instruction, but also connect to computer-based learning as the two approaches to differentiation at the suburban school in South Carolina. Ultimately, engaging in a professional development program would be useful in building teacher confidence in using differentiated instruction and thus leading to effective instruction and better student outcomes.

The literature review supports the need for professional development among teachers (Bowdon et al., 2015; Desimone & Garet, 2015; Dixon et al., 2014; Desmone & Stucky, 2014; Youngs, 2013; Watts-Taffe et al., 2012). The program is beneficial in ensuring that teachers obtain the necessary skills needed to facilitate their lessons (Fernandez, 2014; Monsour et al., 2013; Alshaye, 2013; Smith et al., 2013; Guskey, 2012). The literature analysis provided insight into the role that professional development plays in ensuring that the instructor is more effective. It further showed that

the program has a significant contribution to students as well as the teachers based on pedagogical knowledge and content (Desimone & Garet, 2015). The designed project therefore seeks to provide a well established program with defined goals to help teachers not only in teaching but in having the capacity to provide for illustrations and examples that would aid their style of teaching. Notably, engaging in a professional development program is to obtain knowledge that goes beyond merely teaching to engaging in content (Fernandez, 2014). Part of the success as noted will be met through the role of the institution in providing evaluations that can be used to determine the needs of the teachers and thus promote effective program design (Hamilton et al., 2014). The literature review and the qualitative study conducted provide a support for the importance of professional development programs that lay the foundation for the current study.

Research on the Framework for Professional Development

Coming across from literature was that effective professional development requires five features, a) content focus, b) active learning, c) coherence, d) sustained duration, and e) collective participation (Almazroa & Al-Shamrani, 2015; Desimone & Garet, 2015; Almazroa et al., 2015; Desimone, Smith, & Phillips, 2013; Garet, 2012).

Content focus. The concentration of the project is on helping teachers to overcome challenges experienced in the execution of differentiated instruction including time management when using face-to-face approach, reconciliation of face-to-face (traditional) and computer-based approaches to differentiation, planning, and administrative expectations. The effectiveness of the program will be based on how well does it reflect these core areas, or how well it responds to the established needs of the

teachers. Van Dreil and Berry (2012) support the need for content having established that content supplies teachers with the subject matter that they need to develop better professional practices.

Active learning. Opportunities in professional development include giving teachers a chance for active learning evident through working with mentors and collaboration that helps reinforce teachers beliefs regarding their work (Kopcha, 2012). Active learning suggests a process that involves the teacher or that makes the program an active learning engagement for the participant, thus ensuring they are part of the intervention. As explained by Savery (2015), active learning brings in the aspects of critical thinking, denotes ability toward problem solving, and questioning. It is that an essential step toward ensuring that the participant can engage with the content, and the other participants. Toward facilitating this outcome the project will provide opportunities for teachers to observe, receive and provide feedback, and contribute to the learning process. The participants should not be passive listeners such as found in a lecture setting but active participants that can discuss, form presentations, ask questions, and think through presented processes.

Coherence. This attribute reflects the degree to which a professional development program is consisted with the content, goals, and activities of the school curriculum, knowledge of the teacher and his or her beliefs, policies, and the needs of the students, school, and district (Desimone & Garet, 2015). A longitudinal study by Smeby and Heggen (2012) suggested three forms of coherence, namely biographical coherence, program coherence, and transition coherence. The first type refers to the experience of

the participant prior to taking part in the program, while the second considers the extent to which the content of the program integrates the theoretical and practical parts of learning and teaching. The third type highlights the learning outcomes following a certain period after participating in the program. Transition coherence suggests the need for follow-up and evaluation to ascertain that the participant is executing the obtained knowledge, the challenges they may be undergoing, and identify if there is a need for another program.

Sustained duration. According to Bautista and Ortega-Ruiz (2015) an effective professional development program is one that fosters teachers' learning and needs for change through an intensive and sustained plan rather than using short and sporadic approach. Sustained duration thus signifies having a significant number of contact hours. The implication is that longer contact or duration of the program provides a higher opportunity for having comprehensive subject content, pedagogies, and thinking. This aligns to the perspective of My Learning Plan Inc. (2011), Gulamhussein (2013b), and Desimone and Garet (2015) about the contact hours given for a program. This feature influenced the decision to have a three day workshop with an 8-hour contact every day. A study by Lumpe, Czerniak, Haney, & Beltyukova (2012) found that teachers that annually had about 100 contact hours with a professional development program tended to display significant gains in their teaching self-efficacy. Therefore, sustained duration correlates with outcomes in classroom practices and outcomes.

Collective participation. Suggested in literature is that professional development programs provide teachers with an opportunity to bring together their knowledge and

work together (Bautista & Ortega-Ruiz, 2015). A study assessing the national continuing professional development program in England found that collective participation was one of the positive outcomes of the program together with giving learners opportunities for interactive learning (Armour & Makopoulou, 2012). However, the study findings cautioned against the problem of cascading knowledge, in which teachers abandon their knowledge to adopt that of others. The challenge can however be overcome by establishing consistent learning theory to facilitate the development process and ensuring the teachers understand their reason for being in the program. The current study focuses on the constructivist and social development theories as part of the sustained background for the project. Despite the challenge, collective participation provides teachers with opportunities for networking, collegial sharing and collaboration thus ensuring they can learn from each other based on the assumption that they are on different levels of expertise and knowledge (Bautista, Wong, & Gopinathan, 2015). These collaborations are a way to maintain also continued learning and sharing among the teachers in post-program. They provide teachers with a connection through which they can ask each other questions or request for assistance.

Institutional Support in Teacher Professional Development

The data collected in Section 2 provided insight into the need for institutional and administrative support not only in professional development but also in the work of the teacher. The participants noted that they hoped that the administrative would provide more opportunities for professional development. Literature qualifies this perception by showing institutions that are taking action toward supporting their teachers in

professional development (Hamilton et al., 2014) and others showing the need for such support (Fang, 2013). Hamilton and colleagues (2014) conducted a research assessing how schools used teacher evaluation data to facilitate the decision for professional development, which resulted in teachers being provided opportunities tailored to meet their individual needs. The study showed that when schools collected and evaluated data regarding the performance of their teachers they were able to determine easily those attributes that the teacher was struggling with and thus provide adequate recommendations and support. The outcome was that teachers participated in professional development programs that were customized to their needs and that featured those goals they would like to meet in their teaching.

Organizational support is essential for showing teachers those areas that they require more training based on evaluations from the administration and students (Fang, 2013). It forms a system of feedback that can be used in pre and post professional development program to determine the needs of the teacher, and to later assess if these needs were met. Furthermore, as noted by Guskey (2014) such institutional support is important even for the program developers because they the schools and administrative provide credible information that can be used to define the goals of the program. Ongoing support from the schools is therefore a considerable support mechanism in facilitating the success of professional development program. Institutional support leads to identification of key variables in the need of the students and gaps experienced by the teachers in meeting these expectations.

Saturation

The process of obtaining literature on professional development especially in relation to teachers was challenging because of the different used of the phrase professional development. For example, the term also brought about results for professional learning, training of employees, and staff development, which are do not have the same application in this project. Another element was the application of the subject area to a myriad of other disciplines including psychology and business. Therefore, it was significant to limit the search at all time to *teacher professional development*. The limit ensured that the information such was at all times relevant to this analysis.

The search provided many articles, books, and institutional sources among them Desimone and Garet (2015), Almazroa et al. (2015), and Galamhussein (2013a and 2013b), which led to the indication that it was apparent that professional development was important in teacher development. However, research on the relationship between professional development and differentiated instruction though present (Haris et al., 2015; Ruzek et al., 2014; Levenson & Gal, 2013) shows there is a need for more research to understand how professional development can promote better differentiation.

The literature review process was intensive because of the amount of information needed to prepare sufficiently for the project on professional development. The review includes the framework for professional development, its attributes such as the most important considerations, and the factors that should be included in all effective plans. These conclusions were important inclusions to the literature review because of the need

to produce a development plan that would meet the expectations of participants based on the identified challenges. Ultimately, the search produced more than 75 possible articles for inclusion in the literature review but only 65 were included based on the most relevant to the topic. These articles offered information about teacher professional development, especially those from journals. However, it is recognizable that there exists an impossibility of claiming reaching data saturation because of the continued publication of more information about the topic. The review included information as recent as 2016 (Akiba et al., 2016; Tatto et al., 2016; Turner & Drake, 2016), which exemplifies the continuation in the academia and research fields to evaluate different aspects of the topic. Nonetheless, the resulting literature review is complete and comprehensive, and provides the direction required in developing the project.

The Differentiated Instruction Professional Development Workshop

Theory Guiding the Project

The theory guiding the research was constructivism, social development theory, and observation theory. Those however chosen for the project included constructivism and social development theory in the facilitation of the program because of their relevance in the creation of a learning program. Constructivism as a theoretical foundation is appropriate because it posits that knowledge is constructed meaning individuals make sense of their world by constructing personal representations and models of the experience (Al-Huneidi & Schreurs, 2012). This implies that knowledge develops from actively participating in something. The theory is appropriate for the current project because it recognizes that learning is active not passive, it is built, and it is

learner centered. Within the development of the professional development program this offers important insight in determining the elements that will be instrumental for its success. Among these are ensuring that the goals of the program are learner centered (teacher/participant centered), and the mode of delivery must recognize that the participant is an active part of the process. Therefore, the program need to allow the teachers to participate in the workshop, make reflections, ask questions, and give feedback as a way to enable them interact with the delivered content and begin forming new knowledge.

The second theory is social development theory, which was relevant based on its learner centered problem solving approach. The application of this theory in differentiation relates to teacher development, in which they acquire the knowledge and skills important to meet the needs of their students. More so, it promotes the development of new knowledge that teachers can use to assess the needs of the students and thus determine the need for differentiation.

Another theory relevant to the learning process was social development theory, which encourages student-centered approaches to learning. Teachers therefore are to design lessons that give students an opportunity to engage with the materials presented. This theory thus represents the expected outcome of the study in which the teachers will have the skills needed to develop lessons that involve the students and meet their needs and learning requirements.

The theoretical underpinnings of the project is thus constructivism and social development theory from which the professional development program will seek to

create a platform that encourages participation and engagement by the teachers, and that will flow over to the students. The expectation was that teachers will be more appreciative of the program when they realize that it focuses on them, their needs, and requires their input. I want the program to disassociate from the workshops where the attendees are treated to a lecture method (Desimone & Garet, 2015; U.S. Department of Education, 2012), instead the program will pursue an approach that encourages the teachers to ask questions and to share with each other. Further, the project will seek to disabuse the participants of the notion that the facilitator is an expert, but encourage the view that all those present are there to share ideas, and develop new skills and new knowledge. Therefore, participants will be encouraged to reflect on their experience, identify those areas they consider most successful and those they feel they need more assistance. Based on the successful moments it will be possible to create a model of success for the participants that suggests they have positive lived experiences that they can share with others leading to collective participation and learning. Based on such a structure the participants are likely to find solutions that they would otherwise not consider as relevant or possible.

The program endeavored to make sure that the lessons embedded in constructivism and social development theories are part of the lessons in the three days of the workshop. For example, constructivism encourages knowledge construction compared to reproduction, conversation instead of reception, articulation rather than repetition, collaboration compared to competition, and reflection instead of prescription (Biggs & Tang, 2011). Therefore, the plan of the workshop is that teachers will have

considerable time for interacting and sharing. For example, although the plan shows well laid out goals, it gives exercises that the teachers will use to interact.

Day 1 at the start of the participants will engage in an Icebreaker named for the purpose of the project as "Know your right side neighbor, tell your left side neighbor" that will involve the participants having to talk to their neighbors on both sides. This will ensure that during the workshop the participants are not strangers but give opportunities for interaction with each other. Each of the three days will have activities that the participants will complete that will require them to learn from each other and work together. More so, the participants will obtain significant insight on how to facilitate differentiation.

Implementation

The implementation of the 3-day seminar will require input of resources and decisions regarding the most appropriate times of differentiation.

Location. The proposed location for the seminar is the suburban school in South Carolina that was part of the case study. Agreement from the school administration will be required in order to conduct the workshop and to access the facilities that will be needed. The facilities will include a large classroom or the auditorium, which will be essential for the type of tasks that the participants will do. Other resources needed will include an LCD projector, table and chairs, and a place that can provide snacks and lunch for the participants. The school has these facilities.

TimetableThe proposed workshop will take place in July 2016, from 8:00 a.m. to 4:45 p.m., with participants leaving at 5:00 p.m. The participants will have a 15-minute

break and a 1-hour lunch session on each of the three days they will be at the workshop. They will have coffee/tea, snacks, and lunch paid for by the participant.

Potential Resources and Existing Supports

The required resources will include financial resources, equipment and facilities, and school support.

School SupportThe school leadership has been highly supportive of the research process and is interested in the workshop as an outcome of the study that will be useful in improving the skills of teachers, making the school more equipped to deal with the needs of at-risk students. I received permission from the school administration to conduct the research and will need to continue to work with the school administration to facilitate the workshop.

Financial Resources. The attendees will not be required to pay to attend the workshop, given that it will be held in support of the school. The implementation of the program will have additional costs such as printing and making copies that will I meet; this will be manageable because I will be creating documents at the school. The expected cost is $50.00 to make handouts, evaluation forms, assessment tools, copies of the program, and invitation flyers. Remarkably, the workshop would cost more if I were to pay for printing services outside the school, and if I used outside facilities. In such a scenario, I would ask the participants to pay a fee to facilitate the process and/or seek out grants from the district and government offices or individual beneficiaries.

Human Resources. The implementation process will require assistance from others to conduct the workshop. I will need permission from the school to work with an

assistant or assistants if required. I therefore invited three friends in the education sector to assist with the workshop by arranging the room, rearranging it during activities that need special settings, distributing the handouts, and handling the registration process. They will also be helpful in monitoring the room, facilitating discussion, and receiving feedback.

Equipment and Facilities The equipment and facilities will be from the school. I will require additional assistance from the school for the use of the copy machines, access to the Internet, and use of the cafeteria, projectors, and room facilities.

Potential BarriersA foreseeable barrier is obtaining the targeted number of participants and then convincing the school administration to allow teachers from outside the school to participate in the workshop. The expectation of the workshop is that it will help teachers from the suburban school who participated in the data collection, in addition to others in the district who are interested in differentiated instruction and recognize the benefits of professional development in the area. This also introduces the challenge of communicating about the workshop to others in the school district. However, I can meet this challenge by distributing flyers about the workshop and asking the district office to assist in advertising.

Proposal for Implementation and Timetable

The target is to present the workshop to teachers before the Summer 2016 school term begins so that they can include the acquired knowledge in their teaching in the subsequent period. The approval of the school was sought in February for the use of the

materials for the workshop; once approval is received, advertisement and registration will begin immediately.

Roles and Responsibilities

Setting up and executing the workshop will be my responsibility. I will contact the school administration and the district office; facilitate the distribution of the flyers; and communicate with the persons who will be assisting during the workshop. The responsibilities will also include making any required modifications or updates to the workshop materials following feedback at the end of the workshop.

Project Evaluation

The evaluation will be outcome-based and grounded on the central tenets of the constructivist approach. The first criterion addressed in the assessment will be building new knowledge based on previous learning. I will check for this based on reflections from the 3-days of the workshop. At the end of each day, participants will give feedback on what they have learned, and the participants will also be sharing their experiences during the workshop as a way to build new forms of action. The second assessment criterion is that participants' learning is active, not passive. This will be evident from the setting of the workshop, based on the determination of how well the participants take part in the discussions and formulate new responses to identified problems. The workshop setting allows participants to identify challenges and then work together on probable solutions. The third consideration in evaluation will be whether the workshop was learner centered, as constructivism encourages the development of a learning environment that responds to the learner. The participants will fill out an evaluation form that will be

useful in determining how well the workshop responded to their expectations as well as the established goals of the workshop.

The evaluation will be formative, as it will involve the consideration of ongoing feedback from the participants in the 3 days. Based on the feedback, it will be possible to make updates to the materials to make them more effective in professional development.

Implications Including Social Change

The project will focus on professional development because addressing this challenge will essentially provide a way to deal with the other challenges in differentiated instruction. For example, through professional development, the teachers will have an opportunity to learn about how they can better plan for their time in differentiation and obtain skills in time management. Additionally, the project will be an opportunity to cover the skills that the teachers need to meet the expectations of the administration, both in school and at the district level. By addressing professional development, the project will cover much more than one challenge faced by the teachers. The design of the project is therefore such that it provides for a way to meet various problems faced by the teachers rather than addressing only one issue. Further, professional development is an area that can make a meaningful difference in the lives of the teachers and, by extension, those of their students as well as the schoo. The expectation is that the project will have a strong impact in prompting change among the teachers and making differentiation easier for them. The program will be beneficial to teachers by making them more comfortable in the execution of differentiated instruction. Further, expectations and standards are changing in the education sector, with teachers facing greater pressure to perform. For

example, an issue noted in the study was that teachers felt that they were pressured by the school to differentiate. Such pressure came from the need to hold teachers accountable for the performance of their students, and the enabling factor was that the teachers, in turn, wanted to see their students perform better (Parsons et al., 2013; Shaunessy-Dedrick et al., 2015). The basis of the project was therefore the need and willingness to promote better performance among teachers and ensure that they have the capacity to promote higher and better learning.

Conclusion

In Section 3, I have sought to integrate the knowledge collected in preparation for the project in Section1 with the data collected and analyzed in Section 2, as well as information about professional development acquired following the identification of the program based on the results in Section 2. The information presented in Section 3 provided a critical foundation for the development of a workshop on differentiated instruction professional development, which is presented in Appendix A. The section has incorporated elements identified throughout the project, including the use of theory in the development and evaluation of the project. The resulting program will assist the participants in becoming more effective in differentiated instruction practice, thus affecting the future of their students. The subsequent section addresses the lessons learned in developing the project.

Section 4: Reflections and Conclusions

Introduction

In Section 4, I assess the entire research project process, identifying what I learned about scholarship and the formulation of a project. The section includes reflections on the strengths of the project in responding to the identified problem, limitations that arose, and recommendations on how to remediate the limitations. It also includes an evaluation of lessons learned about the scholarship process, the development of a project, leadership and change, and myself as a scholar, practitioner, and developer of a project. Further, I reflect on the potential social impact of the project and conclude by considering its impact on possible future practice and research.

Project Strengths

The perceived strength of the project is that it takes the challenges identified by teachers and generates a response that can promote better professional practice, better outcomes for at-risk and other students, and benefits for the school and school district. Professional development is a process through which teachers keep up to date on new research, information, and practices related to various learning and teaching styles and remain aware of changes in the education system (Firmender, Reis, & Sweeny, 2013). Through professional development, teachers have an opportunity to identify new goals in relation to their teaching styles and ways to ensure that their students meet their learning objectives. Professional development further helps teachers to improve their performance and therefore the performance of students by identifying changes in classroom behavior.

Additionally, professional development highlights best practices and standards in education that the teachers might otherwise remain unaware of in their practice.

Teachers have a role to play in ensuring that education produces the expected outcomes. For example, the NCLB (2001) was intended to ensure that every child has the opportunity to be in class and obtain knowledge in a similar manner to his or her peers, which means that every teacher has a responsibility to ensure that he or she gives students the best opportunities possible. Professional development is a fundamental means of equipping teachers with the skills and capabilities needed to ensure that they offer their students the best opportunities. The process involves first identifying that there is a need for professional development and then laying down goals to achieve the expected level of professionalism. This project derived from the consideration that professional development is mandatory if teachers are to meet the changes experienced in schools today. The contemporary education system is constantly changing, with new demands for teachers such as the expectation to reduce the achievement gap, adopt an evidence-based mode of teaching, meet yearly progress goals, and meet the needs of students with special needs and at-risk students. Teachers, in addition, have pedagogical expectations and content area requirements. Within this complex setting, teachers need to advance their knowledge if they are to sustain their effectiveness. The role of professional development is to offer teachers new information by improving skills and competencies that will help them produce outstanding results.

Recommendations for Remediation of Limitations

The limitation of the project is its practical side. As the project is a workshop, it may be difficult to establish a practical session in which the teachers will receive direct guidance on how to design differentiated instruction. However, the impact of this limitation may be reduced by providing for teamwork and discussions through which teachers can build on one another's knowledge. Another limitation is the duration of the workshop; it could be argued that 3 days are not enough to provide sufficient coverage of the topic. Nonetheless, in 3- days, it is possible to cover the most pertinent challenges noted in the study, and based on the lessons and the feedback teachers can pursue more reading.

Analysis of Learning Scholarship. I appreciate this endeavor because it has been a significant learning process about scholarship. The lessons learned have included the challenges that teachers experience and the importance of having an administration that is responsive to the needs of its staff members. The project taught me to appreciate the work that has been developed within the arena or topic under development. For example, I now have a greater appreciation of the many sources seen in academic papers because of the requirement to reach saturation in order to justify the study.

Project Development and Evaluation

During the project development process, I learned the importance of establishing clearly what I wanted to achieve and the way to ensure that I attained this goal. For example, the development of the project responded to problems that came up in the study as important to teachers. The project had definite targets; namely, exploring time

management, planning, and pulling data to create lessons for face-to-face differentiated instruction; addressing differentiated instruction rotations for face-to-face differentiated instruction building peer and student/teacher relationships; and exploring how to make the most of both computer-based and face-to-face differentiated instruction to ensure students' academic growth and success. I addressed the issue of evaluation by ensuring that the project reflected testable principles and applied the principles of constructivist theory, social development theory, and best practices suggested in professional development.

Leadership and Change

Through the study, I came to appreciate the role played by the administration in facilitating change and encouraging people to pursue something. However, it came across that teachers had the perception that their leaders did not offer enough opportunities for professional development. Therefore, the current project provides the school and administration an opportunity to offer teachers professional development that will affect their performance.

Self as a Scholar. As a scholar, I became more aware of the various things that affect individuals' knowledge and its acquisition. I recognized the importance of having a theoretical framework when conducting research. For example, the application of constructivist theory to differentiation relates to teacher development, in which teachers acquire the knowledge and skills important to meet the needs of their students. More so, it promotes the development of new knowledge that teachers can use to assess the needs of their students and thus determine the need for differentiation.

Self as a Practitioner. As a practitioner, I became interested in building knowledge that is research based and that effectively responds to challenges experienced by educators to increase their efficacy in the sector.

Self as Project Developer. As a project developer, I learned how to put the information obtained from different persons into a form that can be used to develop a program that is useful in responding to various challenges in education. For example, based on the challenges identified by the teachers involved in the study, including the problems of time management, planning, and administrative expectations, I determined that professional development was an appropriate method for covering the other areas. I chose professional development due to the broad nature of the process, and the possibility of including a wide spectrum of issues. Therefore, the project was well suited to my interest in the field of education and the contribution I wanted to make to the sector, in addition to responding to the findings of the study.

The Project's Potential Impact on Social Change

The potential social impact of the project comes from how effectively it will respond to the training needs of teachers in relation to differentiated instruction so that they can apply what they have learned in teaching at-risk students. The effect of professional development on the teacher will reflect on the students and may ultimately influence reading levels within the school and thus society. Social change will result from developing students' skills in reading, fluency, and comprehension based on a differentiated approach, thus affecting their social outcomes because of associated success. These skills are fundamental to communication and interaction on a social level,

and thus their acquisition may increase the possibility of becoming a successful and productive person in society.

Implications, Applications, and Directions for Future Research

The results of the qualitative study provided insight into how teachers perceive differentiated instruction and showed their preference for face-to-face application. Based on the findings, one can conclude that face-to-face instruction may take precedence over computer-based instruction unless teachers feel that they are prepared to use both approaches and understand their importance. The content of the project directly addresses this problem identified through the suggestion for professional development. The project is thus a solution because it may help teachers in acquiring the skills needed for better performance. tThe project addresses the following goals of professional developmen‹; asking what available information reveals about students' major learning problems; considering which student learning problems most educators fail to address effectively; asking about the knowledge and skills that teachers need to learn in order to be more effective in identifying and dealing with the problems of students; asking about the content of professional development needed and the time it will take for teachers to obtain the knowledge and skills they need to be more effective in addressing the learning needs of their students; and determining what professional development is actually needed. The project endeavors to address these goals in order to ensure that participating teachers become more efficient. Nonetheless, it is advisable for future researchers to consider directly the insights of school administrators on providing teachers with professional development opportunities with a focus on specific instructional approaches.

Researchers might consider the perceptions of administrators on whether teachers need such opportunities and schools are willing to make such professional development mandatory to promote better outcomes.

Conclusion. Section 4 has addressed the ways in which the research project may have a useful impact on education, affecting teachers, students, and society. In conducting the study, I learned a great deal about my capabilities and strengths as a researcher, educator, and project developer. The lessons learned formed the basis through which I was able to construct the differentiated instruction professional development program for elementary school teachers.

References

Ainscow, M., Booth, T., & Dyson, A. (2006). *Improving schools, developing inclusion*. New York, NY: Routledge.

Akiba, M., & Wilkinson, B. (2016). Adopting an international innovation for teacher professional development: State and district approaches to lesson study in Florida. *Journal of Teacher Education, 67*(1), 74-93.

The Alberta Teachers Association. (2016). *PD activities for professional growth.* Calgary, Alberta: Author.

Al-Huneidi, A. M., & Schreurs, J. (2012). Constructivism based blended learning in higher education. *International Journal of Emerging Technologies in Learning, 7*(1), 4–9. doi:10.1007/978-3-642-35879-1_74

Allen, K. D., & Hancock, T. E. (2008). Reading comprehension improvement with individualized cognitive profiles and metacognition. *Literacy Research and Instruction, 2,* 124–139. doi:10.1080/19388070801938320

Allen, K. E., & Cowdery, G. E. (2012). *The exceptional child: Inclusion in early childhood* (7th ed.). Belmont, CA: Cengage Learning.

Allington, R. L. (2011). What at-risk readers need. *Educational Leadership, 68*(6), 40-45.

Almazroa, H., Aloraini, A., & Alshaye, F. (2015). *Science and math teachers' perceptions of professional development within the new science curriculum implementation*. Paper presented at the Annual Conference of the National Association for Research in Science Teaching, Chicago, IL.

Almazroa, H. & Al-Shamrani, S. (2015). Saudi science teacher professional development: Trends, practices, and future directions. In N. Mansour & S. Al-Shamrani (Eds.), *Science education in the Arab Gulf States: Visions, Sociocultural contexts and challenges.* Rotterdam: Sense.

Alshamrani, S., Aldahmash, A., Alqudah, B., & Alroshood, J. (2012). The current situation for science teacher professional development in Saudi Arabia. , 215-261.

Alshaye, F. (2013). The status of teacher professional development associated with the Project of Mathematics and Natural Sciences based on the providers' perspectives. *Letter of Education and yPsychology, 42*: 58-92.

Amutha, D. (2012, March 3). *Professional development of teachers*. Retrieved from Social Sciences Research Network: http://papers.ssrn.com/sol3/papers.cfm ?abstract_id=2015416

Anderson, K., (2007). Tips for teaching. Differentiating instruction to include all students. *Preventing School Failure, 5*1(3), 49-54. DOI: 10.3200/PSFL.51.3.49-59

Ankrum, J. W., & Bean, R. M. (2008). Differentiated reading instruction: What and how. *Reading Horizons, 48,* 133–146. Retrieved from http://scholarworks.wmich.edu/cgi /viewcontent.cgi?article=1081&context=reading_horizons

Antoniou, P. & Kyriakides, L. (2013). A dynamic integrated approach to teacher professional development: Impact and sustainability of the effects on improving

teacher behaviour and student outcomes. *Teaching and Teacher Education , 29*: 1-12.

Armour, K. M. & Makopoulou, K. (2012). Great expectations: Teacher learning in a national professional development programme. *Teaching and Teacher Education, 28*(3): 336-346.

Avci, S., Yüksel, A., Soyer, M., & Balikcioglu, S. (2009). The cognitive and affective changes caused by the differentiated classroom environment designed for the subject of poetry. *Educational Sciences: Theory & Practice, 9*(3), 1069-1084. Retrieved from http:// www.estp.com.tr/

Babbie, E. (2012). *The basics of social research* (6th ed.). Belmont, CA: Cengage Learning.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191–215. doi:10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice Hall.

Bashir, A. S., & Hook, P. E. (2009). Fluency: A key link between word identification and comprehension. *Language, Speech, and Hearing Services in Schools, 40,* 196–200. doi:10.1044/0161-1461(2008/08-0074

Bautista, A.& Ortega-Ruiz, R. (2015). Teacher professional development: International perspectives and approaches. *Psychology, Society, & Education, 7*(3): 240-251.

Bautista, A., Wong, J., & Gopinathan, S. (2015). Teacher professional development in Singapore: Depicting the landscape. *Psychology, Society, and Education, 7*(3).

Beecher, M., & Sweeny, S. (2008). Closing the achievement gap with curriculum enrichment and differentiation: One school's story. *Journal of Advanced Academics*, *19*(3), 502-530. Retrieved from http://0-files.eric.ed.gov.opac.msmc.edu/fulltext/EJ810785.pdf

Benjamin, A. (2002). *Differentiated instruction: A guide for middle and high school teachers.* Larchmont, NY: Eye on Education.

Biggs, J. & Tang, C. (2011). *Teaching for quality learning at* university (4th Ed.). Berkshire, England: McGraw-Hill Education.

Bingham, G., Holbrook, T., & Meyers, L. E. (2010). Using self- assessments in elementary classrooms. *Phi Delta Kappan, 5,* 59–62. Retrieved from http://connection.ebscohost.com/c/articles/47944393/using-self-assessments-elementary-classrooms

Borek, J. (2008). A nation still at-risk. *Phi Delta Kappan*; 89(8), 572-574. Retrieved from http://web.ebscohost.com.ezp.waldenulibrary.org/ehost/detail?vid=10&hid=12&sid=3c60ef46-77e1-4fec-a860-bdaa5cbe70f1%40sessionmgr14&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#db=ehh&AN=31555704.

Bowdon, J., Massey, C., & Kregor, J. (2015*). Unpacking implementation of a mathematics-based software intervention*. Philadelphia, PA: Cognitive Science Center, University of Pennsylvania.

Bracey, G. W. (1997). Setting the record straight*: Responses to misconceptions about public education in the United States*. Alexandra, VA: Association for Supervision and Curriculum Development.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.) (2000). *How people learn: Brain,mind, experience and school* (Expanded Edition). Washington, DC: National Academy Press.

Bricker, D. J. (2008). *Study of differentiated instruction practices in teacher preparation program serving Native Americans in Montana*. Ann Arbor: ProQuest Information and Learning Company.

Brimijoin, K. (2005). Differentiation and high-stakes testing: An oxymoron? *Theory into Practice, 44*(3), 254-261. Retrieved from http://eric.ed.gov/?id=EJ692309

Bruner, J. (1966). *Toward a theory of instruction.* Cambridge, MA: Harvard

Bruner, J. (1996). *Acts of meaning.* Cambridge, MA: Harvard University Press.

Buddin, R., & Zamarro, G. (2009). Teacher qualifications and student achievement in urban elementary schools. *Journal of Urban Economics, 66*(2), 103-115. Retrieved from https://www.illinoiscsi.org/researchandresources/Lists/ResourceLibrary/DispResourceItem.aspx?ID=121

Burgin, J., & Hughes, G. D. (2009). Credibly assessing reading and writing abilities for both elementary student and program assessment. *Assessing Writing, 1,* 25–37. doi:10.1016 /j.asw.2008.12.001

Butler, D. L. & Schnellert, L. (2012). Collaborative inquiry in teacher professional development. *Teaching and Teacher Education, 28*(8): 1206-1220.

Cameron, D. & Miles, C. (2015). The new space challenge. A game-based professional development program for staff teaching in new generation learning spaces. In S. Carliner, C. Fulford, & N. Ostashewski (Eds), *Proceedings of EdMedia: World Conference on Educational Media and Technology 2015.* Association for the Advancement of Computing in Education.

Capps, D. K., Crawford, B. A., & Constas, M. A. (2012). A review of empirical literature on inquiry professional development: Alignment with best practices and a critique of the findings. *Journal of Science Teacher Education, 23*: 291-318.

Cennamo, K. S., Ross, J. D., & Ertmer, P. A. (2010). *Technology integration for meaningful classroom use: A standards-based approach*. Belmont, CA: Wadsworth, Cengage Learning.

Cennamo, K. S., Ross, J. D., & Ertmer, P. A. (2012). *Technology integration for meaningful classroom use: A standards-based approach*. Belmont, CA: Cengage Learning.

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis.* Thousand Oaks, CA: Sage Publications.

Christenson, C., Horn, M., & Johnson, C. (2008). *Disrupting class: How disruptive innovation will change the way the world learns.* Columbus, OH: McGraw-Hill.

Cobb, A. (2010). To differentiate or not to differentiate? Using Internet-based technology in the classroom. *The Quarterly Review of Distance Education, 11*, 37–45. Retrieved from http://eric.ed.gov/?id=EJ889345

Compeau, D. R., & Higgins, C. A. (1995). Application of social cognitive theory to training for computer skills. *Information Systems Research, 6,* 118–143. doi: 10.1287/isre.6.2.118

Compton-Lilly, C. F. (2009). What can new literacy studies offer to the teaching of struggling readers? *Reading Teacher, 63,* 88–90. doi:10.1598/RT.63.1.10

Conners, F. A. (2009). Attentional control and the simple view of reading. *Reading & Writing, 22,* 591–613. doi:10.1007/s11145-008-9126-x

Creswell, J. W., & Clark, V. P. (2013). *Designing and conducting mixed methods research* (2nd ed). Thousand Oaks: Sage Publications.

Creswell, John W. (2007). *Qualitative inquiry and research design: Choosing among five approaches.* Thousand Oaks: Sage Publications.

Davenport, P. & Anderson, G. (2002). *Closing the achievement gap: No excuses*. Houston, TX: APQC Publications.

Davidson, C., & Goldberg, D. (2009). *The future of learning institutions in a digital age*. Cambridge: MIT Press.

Deeney, T. A. (2010). One-minute fluency measures: Mixed messages in assessment and instruction. *Reading Teacher, 6,* 440–450. doi:10.1598/RT.63.6.1

Deiner, P. L. (2010). *Inclusive early childhood education: Development, resources, and practice* (5th ed.). Belmont,CA: Wadsworth, Cengage Learning.

Desimone, L. & Stuckey, D. (2014). Sustaining professional development. In L. Martin, S. Kragler, D. Quatroche, & K. Bauserman (Eds.), *Handbook of professional development in education: Successful models and practices, prek-12.* New York, NY: Guilford Publications.

Desimone, L. M. & Garet, M. S. (2015). Best practices in teachers' professional development in the United States. *Psychology, Society, & Education, 7*(3): 252-263.

Desimone, L., Smith, T., & Phillips, K. (2013). Linking student achievement growth to professional development participation and changes in instruction: A longitudinal study of elementary students and teachers in Title 1 schools. *Teachers College Record, 115*(5): 1-46.

DiMartino, J., & Miles, S. (2005). Reaching real equity in schools. *Principal Leadership*. Retrieved from www.eddigest.com.

Dixon, F. A., Yssel, N., McConnell, J. M., & Hardin, T. (2014). Differentiated instruction, professional development, and teacher efficacy. *Journal for the Education of the Gifted.*

Dodge, J. (2005). *Differentiation in action*. New York: Scholastic.

Doubet, K. (2007). *Teacher fidelity and student response to a model of differentiation as implemented in one high school* (doctoral dissertation). Retrieved from ProQuest. (AAT 3283287).

Dugger, K. (2008). *Teachers' perceptions of differentiating instruction in a sixth grade science class of diverse learners in a Georgia urban school system* (doctoral dissertation). Retrieved from ProQuest. (AAT 3297017).

Dweck, C.S, Trzesniewski, K.H., & Blackwell, L.S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development*, 78(1), 246-263. DOI: 0009-3920/2007/7801-0014

Edwards, A. R., Sandoval, C., & McNamara, H. (2015). Designing for improvement in professional development for community college developmental mathematics faculty. *Journal of Teacher Education, 66*(5): 466-481.

El-Deghaidy, H., Mansour, N., & Alshamrani, S. (2014). Science teachers typology of CPD activities: A socio-constructivist perspective. *International Journal of Science and Mathematics Education.*

Erman, K. (2006). *Teacher beliefs about effective strategies for teaching students with diverse learning needs* (doctoral dissertation). Retrieved from ProQuest. (AAT 3255636).

Fang, Z. (2013). Learning to teach against the institutional grain: A professional development model for teacher empowerment. In X. Zhu & K. Zeichner (Eds.), *Preparing teachers for the 21st century* (pp. 237-250). Berlin: Springer.

Fernandez, C. (2014). Knowledge based for teaching and pedagogical content knowledge (PCK): Some useful models and implications for teachers training. *Problems of Education in the 21st Century, 60*: 79-100.

Finson, K. D., Ormsbee, C. K., & Jensen, M. M. (2011). *Differentiating science instruction and assessment for learners with special needs, K-8*. Thousand Oaks, CA: Corwin.

Firmender, J. M., Reis, S. M., & Sweeny, S. M. (2013). Reading comprehension and fluency levels ranges across diverse classrooms: The need for differentiated reading instruction and content. *Gifted Child Quarterly, 57*(1): 3-14.

Florian, L. (2012). Preparing teachers to work in inclusive classrooms: Key lessons for the professional development of teacher educators from Scotland's inclusive practice project. *Journal of Teacher Education, 63*(4): 275-285.

Fogarty, R., & Pete, B. (2011). *Supporting differentiated instruction: A professional learning communities approach.* Bloomington, IN: Solutions Tree Press.

Franzoi, S. L. (2011). *Psychology: A discovery experience*. Mason, OH: South-Western, Cengage Learning.

Freedman, R., & Stumpf, S. (1980). Learning style theory: Less than meets the eye. *Academy of Management Review*, 5(3), 445-447. Retrieved from http://www.jstor.org/stable/257119

Frey, N., Fisher, D., & Everlore, S. (2009). *Productive group work: How to engage students, build teamwork, and promote understanding.* Alexandria, VA: Association for Supervision and Curriculum Development.

Gamoran, A. (1993). Is ability grouping equitable? *Education Digest*. Prakken Publications. Retrieved from http://pqasb.pqarchiver.com/eddigest/results.html?st=basic&QryTxt=gamoran.

Gamoran, A.S., & Weinstein, M. (1998). Differentiation and opportunity in restructured schools. *American Journal of Education,* 106(1), 385-415. Retrieved from http://www.jstor.org/stable/1085584

Garet, M. (2012). Recommendations for professional development. In *Supporting implementation of the Common Core State Standards for mathematics* (pp. 59-60). Washington, D.C.: CCSSO and North Carolina State University.

Geske, A., & Ozola, A. (2008). Factors influencing reading literacy at the primary school level. *Problems of Education in the 21st Century, 6,* 71-77. Retrieved from http://www.jbse.webinfo.lt/71-77.Geske.pdf

Gewertz, C. (2009). Restructuring under NCLB found lacking. *Education Week,* 29(15), 1-10. Retrieved from http://web.ebscohost.com.ezp.waldenulibrary.org/ehost/detail?vid=16&hid=12&sid=3c60ef46-77e1-4fec-a860-bdaa5cbe70f1%40sessionmgr14&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#db=ehh&AN=47581778.

Goddard, Y., Goddard, R., & Tschannen-Moran, M. (2007). A theoretical and empirical investigation of teacher collaboration for school improvement and student achievement in public elementary schools. *Teachers College Record, 109* (4), 877-896. Retrieved from http://eric.ed.gov/?id=EJ820449

Graves, M. F., Juel, C., & Graves, B. B. (2006). *Teaching reading in the 21st century* (4th ed.). Boston, MA: Pearson Education Inc.

Gremli, J. (1996). Tuned in to learning styles. *Music Educators Journal.* 83(3), 24. Retrieved from http://connection.ebscohost.com/c/articles/9611154874/tuned-learning-styles

Guion, L. A., Diehl, D. C., & McDonald, D. (2011). *Triangulation: Establishing the validity of qualitative studies.*.University of Florida IFAS Extension.

Gulamhussein, A. (2013a). *Teaching the teacher: Effective professional development in an era of high stakes accountability.* National School Boards Association, Center for Public Education.

Gulamhussein, A. (2013b). The core of professional development. *American School Board Journal*, 36-37.

Guskey, T. R. (2012). The rules of evidence. *Journal of Staff Development*, *33*(4), 40–43.

Hadar, L. L. & Brody, D. L. (2013). The interaction between group processes and personal professional trajectories in a professional development community for teacher educators. *Journal of Teacher Educators, 64*(2): 145-161.

Hall, T. (2009). *Differentiated instruction and implications for UDL implementation.* National Center on Accessible Instructional Material.

Hamilton, L. S. et al. (2014). Using teacher evaluation data to inform professional development in the intensive partnership sites. *RAND Working Paper.*

Hamm, M., & Adams, D. (2013). *Activating assessment for all students: Differentiated instruction and informative methods in math and science*. Lanham, Maryland: Rowman & Littlefield Education.

Hancock, B., Ockleford, E., & Windridge, K. (2009). *An introduction to qualitative research*. The NIHR Research Design & Service for the East Midlands.

Hanuscin, D. L., Cheng, Y., Rebello, C., Sinha, S., & Muslu, N. (2014). The affordances of blogging as a practice to support ninth-grade science teachers' identity development as leaders. *Journal of Teacher Education.*

Hargreaves, A. (2003). *Teaching in the knowledge society.* New York, NY: Teachers College Press.

Hargreaves, A., & Shirley, D. (2008). Beyond standardization: Powerful new principles for improvement. *Phi Delta Kappan, 90* (1), 34-37. doi: 10.1177/003172170809000212

Harris, K. R., Graham, S., & Adkins, M. (2015). Practice-based professional development and self regulated strategy development fro tier 2, at-risk writers in 2nd grade. *Contemporary Education Psychology, 40:* 5-16.

Harris, M. (2009). *Music and the young mind: Enhancing brain development and engaging learning.* Lanham: Rowman & Littlefield Education.

Hatch, J. A. (2010). *Doing qualitative research in education settings.* Albany, New York: SUNY Press.

Hawkins, V. J. (2009). Barriers to implementing differentiation: Lack of confidence, efficacy and perseverance. *New England Reading Association Journal*, *44*(2), 11-18. Retrieved from http://connection.ebscohost.com/c/articles/36835959/barriers-implementing-differentation-lack-confidence-efficacy-perseverance

Haynes, J. A. (2012). *Culturally and linguistically diverse children.* Bloomington, IN: Xlibris.

Heacox, D. (2009). *Making differentiation a habit: How to ensure success in academically diverse classroom*. Minneapolis, MN: Free Spirit Publishing Inc.

Heller, J. I., Daehler, K. R., Wong, N., Shonohara, M., & Miratrix, L. W. (2012). Differential effects of three professional development models on teacher knowledge and student achievement in elementary science. *Journal of Research in Science Teaching*, *49*(3): 333-362.

Hertberg-Davis, H. & Brighton, C. (2006). Support or sabotage: Principal's influence on middle school teachers' response to differentiation. *The Journal of Secondary Gifted Education, 17*(2). Retrieved from http://eric.ed.gov/?id=EJ746048

Hirsh, S. (2012). Student outcomes are the driving force behind professional learning decisions. *Journal of Staff Development*, *33*(5), 72.

Hollingsworth, J. R., & Ybarra, S. (2009). *Explicit direct instruction (EDI): The power of the well crafted, well-taught lesson*. Thousand Oaks, CA: Corwin Press. Retrieved from http://etd.lsu.edu/doc/available/etd-04132004-172353/unrestricted/Lowe_dis.pdf

Huebner, T. (2010). What the research says about differentiated instruction. *Educational Leadership, 67*(5), 79-81. Retrieved from http://www.ascd.org/publications/educational-leadership/feb10/vol67/num05/Differentiated-Learning.aspx

Hwang, G. H., Lee, C. Y., & Tseng, W. F. (2012). Development and evaluation of an educational computer game for a certification examination. *Journal of Educational Technology Development and Exchange, 5*(2), 27-40. Retrieved from http://connection.ebscohost.com/c/articles/94433921/development-evaluation-educational-computer-game-certification-examination

Inman, T. & Roberts, J. (2006). Differentiation tips for teachers: Practical strategies for the classroom, part 2. *The Challenge*. Retrieved from http://www.warren.kyschools.us/~dbaxter/ct_gifted/Articles_files/Practical%20Strategies%202.pdf

Janesick, V. J. (2004). *"Stretching" exercises for qualitative researchers.* Thousand Oaks, CA: Sage.

Kazemi, E., Ghousseini, H., Cunard, A., & Turrou, A. C. (2016). Getting inside rehearsals: Insights from teacher educators to support work on complex practice. *Journal of Teacher Education, 67*(1): 18-31.

Kennedy, M. (2016). Parsing the practice of teaching. *Journal of Teacher Education, 67*(1): 6-17.

King-Shaver, B. (2008). Differentiated instruction: The new and not so new. *California English, 13*(4), 6–8. Retrieved from http://www.cateweb.org/california_english/documents/2008_April.pdf

Klenke, K. (2008). *Qualitative research in the study of leadership.* London: Emerald Group Publishing.

Kolb, D. (1984). *Experiential learning*. Englewood Cliffs, NJ: Prentice Hall.

Kopcha, T. J. (2012). Teachers' perceptions of the barriers to technology integration and practices with technology under situated professional development. *Computers and Education, 59*: 1109-1121.

Kumar, R. (2008). *Research methodology.* New Delhi: APH Publishing Corporation.

Laforest, J. (2009). Guide to organizing semi-structured interviews with key informants. *Safety Diagnosis Tool Kit for Local Communities*. Quebec: Government du Quebec, 2009

Leung, F. (2009). Spotlight on focus groups. *Can Fam Physician, 55*(2): 218-219. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2642503/

Levenson, E. & Gal, H. (2013). Insights from a teacher professional development course: Rona's changing perspectives regarding mathematically-talented students. *International Journal of Science and Mathematics Education, 11*(5): 1087-1114.

Levy, H. (2008). Meeting the needs of all students through differentiated instruction: Helping every child reach and exceed standards. *Educational Clearinghouse, 81*(4), 161-164. Retrieved from http://www.wou.edu/~tbolsta/web/texbook/24_Meeting_the_Needs.pdf

Lodico, M., Spaulding, D., & Voegtle, K. (2010). *Methods in educational research: From theory to practice.* San Francisco, CA: John Wiley & Sons.

Logan, B. (No Date). Examining differentiated instruction: Teachers respond. *Research in Higher Education Journal.* Retrieved from htttp://www.aabri.com/manuscripts/11888.pdf

Lowe, J. S. (2004). *A theory of effective computer-based instruction for adults.* Retrieved from http://etd.lsu.edu/docs/available/etd-04132004-172352/unrestricted/Lowe_dis.pdf

Luft, J. A. & Hewson, P. W. (). Research on teacher professional development programs in science. In S. K. Abell & N. G. Lederman (Eds.), *Handbook of research on science education (2nd Ed.).* New York, NY: Routledge.

Lumpe, A., Cxerniak, C., Haney, J., & Beltyukova. (2012). Beliefs about teaching science: The relationship between elementary teachers' participation in professional development and student achievement. *International Journal of Science Education, 34*(2): 153-166.

Magee, M. & Breaux, E. (2013). *How the best teachers differentiate instruction*. New York, NY: Taylor and Francis.

Mansour, N., Alshamrani, S., Aldahmash, A., & Algudah, B. (2013). Saudi Arabian science teachers and supervisors' views of professional development needs. *Egitim Arastirmalari – Eurasian Journal of Educational Research, 51*: 29-44.

Marshall, K. J. (2010). Direct instruction. In T. C. Hunt & T. J. Lasley (eds), *Encyclopedia of educational reform and dissent,* vol. 1.Thousand Oaks, CA: SAGE Publications.

Martin, D. & Potter, L (1998). How teachers can help students get their learning styles met at school and at home. *Education*, 118(4). Retrieved from www.questia.com.

McClure, P. (2005). Where standards come from. *Theory into Practice*, 44 (1), 4-10. Retrieved from

http://web.ebscohost.com.ezp.waldenulibrary.org/ehost/detail?vid=3&hid=12&sid=3c60ef46-77e1-4fec-a860-bdaa5cbe70f1%40sessionmgr14&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZ

McDaniel, T. (2002). Mainstreaming the gifted: Historical perspectives on excellence and equity. *Roeper Review*, 24(3), 112-114. Retrieved from http://cv8yh9th3f.search.serialssolutions.com.ezp.waldenulibrary.org/?genre=article&issn=02783193&title=Roeper+Review&volume=24&issue=3&date=20020301&atitle=Mainstreaming+the+Gifted%3a+Historical+Perspective+on+Excellence+and+Equity.&spage=112&pages=112-114&sid=EBSCO:Education+Research+Complete&aulast=McDaniel%2c+Thom

McKenna, M. (2002). *Help for struggling readers: Strategies for grades 3-8.* New York, NY: The Guilford Press.

McLeod, S. (2010). *Zone of proximal development*. Simply Psychology. Retrieved from http://www.simplypsychology.org/Zone-of-Proximal-Development.html

McMeeking, L. B., Orsi, R., & Cobb, R. B. (2012). Effects of a teacher professional development program on the mathematics achievement of middle school students. *Journal for Research in Mathematics Education, 43*(2): 159-181.

Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation.* San Francisco, CA: John Wiley & Sons.

Moon, T. (2005). The role of assessment in differentiation. *Theory into Practice*, 44(3), 226-233. Retrieved from http://web.ebscohost.com.ezp.waldenulibrary.org/ehost/detail?vid=6&hid=6&sid=57451256-0aa7-4d70-8aa6-f0f58626e9e7%40sessionmgr14&bdata=JnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#db=ehh&AN=17539463.

Muir, D. (2001). Adapting online education to different learning styles. *Building on the Future. NECC 2001: National Educational Computing Conference Proceedings*. Chicago. Retrieved http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/19/e7/2e.pdf.

Murata, A., Bofferding, L., Pothen, B. E., Taylor, M. W., & Wischnia, S. (2012). Making connections among student learning, content, and teaching: Teacher talk paths in elementary mathematics lesson study. *Journal of Research in Mathematics Education, 43*(5), 616-650.

Murnane, R. & Steele, J. (2007). What is the problem: The challenge of providing effective teachers for all children. *The Future of Children, 17* (1), 15-43. Retrieved from http://futureofchildren.org/futureofchildren/publications/docs/17_01_02.pdf

Musti-Rao, S. & Cartledge, G. (2007). Delivering what urban readers need. *Educational Leadership, 65*(2), 56-61. Retrieved from http://connection.ebscohost.com/c/articles/27575735/delivering-what-urban-readers-need

My Learning Plan Inc. (2011). Creating effective district professional development plans. *A learning paper.* Great Riverm NY.

Neill, A.S. (1960). *Summerhill.* New York, NY: Hart Publishing Company.

Nelson, J. R. Benner, G. J., & Mooney, P. (2008). *Instructional practices for students with behavioral disorders: Strategies for reading, writing, and math*. New York, NY: The Guilford Press.

Nichols, W., Rupley, W. H., & Rasinski, T. (2009). Fluency in learning to read for meaning: Going beyond repeated readings. *Literacy Research and Instruction, 48,* 1–13. doi:10.1080/19388070802161906

No Child Left Behind Act (NCLB). (2001). Pub. L. No. 107-110, 115STAT.1425 enacted 2002.

O'Meara, J. (2010). *Beyond differentiated instruction.* Thousand Oaks, CA: Corwin.

Oversby, J., McGregor, D., & Woodhouse, F. (2013). Science education research and teacher professional development. *Education in Science,* 251: 26-27.

Parsons, S. A., Dodman, S. L., & Burrowbridge, S. C. (2013). Broadening the view of differentiated instruction. *Phi Delta Kappan, 95*(1): 38-42.

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest*, 9(3), 106-119. doi: 10.1111/j.1539-6053.2009.01038.x

Penuel, W. R., Sun, M., Frank, K. A., & Gallagher, H. A. (2012). Using social network analysis to study how collegial interactions can augment teacher learning from external professional development. *American Journal of Education. 119*(1):103-136.

Petrilli, M. (2011). All together now? Educating high and low achievers in the same classroom. *Education Next*, 11(1), 48-55. Retrieved from http://eric.ed.gov/?id=EJ910577

Piaget, J. & Inhelder, B. (1969). *The psychology of the child*. New York: Basic Books.

Plato & Jowett, B. (trans.) (2009). *Republic.* New York, NY: Classic Books America.

Pritchard, A. (2009). *Ways of learning: Learning theories and learning styles in the classroom*. Abingdon, England: Routledge.

Pritchard, A., & Woollard, J. (2010). *Psychology for the classroom: Constructivism and social learning.* Oxon: Routledge.

Rasinski, T., Rikli, A., & Johnston, S. (2009). Reading fluency: More than automaticity? More than a concern for the primary grades? *Literacy Research and Instruction, 48,* 350–361. doi:10.1080/19388070802468715

Reeves, D. (2008). *Making standards work: How to implement standards-based assessments in the classroom, school and district*. Englewood, CO: Advanced Learning Press.

Reis, S. M., McCoach, D. B., Little, C. A., Muller, L. M., & Kaniskan, R. B. (2010). The effects of differentiated instruction and enrichment pedagogy on reading achievement in five elementary schools. *American Education Research, 48* (2), 462-501. doi:10.3102/0002831210382891

Risko, V. J., & Walker-Dalhouse, D. (2010). Making the most of assessments to inform instruction. *Reading Teacher, 5*, 420–422. doi:10.1598/RT.63.5.7

Rock, M., Gregg, M., Ellis, E., & Gamble, R.A. (2008) REACH: A framework for differentiating classroom instruction. *Preventing School Failure*, 52(2), 31-47. Retrieved from http://web.ebscohost.com.ezp.waldenulibrary.org/ehost/pdf?vid=3&hid=3&sid=92d79d2e-3712-4af3-800e-9f6c5563d830%40sessionmgr4.

Rouse, P. (2009). *Inclusion in physical education: Fitness, motor, and social skills for students of all abilities*. Windsor, OH: Human Kinetics.

Rubin, H. J. & Rubin, I. (2005). *Qualitative interviewing: The art of hearing data* (2nd ed.). Thousand Oaks, CA: Sage.

Ruzek, E. A., Hafen, C. A., Hamre, B. K., & Pianta, R. C. (2014). Combining classroom observations and value added for the evaluation and professional development of teachers. In T. J. Kane, K. A. Kerr, and R. C. Pianta (Eds.), *Designing Teacher Evaluation Systems.* John Wiley & Sons Inc.

Savery, J. R. (2015). Overview of problem-based learning: Definitions and distinctions. In A. Walker, H. Leary, C. E. Hmelo-Silver, & P. A. Ertmer (Eds.), *Essential*

readings in problem-based learning (pp. 5-16). West Lafayette, Indiana: Purdue University Press.

Servilio, K. L. (2009). You get to choose! Motivating students to read through differentiated instruction. *Teaching Exceptional Children Plus, 5*(5), 2–11. Retrieved from http://journals.cec.sped.org/tecplus/

Shaunessy-Dedrick, E., Evans, L., Ferron, J., & Lindo, M. (2015). Effects of differentiated reading on elementary students' reading comprehension and attitudes toward reading. *Gifted Child Quarterly, 59*(2): 91-107.

Sherman, S. C. (2009). Haven't we seen this before? Sustaining a Vision in teacher education for progressive teaching practice, *Teacher Education Quarterly, 36*(4), 41-60. Retrieved from http://files.eric.ed.gov/fulltext/EJ870214.pdf

Short, D. J., & Boyson, B. A. (2012). *Helping newcomer students succeed in secondary schools and beyond.* Washington, DC: Center for Applied Linguistics.

Shuilleabhain, A. N. (2015). *Lesson study as a form of in-school professional development: Case studies in two post-primary schools*. National Council for Curriculum and Assessment.

Shwanenflugel, P. J., Kuhn, M. R., Morris, R. D., Morrow, L., Meisinger, E. B., Gee Woo, D., ... Sevcik, R. (2009). Insights into fluency instruction: Short- and long-term effects of two reading programs. *Literacy Research and Instruction, 48,* 318–336. doi:10.1080/19388070802422415

Silver, H. F., Jackson, J. W., & Moirao, D. R. (2011). *Task rotation: Strategies for differentiating activities and assessments by learning style (A strategic teacher PLC guide).* ASCD.

Slavin, R. (2006). *Educational psychology: theory and practice* (8th ed). Boston: Pearson.

Smeby, J. & Heggen, K. (2012). Coherence and the development of professional knowledge and skills. *Journal of Education and Work, 27*(1): 71-91.

Smith, C. A., Blake, A., Kelly, F., Gray, P., & McKie, M. (2013). Adding pedagogical process knowledge to pedagogical content knowledge: Teachers' professional learning and theories of practice in science education. *Educational Research, 2*(2).

Snow, C., Burns, S., & Griffin, P. (1998). *Preventing reading difficulties in young children.* Washington, DC: National Academies Press.

Sousa, D. & Tomlinson, C. (2011). *Differentiation and the brain: How neuroscience supports the learner-friendly classroom.* Bloomingon, IN: Solution Tree Press.

South Carolina Department of Education. (No Date). *School Demographics*.

South Carolina State Department of Education. (2014). No Child Left Behind (NCLP) adequate yearly progress (AYP). Retrieved from http://ed.sc.gov/data/ayp/

Spring, J. (2008). *The American school: From the puritans to No Child Left Behind*. Boston, MA: McGraw Hill.

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

Stevens, J. (1996). *Applied multivariate statistics for the social sciences* (*3rd ed).* Mahwah, NJ: Lawrence Earlbaum Associates.

Strickland, D. S., Ganske, K., & Monroe, J. K. (2002). *Supporting struggling readers and writers: Strategies for classroom intervention 3–6*. Portland, ME: Stenhouse.

Tatto, M. T., Andrews, D. C., Floden, R. E., & Richmond, G. (2016). A global call for scholarship on the policy and practice of teacher education. *Journal of Teacher Education, 67*(1): 4-5.

Tharp, R., & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning, and schooling in social context.* Cambridge, England: Cambridge University Press.

Thomas, R. M. (2003). *Blending qualitative and quantitative research methods in thesis and dissertations.* Thousand Oaks: Corwin Press.

Thompson, S. (2007). Social learning theory. C. R. Reynolds & Fletcher-Janzen, E. (eds), *Encyclopedia of special education* (3rd ed). Hoboken, New Jersey: John Wiley and Sons.

Thoreau, H.D. (1854). *Walden*. Boston, MA: Beacon Press.

Tobin, R. (2008). Conundrums in the differentiated literacy classroom. *Reading Improvement, 45*(4), 159-169. Retrieved from http://connection.ebscohost.com/c/articles/35898333/conundrums-differentiated-literacy-classroom

Tobin, R., & McInnes, A. (2008). Accommodating differences: Variations in differentiated literacy instruction in Grade 2/3 classrooms. *Literacy, 42,* 3–9. doi:10.1111/j.1467-9345.2008.00470.x

Tomlinson, C. & Imbeau, M. (2010). *Leading and managing a differentiated classroom.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. (2001). *How to differentiate instruction in mixed-ability classrooms.* Alexandria, VA: Association for Supervision & Curriculum Development.

Tomlinson, C. (2003). *Differentiation in practice*: *A resource guide for differentiating curriculum, grades K-5.* Alexandria, VA: Association for Supervision & Curriculum Development.

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

Tomlinson, C. A. & McTighe, J. (2006). *Integrating differentiated instruction +understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A. & Strickland, C. (2005). *Differentiation in practice: Grades 9-12.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A. (1999). *The differentiated classroom*. Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A. (2004). Sharing responsibility for differentiating instruction. *Roeper Review,* 26(4), 188.

Tomlinson, C. A. (2009). Intersections between differentiation and literacy instruction: Shared principles worth sharing. *New England Reading Association Journal*, *45*(1), 28-33. Retrieved from http://connection.ebscohost.com/c/articles/44765141/intersections-between-differentiation-literacy-instruction-shared-principles-worth-sharing

Tomlinson, C., Brimijoin, K., & Narvaez, L. (2008). *The differentiated school: Making revolutionary changes in teaching.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C.A. (2012). Non-negotiables of effective differentiation. *Differentiated instruction: An introduction.* Online course, module 3. Alexandria, VA: ASCD.

Turner, E. E. & Drake, C. (2016). A review of research on prospective teachers' learning about children's mathematical thinking and cultural funds of knowledge. *Journal of Teacher Education, 67*(1): 32-46.

Turville, J. (2008). *Differentiating by student learning preferences*. Larchmont, NY: Eye.

Tyner, B. B., & Green, S. E. (2012). *Small-group reading instruction: Differentiated teaching models for intermediate readers, grades 3-8* (2nd ed). Newark, DE: International Reading Association.

U.S. Department of Education. (2012). National Center for Education Statistics, Schools and Staffing Survey (SASS). *Public and private teachers data file.*

Van Driel, J. D. H. & Berry, A. (2012). Teacher professional development focusing on pedagogical content knowledge. *Educational Research, 41*(1): 26-28.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Walker-Dalhouse, D., Risko, V. J., Esworthy, C., Grasley, E., Kaisler, G., McIlvain, D., & Stephan, M. (2009). Crossing boundaries and initiating conversations about RTI: Understanding and applying differentiated classroom instruction. *Reading Teacher, 63,* 84–87. doi:10.1598/RT.63.1.9

Walpole, S. & McKenna, M. C. (2009). *How to plan differentiated reading instruction: Resources for grades K-3*. New York, NY: The Guilford Press.

Wang, S.-L., & Lin, S. S. J. (2007). The application of social cognitive theory to web-based learning through NetPorts. *British Journal of Educational Technology, 38,* 600–612. doi/10.1111/j.1467-8535.2006.00645.x

Watts-Taffe, S., Laster, B. P., Broach, L., Marinak, B., Connor, C. M., & Walker-Dalhouse, D. (2012). Differentiated instruction: Making informed teacher decisions. *The Reading Teacher, 66*(4): 303-314.

Westberg, K. & Daoust, M. (2003, Fall). A replication of the Classroom Practices 123 Survey study in Minnesota. *Voice,* 1, 3-6. Retrieved from http://www.gifted.uconn.edu/nrcgt/newsletter/fall03/fall032.html

Wonder-McDowell, C. (2010). The hidden peril of differentiation: Fragmented instruction. *College Reading Association Yearbook, 31,* 45–59. Retrieved from http://connection.ebscohost.com/c/articles/51535627/hidden-peril-differentiation-fragmented-instruction

Wood, K. D., & Blanton, W. E. (2009). *Literacy instruction for adolescents: Research-based practice.* New York, NY: The Guilford Press.

Woolfolk, A. (2009). *Educational psychology* (11th ed.). Columbus, OH: Prentice Hall.

Yin, R. K. (1981). The case study crisis: Some answers. *Administrative Science Quarterly, 26*(1), 58-65. Retrieved from http://links.jstor.org/sici?sici=0001-8392%28198103%2926%3A1%3C58%3ATCSCSA%3E2.0.CO%3B2-H

Yin, R. K. (2012). *Applications of case study research* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Youngs, P. (2013). *Using teacher evaluation reform and professional development to support Common Core assessments*. Washington, DC: Center for American Progress.

Zepeda, S. J. (2012). *Professional development: What works*. Larchmont, NY: Eye on Education.

Zhao, Y. (2009). *Catching up or leading the way: American education in the age of globalization.* Alexandria, VA: Association for Supervision and Curriculum Development.

Appendix A: The Workshop

Day 1: Time Management

Setting: Large classroom

Arrangement: the setting will be a square table in which all the participants will be facing each other. The arrangement of the classroom is important to ensure that the workshop is not a lecture hall, but instead offer the opportunity for each person directly engaging with the lesson.

Equipment: Tables, projector, chairs, and writing materials

Participants Responsibly: bring a laptop.

Materials: 100 copies of the workshop handout, name tags with names of each participant, same type of pens and books for writing if needed, a white board, and ASCD supporting materials, and the games used in the workshop

7:45 Sign-in, distribution of name tags, and settling down

8:00 Introduction of the workshop and the Presenter

Statement of the goals
The specific goal of the project will be to enable the teachers in elementary school to obtain the skills that will enable them to plan and design differentiated instruction, and to implement evaluation kits that show their achievement for set targets for at-risk students.

The supporting goals will be

a) to offer teachers with time management skills when implementing differentiation,
b) to facilitate planning in differentiation,
c) to bridge the gap between administrative goals and teaching practice in differentiated instruction, and
d) to link computer-based and face-to-face differentiated learning.

8:15 Icebreaker
Know your right side neighbor, tell your left side neighbor

Directions:

1. The activity will start by each person talking first to the person on their right, they will as their name, which grade they teach, where they teach, and expectations for the workshop
2. They will turn to their left side and tell their neighbor what they learnt about the first person

3. The neighbor will the review the correctness of the information.

8:30 Introducing the expectations of the workshop

- The teachers will be required to indicate what they want to achieve from the workshop.
- Each participant will have an opportunity for presenting the expectations, although one has the choice of pass if what they expect has been posted by other participant.

Statement of behavior and conduct

- The facilitator will then present to the participants rules of behavior and conduct including the need to respect the property at which the workshop is held, disruptiveness, time management, and class discipline
- The expectation is that the participants as teacher have been working under and environment that they require students to behave in a certain way during the class. The similar expectation will apply for the conference.

8:45 Introduction the handbook for the workshop

The workshop handbook is a written tool that comprises of the different elements of the workshop including the goals and expectations, and well defined activities. The presented activities will be as presented in the rest of the following

8:50 Time Management

Goal:

- To understand the concept of time management
- To explore effective planning for effective lesson implementation
- To recognize the role of technology in promoting data-based learning

Activity 1: Time management

Goals:

- To understand the concept of time management
- To outline how one can implement time management
- To conceptualize time management
- Identify time wasters in our planning strategies

8:50 Activity 2: Make a scheme of work

Goals:

- Engage in formulating a scheme of work

Tasks – the participants will engage in making an actual scheme of work but in pairs. During this time they are expected to recognize time wasters such as elements that unnecessary interrupt your work.

The story teller – the facilitator will ask 5 teachers to volunteer before the task begins, and during the design session they will be asked to interrupt the pairs, ask unnecessary question, and be a nuisance.

The goal of the exercise will be to determine if teachers are able to deal with interruptions and if they can identify effective methods to address time wasters.

10:00 Break 15 Minutes

10:15 Restating the progress

This will be a short recap of what has been achieve in the first session, and expectations of the day

10:20 Activity 3: Using scheduling to remain focused

The activity will be a discussion between the facilitators and the participants, which will focus on how the teachers have been using schedules in their work days and if these have been effective in meeting their needs.

- The session will start with a power point presentation on different schedules, as visuals to well laid out plans.
- This will be followed by a sharing time – with an identified person giving their experience on how they have succeed in using schedules to remain on track, and another on how they have not been able to effectively use schedules.
- The participants will then consider the implications of both scenarios and make pointers into how each can be enhanced or undermined.

12:00 Lunch Break

1:00 Activity 4: Making technology work for you

Facilitation Notes

Technology is among the constants of a 21st century educator, whether in the classroom or when planning the lessons. It is therefore paramount that each educator be aware that technology can be a blessing and a curse based on the ability of the teacher to make it work for them.

Goal:

- To understand the use of technology to complete important tasks
- Productivity in using technology

It is understood that sometimes teachers view the use of computer-based technology in facilitating the lesson as a possible hurdle because of inability to manage its effective use.
Sometimes the students may also use your seeming unawareness to take advantage of doing other things instead of the assigned work. The question therefore becomes, how to make technology work, within the time you want it to work.

Test

- The teachers will engage in role play, a large group will be the students, and a number the teachers
- The students will be required to open a existing program in their computers, and begin working on the tests. They will be advised that some will do the work, while other keep changing between screens to do other things.
- The teachers will then be responding to those students that ask questions, while keeping track of those not doing their work.
- The task will be completed in groups.

The participants will review the outcomes of the activity in groups, and choose one person to report their experience. The activity will take 1 hour, and 30 minutes.

2:30 Activity 5: Reordering for Productivity
Goal:

- To facilitate the development of a "just right" lesson plan

"A just right" lesson plan refers to one that contains the attributes that are needed to accommodate an effective class without clatter and overwork, and that fits within the time provided

Facilitation Notes:
Among the challenges, facing teachers in differentiation is the way to ensure that the activities planned for the day provide maximum benefit to the students without overworking the instructor especially in face-to-face instruction. Within the face-to-face setting teachers experience more work than they normally do when using computer-based approach. Therefore, defining ways in which one can ensure that their lesson is productive without being overwhelming is essential.

Task
Tthe teachers to open an existing lesson plan that they use for differentiated instruction. The facilitator will go through a lesson plan identifying the attributes that may increase the work of a teacher and those that may detract from the teaching experience. It will further include an identification of a possible approach to streamline the lesson plan to make it more effective, based on qualities that the teacher wants to provided. The content of the lesson is one of the major attributes of a quality plan (Van Driel & Berry, 2012).

3: 40 Group work:
The participants will break into groups of and using an existing lesson plan identify ways to improve it for better productivity. The groups will be presented with lesson plans. They will then share their findings with the other at the end of thirty minutes. The presentations will not be per group but a discussion of what the teachers found when working on their lesson plan, those elements they chose as important and those they felt could be either removed or changed without affecting the effectiveness of the lesson. The groups will share their insight in the activity.

4:30 Activity Wrap Up and Reflection
Goal:

- To reflect on the knowledge and content obtained by the participants through the activities completed
-

Tasks:
The participants will go into the last groups they used for Activity 5, and they will come up with two things that they have learnt in content of the workshop
The facilitator will walk through the room getting feedback from each group
They facilitator will then present the identified knowledge based on thematic clusters to help the participants understand the feedback.

4:45 Complete Evaluation
The participants will fill a formal evaluation form that will have open and close ended questions that will be used to assess the impact of the lesson.

5:00 Departure

Day 2: Building Constructive Relationships

Setting: Large classroom

Arrangement: the setting will be a square table in which all the participants will be facing each other. The arrangement of the classroom is important to ensure that the workshop is not a lecture hall, but instead offer the opportunity for each person directly engaging with the lesson.

Equipment: Tables, projector, chairs, and writing materials

Participants Responsibly: bring a laptop.

Materials: 100 copies of the workshop handout, name tags with names of each participant, same type of pens and books for writing if needed, a white board, and ASCD supporting materials, and the games used in the workshop

7:45 Sign-in and settling down

8:00 Review of the workshop agenda, expectations, and norms of behavior

8:05 Introducing Socialization
Goals

- To understand the role of face-to-face differentiation in building student/student and teacher/student relationship
- To understand ways to develop positive relationships in the classroom
- To recognize how to manage students in a face-to-face differentiated classroom

The purpose of the workshop on building constructive relationships is to develop a framework that allows teachers to facilitate socialization within their classroom through recognizing the challenges they experience and building on a positive attitude

Facilitator Note
Face-to-face learning present teachers with an opportunity interact directly with their students, and thus have an opportunity to build character. It is important to note that building character involves having a positive interaction with the child that involves guiding them through different areas of the lesson. Differentiated instruction is an opportunity to consider the individual needs of the students and their capabilities, and the education plans based on this facilitating an effective curriculum (Piquette, 2012. Tomlinson & Parrish, 2013).

8:15 Icebreaker
Describe yourself in one word based either on your perception of your capabilities in face-to-face differentiated instruction.

8: 20 Activity 1: I am shy

Facilitator Notes
The "I am shy" activity recognizes the differences in temperament in students in a class, as a basis for socialization. The activity is a recognition that it may be easy for some students to interact with others and harder for others, and that at-risk students could also use their friendliness or lack of it to mask their challenge in class. The facilitator will guide the participants in recognizing the challenges they experience in building relationships among students and those attributes they used that had proved to be effective.
Task – role play

The facilitator will ask for three volunteers among the participants, who will enact a unscripted role play on student/student interaction based on the attributes noted in their discussion with the facilitator.
After the role play the participants will collective discuss how it the teacher could make the process better for the students and positive. One of the participants in the role play, will be advised to play a shy student to offer credibility to the discussion.

10:00 Break

10:15 Activity 2: The "Good Teacher"

Facilitation Notes
From the previous section you understood those aspects that teachers found meaning when encouraging student to student relationship. This section is to understand how the teacher can help the student fee that they are part of the lesson. The analogy of the "good teacher" is a symbol of an educator that understands his or her students and is willing to ensure that the child in not left behind in any way. Professional development is a chance to ensure that the teacher can read the environment and act accordingly.

Task 1: Flexible grouping
The teachers will respond to questions of how well they are able to manage groups effectively

1. How well are the teachers able to regulate teamwork?
2. How do you resolve conflicts within the groups?
3. Have you had to move group members due to indiscipline, incompatibility, or other reason? Give examples.
4. Have you found the groups mean more work for you?
5. Which are more meaningful for your class? Individualized differentiated plan or group-based?

Reflect on the views of the teachers. It is important to breakdown the themes that come up from the discussion to make it easier for the participants to understand the responses and make them more meaningful.
Task 2: Self-Assessment
The participants will complete an assessment form that comprises of thumbs-up and thumbs-down question. The assessment will help the participants to identify those area that they will need to consider in improving their classroom behavior, with specific concentration on building student relationship.

After the assessment, the participants with guidance from the facilitator will discuss about how to promote better interaction with students.

12:00 Lunch

1:00 Recap of previous session
1:05 Activity 3: Hallmark of learning

Facilitator Notes
The hallmark of learning is about assessment of the best method that will match the learner within a class that has other persons with different needs. The activity involves rotations in differentiated instruction.

Task: Find a seat
To introduce the session, the facilitator will divide the participants into equal groups. During the lunch hour, the facilitator with assistance will have placed the seats in an empty section of the room (the importance of having a large room with space), in a circle. The participants will be sitting the circle but will now be required to sit AB, AB, AB based on the groups. The facilitator will then place a sit at the middle that no one should seat on. The instruction is to have the people move to the other side with only one person standing per group at one given time, and every time one stands you move to the next seat. At all times the sitting should be AB. The task will take 20 minutes

Reflection
The participants will then recap on what they learnt from the activity and link it to classroom rotation. The goal of the activity is to help the teachers appreciate the need for variance in differentiation, to recognize that teaching students with different needs may need the teacher to consider the different ways in which to make it possible to understand the class content.

The task involves having to strategize on the best way to move the group altogether despite the differences in opinion or personalities. If the participants fail to move together they keep repeating the task. When applied to differentiation, teachers require an understanding of how to manage different students including active and passive ones, encourage opinion and commitment, and prompt feedback from the learners.

Another element in the reflection is considering the interpersonal nature of the classroom which is an essential part of socialization. The success of each group requires the participants to talk to each other and listen. A teacher also needs to listen and talk, and encourage students to do the same. It reflects the possibility of exploring feelings and interpersonal relations.

2:30 Activity 4: Linking expression, mastery, and understanding

Facilitator Note
Face-to-face offers the teacher an opportunity for using task rotations and scaffolding student learning to ensure that the student is able to grasp and master the content (Silver, Jackson, & Moirao, 2011). The activity that links expression, master, and understanding

recognizes the different approaches to differentiated instruction and allows the teacher to adopt the most effective.

Task:
The activity will be interactive with the facilitator guiding the participants in discussing themes about how to incorporate different learning styles in face-to-face instruction for better student outcome. This will be a session of discussion, with participants giving insight into the styles that have worked well, the reason they have worked, and whether there are ways to improve those that have been less accommodative.

4:00 Activity 5: Making small groups work

Facilitator Note
Putting students in groups is one of the ways to differentiate identified by teachers. However, grouping students is not testament of differentiated instruction, but it is in how the teacher is able to use different materials, content, and activities for individual students based on the needs.

Task
The goal of this activity is to bring together the information gathered in the entire day to show how teachers perceive differentiated teaching and associated activities, and whether they are using groups to meet the needs of the student.

The central tenet of the day was socialization, which can be facilitated through effective grouping. This activity connects the appropriate knowledge.

4:45 Evaluation
The participants will reflect on the knowledge and content obtained by the participants through the activities completed

The participants will fill a formal evaluation form that will have open and close ended questions that will be used to assess the impact of the lesson.

5:00 Departure

Day 3: Integrating Computer-based and Face-to-Face Differentiated Instruction

Setting: Large classroom

Arrangement: the setting will be a square table in which all the participants will be facing each other. The arrangement of the classroom is important to ensure that the workshop is not a lecture hall, but instead offer the opportunity for each person directly engaging with the lesson.

Equipment: Tables, projector, chairs, and writing materials

Participants Responsibly: bring a laptop.

Materials: 100 copies of the workshop handout, name tags with names of each participant, same type of pens and books for writing if needed, a white board, and ASCD supporting materials, and the games used in the workshop

7:45 Sign-in and settling down

8:00 Review of the workshop agenda, expectations, and norms of behavior

8:05 Review the lessons of the previous 2 days

Introducing the focus of the day
Goal

- The target is to help teachers to identify ways to use both computer-based and face-to-face approaches to differentiated instruction
- The session will promote recognition of how using both approaches can be more beneficial in comparison to one approach

8:10 Activity 1: Understanding the tools

Facilitator Note
One of the most significant ways to differentiated instruction is understanding the tools to use. Computer-based instruction and face-to-face instruction are distinct approaches to differentiation. The session will include a discussion on the benefits and challenges of each.

Task
The participants will more into groups and discuss the benefits they perceive of both approaches to differentiation
The participants will also identify the most used approach and the reasons for higher usage in comparison to the other
The participants will make a table of comparison for the two approaches, which one person will present to the group

10:00 Break

10:20 Activity 2: Rotating tools based on needs

Facilitator Note

You will recap on the previous session as the pros and cons of each approach to differentiated instruction will be important in this activity. Use key themes noted from the presentations rather than fully reporting the session.

Task
The participants will again break into the groups they used in the first session, and discuss about how to effectively incorporate face-to-face and computer-based learning
The expectation is that they will identify uses in a lesson, support mechanisms, and ways to control student behavior

The facilitator will walk through the groups collecting the identified elements and facilitate the discussion

12:00 Lunch

1:00 Recap the previous session

Activity 3: Work stations

Facilitator Note
The participant laptops will be useful for this section and the subsequent one because it will involve practice in how to establish work stations for computer-based differentiated instruction. A perception among teachers is that they have challenges in effectively monitoring student activity when using computer-based approach.

Task
The participants will work in groups using their personal computers to mimic a class that uses computer-based approach
The participants will assess each other to determine which work station seems most effective for allowing learning and still maintaining the role of the teacher in monitoring
The participants and facilitator will discuss on how they can make the most effective work station possible

2:00 Activity 4: Technology distracts
Facilitator Note
The role of this session is to consider ways through which to reduce the challenges identified by teachers when using computer-based differentiated instruction. This will be a 45 minute facilitated session that links to the previous one.

Goal:
To come up with a collective action on how to bring technology into differentiated instruction without undermining constructive learning.

Task
This will be a discussion about the reasons that they feel computer-based approach may not be appropriate for differentiated instruction or what makes it difficult.
The participants will then come up with a plan of action on how to enjoy the benefits of technology without jeopardizing the learning process.
The teachers will share their experiences in using computer-based technology with the facilitator contributing as needed.

2: 45 Activity 5: Too much work
Facilitator Note
Sometimes instructors consider use of differentiated instruction as much work, especially when using face-to-face instruction.

Goal
To learn how to effectively plan a differentiated instruction whether when using face-to-face approach or computer-based to ensure that the class is not overwhelming for the teacher

Task: The human knot
The facilitator will break the participants into two groups, and present the idea of the human knot. The participants will choose a leader who will guide them into untangling the knot. The participants have the option of deciding on the best way to untangle themselves. All members of the group can be part of the knot or a selective number. It however should be a number that is challenging enough.

The participants will have 20 minutes of completing the exercise and then 5 minutes of identifying lessons learnt.

The groups will then merge and discuss about what they have learnt from the task and connect the lessons to activities in differentiation.

The facilitator and the participant will work together to identify the importance of planning, which will be highly important in completing the human knot activity.

4:00 Reflection and Question and Answer
Goal:

- To reflect on the knowledge and content obtained by the participants through the activities completed for the three day

The participants will engage in a 1 hour question and answer session in which they will ask questions arising from the workshops or those they may have come with based on their practice.

The session will be interactive with the facilitator and participants reacting to the questions raised

Complete Evaluation
The participants will fill a formal evaluation form that will have open and close ended questions that will be used to assess the impact of the lesson.

5:00 Departure

Appendix B: Interview Protocol

Teacher #_____ Date: _____

Overview of the interview process: The location of this interview will take place in each teacher's classroom. This interview will be conducted within 20-30 minutes. The interview will also be recorded using written notes and a digital recorder. Transcripts will be provided to each participant.

These findings may be published in a dissertation.

1. How can differentiated classrooms be more responsive to the needs of all learners compared to non differentiated classrooms?
2. Does the way in teachers are trained and professional development opportunities enhance the capacity to differentiate and do you think more professional development opportunities should be made available?
3. What tools are used to build your face-to-face differentiated instruction lesson and what tools are used to build the computer-based differentiated instruction how are they the same or different?
4. How does traditional differentiated instruction compares and contrast to computer-based differentiated instruction?
5. Can you describe an example of differentiated instruction being viewed in your classroom?

Appendix C: The Focus Group

Research Question

What are the teachers' perceptions of the best form of differentiated instruction when comparing a technologically based strategy to a face-to-face strategy?

Focus Group Interview Guide

Set-up

Purpose of focus group is to help schools and districts better understand the benefits and

challenges of technology based and face- to=face differentiated Instruction, by seeing its implementation through the eyes of the classroom teacher.

Emphasize confidentiality and data security, tape recording, possible uses of the data

Clarify time span

Ask if subjects have any questions

Introductory Question (going around the room)

- Can you please tell me your level of teaching experience, where you have taught, the age group of the students?

Main Questions

- When you hear the term, "Differentiated Instruction" what is the first thought that comes to mind ?

Follow-up or Probe Questions (as needed)

- Can you share some of your experiences in how you have attempted to differentiate

  instruction in your classroom provide one example?

- Would you please share some of the challenges you have faced, in trying to

  Differentiate instruction face-to-face?

- Would you please share some of the challenges you have faced, in trying to differentiate through technologically based instruction ?

- Have you had any formal training in Differentiated Instruction?

- Does your administrators have any expectations in terms of Differentiated Instruction?

- Do you have any suggestions that might make it easier for teachers to differentiate instruction as a part of the daily learning process?

Appendix D: Attitudinal Questionnaire

Thank you for participating in this research study on teacher perception regarding face-to-face and technological based differentiated instruction. The purpose of the study is to add to our understanding of the benefits and challenges of face-to-face and technological Differentiated Instruction, and to help teachers and administrators improve implementation. This online survey contains open-ended questions, and should take you no more than 10 minutes to complete. Please be frank and honest in your responses. Your participation in this survey is completely anonymous. Responses saved by Survey Monkey will not be connected to IP or email addresses. All survey results will remain secure and visible only to the researcher.

By advancing from this page into the survey, you acknowledge that you understand the nature and purpose of the study, and that no compensation, financial or otherwise, will be offered to you for your participation.

If you have any questions about the study, please feel free to contact the researcher, Morelisa Sabb at morelisasabb@gmail.com. If you have any questions about your rights and protections as participants in the project, please do not hesitate to contact the representative of the Walden University's Office of Research Integrity and Compliance.

Demographic Information

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

2. Which age group or grade level do you teach?

3. What is the subject (S) area you teach?

4, What type of community is your school is located?

Background Information

5. How familiar are you with differentiated instruction?

6. What percentage of your classroom instruction is devoted to differentiated instruction ?

7. To what extent do you feel your administration expects you to differentiate your classroom
instruction?

8. Does the technology based instruction relate to- face- to –face differentiated instruction ?

9. What are the pros and cons of face- to face differentiated instruction ?

10. What are the pros and cons of technological base differentiated instruction ?

11. Which form of differentiated instruction face- to-face or technological base do you

perceive

Is the most beneficial to students and why?

Implementation Challenges

12. What do you perceive is the greatest role in making differentiation of

instruction difficult or challenging for some teachers to implement?

13. Based on your perception what is the greatest impact your district or school can

implement to increase the differentiated instruction?

Appendix E: IRB Approval

The IRB approval # is 11-13-15-0056724