

Implementing Differentiated Instruction by Building on
Multiple Ways All Students Learn

by

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ABSTRACT

This action research addressed teacher effectiveness in supporting students' critical thinking skills by implementing differentiated instructional strategies in eight 3rd- and 4th-grade, self-contained, inclusive classrooms. This study addressed how third- and fourth-grade teachers perceived their instructional effectiveness, how differentiated instructional strategies influence third- and fourth-grade teachers, and how third- and fourth-grade teachers make further use of differentiated instruction to support students' critical thinking skills across cultures, linguistics, and achievement levels to increase student achievement. Out of the enrollment in a southwest Phoenix elementary school, there was a 35% mobility rate; 76%, free and reduced lunches; 35%, Spanish-speaking homes; 10%, ELL services; and 10%, special education. The school was comprised of 52 certified teachers, out of which there were five related arts teachers, and four teachers who served gifted and special education students. Participants included all eight third- and fourth-grade teachers, 75% female and 25% males; 75% identified as Caucasian and 25% Hispanic/Latina, middle-class citizens. Professional development training was provided to these eight individual teachers during four months on differentiated instructional strategies to support students' critical thinking. At this study's beginning, these teachers perceived an obstacle to supporting students' critical thinking as they struggled to learn new curriculums. Persevering through this challenge, teachers discovered success by implementing design-thinking, developing students' growth mindsets, and utilizing cultural responsive teaching. These teachers identified three differentiated instructional strategies which impacted students' academic progress: instructional scaffolds, collaborative group work, and project-based learning. Building

upon linguistic responsive teaching, cultural responsive teaching, and Vygotsky's socio-cultural theory, teachers revealed how to support students' critical thinking through the use of graphic organizers, sentence frames, explicit instructions, growth mindsets, cultural references, and grouping structures. In addition, the outcomes demonstrated teachers can make further use of differentiated instruction by focusing on instructional groups, teachers' mindsets, and methods for teaching accelerated learners. This study's results have implications on teachers' perception toward using differentiated instructional strategies as a viable method to support the multiple ways all students learn.

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CHAPTER 1

INTRODUCTION AND CONTEXT

To set the stage, this chapter highlights challenges students face in American public education. Today, classrooms are diverse with students who learn in unique ways. For example, teachers serve students from multiple cultures in a single classroom setting. In addition, students vary in academic skill sets as special education students learn alongside those students who are gifted and talented. To complicate matters, state and federal policies such as No Child Left Behind (2002) and Common Core State Standards (2010), limit the classroom teacher's flexibility (Cochran-Smith & Lytle, 2006). These government policies expect students to master a standards-based curriculum. As a result, teachers tailor lessons to meet standards-based requirements over meeting the unique ways students learn. Furthermore, teachers deliver the same lesson as if they are teaching to a homogeneous student group at the same academic level. Instead, teachers need to consider serving the diverse student population and teach to each child's learning style in inclusive classroom settings in American public education.

This chapter examines how one elementary school in southwest Phoenix intends to address the diverse student learning needs. This study proposes differentiated instructional strategies to support teachers in a standards-based system to meet the diverse students' needs in critical thinking skills in the inclusive classroom. In the first section, the larger context includes an American public education historical perspective. In the second section, the problem of practice and the research questions follow. The final section includes the school's local context in this study. Providing effective instruction to

foster student critical thinking in a diverse inclusive classroom setting is at the center of this study.

American Public Education Historical Perspective

Historically, American education practices grouped students by race, gender, and intelligence (Orfield, Frankenberg, & Lee, 2002). These practices triggered tracking, ability grouping, and racial segregation (Orfield et al., 2002), which includes separating students considered gifted, special education, English language learners (ELL), and reading deficient (Skiba et al., 2008). Tracking, ability grouping, and segregating children served a purpose. It suggested some students were more capable to learn than others. Segregating students produced alarming outcomes as minority and special education students were excluded from fair teaching practices. Grouping students by race, gender, and intelligence limited opportunities for students to receive necessary tools to learn (Wormeli, 2006).

These practices deliver neither democratic nor equitable services to students. Instead, these methods created discrepancies in the American education system. The goal of education serves to ensure equal access to knowledge, regardless of any differences (Valiandes, 2015). To increase equity for all students, public schools implement the inclusive model. According to Fitch (1999), “Students in inclusive classrooms constructed a sense of themselves that was significantly different (and more positive) from those in either segregated or traditionalist classrooms” (p. 233). For instance, inclusive classrooms provide special education students the hope, confidence, and community alongside the general population as opposed to separate pullout settings.

Although educators are making strides in establishing more equitable classrooms, teachers fall short of providing effective instruction for every child.

American classrooms serve learners from diverse backgrounds. Students sitting in today's classrooms vary in academic abilities, approaches to learning, and personality traits (Heacox, 2002). Although grouping students using age and grade level identification in each inclusive classroom remains unchanged, these variations exist due to prior experiences, culture, interests, adult support, maturity, and approaches to learning (Tomlinson, Brimijoin, & Narvaez, 2008). In addition, teachers bear the challenging task to ensure all students meet the demands of the Common Core State Standards (CCSS). The classroom teacher's goal serves to ensure each student meets or exceeds the CCSS to prepare each child to critically think and engage in an educational career path where each child is college-ready after high school graduation. While working to obtain these goals, teachers strive to differentiate instruction to meet each child's academic needs to increase equity. According to Koutselini (2008), "Differentiated instruction is considered as the pedagogical approach which emphasizes change of teaching procedures by taking into account the different learning modalities, interests, pace, skills, knowledge and attitudes of different students" (as cited in Valiandes, 2015, p. 17). Differentiated instruction acts to meet the needs of all students in a fair and equitable manner (Wormeli, 2006). Providing effective instruction and executing whatever it takes to help students maximize their academic potential results in increased student achievement. Teachers who deliver effective practices to strategically engage students and provide supportive tools to increase student achievement execute differentiated instruction (Wormeli, 2006). Students need more than physical access to the classroom every day. Attending classes on

a daily basis and accessing learning materials remains insufficient. Meeting curriculum-based standards and fostering critical thinking by differentiating instruction in inclusive classrooms address the students' diverse needs presently in American public schools.

In the United States, standards-based education manifested as the de facto when addressing questions on effectiveness in American public education over the last 30 years (Baines & Stanley, 2006). The federal government imposed the CCSS on the American education system to ensure each child obtains an equivalent education including access to curriculum, instructional minutes, and assessment to learning. (Levy, 2008). Prior to the equivalent education charge, teachers had more flexibility with curriculum implementation and lesson delivery. Teachers used personal judgment to determine the student needs, subject matter, instructional methods, lesson pacing, and learning assessments. Although teachers exhibited more flexibility in the past, students lacked standardization in instruction. Teachers were free to choose curriculum without student goals, guidelines, and expectations in mind. Without a standardized format, students received varying learning opportunities. Teachers taught varying subject matter they deemed important and the instructional effectiveness was unequal. Students learned at varying degrees in the same school and grade level before the push for standards-based curriculum policies more than 30 years ago.

Unlike the past, teachers cover multiple standards today, especially following federal policies such as No Child Left Behind (NCLB) and CCSS. National standards serve to raise achievement levels, promote hard work, emphasize educational value, improve classroom instruction, and motivate students (Ravitch, 1996). Furthermore, countries developed national standards to increase equity for all students. Although

standardizing instruction remains necessary, teachers feel pressured to develop lessons to meet the various standards rather than meeting the unique ways students learn. As teachers focus on delivering instruction based on multiple standards, student circumstances such as talents, background, dispositions, and disabilities get disregarded (Baines & Stanley, 2006). As federal, state, and local politicians continue to mandate standard-based curriculum, teachers also bear the responsibility to make learning equitable. Using differentiated instructional strategies allows teachers to do both, meet the diverse learning needs of all students and teach in a standards-based system.

Previous to NCLB and CCSS, teachers exercised more flexibility over instruction, although problems such as inequity increased. As students received a different education after coming from the same school and grade level, effective instruction was compromised. As teachers provided instruction using personal judgments, they perceived some students needed lower expectations, especially those from minority or impoverished cultures (Lee, 2003). On the other hand, teachers expected some students to perform at higher levels, especially those categorized as gifted and talented. Providing effective instruction is complicated. It is more than teaching one lesson to the same class, being flexible with some students, and maintaining high expectations for others. A child from poverty does not equate to an intellectual disability. Nor should social status associate with low expectations for students. Furthermore, teachers sustain distorted perceptions related to gifted and talented students. Changing mindsets remains essential to deliver effective and equitable education for all students.

To alleviate the inequity problem, federal government officials determined it was necessary to bring uniformity to the American education system. In response,

standardized testing and standards-based curriculum legislation such as NCLB and CCSS were instated. According to Levy (2008), “In a standards-based educational system, local school districts, states, and federal government have each set standards that all students must achieve regardless of teacher, socioeconomic status, disabilities, or other differences in either the educational institution or the student” (p. 161). In 2002, NCLB legislation was designed to increase the federal government’s role in holding schools accountable to meet every student’s academic needs. NCLB served to promote American education as competitive around the world. It promised to close the achievement gap between minority and poverty students when compared to their well advantaged peers (Klein, 2015). As a follow-up to NCLB, CCSS were introduced in 2010 to provide new targets for students to reach as they prepare for college and the United States’ job market. The CCSS served as an intervention to realign standards and assessments when multiple schools failed to meet the NCLB requirements (Klein, 2015). As a response to uniformity, the federal government increased its role in American education to ensure all students learn.

In spite of the drive for standards-based instruction, teachers continue to accept varying skill levels and expectations for students. At a time when there remains a push for inclusive education for all students, the need for teachers to differentiate instruction is crucial. Although uniformity is at the center of policies for standards-based instruction, the classroom teacher is still the greatest influence on student academic progress (Allen, Pianta, Gregoroy, Mikami, & Lun, 2011). Treating students equitably by providing effective instruction and serving all students’ needs in a standards-based curriculum is the goal of differentiated instruction in American public education.

Embedding a standards-based curriculum serves as an attempt to deliver equity for all students in education. NCLB and CCSS serve as the most recent attempts to improve instructional effectiveness in American classrooms. In 1989, the National Council of Teachers of Mathematics developed new mathematical standards. The organization recommended a student-centered pedagogy especially in urban schools (Lee, 2003). Teachers ignored these recommendations favoring the “pedagogy of poverty” and exhibited control strategies such as direct instruction, creating assignments, and monitoring seat work (Lee, 2003, p. 450). In these situations, teachers’ attitudes toward students from impoverished communities emerged as negative. A growing economy and technological advances caused an elitist attitude to emerge (Valencia, 2010). In the classroom, teachers with such attitudes make it challenging to foster equity for all students. Focusing solely on standards, teachers forget about the unique student needs. When students fall short in meeting standards, students pick up the blame. Effective and equitable instruction requires meeting the diverse needs of all students as well as meeting the standards-based curriculum targets.

Focusing only on standards-based instruction does not take into account the unique ways each student learns in a single classroom. Teachers expect all students to meet standards without referring to differentiated instructional strategies to foster that learning. Although the same standards represent all students, an achievement gap still exists today. In American education, teachers need support to help students increase academic performance in this system. The standards-based curriculum policies were imposed to increase equity. Instead, teachers experience shortcomings and teachers fall short in addressing the diversity in the inclusive classroom. Every child’s learning

context may be different and the process for each child's learning is unique. When teachers appropriate high expectations for some students and low expectations for others, inequity persists. This notion goes against the original intention to standards-based curriculum. The call for training teachers to implement differentiated instructional strategies in a standards-based model requires attention, especially when ensuring all students receive a quality and equitable American public education.

Problem of Practice

District Historical Focus

Over the last five years, the Park Meadows School District (PMSD) experienced great change. Teacher turnover stood at 71% during this time period. High teacher turnover makes it extraordinarily difficult to make any significant increases to student achievement (Allensworth et al., 2009; Ingersoll, 2001, 2004). Teachers filling these vacancies hold less than three years' experience in the education field. As a result, PMSD's priorities continued to experience Arizona teacher shortage, training new teachers annually, and establishing focus schools. With an emphasis on these pressing initiatives, district priority remains on new teacher training rather than offering professional development on differentiated instructional strategies. Instead, training new teachers in classroom procedures, student management, and writing lesson objectives take precedence.

After evaluating teachers in the inclusive classroom setting over the last four years, I noticed teachers deliver a one-size-fits-all lesson to students, which results in meeting the individual critical thinking needs of students who vary culturally, linguistically, and academically unmet. Supporting teachers to respond to the critical

thinking needs in a diverse student population should not be optional. Differentiated instruction serves as one pedagogical method requiring effective instruction to support equity in learning for all students. For the purpose of this study, differentiated instruction is defined “as teachers’ dedication to planning for academic diversity in their classrooms with the goal of helping students succeed by attending to their needs and interests” (Goddard, Goddard, & Kim, 2015, p. 113). As teacher retention stabilized at Star Mountain Elementary School (SMES), especially during the last two years, I am confident training in differentiated instructional strategies will support teachers to foster equity in educational opportunities and increase student achievement at higher levels for all students.

Academic Concern

A growing concern is that gifted, special education, and reading deficient students are only getting their needs met for a small portion of the school day during pullout programs. Furthermore, I am concerned students from varying cultures, linguistics, and achievement levels are expected to master the same state mandated CCSS without the necessary support structures in place to be successful. Differentiated instruction is one method that will provide effective instruction and make learning equitable for every child. According to Wormeli (2006), differentiated instruction serves as a collection of effective practices strategically embedded in the classroom to maximize students’ learning potential at every opportunity and providing each child with the resources so learning remains fair and equitable.

On-going Professional Learning

At the school level, on-going professional training remains constant. It is job-embedded on a weekly basis on Wednesday afternoons for two-and-one-half hours. Time is set aside to provide teachers with a structure for collaboration centered on student achievement. Currently, meetings are facilitated by an administrator or master teacher. In addition to this structure, administrators and master teachers provide teachers with cognitive coaching and classroom observations on a bi-weekly basis.

Research Questions

The purpose of this action research study is to determine how differentiated instructional strategies influence third- and fourth-grade teachers' abilities to increase students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. My research questions include the following:

1. How do third- and fourth-grade teachers perceive their instructional effectiveness to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms?
2. How do differentiated instructional strategies influence third- and fourth-grade teachers' abilities to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms?
3. How can third- and fourth-grade teachers make further use of differentiated instruction to support students' critical thinking skills across cultures, linguistics, and achievement levels to increase student achievement?

Leadership Context

Star Mountain Elementary School (SMES) is located southwest of the greater Phoenix area. SMES is an open-enrollment campus and serves 996 students in kindergarten through eighth grades. Based on completed registration forms, 65% ($n = 647$) of students identify as Hispanic/Latino; 25% ($n = 249$) are White; 6% ($n = 60$) are African-American, 2% ($n = 20$) are Native American, and 2% ($n = 20$) classify as Asian or Pacific Islander.

SMES is a Title I campus where 76% ($n = 757$) of the students qualify for free and reduced lunch. The mobility rate is high, and 35% ($n = 349$) of students come from homes where Spanish is the primary spoken language. In addition, 10% ($n = 100$) of the population qualifies for English Language Learner (ELL) services, and another 10% ($n = 100$) qualifies for special education. Consistent with the national average, 5% ($n = 50$) of the population has been identified as students who are gifted and talented.

The school is comprised of 43 certified teachers, five special area teachers (art, music, and technology), two physical education, and four teachers who serve exceptional learners. One teacher from the exceptional learner department is assigned to serve gifted students while the other three serve special education students. One teacher serves approximately 50 gifted students for 40 minutes twice per week using a typical pullout model for students represented in second through eighth grades. Three specialized teachers serve 88 students using a resource special education pullout model for students represented.

As principal of SMES since the 2013-14 school year, I recognized PMSD implemented pullout instructional models for meeting the needs of students who are

gifted, in special education, and are reading deficient. Pullout is the condition where a child receives specialized education in a separate classroom away from grade-level peers for a period of time during the instructional day (Marston, 1996). In addition, English Language Learners (ELL) receive specialized instruction during a four-hour block schedule where the teacher emphasizes vocabulary, reading, writing, and oral language. Based on Arizona Revised Statute (A.R.S.) §15-756.01, state law requires a minimum of four hours per day in English language development (ELD) for children who classify as English Language Learners (Arizona Department of Education, 2014). Pullout models and separate programs for students such as gifted, special education, reading deficient, or ELL were the norm at SMES.

According to the sole gifted teacher at SMES, a 40-minute pullout program was adopted by PMSD due to the large number of English Language Learners (ELL) served throughout the district. The goal was to refrain from pulling students from English language arts (ELA) and mathematics due to federal, state, and local school board mandates on student achievement in these two subject matters. The PMSD executive team decided against pulling gifted students from core classes like ELA or mathematics where critical information for standardized testing might be compromised. There was pressure to keep students in ELA and mathematics classes as external accountability systems and statewide testing mandates were intensifying with the NCLB (2002) and CCSS (2010) mandates. The original intent was to pull out gifted students from science or social studies classes in order to serve their unique abilities. Because science and social studies were not tested areas on statewide assessments, it was acceptable to pull out students from these classes according to the PMSD executive team.

One major challenge to improving effective teaching is teacher retention. Over the last four years, teacher retention remained a struggle in PMSD. Teacher turnover caused a lack in consistency in our professional training, especially in differentiated instructional strategies. Since serving as SMES' principal, 55 new teachers have been hired, which is consistent with national statistics indicating half a million teachers are hired annually (Andes, 2015). The trend suggests that half of teachers in the United States will leave the field of education within five years (Andes, 2015). The expense of recruiting, hiring, and training new staff members consumes PMSD resources at an alarming rate. In high poverty areas like PMSD, we recruit first-year teachers who focus on learning procedures, classroom management, and developing collegial relationships. In a district like PMSD where expectations are high, teachers bear enormous responsibility. It is easy for first-year teachers to become overwhelmed. As anxiety sets in for those teachers, they reinforce the "pedagogy of poverty" and resort to techniques like direct instruction, creating assignments, and monitoring seat work (Lee, 2003, p. 450). In turn, students receive an education which is inequitable and classroom teachers foster low expectations in this environment. Consequently, students such as ELL, special education, gifted, and those with reading deficiencies are placed in a system at risk and disengage in learning. Instead of providing training on differentiated instructional strategies, the learning focus for teachers remains on student management, classroom procedures, and writing lesson objectives. As principal, I have an obligation to meet student needs by stabilizing and training teachers to differentiate instruction to serve the varying cultural, linguistic, and achievement levels of all students in the inclusive classroom.

According to Fullan, Rincon-Gallardo, and Hargreaves (2015), when considering how to improve the quality of teaching, policy makers start with professional standards, preparation, and professional development controlled by public regulation. I am concerned that public regulation, like NCLB and CCSS, has a stronghold on the decision-making at PMSD as well. For example, external factors such as statewide testing mandates drove the decision of the PMSD executive team to implement a 40-minute pullout program for gifted students. This created a condition where students are pulled out of science and social studies where critical instruction is missed. Training inclusive classroom teachers to differentiate instruction to meet the needs across varied achievement levels has not been at the top of the agenda.

During the spring of 2016, I spoke with Ms. Hawkins, a first-year teacher recruited from Westward State University (WSU). I selected Ms. Hawkins for a one-on-one interview due to the high volume of diverse students she served in her classroom. During our conversation, she acknowledged the need to receive training especially in the area of differentiated instruction to better serve diverse student populations. In this scenario, she focused on gifted learners. Ms. Hawkins stated,

All classes in college only focused on students with individual education plans (IEP) and not gifted education. In college courses, I focused on middle and low students. I wasn't trained to focus on the gifted learners. There could be more support in this area. The exceptional program [EP for gifted learners] for students takes care of enrichment. In my class, they [gifted students] go through the motions. Ms. Bedford [current teacher of the gifted pullout model] is awesome at it [differentiated instruction]. The [gifted] students in my class aren't applying themselves. (Ms. Hawkins, Interview, March 24, 2016).

After my conversation with Ms. Hawkins, there was clear indication the college courses in pre-service training programs at Westward State University prepared her to meet the needs of average students and those on an IEP, which is a legal document

outlining specific learning goals, resources, and progress monitoring for a child who receives special education services. There is an assumption that whatever teaching candidates learn in college training programs prepare teachers for students in inclusive classrooms. Today, teachers need to adapt and respond to the varying needs of students. There are no universal standards for meeting those needs of students, but there is an assumption that one-size-fits-all when delivering instruction. Teaching is not standardized and it is much more dynamic and sophisticated than those presumptions.

Unfortunately, Ms. Hawkins' pre-service training program did not prepare her to meet the gifted learners' needs in her current classroom. Ultimately, gifted students return to the inclusive classroom for most of the school day after being enriched in the 40-minute pullout program. When they return to the inclusion classroom, gifted students need to be challenged and enriched; otherwise, they get bored and become disengaged in learning. There is a drop-off in continuity between the EP classroom and the inclusion classroom. All classes, regardless of program type, need to provide education equity and offer intellectually stimulating curricula for all students school-wide. Effective instruction should exist in all classrooms to promote equity for students. Unfortunately, teachers are not getting the training to meet the critical thinking demand and varying academic needs of gifted students once they return to the inclusion classroom.

During the 2016-17 school year, there was an attempt to provide professional development on the differentiated instruction topic. The PMSD gifted coordinator offered optional job-embedded professional development on differentiated instruction strategies for two hours on a monthly basis during the fall semester for a total of four sessions. This district opportunity was optional; therefore, not all teachers were exposed to the new

learning. Consequences for offering optional professional development exacerbates variance in skills sets for teachers in differentiated instructional strategies. Only 17 of 320 teachers participated in the differentiated instructional professional learning offered district-wide. Effective instruction and equity in education for students cannot be optional learning for teachers, especially when only 5% of teachers see value in differentiated instruction. Permitting this training to be optional is unacceptable.

In the past year, we retained 86% of the teachers at SMES. As we retain and stabilize teacher attrition, professional development on differentiated instruction is essential. Serving all students, especially those with varying cultural, linguistic, and achievement levels, in the inclusive classroom is critical for success. All teachers should plan to meet the critical thinking and academic needs of all students in diverse, inclusive classrooms. Using differentiated instructional strategies by all teachers serves as a mediator for school-wide equity. Differentiated instruction is viewed as a method for all students in inclusive classrooms and it is based on the idea every student has an individual life experience, thus transcending instructional approaches that are optimal for every child (Valiandes, 2015). The goal of the teacher is to help students find success by maximizing the potential of every child in the classroom. Valiandes (2015) further described,

Within the context of differentiated instruction, equity is the opportunity that all groups of students have in a mixed ability classroom to fulfill the curriculum's goals to the maximum, according to their personal abilities and competences, ensuring them equal access to knowledge for all. (p. 18)

By retaining and stabilizing our teachers at SMES, we maintain continuity to focus on differentiated instructional strategies to provide fair, equitable, and effective instruction.

CHAPTER 2

REVIEW OF LITERATURE

To better understand challenges teachers face in meeting the diverse needs of students in inclusive classrooms across the United States, the literature in this chapter focuses on the scholarship in four areas. The first section focuses on differentiated instruction, teachers' instructional mindsets, effective instruction, and influential teachers. The second section describes teachers' perceptions on effective instruction. The third section offers teachers' methods to support differentiated instruction. The final section connects two instructional frameworks and a theory to this action research study: Cultural Responsive Teaching (CRT), Linguistic Responsive Teaching (LRT), and Vygotsky's sociocultural theory. These frameworks focus on ways to support classroom teachers to meet the students' needs in inclusive classrooms of cultural, linguistic, and academic diversity.

Differentiated Instruction Defined

Differentiated instruction serves as one teaching method used to meet students' needs in diverse inclusive classroom settings and standards-based curriculum requirements. According to Goddard et al. (2015), differentiated instruction is defined "as teachers' dedication to planning for academic diversity in their classrooms with the goal of helping students succeed by attending to their needs and interests" (p. 113). Furthermore, classroom teachers use multiple approaches to deliver instruction based on each student's learning style. Teachers adjust instructional methods to meet the unique ways students learn in a single classroom. Hall, Strangman, and Meyer (2003) added, "Differentiated instruction allows all students to access the same classroom curriculum

by providing entry points, learning tasks, and outcomes tailored to students' learning needs" (as cited in Watts-Taffe et al., 2012). Differentiated instruction serves as one way to make learning fair and equitable while delivering effective instruction to support students from multiple cultures and linguistic and academic levels.

Most classrooms across the United States are heterogeneous. To support the multiple ways students learn, teachers practice differentiated instruction. They work diligently to foster conversations about challenging academic vocabulary, promoting peer observations as students think critically, and stretching academic skills (Robb & Bucci, 2015) through a broad range of standards-based curriculum. What does differentiated instruction look like in the classroom? Past studies provide characteristics teachers share when differentiating instruction is practiced in inclusive classrooms. The following paragraphs indicate characteristics discovered in teachers' classrooms as they practice differentiated instruction.

According to one study by Robb and Bucci (2015), there are six common characteristics found in these teachers' classrooms:

- Teachers engage students through inquiry-based or project-based learning.
- Students read materials they can learn from.
- Teachers use formative assessments to drive targeted interventions so all students' literacy skills improve.
- Students work in cooperative groups.
- Teachers use small group instruction to scaffold students with similar needs.
- Teachers differentiate in-class and homework tasks so students develop self-efficacy (p. 15).

To better serve students in maximizing their potential, Robb and Bucci (2015) promoted differentiated instruction as a necessary framework to respond to each child's need.

In Lawrence-Brown's study (2004), differentiated instruction characteristics were identified in reference to a standards-based curriculum setting. Although this study focused on secondary education, the strategies apply at the elementary level, especially in classrooms serving diverse populations. To maximize learning in a standards-based curriculum, Lawrence-Brown (2004) identified the following characteristics:

- Making multilevel instruction decisions in a way that is manageable within a standards-based instructional context.
- Devising additional supports for struggling learners, especially resources that can be provided with or without additional staff assigned to the general education classroom.
- Providing appropriate education for students with special gifts and talents and for students with severe disabilities, who both may be members of the same heterogeneous, inclusive classrooms.
- Differentiating primarily with the whole-class lessons, avoiding separate, parallel tasks as much as possible (p 37).

As lawmakers advocate for teachers to increase student achievement, differentiated instruction supports teachers to meet the needs of students in a required standards-based learning environment (Lawrence-Brown, 2004).

American classrooms today serve students with varying readiness, capabilities, interests, and learning styles. According to Wormeli (2006), differentiated instruction paves the way for teachers to be fair and respond appropriately based on each child's

need. Goddard et al. (2015) explained, “Students are not equally adept at all subjects, and students will not be similarly motivated by all content” (p. 113). Furthermore, cultures and linguistics add to student diversity in the classroom. “Yet, teachers often adopt a one-size-fits-all approach to instruction, in which every student is expected to engage in the same content similarly and at the same time” (Goddard et al., 2015, p. 113). As students attend school at varying learning levels, providing fair and equitable instruction serves as the goal in classrooms where teachers employ differentiated instructional strategies. Sometimes, the teacher’s mindset serves as a hurdle in supporting all students (Wormeli, 2006). The following section describes ways to change teachers’ mindsets to equitably support students with varying learning needs.

Change of Mindsets

In 1970, Rist completed a three-year qualitative study in an urban school in St. Louis where the population represented African American students. In this study, teachers’ student expectancy based on a subjective set of criteria determined a student’s academic potential as early as kindergarten. In other words, the classroom teachers’ mindset impacted support provided to children in early childhood programs was based on biased measures. Rist (2000) observed a kindergarten classroom where the teacher labeled students as either “fast learners” or “slow learners” (p. 268). Rist noted that kindergartners who learned at a quicker pace received more attention by the teacher, while the slow-paced learner saw the teacher infrequently. Furthermore, the slower paced learner was subjected to a more control-oriented discipline format, which aligns with the pedagogy of poverty. Based on Rist’s study, the problem perpetuated as these students were promoted from year to year. At the turn of the 21st Century, Rist (2000) noted, “The

stratification of the American underclass is now more permanent and pervasive than thirty years ago” (p. 263).

Ideally, the classroom teacher serves to foster an environment where learning is fair and equitable for every child in American public schools. Based on Rist’s (2000) study above, teachers’ mindsets either promote this ideology or stand as an obstacle to serving students fairly. According to Lopez (2017), students living in poverty and representing various minority groups perform at marginal levels and remain underrepresented in a multitude of academic outcomes. According to Gorski (2017), teachers who believe students in poverty are “inherently deficient” lack the preparation to adequately serve this population experiencing these educational shortcomings (p. 382). For example, teachers ignore the significance of culture and link achievement disparities to a student’s cultural identity. Again, this serves as an example of public schools mimicking the social structures in today’s society. According to Valencia (2010), educators with fixed mindsets fail certain student groups as a result of low expectations, alienation, and unresponsive teaching. Various scholars reported students in poverty receive less one-on-one time with the classroom teacher and fewer academic benefits (Jensen, 2010; Lopez, 2017; Rist, 2000). To make learning fair and equitable, changing teachers’ mindsets remains a critical necessity.

To counter this educational mindset of deficit thinking, Lopez (2017) recommended the concept of asset-based pedagogy (ABP). Under the ABP framework, teachers must view a child’s culture as an asset or strength (Lopez, 2017). This challenges the deficit thinking idea “that academic achievement problems of at-risk students are rooted in the cyclical nature of the life of low-SES (socioeconomic status)

families” (Valencia, 2010, p. 113). ABP abandons this idea and promotes the academic progress of perceived at-risk or underserved students. Lopez (2017) recognized the need to combat teachers’ biases toward certain minority groups. Furthermore, Jensen (2009) concurred with other scholars and contributed the idea of an enrichment mindset. In his scholarship review, Jensen (2009) indicated teachers must share the belief that all children can succeed. “When educators believe students are competent, students tend to perform better; conversely, when educators believe students have deficits, students tend to perform poorly” (Jensen, 2009, p. 113). Thus, Howard (2003) recommended teachers reflect on their beliefs to determine if these attributes lead to students’ underachievement because they appear different.

According to Dweck (2008), an individual’s mindset is developed over time. Dweck (2008) identified both a fixed mindset and growth mindset. People who maintain fixed mindsets give up easily, maintain low self-esteem, devalue effort, and blame others for their outcomes. On the other hand, those individuals who maintain growth mindsets confront challenges, refuse to be labeled, persist when making mistakes, and believe in effort and hard work. According to Dweck (2008), those with growth mindsets maintain “the ability to dig down and find the strength even when things are going against you” (p. 92). Moreover, the growth mindset characteristics are learned behaviors. Maintaining a growth mindset serves a pivotal purpose in serving students in inclusive classrooms in American public schools.

Teachers of effective instruction contest the deficit thinking model and spur a growth mindset in students. Therefore, the next section covers teaching practices that

positively impact student outcomes. In this next body of research, teacher effectiveness is included to combat perceived students' shortcomings.

Effective Instruction

Although effective teaching requires making learning equitable and meeting every student's need, the history on teacher effectiveness remains brief (Blanton, Singular, & Correa, 2006). Teacher effectiveness studies existed in the 1940s, 1950s, and 1960s, yet researchers had not connected teachers' classroom practices to student academic achievement until the late 1960s (Cochran-Smith & Lytle, 1990; Shulman, 1986). During this period, Blanton et al. (2006) identified effective classroom teachers as follows:

- teaching classroom rules and monitoring expectations,
- providing clear information and ample instructional time,
- maximizing the opportunity for student response time along with seat work,
- using a brisk pace for lesson delivery and presenting material incrementally,
- and
- providing routine academic feedback (p. 116).

After the 1960s, the teacher effectiveness literature expanded alongside the challenges in the teaching profession, classroom environment, and school community.

In the 1970s, teacher effectiveness studies emphasized research-based instruction as important. This movement included learning to teach and classroom ecology (Fenstermacher & Richardson, 2005). In addition, teacher effectiveness literature expanded focusing on teacher planning, decision making, thinking, beliefs, and experience (Pajares, 1992). These studies increased the momentum for state, federal, and governing board policies such as the Curriculum and Evaluation Standards for School

Mathematics (1989), NCLB (2002), and CCSS (2010). Government policies served to address challenges experienced in teaching, classroom learning environments, and school communities (Blanton et al., 2006). Focusing on research-based instruction in American education, teacher effectiveness shifted to standards-based curriculum.

In 2010, Fry and DeWit studied effective teachers using a different perspective. They studied effective teachers who struggled during their personal K-12 experiences. Teachers with 5 to 40 years of teaching experience were interviewed in this study. As Fry and DeWit concluded their research, the following characteristics of effective teachers emerged:

- They have caring relationships with students.
- They set high standards and help students reach them.
- They connect the curriculum to students' lives.
- They participate in ongoing professional development.

Summarizing their work, Fry and DeWit (2010) indicated these teachers believed all children can learn and took responsibility for each child's learning.

Polk (2006) also studied effective teacher traits. In his scholarly work, Polk identified characteristics based on personal and professional experiences in effective teaching. Both general and music teachers were studied to demonstrate similarities between these teaching practices. Polk's 10 characteristics of effective teachers include "good prior academic performance, communication skills, creativity, professionalism, pedagogical knowledge, thorough and appropriate student evaluation and assessment, self-development or life-long learning, personality, talent or content area knowledge, and the ability to model concepts in content area" (p. 23). Although 10 characteristics were

included in this study, Polk acknowledged this list was not meant to be comprehensive and that more characteristics exist.

In 1999, Williams and Clifford studied effective teacher characteristics of middle-level teachers. This study focused on teachers serving students ages 10 to 15. They discovered effective teachers fitting this profile demonstrated the following personalities:

- Steve Martin, more outrageous and crazy than the students.
- Odd Couple, wild like Oscar but organized like Felix.
- Mother Goose, very caring and understands students.
- Flexible as gymnasts, adjust lesson plans as students need change.
- Albert Einstein, Thomas Edison, and Charles Darwin in the fields were intellectually curious and extremely innovative in teaching.
- Team players like the National Basketball Association's Bulls and Celtics strive to be team players.

According to Williams and Clifford (1999) effective teachers display characteristics similar to children's book characters, television personalities, sporting teams, and innovators in history. Characteristics such as wild and crazy, fun and organized, caring, flexible, intellectual curious, and team players emerged as qualities of effective teachers in this study.

In addition to differentiated instruction and effective teaching, a study on influential teachers remains pivotal in supporting students perceived as marginalized. The following section examines the influence teachers have on students in representing diverse classroom settings.

Influential Teacher

Effective teachers influence students' lives across American public schools. According to Ruddell (1995), these influential teachers are defined as "special teachers whom we recall in a vivid and positive way from our academic experiences, kindergarten through college years, and who have had a major influence on our academic or personal lives" (p. 454). This literature also indicated high achieving students have 3.2 influential teachers in their educational careers, while low achieving students have 1.5 such teachers (Ruddell, 1995). This study, spanning from kindergarten through twelfth grade, demonstrated student perceptions remained similar regardless of students' achievement level.

These teachers manage effective classrooms for students and leave a lasting impression. It is common to remember details about influential teachers such as physical traits, personal attributes, and approaches to teaching (Ruddell, 1995). Students often perceive influential teachers as decisive and goal oriented. These teachers conduct organized lessons and utilize effective teaching strategies. In addition, influential teachers value higher order thinking, negotiate meaning with students, and successfully implement resolution instructional experiences (Ruddell, 1995). Influential teachers are those who have enormous impact on students' lives spanning from kindergarten to the university level.

Ruddell (1995) completed a study focused on influential teachers in public education spanning from primary grades to the university level. This researcher gathered former students to complete a questionnaire with an emphasis on perceptions of

influential teachers. The research discovered influential teachers possessed the following characteristics (Ruddell, 1995):

- Use highly motivating and effective teaching strategies,
- Help students with personal problems,
- Create a feeling of excitement about the subject matter, content, or skill area they teach,
- Exhibit a strong sense of personal caring about the student, and
- Demonstrate the ability to adjust instruction to the individual needs of the student (p. 455).

During Ruddell's research, influential teachers were studied using classroom observation techniques and video recording analysis. It was discovered influential teachers exhibited the following behaviors during instruction (Ruddell, 1995):

- Influential teachers use clearly formulated instructional strategies that provide for instructional monitoring and student feedback on their progress,
- They possess in-depth knowledge of reading and writing processes as well as content knowledge, and they understand how to teach these processes effectively in their classrooms,
- They frequently tap internal student motivation that stimulates intellectual curiosity, explores students' self-understanding, uses aesthetic imagery and expression, and motivates the desire to solve problems, and
- They use sparingly any external student motivation, such as using achievement pressure to "please the teacher" (p. 456).

These characteristics were consistently observed, setting the influential teacher apart from other teachers.

Lastly, Ruddell's (1995) study discovered influential teachers consider "use of meaning negotiation" while working with students (p. 458). Influential teachers recognize students bring meaning of a given text to classroom conversations. Teachers also possess a perspective they bring to the conversation. During the act of collaboration, all classroom community members share their views of the text to develop meaning. This synergy established by students and teachers serves as the influential teacher's unique abilities. The following section examines teachers' perceptions on effective instruction in meeting the diverse students' needs.

Teachers' Perceptions

Students sitting in American inclusive classrooms today learn in various ways. They attend school at different readiness levels, cultural interests, and learning preferences (McLaughlin & Talbert, 1993). Diverse classrooms are realities, thus overlooking the need to differentiate instruction to support each student is unreasonable. Fostering classroom environments where every child learns equitably serves as the educational goal. Learning requires more than providing the same materials for each student. Teachers bear the responsibility to ensure every child learns effectively and receives an opportune education (Lou et al., 1996). Teachers are expected to develop classroom methods to serve students coming to school with diverse learning styles (Tomlinson, 2003).

Although learning accessibility for every child serves as the goal, research shows classroom teachers minimally modify curriculum (Tomlinson, 2003). Two studies, one

high school and one middle school, demonstrate teachers differ in opinion regarding the need to address academic diversity. Hootstein (1998) discovered 90% of high school teachers surveyed believe addressing academic differences as important or very important. A second survey conducted by Moon, Tomlinson, and Callahan (1995) found 50% of middle school teachers believe differentiated instruction as necessary to meeting diverse students' needs. Data were not reported for teachers serving primary grade levels. With an emphasis on third- and fourth-grade teachers in this study, discovering teachers' perceptions on implementing differentiated instruction is necessary to make learning accessible for every child in inclusive classrooms at primary grade levels.

According to Schumm and Vaughn (1991), teachers avoid implementing differentiated instructional strategies for multiple reasons. First, teachers believe attention is diverted to students with deficits. Second, teachers lack the accountability necessary to differentiate instruction. Third, teachers lack awareness to serve diverse student needs in inclusive classrooms. Fourth, teachers believe differentiated instruction provides special student treatment in a challenging world that fosters homogeneity. Finally, teachers refuse to modify curriculum for accelerated learners, or they lack training to support modifications to reinforce accelerated learning. According to Johnsen, Haensly, Ryser, and Ford (2002), teachers resist making changes to meeting diverse students' needs, planning meaningful lessons, and finding alternative ways to assess student learning.

Covering multiple CCSS in classrooms serves as a barrier to ensuring each child receives equal access to learning. Teachers race to meet demands attributed to rigorous schedules and curriculum-based standards. Students' learning and deeper understanding are sacrificed due to these demanding schedules and standards. Teachers struggle to

identify critical “concepts, ideas, and skills” to serve as structures for making adjustments to accommodate student academic growth (Schumm & Vaughn, 1991; Tomlinson et al., 1997; Vaughn & Schema, 1994). These challenges increase due to high-stakes testing mandates imposed by federal legislation such as NCLB (Callahan, Tomlinson, Moon, Brighton, & Hertberg, 2003; Vaughn & Schema, 1994). Although mandates require teachers to teach standards-based curriculum and prepare students for high-stakes testing, they need to be responsive and adapt instruction to provide strategies so all students learn (Wormeli, 2006). The literature demonstrates teachers focusing on standards over academic differences causes setbacks for students.

The literature also finds teachers accept diverse student populations into their inclusive classrooms. In addition, teachers treat students with diverse academic needs fairly (McIntosh, Vaughn, Schumm, Haager, & Lee, 1994; Schema & Vaughn, 1995). Although teachers show impartiality, they lack the urgency to adopt strategies to support each learner. Teachers ignore strategies such as adjusting the curriculum, changing the instructional mode for learning, establishing long-range goals, or modifying grading systems (McIntosh et al., 1994). Teachers make some adjustments such as providing reinforcement and building relationships with students (Schumm & Vaughn, 1991), but these practices do not address the needed depth of refined pedagogical adjustments. Addressing diverse student learning needs requires more than a willingness to accept students into the inclusive classroom.

Due to past experiences and historical events in American education, culture and race impact the way children feel about school. These two elements influence attitudes and learning styles, causing academic and social emotional drawbacks in inclusive

classrooms (Tomlinson, 2003). Also, teachers draw negative perceptions about students demonstrating reading deficiencies and difficulties in mathematical computation (Tomlinson et al., 1997). When this occurs, students get overlooked as they do not represent the dominant culture. Students go unnoticed, which limits the skills needed inside and outside classrooms (Burstein & Cabello, 1989, Delpit, 1995; Lasley & Matcynski, 1997). Studies find some students in more challenging positions than others. For example, ELL students with disabilities find themselves in a double quandary. Although teachers recognize language barriers and disabilities in such children, they ignore differentiated instructional strategies, scaffolding opportunities, and modifications to provide quality instruction (Fletcher, Bos, & Johnson, 1999). The literature indicates the significance in getting to know each student in the inclusive classroom. Understanding the students' culture, language, and academic progress serves as the key to reverse teachers' perceptions.

In today's inclusive classrooms, differences remain inevitable; and providing equal access to learning is the means to providing effective instruction. More research is necessary to change teachers' perceptions and correct the inability to provide all students an equitable education. The goal in this research is to clarify direction using frameworks to support teachers in the quest to effectiveness. The following section begins describing critical elements in this research as to supporting students in diverse classroom settings.

Inclusive Classrooms

As noted, student diversity is notable in inclusive classrooms in American public education. Students attending school possess diverse academic abilities, approaches to learning, personality traits, and cultural differences. Peering into inclusive classrooms

today reveal homogenous ability groupings represent past experiences in history. Inclusive classrooms best describe present school environments. The literature refers to these classrooms using multiple terms such as *mixed-ability*, *streaming*, or *heterogeneous environments*. Students sharing diverse learning needs such as multiple ability and academic levels make up inclusive classrooms. According to Webb (1991), “Typically, the high-ability students consist of the top 25% of their class, the low-ability students the bottom 25%, and the average-ability students the middle 50%” (as cited in Saleh, Lazonder, & Jong, 2007, p. 315). Preparing teachers to meet the diverse cultural, linguistic, and achievement levels in inclusive classroom settings fosters an equitable learning experience for children.

Teachers strive to develop each student academically using curriculum-based standards. In inclusive classrooms, teachers use flexible options to maximize student learning in one-on-one scenarios, small groups, or whole group instruction. Teachers use grouping strategies according to what he or she deems appropriate. Teachers anticipate struggling students in inclusive classrooms. Describing students in these classrooms, Tomlinson (2001) shared,

They are a diverse group who can challenge the artistry of the most expert teacher in listening deeply, believing unconditionally, and moving beyond a recipe or blueprint approach to teaching to shape classrooms that offer many avenues and timetable to understanding. (p. 13)

Before planning lessons using a standards-based curriculum, understanding the diverse student learning needs in inclusive classrooms takes priority above anything else.

Recognizing the student struggles and responding to the diverse student needs fosters effective instruction in inclusive classrooms.

Critical Thinking

In school, children are expected to critical think in the hallways, cafeteria, classrooms, and on the playground. As students interact with others and in the environment, it is expected they make sensible decisions and draw appropriate conclusions. Critical thinking is more than making mindless decisions and reacting to one's emotions (Moore & Parker, 2012). Throughout the school day, students form opinions and pass judgment in various situations. Critical thinking occurs when children critique their own thinking and the thinking of others. Furthermore, they use their internal gauge to assess the circumstances at hand. According to Moore and Parker (2012), "Critical thinking involves thinking about thinking; we engage in it when we consider whether our thinking (or someone else's) abides by the criteria of good sense and logic" (p. 2). Making mistakes plays part in this process. As students reflect on their choices and receive critical feedback, they utilize their reasoning skills to make better decisions. Moore and Parker (2012) further explained, "Our chances of thinking well improve, in other words, if we think critically: if we critique our own thinking as a thinking coach might" (p. 2).

To plan for critical thinking, Gershon (2012) recommended teachers use Bloom's Taxonomy. Developed in the 1950s and updated at the turn of the 21st century, Bloom's Taxonomy categorizes cognitive thinking into six categories: knowledge, comprehension, application, analysis, synthesis, and evaluation. Bloom's Taxonomy starts with lower level thinking on the left and progresses to higher level thinking on the right. "When asking questions of pupils, either individually, in groups or as part of whole class, you can use the levels of Bloom's Taxonomy as an ordering tool" (Gershon, 2012, p. 4).

Struggling students connect to prior knowledge when the classroom teacher asks lower level questions of Bloom's Taxonomy starting at the knowledge and comprehension level. As a student's understanding becomes more sophisticated, asking higher order questions moving up the Bloom's Taxonomy spectrum such as application, analysis, or synthesis level are suggested.

As critical thinking is a significant element in this study, Bloom's taxonomy serves as an important instrument. As students come from various cultural, linguistic, and achievement levels, teachers need to prepare to serve students over the wide Bloom's taxonomy spectrum from lower to higher levels in thinking. To increase students' critical thinking abilities, Gokhale (1995) advocated for collaborative group work. The grouping concept supports the notion each student's success equates to total group success. As students engage and share ideas collaboratively, critical thinking develops. According to Gokhale (1995), individual critical thinking increases when students collaborate in small groups.

Peer-to-peer interaction is rooted in the work of Lev Vygotsky (1978), who believed students learn at higher critical thinking levels when actively participating in group work. As students work together, information gets shared. Students engage in conversation and take ownership in learning regardless of the learning level they exhibit on Bloom's Taxonomy. The literature supports students retain more knowledge and information through peer-to-peer interaction rather than working independently (Gokhale, 1995). In addition, each active participant processes the learning internally, which influences the ability to critically think.

Design Thinking

One way to foster critical thinking is through design thinking. According to Brown and Katz (2009), technology changes the way people view the world and provides a new perspective which people never imagined. Emerging challenges face today's society such as drought conditions in the Southwestern United States to the global climate change phenomenon. These life-altering threats require more than technological advances to solve. Brown and Katz (2009) explained, "Society needs a new approach to innovation that aligns the needs of human beings and the natural world" (p. 2). To fulfill that human void, design thinking was introduced. As Brown and Katz stated, "More recently, designers have begun applying design principles not just to physical products, but also to consumer experiences, to production and interaction processes, and to improvements that make existing products more appealing or functional" (2009, p. 2). Today, using design thinking in retail and professional environments remains common. In addition, design thinking has made its way into American public education classrooms.

Design thinking encompasses various innovative stages in a team where members possess common interests. It involves ongoing collaboration to foster similar ideas and quick manufacturing. According to Brown and Katz,

"Innovators use design-thinking to move through three general phases: During 'inspiration,' they experience a 'problem or opportunity' that sets them in motion; during 'ideation,' they generate and test ideas; and during implementation, they move their innovation 'from the project room to the market'" (2009, p. 3).

Design thinking begins with creative thinking and moves to problem solving. In time, a project results from the innovator's work. To be successful, design-thinking requires risk taking, support play and new ideas, accepting failure, and limited emphasis on regulation or efficiency (Brown & Katz, 2009).

Grouping Students

Using design thinking as a differentiated instructional strategy, grouping is suggested for meeting students' needs. Based on common formative assessment results, teachers group students by learning styles and short-term goals to meet academic standards. When determining grouping arrangements, teachers consider each student's needs, interests, learning styles, and heterogeneous development. Specific grouping strategies may fluctuate to support students in meeting learning goals.

Grouping students by need, teachers arrange students based on skill level when appropriate. Using common formative assessment results, teachers sort students and regroup them to provide support during instruction. For example, teachers group accelerated learners to provide them a quicker pace to learning at higher levels to challenge their academic progress. According to Levy (2008), "Ability groups are not stagnant; they change each time we assess the children" (p. 163).

Grouping students by learning styles emphasizes the ways students learn. Through this approach, learning represents the various academic behaviors emphasized in tools like Bloom's Taxonomy. Students who learn verbally depend on discussions with others to understand subject matter. Students who learn through auditory methods develop understanding using what the teacher says verbally. Visual learners draw the most learning from charts, writings, diagrams, and other graphics the teacher posts in the classroom. Whereas, the kinesthetic learner builds an understanding through hands-on experiences in the classroom. According to Levy (2008), "There are times when one of each in a group should work together so they can learn from each other. There also are

times the builders should be in one group and the writers in another so they can work for a common goal” (p. 163).

Likewise, grouping students by interests appears most common in inclusive classrooms. For example, teachers place students interested in researching oceans in the same group to support each other’s learning. Students interested in other topics get placed in groups elsewhere based on the subject.

Finally, heterogeneous grouping refers to whole group instruction, which is sometimes necessary. Levy (2008) stated, “In this heterogeneous grouping, we are teaching on a level that meets the needs of all the children in the classroom with the knowledge that the needs of individual students will be addressed elsewhere” (p. 163). Based on learning styles, smaller groups get pulled after whole group instruction by the teacher to focus on specific academic needs. In addition, students identified as gifted or special education may receive support by a specialized teacher in small group settings.

Gradual Release of Responsibility (GRR)

One effective model used to support design thinking and grouping is GRR. During lesson progression, GRR shifts the cognitive load from the classroom teacher at the beginning to the students at the lesson’s ending. The steps include teacher modeling, shared responsibility, and individual practice (Fisher & Frey, 2014). GRR promotes Vygotsky’s idea that students develop intellectually by interacting with classroom peers before engaging in independent practice, especially as the teacher plans for intentional learning.

Four constructs make up the GRR model. First, focused learning requires the classroom teacher to establish instructional purpose. Second, guided instruction is

conducted as the teacher places students in small groups to foster purposeful learning based on academic needs. Third, productive group work serves to promote collaboration amongst students as they formulate ideas and deeper content understandings. Productive group work is initiated by focused learning and guided instruction. Finally, independent learning occurs as students put new understandings into practice by using key ideas, content knowledge, and instructional strategies under unique circumstances organized by the teacher (Fisher & Frey, 2014).

To summarize this section, GRR includes the classroom teacher's ability to understand content, assess students' understanding, and plan purposeful instruction to integrate information to support the cognitive load shifting from teacher to student by the lesson's end (Fisher & Frey, 2014). In the following section, culture, linguistics, and achievement levels are explained.

Culture, Linguistics, and Achievement Levels

Culture. The term *culture* encompasses multiple meanings depending on one's experience. Some scholars interpret the term as divisive and another way to separate people by characteristics such as race, ethnicities, and linguistics. For example, Artiles (2015) asserted, "The designation of difference comes with consequences for those groups that impinge upon educational and other key opportunities; in short, being different heightens one's vulnerability to injustices" (p. 1). Although culture has been linked to injustices and deficit thinking models in public education, the term's use in this study resists that approach. Instead, culture refers to the multi-ethnic and multilingual student population served in the school at the center of this research. The ongoing shift and change in students' family and their communities are considered when referring to

the term culture. Fostering an environment where teachers and school personnel embrace and value culture as “dynamic, shifting, and ever-changing” represents the term culture in this study (Paris, 2012, p. 94).

Teachers in American classrooms today serve students representing various cultures. Unfortunately, not all teachers receive training to support the diverse cultural needs in inclusive classrooms. This lack in teacher experience results in culturally and linguistically diverse students being over-identified for special education programs (van Garderen & Whittaker, 2006). The literature indicates the students showing the least academic growth on statewide and national assessments include Latinos, African Americans, Native Americans, some Asian Americans, and students with disabilities (van Garderen & Whittaker, 2006). This over-identification associates underachievement to minority students and their families. It remains rare to place responsibility on the academic curriculum, teacher pedagogy, school organization, or inequalities in American society (van Garderen & Whittaker, 2006). Although teachers at the secondary education level experienced promising growth in assessments, especially with special education students, the achievement lags behind. The growth does not compare to increases made by their grade-level classmates. Differentiated instruction serves to embrace cultural diversity and develop inclusive classroom environments. The teacher plans instruction while considering the important components of multicultural education (Salend, 2005). Differentiated instruction focuses on improving students’ knowledge, academic skills, and attitude toward success in an ethnically diverse setting (Banks, 2002).

According to van Garderen and Whittaker (2006), there are five components for better serving culturally diverse student populations. Those components include content

integration, knowledge construction process, equity pedagogy, prejudice reduction, and empowering of school and social structure. First, content integration represents the teacher's ability to embed ideas and examples from students' cultures into the subject matter and instruction. The literature shows an increase in student achievement as students experience their own language and culture in the inclusive classroom. Second, knowledge construction process serves as the teacher's ability to include instruction using various viewpoints. The teacher helps students examine textbooks and visuals to critically examine the use and development. Third, equity pedagogy refers to the various approaches teachers use to meet the varying student learning styles in inclusive classrooms. Fourth, prejudice reduction emphasizes the need for students to embrace human diversity and develop a positive attitude. Finally, empowering school culture and school structure represents the need to adopt an educational equality system. For example, classrooms serve as all-inclusive settings where students get access to materials and equitable opportunities in every educational aspect. These suggested components serve to improve teacher effectiveness when reaching culturally diverse student populations.

Linguistics. Linguistic diversity refers to the various students who are learning “English as a new or additional language” (Jimenez & Rose, 2010, p. 404). Echevarria, Frey, and Fisher (2015) conducted research on English language learners (ELL). In this literature, ELLs require four components to receive effective instruction: access, climate, expectations, and language instruction. First, access refers to ensuring the core academic curriculum is comprehensible to all students. To ensure access to a comprehensible curriculum, the study suggests teachers use scaffolding strategies to differentiate

instruction, model the outcome, and provide language support. Also, this study recommends teachers focus on vocabulary development, provide visuals, and embed collaborative conversations to support students. Providing students comprehensible access offers an equitable learning experience in inclusive classrooms.

Second, climate plays a critical role in learning effectiveness to support ELL students. The literature indicates that positive relationships between the teacher and students foster high level learning. ELLs perform at higher levels when the classroom teacher builds on students' differences, especially learning modalities, behavior, and language use (Gay, 2000). Students feel supported in classrooms where their beliefs, experiences, and native languages get valued. Student engagement increases when strong partnerships between home, school, and the surrounding community develop. Validating ELLs' progress promotes strong relationships between students, teachers, and families (Ladson-Billings, 2001).

Third, the literature recommends teachers set and maintain high learning expectations for ELL students. Teachers' attitude impacts student achievement. Teachers who demonstrate ELLs are incapable of success connect the students to low expectations and family socioeconomics; however, poverty is not a predictor of success (Goldenberg & Coleman, 2010). ELLs stand capable of learning at high levels, especially if they master their native language, and receive effective instruction. Echevarria et al. (2015) recommended teachers regularly communicate expectations to support ELL students. ELLs perform according to teachers' attitude toward students' capabilities. Using academic language and explicitly defining expectations to ELLs serve as being necessary to increase student achievement. ELLs deserve access to rigorous programs and

accelerated coursework. Setting high learning expectations to maximize learning for second language learners maintains equity in education.

Fourth, the research by Echevarria et al. (2015) recommended explicit language instruction. The literature suggested teachers focus on academic English during instruction. The researchers emphasized the need to focus on vocabulary, grammar, oral language, and literacy skills. To assist in student learning, writing language objectives in the classroom supports ELLs. Posting and communicating language objectives enhance students' ability to identify the language behavior expected. Ignoring a focus on language instruction, students stay at an intermediate level in the English language (Echevarria et al., 2015). This results in students being identified as long-term ELLs.

Student achievement. In American inclusive classrooms, teachers serve students at varying achievement levels. Morgan (2014) recommended teachers determine students' academic strengths and challenges to help each child maximize his or her learning potential. How does the classroom teacher help the unmotivated, low achieving, or accelerated learner? Tomlinson (2010) recommended three approaches to instruction to support students representing multiple achievement levels. She emphasized the need for teachers to find student interests, compact the curriculum, and allow flexibility in instructional pacing.

First, lack of interest in instructional subject matter causes students to disengage in learning. Tomlinson (2010) recommended teachers get to know the students well to determine ways to motivate learning. According to Ellis (2010), students feeling engaged in classroom activities remains a result of teachers stimulating interest in a nurturing environment. Students learn more when they can relate to the content. Morgan (2014)

encourages teachers to embed independent learning as a scaffolding strategy to support student interests. For example, to engage all learners, the teacher plans independent activities to implement during instruction with the students in mind. Also, the literature recommends teachers demonstrate how subject matter relates to student interest areas in the classroom. Finding interest areas and keeping students engaged serve as critical factors to foster student success in inclusive classrooms (Morgan, 2014).

Second, students attend school at varying readiness levels. Compacting the curriculum is a strategy teachers use to start the curriculum based on the learner's academic needs. Not all students in the classroom prepare to start at the same point. Teachers bear the responsibility to find each student's starting point (Tomlinson, 2010). The literature recommends using pre-assessments in the subject matter. The pre-assessment result determines the teacher's starting point in the curriculum. Implementing this strategy, keeping each student challenged serves as the key to success. As students display different readiness and skill levels, teachers plan alternate assignments. For example, a student at a reading deficient level needs scaffolding support using discussions to relate to the subject matter (Morgan 2014). In such cases, teachers extend support and provide basic reading strategies to assist the learner. Tomlinson (2010) recommended teachers prepare to adjust depending on the students' readiness level.

Finally, students achieving at higher levels need stimulation as well (Morgan, 2014). High achievers pursue topics beyond the curriculum often. The literature recommends teachers stay flexible and allow these students to explore new learning. At times, high achieving students inquire about topics above their grade level. These students deserve equal access to learning similar to the unmotivated or students equipped

at different readiness levels described above. Tomlinson (2010) encourages teachers to allow students time for independent study to investigate interesting topics. Rather than limit high achievers' growth, Morgan (2014) recommended teachers enrich learning and embed time to explore content in the lesson.

To support teachers in the quest to meet the diverse students' needs in cultural, linguistic, and academic progress in inclusive classrooms, the following frameworks and theoretical perspective grounds the research in this study. In the section that follows, Cultural Responsive Teaching, Linguistically Responsive Teaching, and Vygotsky's sociocultural theory are discussed.

Frameworks and Theoretical Models

Cultural Responsive Teaching

One way to legitimize the participation of culturally linguistic students and families in the school environment includes cultural responsive teaching (CRT). The CRT framework includes aspects of culturally relevant pedagogy (CRP) which includes academic success, cultural competence, and critical consciousness (Ladson-Billings, 1995). According to Ladson-Billings (1995), academic success maintains that all students develop academic skills. Cultural competence indicates students to learn by maintaining cultural integrity. Critical consciousness entails engaging students to view society through a critical lens. Both, CRT and CRP, pedagogies are pivotal in combatting deficit thinking ideologies. In addition, they support growing all students' academic skills, affirm cultural traditions, and draw on each child's sociopolitical background as an asset in inclusive classrooms (Ladson-Billings, 1995; Scanlan & Lopez, 2015). For the purpose of this study, CRT serves as the pedagogy most commonly referenced.

Santamaria (2009) offers CRT as a framework to support culturally diverse student populations. In her scholarly work, CRT is composed of three indicators: academic achievement, cultural competence, and sociopolitical consciousness. The first descriptor, academic achievement, indicates all students possess learning capabilities. Student achievement refers to the classroom setting context. Under the academic achievement indicator, the classroom teacher gets to know each student and gains a good content understanding. The teacher serves as a learning facilitator to support each student's critical development in the inclusive classroom. Student achievement serves as a multi-dimensional concept.

The second indicator is cultural competence. This indicator refers to the teacher's cultural understanding of the students represented in the classroom. Also, the teacher recognizes the role culture plays in education under cultural competence. The teacher learns about each student's culture and makes connections to the surrounding community. Implementing cultural competence requires the teacher to use the students' cultures as a foundation to classroom learning. For example, the teacher uses "students' local and global culture" in response to learning (Santamaria, 2009, p. 224).

The third indicator is sociopolitical consciousness. Santamaria (2009) recommended the classroom teacher know the sociopolitical context of not only the school, but also the surrounding "community, state, nation, and world" (Santamaria, 2009, p. 224). Furthermore, teachers develop academic experiences connecting to students' understanding. Teachers tap into students' experiences about the larger social context and make connections. Sociopolitical consciousness refers to promoting success and leading students to a healthy living.

The CRT approach provides students' support, especially those historically performing at low-achievement levels. CRT recommends enhancing success rates in schools serving culturally diverse students. This framework empowers students to develop socially, emotionally, and intellectually (Ladson-Billings, 1994). Students receive one-on-one mentoring both personally and academically. Teachers focus on developing students' survival skills and self-advocacy. In addition, CRT promotes critical thinking, cooperative learning, and peer-tutoring. Teachers use cultural references representing students in the inclusive classroom to make an impact on attitude, knowledge, and academic skills (Ladson-Billings, 1994). Individual students receive recognition, and group accomplishments get reinforced. The CRT approach fosters effective teaching and learning environments to support culturally diverse student populations.

Linguistically Responsive Teaching

Lucas (2011) proposed Linguistically Responsive Teaching (LRT), a scaffolding framework to support ELLs. This framework identifies four components including extra-linguistic supports, supplement and modify written text, supplement and modify oral language, and provide clear and explicit instructions. First, extra-linguistic support offers students several ways to access subject matter to increase language development. Lucas (2011) suggested teachers use visual cues such as videos, photographs, illustrations, and props alongside instruction to provide clarity. The literature suggests teachers role-play and use assimilations during instruction to stimulate learning. These strategies enhance student memory in ways reading or listening fall short.

Second, Lucas (2011) recommends teachers supplement and modify written texts. Brown (2007) suggested teachers design study guides to support students in critical vocabulary, questioning strategies, and important concepts. This literature encourages teachers to summarize important ideas and highlight key details during reading. Another way to support students requires teachers to rewrite reading sections to prevent language barriers to understand text (Verplaetse & Migliacci, 2008).

Third, supplement and modify oral curriculum serves as a component in the LRT framework. Lucas (2011) suggested teachers refrain from using idioms in the classroom. Idioms lead to confusion as ELLs interpret them literally. Yedlin (2007) recommended teachers translate important ideas into the students' native language. The ELL learning process requires teachers to embed repetition into instruction. Using familiar vocabulary students know and understand supports the ELL students. Providing examples and outlining key information helps students illustrate mental meanings. Verplaetse and Migliacci (2008) recommended teachers pause more than usual to increase student understanding as well.

A final strategy in this LRT framework serves to provide clear and explicit instructions. Giving detail as often as necessary, especially for assignments, supports ELLs. When teachers presume all students understand, this action leads to confusion and mistakes. Lucas (2011) suggested teachers refrain from using shortcuts and post critical information on dry-erase boards or document cameras projecting to a classroom screen. In addition, the literature suggests teachers ask students to repeat instructions to ensure an explicit understanding of the expectations. Table 1 further explains the LRT scaffolding framework to support ELL students to learn at their greatest potential.

Table 1

Scaffolding for Linguistic Response Teaching

Elements of ELL Instructional Scaffolding	Strategies for Implementing ELL Instructional Scaffolding
Use extra-linguistic supports	<ul style="list-style-type: none"> • visual cues (pictures, illustrations, videos, slides, regalia) • Graphic organizers (charts, graphs, timelines, semantic webs) • Hands-on activities (role playing, dramatizations, simulations, games) • Alternative assignments (drawing maps, charts, or graphs; doing picture presentations)
Supplement and modify written text	<ul style="list-style-type: none"> • Study guides (lists of important vocabulary and outlines of major concepts to be studied) • Adapted text (reduced readability demands to remain faithful to the meaning of concepts) • Highlighted texts (highlight key vocabulary, central ideas, major concepts, summary statements) • Notes in the margins of the textbook • Summary of central ideas on the board, overhead or LCD panel
Supplement and modify oral language	<ul style="list-style-type: none"> • Minimize the use of idiomatic expressions • Translate key concepts into students' language • Explain difficult words and ideas • Provide outlines of lectures/lessons • Give examples • Pause more frequently and for longer periods of time • Build repetition and redundancy into instruction
Provide clear and explicit instructions	<ul style="list-style-type: none"> • List procedures for completing a required task on paper or on the board • Ask students to repeat directions in their own words • Include all details in the instructions; do not take shortcuts

Note. (Lucas, 2011, p. 66)

Vygotsky's Sociocultural Theory

Educators commonly use group work for instructional purposes. Beginning in the 1970s, researchers recognized group work as a critical element for learning. Lev

Vygotsky, a well-known social scientist, studied ways people learn in social situations (Jaramillo, 1996). Vygotsky's work on peer-assisted learning received worldwide attention. He insisted collaboration as an important element to intellectual development. People learn in social interactions during group work. These interactions open pathways for complex ideas, thinking, and understanding. First, social interaction occurs, then independent cognition (Jaramillo, 1996). As educators implement group work strategies in inclusive classrooms, students learn critical thinking skills from other peers.

Vygotsky's sociocultural theory presented a framework to capture the significance in group work to support effective instruction. Designing quality instruction involves group work to support each child's success and academic ability. Vygotsky's sociocultural theory describes "learning as a social process and origination of human intelligence in society or culture" (Vygotsky's Sociocultural Theory, 2016). As cognitive thinking develops, social interaction impacts the learning process. According to Vygotsky, group work and interactions with other participants shape the learner's view of the world.

Sociocultural theory embodies two constructs, group interactions and the zone of proximal development (ZPD). Starting with the first construct, interaction with others, Vygotsky described (Vygotsky's Sociocultural Theory, 2016):

Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first between people (inter-psychological) and then inside the child (intra-psychological). This applies equally to voluntary attention to logical memory, and to the concept formation. All of the higher functions originate as actual relationships between individuals. (para. 3)

The second construct known as zone of proximal development (ZDP) serves as the space of discovery. People develop cognitively through social interactions to maximize each

participant's learning capacity. The classroom teacher or knowledgeable peers support learning in this phase. Support provides the learner with "scaffolding to support the student's evolving understanding of knowledge domains or development of complex skills" (Vygotsky's Sociocultural Theory, 2016, para. 4).

Vygotsky believed people construct meaning as part of a sociocultural phenomenon. Vygotsky's theory requires social interactions between people. Without interaction, learning remains limited to the student's individual experiences. Interacting with others changes a child's disposition. As new information gets exchanged through collaboration, group work serves to foster learning in the classroom. Productive group work provides a vehicle to advance students to higher levels in thinking, understanding, and mastery.

Each framework presented above maintains limitations. Starting with CRT, the literature indicates shortcoming in recognizing the student diversity levels in English language development (Santamaria, 2009). Students in the United States come from various backgrounds and sometimes speak multiple languages. CRT falls short in emphasizing linguistic diversity. Next, teachers perceive LRT as a specialist teacher's responsibility. Teachers lack training in supporting ELL students, and teachers believe LRT to be someone else's job assignment (Lucas, 2011). Also, teachers discover challenges in modifying the curriculum to embed ELL scaffolding strategies. Finally, Vygotsky's sociocultural theory, although an effective approach to learning, Arivitch and Haenen (2005) argued the theory does not go far enough. Sociocultural theory receives criticism for being vague and unsubstantiated (Ormrod, 2012). The literature indicates that reasoning skills develop at different ages, especially in varying cultures. These

frameworks contribute to supporting the cultural, linguistic, and achievement level diversity in inclusive classrooms today, but what does this look like? The next section describes one scenario in today's American inclusive classroom.

Scenario 2.1

Each year, Alejandro gets promoted from one grade level to the next. Alejandro performs academically two years below his grade level peers. He struggles to read and gets embarrassed easily when Mr. Roberts draws attention to him in the classroom. After one month of school, Mr. Roberts notices Alejandro day dreams frequently. In addition, Alejandro causes classroom disruptions and asks to use the restroom regularly. Recently, Mr. Roberts called Alejandro's parents and discovered his grandmother serves as his legal guardian. After the phone call, Anthony's behavior improved for a few days but his grades continued to plummet. Mr. Roberts seeks advice from Alejandro's previous teacher and discovers Alejandro was never a behavior problem. Through this discussion, Mr. Roberts learns Alejandro was abandoned by his mother when he was a toddler, he is a second language learner, and the family arrived three years ago from a Native American reservation.

Serving students such as Alejandro in Scenario 2.1 remains a reality in American inclusive classrooms. To maximize Alejandro's potential, Mr. Roberts needs a broad repertoire of teaching strategies to make learning fair and equitable. The CRT framework provides Mr. Roberts a tool to support Alejandro. Advanced planning serves as a critical step to assist in these efforts (Tomlinson, 2003). In this case, CRT strategies may include planning home visits, developing group assignments, providing feedback opportunities, and using culture as a foundation to learning. First, organizing home visit meetings with Alejandro's guardian provides Mr. Roberts the opportunity to discover the student's interests and academic profile. Also, home visits allow Mr. Roberts the opportunity to build a relationship with Alejandro's family, learn about his culture, and gather key data about interests outside of school (Ladson-Billings, 2001). Using the CRT framework, Mr. Roberts lays the foundation for discovering Alejandro's strengths and showing an interest

in the child's academic progress (Ladson-Billings, 2001). Second, the literature recommends Mr. Roberts plan strategic group arrangements and assignments. Group work is a way for team members to complement each other's strengths. Since Alejandro is below grade level in reading and a second language learner, therefore, it is imperative to place him in a group of at least one competent reader and another student who speaks his native language. Cooperative group work serves as a critical strategy for ELLs representing "socioeconomic, linguistic, or cultural disadvantages" in the American public education system (Santamaria, 2009). Third, Mr. Roberts needs to plan to give academic feedback to Alejandro frequently to encourage academic achievement. The CRT literature suggests Mr. Roberts meet with Alejandro one on one to provide feedback or visit his group regularly to facilitate learning. Finally, to keep Alejandro's interest, the literature suggests Mr. Roberts maintain cultural sensitivity and redesign curriculum to include students' cultural references (Ladson-Billings, 2001). This teaching style validates Alejandro's culture and demonstrates Mr. Roberts assumes responsibility to help students connect with the subject matter (Gay, 2000). Generating a high level of content interest is critical to Alejandro's success.

To satisfy Alejandro's linguistic needs, Lucas (2011) recommended the following LRT strategies. They suggest Mr. Roberts embed hands-on learning, model the expectations, and synthesize the learning strategies. First, hands-on learning serves to keep Alejandro engaged. Hands-on learning includes using manipulative, graphic organizers, interactive study-guides, and active group participation to support Alejandro for success in the classroom (Lucas, 2011). Second, modeling the expectation remains critical. The literature suggests Mr. Roberts use embedded examples, do model thinking

aloud, and limit idiom usage (Lucas, 2011). This provides the visuals and clarity necessary to support Alejandro during instruction. Third, synthesizing learning entails highlighting critical information throughout instruction. LRT strategies to synthesize information includes orally reviewing key ideas, explaining key vocabulary, and allowing students to summarize learning during classroom discussions (Lucas, 2011).

According to Vygotsky's sociocultural theory, learning occurs through social interaction in a group setting. During instruction in the inclusive classroom, students such as Alejandro collaborate and adopt ideas from other members on the team. This experience allows Alejandro to engage in peer-to-peer discussion. Alejandro, for example, processes information and develops an understanding in his context. While actively participating in the group, Mr. Roberts' responsibility is to push Alejandro through the ZPD. According to Tomlinson (2003), participants develop cognitively through collaboration known as the discovery space. Mr. Roberts serves to ensure each student receives an adequate challenge level to maximize his or her learning potential. Although monitoring Alejandro in the classroom is required, new learning occurs at the ZPD level. Mr. Roberts serves to facilitate learning as Alejandro transfers the information in the classroom repetitiously until the new learning becomes an independent practice.

Most teachers are underprepared to meet the growing demands of cultural, linguistic, and achievement level diversity in today's classroom. The literature suggests teachers acquire a broad repertoire of strategies to support student success. Differentiated instruction is a method allowing all students access to the same curriculum as teachers plan learning goals tailored to each child's learning need (Watts-Taffe et al., 2012). CRT, LRT, and Vygotsky's sociocultural theory provide the differentiated instructional support

necessary to move this vision along. CRT supports the academic achievement, cultural competence, and sociopolitical consciousness elements to represent students served in inclusive classrooms. Students perform at higher achievement levels when teachers maintain cultural sensitivity. LRT provides students with scaffolding structures to support student success. To foster high achievement levels, linguistically diverse students need extra-linguist support, modified written tasks, modified oral curriculum, and clear and explicit instruction (Lucas, 2011). Vygotsky's sociocultural theory emphasizes the significance of collaborative group work in learning to support critical thinking. CRT and LRT students learn through the social interaction with others including more knowledgeable peers and the classroom teacher. As teachers plan lessons to promote critical thinking, it is imperative to develop learning at the appropriate ZPD levels. Teachers bear the responsibility to ensure learning is challenging to build students critical thinking skills. Collectively, these structures support teachers to provide fair and equitable learning for all students. Diversity is the key to maintain an appropriate level of challenge for every child no matter the cultural, linguistic, or achievement level.

CHAPTER 3

METHOD

This action research study served to examine teacher effectiveness in supporting students' critical thinking skills by implementing differentiated instructional strategies in eight 3rd- and 4th-grade inclusive classrooms. As the researcher, I facilitated professional development on differentiated instructional strategies for third- and fourth-grade teachers to increase teacher effectiveness. By developing teachers' differentiated instructional strategies, I examined how the new learning impacted students' critical thinking skills. I used five different research methods to collect and analyze data. Sequentially, this information addressed the following research questions:

1. How do third- and fourth-grade teachers perceive their instructional effectiveness to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms?
2. How do differentiated instructional strategies influence third- and fourth-grade teachers' abilities to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms?
3. How can third- and fourth-grade teachers make further use of differentiated instruction to support students' critical thinking skills across cultures, linguistics, and achievement levels to increase student achievement?

Action Research

During this study, I engaged in the action research method as I facilitated professional development for third- and fourth-grade teachers. Professional development trainings were on-going with an emphasis on action-oriented outcomes following each

meeting. Action research was the best research method to gather data to determine if the treatment impacted students' critical thinking skills once the differentiated instructional strategies were implemented in the inclusive classrooms.

Action research presents an alternative to traditional research. Mertler (2014) indicated, "Action research is a systematic approach to inquiry by teachers, administrators, counselors, or other invested school personnel conducting a study to determine ways to improve the teaching and learning practice in a particular environment" (p. 4). Action research studies focus on enhancing learning environments to improve instruction. Action research allows educational practitioners to examine their own classrooms or school environments to improve instructional effectiveness. According to Mertler (2014), "It [action research] focuses specifically on the unique characteristics of the population with whom a practice is employed or with whom some action must be taken" (p. 4). Furthermore, action research remains unique to traditional research where an outside agent, not invested in the school community, conducts the research.

Research Design

Qualitative Research

For this action research study, I fostered a qualitative approach to collecting and analyzing data. Using this approach, my primary concern remained on process. The outcome was a bi-product to the process. In addition, I was interested in making sense of the third- and fourth-grade teachers' abilities, experiences, and classroom environments surrounding the particular problem of practice. According to Plano Clark and Creswell (2015), they offer the following definition for the qualitative approach:

The researcher studies a problem that calls for an explanation; relies on the views of participants; asks broad, general questions; collects data consisting of large words (or text) from participants; describes and analyzes these words for themes; and conducts the inquiry in a subjective and reflexive manner. (p. 66)

The qualitative approach permitted me to examine and discuss third- and fourth-grade teaching practices when providing differentiated instruction to develop students' critical thinking skills. Using this approach, I depended on third- and fourth-grade teachers' perspectives to share their experiences to make meaning of their instruction in inclusive classrooms. I recorded their stories and used their descriptions to analyze instruction, themes, expectations, and special moments. I used these discoveries to make meaning in this research to aid third- and fourth-grade teachers with differentiated instructional strategies to support students' critical thinking skills in inclusive classrooms.

Qualitative data collection included focus groups, one-on-one interviews, observation field notes, teacher journals, and questionnaires. As to the method, I used a deductive style to analyze data. Collected data was used to improve teacher effectiveness to support students' critical thinking skills in inclusive classrooms.

Constructionism

Epistemology. Throughout this study, I engaged in constructionism. According to Crotty (1998),

It is the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context. (p. 42)

Simply stated, there was no objective truth hidden away and waiting to be exposed.

Crotty (1998) further explained, "Truth, or meaning, comes into existence in and out of our engagement with the realities in our world" (p. 8). For this study's purpose, I worked

alongside third- and fourth-grade teachers to construct meaning of the experiences in their inclusive classroom environments.

People construct meaning in different ways, even as it relates to the same phenomenon (Crotty, 1998, p. 9). As I worked alongside third- and fourth-grade teachers, I examined the inclusive classroom environment and interpreted meaning based on the experience. Crotty (1998) stated, “In this view, subject and object emerge as partners in the generation of meaning” (p. 9). As we constructed meaning of our work together, we engaged in practices that were in the students’ best interest as we met their needs in diverse cultures, linguistics, and achievement levels in inclusive classrooms.

Setting

This study took place during the fall of 2017 at SMES. Located in southwest, greater Phoenix, SMES was an open-enrollment campus. Serving kindergarten through eighth grades, the school served 996 students. Referencing completed registration forms, 65% ($n = 647$) of students identified as Hispanic/Latino; 25% ($n = 249$) identified as White, 6% ($n = 60$) identified as African American; 2% ($n = 20$) identified as Native American; and 2% ($n = 20$) identified as Asian or Pacific Islander.

As a Title I campus, 76% ($n = 757$) of SMES students qualified for free and/or reduced lunch. The mobility rate remained high as parents or guardians registered and withdrew students from school frequently, and 35% ($n = 349$) of students attended school from Spanish speaking homes. In addition, 10% ($n = 100$) of the student enrollment qualified for English Language Learner (ELL) services, and another 10% ($n = 100$) qualified for special education. Consistent with the national average, 5% ($n = 50$) of the student population identified as gifted and talented.

The school was comprised of 43 certified teachers, five related arts teachers (art, music, physical education, and two technology), and four teachers who served exceptional learners. One teacher from the exceptional learning department was assigned to serve gifted students while the other three served special education students. One teacher served approximately 50 students for 40-minutes twice per week using a typical pullout model for gifted students in second through eighth grades. Three specialized teachers served 88 students using a resource special education pullout model for students represented. Although all staff members served students across cultural, linguistic, and achievement levels, this study's focus was on third- and fourth-grade teachers.

Participants

Teachers

Third- and fourth-grade teachers were this study's main focus. Participants included 8 teachers. Approximately 75% of these teachers identified as females and 25% identified as males. In regard to ethnicity, 75% of third- and fourth-grade teachers identified as Caucasian and 25% identified as Hispanic/Latina. Also, 75% of these teachers maintained a fixed mindset and 25% maintained a growth mindset at this study's start as measured using Nigel Holmes graphic summary of Dweck's (2008) research. During this study's orientation meeting, all third- and fourth-grade participants self-identified as middle-class citizens. Participants taught all subjects in a self-contained setting. Two of these teachers implemented a four-hour block of English language development (ELD) required by the Arizona Department of Education for those students who qualified as ELL. See Table 2 below to identify the participants' background and demographic information at the start of this study.

Table 2

Participants' Background and Demographic Information

Teacher	Gender	Ethnicity	Years teaching	Grade level	Mindset
Mr. Carter	Male	White	6	3rd	Fixed
Ms. Garza	Female	Latina	1	4th	Growth
Ms. Green	Female	White	2	4th	Fixed
Ms. Harper	Female	White	4	3rd	Fixed
Mr. Knowles	Male	White	4	4th	Growth
Ms. Lively	Female	Latina	4	3rd	Fixed
Ms. Noble	Female	White	5	3rd	Fixed
Ms. Young	Female	White	2	4th	Fixed

Students

Third- and fourth-grade students were invited to participate in one-on-one interviews (see Appendix A). Eight students participated in one-on-one interviews at the end of this study. Opportunity sampling was used to obtain student participants. Eight was the target number to mirror the number of teacher participants. As this study's focus was on teacher effectiveness, the diversity in the participants was irrelevant. The sole function of these interviews was to corroborate data collected on teacher effectiveness.

To maintain reliability in data collection, teachers were unaware of student one-on-one interviews until the study's conclusion.

Master Teacher

The master teacher served as a consultant to the researcher during this study. This teacher has over 10 years of experience working with diverse learners in multiple school districts. In addition, the master teacher worked alongside third- and fourth-grade classroom teachers performing walk-through observations, delivering feedback in a coaching role, and supporting students in small group instruction. The master teacher served as a non-evaluative instructional leader to improve teacher practices. As a participant in this study, she assisted the researcher with professional development planning, teacher observations, and conducted one-on-one teacher interviews at the end of the study. By conducting the interviews, the teacher participants were more apt to answer questions truthfully as the master teacher does not serve as a supervisor or evaluator.

Researcher

As the researcher, I provided support to third- and fourth-grade teachers on differentiated instructional strategies to reinforce students' critical thinking in inclusive classrooms of diverse cultures, linguistics, and achievement levels. I facilitated professional development training for third- and fourth- grade teachers. Using observational field notes, I observed each third- and fourth-grade teacher's classroom after each professional development session for a 30-minute period to determine the knowledge transfer of differentiated instructional strategies to the classroom. In addition,

I established bi-weekly meetings to support each participant in the delivery of differentiated instructional strategies in the inclusive classroom.

Research Method

Providing teachers professional development training on differentiated instructional strategies to support students' critical thinking was designed to address the following problem at SMES: teachers struggle to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. For example, teachers relied on special education, reading intervention, ELD specialists, or gifted teachers to serve students using a pullout model to extend learning in a separate classroom setting. Embedding professional development with a focus on differentiated instructional strategies provided teachers with support to meet students' varying learning needs.

The literature on professional development emphasized the need to recruit teachers to research and establish professional learning opportunities. Gilles, Davis, and MacGlamery (2009) suggested teachers involved in professional development delivered more effective instruction. Empowering teachers to work collaboratively to develop professional learning fosters ownership, improves teacher quality, and strengthens learning processes. As the researcher, I used job-embedded time for professional development once per month on Wednesdays to facilitate a rigorous learning schedule for teachers. At the end of each professional development session, I co-constructed the agenda for the next meeting with the third- and fourth-grade teachers to promote ownership. Although general themes were pre-scheduled, I modified the learning schedule based on teachers' requests to deliver differentiated instructional strategies to

support instruction in inclusive classrooms. Once I gathered teacher input, I modified the professional development schedule to address newly identified instructional support.

Intervention

Professional development. During the four-month professional development cycle in this study, teachers met four times to discuss research, observations, and strategy implementation during a two-hour time block. In the first session, teachers constructed a differentiated instruction definition, developed a plan to implement classroom differentiated instructional strategies, and identified scaffolding strategies to support diverse student populations. During Session 2, teachers discussed new insights, constructed a critical thinking definition, and determined ways to foster critical thinking using small group instruction and Vygotsky's sociocultural theory. In Session 3, teachers discussed new insights, constructed a definition to cultural responsive teaching (CRT), identified CRT components to implement, and determined ways to embed CRT strategies into daily lesson delivery. During the final session, teachers discussed new insights, reviewed CRT, and determined ways to support gifted or accelerated learners in inclusive classrooms. At the start to each professional development meeting, teachers shared ideas after reading assigned chapters in Dweck's (2008) research on mindsets. Based on their discussions, they developed ways to foster a growth mindset in inclusive classrooms. This cycle of professional development served to foster collaboration, examine teacher practices, and co-construct a self-assessment system to establish effective teaching throughout the school year.

Instruments and Data Sources

Instruments for Collecting Qualitative Data

Focus group. I engaged in focus group interviews (Appendix B) to gather narrative data to determine pre- and post-outcomes of the intervention. “A focus group is the name given to simultaneous interviews of people making up a relatively small group, usually no more than 10 to 12 people” (Mertler, 2014, p. 132). First, I invited third- and fourth-grade teachers to participate on a voluntary basis and explained the study’s purpose. Second, I used the opportunity to better understand third- and fourth-grade teachers’ perceptions of classroom effectiveness in developing students’ critical thinking skills in inclusive classrooms prior to the study. After treatment in this study, I measured perceptions to determine if third- and fourth-grade teachers perceived themselves differently after treatment. During this time, teachers participated in four professional development sessions on differentiated instructional strategies.

Teacher journals. During this research study, teacher participants maintained and reflected in personal journals. Teacher journals were initially reviewed and analyzed at the end to each professional development session. At this time, I analyzed teacher reflections for emerging themes. Throughout this study, open coding was used to examine data. At the study’s conclusion, selective coding was used once all data were received and examined.

Questionnaires. At the conclusion of each professional development session, teachers responded to a four-part questionnaire (Appendix C). Teachers’ responses were collected to determine the key concepts learned, impact on student achievement, considerations for transferring strategies to the classroom, and necessary planning for

future professional development. These responses were analyzed at the end to each professional development session to plan classroom observations. In addition, I examined these reflections for emerging themes using open coding. Selective coding was used after all teacher responses were collected at the study's end.

Observational field notes. During this study, I used observational field notes as an active participant to collect additional data. The Teacher Advancement Program (TAP) rubric (Appendix D) from the Arizona State University iTeach program was used to collect observational field notes during the intervention. According to the TAP Evaluation and Compensation Guide (2010), the TAP rubric includes valid and reliable teacher standards based on correlational and experimental design studies. As mentioned previously, field notes were recorded by the researcher to capture words or images of the subjects delivering the intervention (Plano Clark & Creswell, 2015). Both descriptive and reflective notes were maintained by the researcher to gather the most extensive data. Descriptive notes were those which the researcher observed “events, activities, setting, and people” (Clark & Creswell, 2015, p. 344). Taking reflective notes, on the other hand, the researcher recorded personal thoughts connected to “insights, hunches, reactions, or broad ideas or themes” during the observation of the subject (Clark & Creswell, 2015, p. 344). The observational field notes data were used to compare the ideas, themes, and information generated from the focus group and one-on-one interviews. Data gathered were used to discuss the results in this action research study.

One-on-one interviews. Interviews were one way to gather data by asking participants general questions and observing interactions (Appendix E & F). “Interviews are conversations between the teacher-researcher and participants in the study in which

the teacher poses questions to the participant” (Mertler, 2014, p. 130). Plano Clark and Creswell (2015) offered two main reasons for using one-on-one interviews in an action research study:

- Interviews are ideal for studies that include participants who are articulate, who can share ideas comfortably, and who are not hesitant to speak.
- Interviews are the best way to learn in depth about the perceptions and experiences of single individuals (p. 340).

Conducting one-on-one interviews allowed me to collect data by asking broad, general questions and recording responses from both students and teachers by scheduling one participant at a time (Plano Clark & Creswell, 2015, p. 340). I interviewed four teachers and eight students from third- and fourth-grades, using a semi-structured format at the intervention post-phase. The number of teacher interviews depended on information provided in focus group interviews, professional development sessions, or classroom observations. If teachers shared information deemed worthy of further exploration, they were invited to interview on an individual basis. Eight students, on the other hand, were selected to mirror the number of total teacher participants. As students volunteered to participate in the one-on-one interview process, I used a digital voice recorder for each interview for further analysis. In addition, I took notes to capture feelings, expressions, and emotions during the interview. If the person I interviewed conveyed non-verbal cues demonstrating a need to elaborate, I asked additional questions to ensure depth in understanding. In addition, I depended on focus group interviews and professional development observations to accurately record the interactions and contributions of each individual. Table 3 displays the various sources I obtained data.

Table 3

Inventory of Qualitative Data Sources

Data source	Research questions addressed	Results inventory
Focus group interview	1, 3	December 2017
Teacher journals	1, 2, 3	December 2017
Teacher responses (questionnaire)	2, 3	December 2017
Observational field notes	2, 3	December 2017
One-on-one teacher interviews	1, 2, 3	December 2017
One-on-one student interviews	2, 3	December 2017

Data Analysis Procedures

Qualitative Results

Participants’ responses during the focus group and one-on-one interviews were collected and reviewed thoroughly. Comments made by third- and fourth-grade participants were sorted into larger categories where themes emerged. First, using Strauss and Corbin’s (1990) grounded theory framework, I read the focus group transcripts numerous times looking for patterns, common themes, and meaningful relations between ideas. Using an affinity diagram, I sorted the ideas and material while considering categories. Second, I used open coding and began developing labels based on the concepts described by third- and fourth-grade teachers. Using the emerging themes, I

placed them into categories serving as headings. Using post-it notes, I charted the ideas of the teacher under each related heading. Third, I continued this process multiple times to ensure the information gathered was organized in the most meaningful category. Finally, I strived to stay consistent with the data to represent the participants' messages accurately. This process was repeated for focus group interviews, teacher interviews, and student interviews.

In addition, observational field notes and teacher anonymous feedback were analyzed and grouped by categories. This data served to reinforce emerging themes in the data analysis described above. Themes supported by various data sources were gathered to construct contingent assertions.

Once a list of assertions emerged, I reviewed the outcomes with third- and fourth-grade teachers. When I set out to participate in this study, the expectation was to apply new knowledge to support teachers throughout the school. Providing differentiated instructional strategies for teachers to support students' critical thinking in inclusive classrooms with diverse cultural, linguistic, and achievement levels was the purpose of this action research. By solving the problem of practice, I plan to support all teachers to achieve this goal. Therefore, I ensured to ask third- and fourth-grade teachers for input on the assertions made during the focus group and one-on-one interviews. I ensured to capture their understandings accurately prior to sharing with others. To do so, I used the formal processes of triangulation and member checking.

To enhance the credibility of the intervention, I used the formal process of triangulation. According to Plano Clark and Creswell (2015), "Triangulation is the process of corroborating evidence about a finding from different individuals (e.g., a

principal and a student) or types of data (e.g., observational field notes and interviews)” (p. 364). As the researcher, I studied the notes and transcripts to find the evidence to support emerging themes. By making repeated classroom observations and gathering information from interviews, I cross-referenced information to ensure emerging themes accurately represented the subjects’ perspectives including both teachers and students.

A second way I ensured the fidelity of implementation was to use the formal process of member checking. According to Mertler (2014), member checking “involves the sharing of interview transcripts, analytical thoughts (such as observation notes with observer’s comments), and drafts with the participants of the study” (p. 137). The sole purpose of sharing this information with the subjects of the study was to ensure their thoughts were represented accurately. Providing subjects with the opportunity to review the results allowed them to confirm the accuracy of data collected. In addition, the subjects provided feedback and added information to the interview transcripts to reflect a more accurate account. Plano Clark and Creswell (2015) stated, “Researchers ask participants about many aspects of the study, such as whether the description is complete and realistic, the themes are appropriate, and the interpretations are fair and representative of their perspectives” (p. 364).

Reliability and Validity Threats

“As a researcher, it is imperative to ensure data collection is carried out with quality throughout the action research process” (Mertler, 2014, p. 136). Accurate data better serves the community represented in the study. As the action research study progressed to the final stages, the teachers and school administrators accurately prescribed solutions to others based on problems that occur in practice.

Validity and reliability were critical attributes of a qualitative approach to action research. “Validity of research data refers to the extent by which the data collected accurately reports what was meant to be measured” (Mertler, 2014, p. 137). In this study, trustworthiness of the third- and fourth-grade teachers and students I interviewed were essential to the outcome. Examining the “credibility and dependability” of the information delivered from the participants’ perspective throughout the action research study was a priority (Mertler, 2014, p. 137).

Reliability and *dependability* are words used interchangeably in the literature. Reliability essentially means the same thing as dependability. Thus, Mertler (2014) described dependability as “the need for the researcher to account for the ever-changing context within which research occurs” (p. 137). As the researcher, it was my responsibility to accurately document and record the changes within the setting. In addition, I determined how those changes impacted the approach taken in the study. In the next section, I describe the procedure and timeline in this study.

Procedure and Timeline

At the start of the 2017-18 school year, I met with third- and fourth-grade teachers to discuss the purpose of the study. This served as an opportunity for teachers to express needs or concerns with the study. I addressed these issues based on previous observations and research reviewed during this study’s development. In addition, I explained my role as an active participant in the study.

In August of 2017, I conducted the first focus group interview. Third- and fourth-grade teachers were invited to participate as I collected data to better understand their perceptions of instructional effectiveness in meeting the varying cultural, linguistic, and

achievement levels of students in inclusive classrooms prior to the study. This interview served as the initial data collected, prior to the research subjects receiving differentiated instructional strategies in professional development.

During the first professional development session on August 30, 2017, teachers reviewed the professional development plan driving our meetings throughout the fall semester. The professional development topics emphasized differentiated instructional strategies to support students' critical thinking skills in diverse inclusive classrooms. I worked alongside the school's master teacher to plan meetings to ensure a rigorous and appropriate professional development plan was implemented.

Two focus groups and one-on-one interviews were conducted at the conclusion of this study in November. By the time these interviews were administered, teachers participated in four professional development sessions. All eight teachers from third- and fourth-grades were invited to participate in the focus group interviews on a volunteer basis. Four teachers were invited to participate in a post one-on-one teacher interviews. Each teacher was interviewed separately. In addition, eight post one-on-one student interviews were conducted. To obtain student participants, opportunity sampling was used. Both focus group and one-on-one interviews were held at a time convenient for all participants.

This action research study was conducted during the fall 2017. Table 4 outlines the major activities from this cycle.

Table 4

Timeline During 2017-18 School Year

Time	Major activities
August of 2017	Third- and fourth-grade teacher meeting explaining cycle three procedures
August of 2017	First focus group interview conducted
August to November 2017	Differentiated instructional professional development
August to November 2107	Questionnaires conducted after professional development
August to November 2017	Observation field notes gathered
November 2017	Final focus group interview conducted
November 2017	Individual interviews conducted

CHAPTER 4

FINDINGS

As principal at Star Mountain Elementary School, I observed teachers delivering a one-size-fits-all lesson to students over the last four years. Meeting students' individual critical thinking needs in culturally, linguistically, and academically diverse settings appeared challenging. This chapter focuses on supporting teachers to respond to students' critical thinking needs in inclusive classrooms. The purpose of this study was to determine how teachers foster effective instruction after using differentiated instructional strategies to support fair and equitable learning for all students. The qualitative data sources used to answer the research questions in this study included focus group interviews, observational field notes, journal responses, anonymous questionnaires, and participants' one-on-one interviews. In this chapter, I present findings to support each research question. The evidence derived from participants' quotes, journal and questionnaire responses, and classroom observations. The following research questions were analyzed during this study:

1. How do third- and fourth-grade teachers perceive their instructional effectiveness to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms?
2. How do differentiated instructional strategies influence third- and fourth-grade teachers' abilities to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms?

3. How can third- and fourth-grade teachers make further use of differentiated instruction to support students' critical thinking skills across cultures, linguistics, and achievement levels to increase student achievement?

In this section, the following quotes from the participants support and strengthen four assertions. The first assertion demonstrated teachers' struggles to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms at the study's beginning due to newly adopted curricula. The next three assertions demonstrated teachers' positive perceptions in supporting students' critical thinking skills once they participated in the professional development intervention. The quotes illustrated the unfamiliarity teachers faced in the study's beginning and the positive perceptions expressed after participating in the study's intervention.

Research Question #1 Findings

Research Question #1 asks, "How do third- and fourth-grade teachers perceive their instructional effectiveness to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms?" To analyze this question, grounded theory was used (Strauss & Corbin, 1990). The emerging themes revealed how third- and fourth-grade teachers' perceived their instructional effectiveness to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. For this study's purpose, "Critical thinking involves thinking about thinking; we engage in it when we consider whether our thinking (or someone else's) abides by the criteria of good sense and logic" (Moore & Parker, 2012, p. 2). In the study, beginning, teachers perceived an inability to support students' critical thinking skills in inclusive classrooms. A primary reason for this perception was due to

learning newly adopted curricula in both mathematics and English language arts (ELA). This led to other factors serving as obstacles to meeting students' critical thinking skills in inclusive classrooms including a lack in confidence and experience.

Pre-focus Group—Unfamiliar Curriculum: Assertion 1

The new curricula in mathematics and ELA caused a challenge for teachers. Several teachers commented on the unfamiliarity with the new curricula. To demonstrate this point about perceptions of instructional effectiveness, Ms. Young stated,

It could be better. It could be better, a lot better if we were used to our resources. I feel—I feel like if we had a better understanding of our resources when it comes to academically diverse students, then we would feel a lot better meeting their needs. (Focus group, Ms. Young, August 30)

This particular fourth-grade teacher, Ms. Young, expressed her concern in meeting students' critical thinking skills in culturally, linguistically, and academically diverse inclusive classroom settings. Due to lack of familiarity with the new curricula in mathematics and ELA, Ms. Young discussed her inability to meet her students' needs. A third-grade teacher, Ms. Noble, added to this comment with the following statement:

To build off of that, I feel more comfortable with one curriculum than I do the other because of what it gives you as far as differentiating. I feel more comfortable with ELA because it gives you a lot of different ways to differentiate whether that be leveled reader or assigning projects online or any of that. But I feel like I am struggling a lot more with math due to the fact that we might not have 100% of the resources. (Focus group, Ms. Noble, August 30).

According to Ms. Noble, she felt more comfortable using the ELA curriculum because there were more resources to support students' critical thinking skills in culturally, linguistically, and academically diverse settings. By using a leveled reader program provided in the new ELA adoption, Ms. Noble felt more prepared to support students with differentiated instructional materials using this curriculum component. Using the

leveled reader, Ms. Noble selected the appropriate reading level based on each student's academic need. This aligns with Tomlinson and McTighe's (2006) research on effective instruction that indicated teachers examine ways students learn and discover what they need to "know, understand, and be able to do" (p. 12). Ms. Noble recognized the diversity in her classroom and used the ELA materials to support students' critical thinking.

Unfortunately, she appeared to be struggling with the new math program because teachers were unable to access all resources, such as the online component, when this study began.

Mr. Knowles, a fourth-grade teacher, expressed how he felt a lack of confidence due to the new curricula. Differentiating instruction by personalizing lessons for each individual served as a challenge with new curriculum. Instead of catering to a small group, Mr. Knowles discussed his desire to personalize instruction based on each individual's need in his classroom. He further explained,

I am less confident with differentiating in the classroom. One of the ways that I have been working to differentiate is through personalized learning. I've been catering to individual students and not just small groups of students. To individualize instruction, you need to know what tools you have access to so that way you know what type of intervention you can give to the student. (Focus group, Mr. Knowles, August 30).

Mr. Knowles explained how he is offering more than differentiated instruction. To make learning fair and equitable for every child in culturally, linguistically, and academically diverse settings, his goal served to stimulate critical thinking by providing personalized learning for each child in addition to small group learning. Like an effective instructor, he recognized the complexities in student learning and strived to understand each child's learning needs (Tomlinson & McTighe, 2006). Mr. Knowles wanted to know each student's academic level to apply the appropriate learning goals and activities using

Bloom's Taxonomy (Gershon, 2012) to support students' critical thinking, especially during independent practice. This works in tandem with Vygotsky's socio cultural theory as Mr. Knowles continued to support students with scaffolds as they moved from group interaction to independent practice (Vygotsky's Sociocultural Theory, 2016). Without knowing the new ELA and mathematics adopted materials, individualizing instruction and developing interventions remained challenging at the study's beginning.

Mr. Carter, third-grade teacher, shared how he lacked experience in using the new curriculum as well. Supporting students identified as gifted or accelerated through the curriculum posed a problem for teachers. Mr. Carter commented on the large volume of high-achieving students in his inclusive classroom this year. In discussing his concern, he explained,

I guess for me, I have always been more comfortable, in terms of academics—I have experience helping those struggling students, I guess. We have a lot more of those students in our school than those students who are glowing. So, I am more comfortable working with them because I have more experience working with them. One of the things I hope to get out of this is how to help the higher achievers because that is what I struggle with, and I have a lot more of those in my class this year, and they are going to need a lot of support. And I think also, in terms of culture, I am not sure I am addressing that at all, and I am not sure how to address it. There really is an academic discrepancy for me. (Focus group, Mr. Carter, August 30).

Academically, Mr. Carter was more prepared to help students who struggled. According to Mr. Carter, there were more students in the school who fit these criteria. Therefore, he was most comfortable serving these students and less comfortable supporting those students who were gifted or accelerated learners. Throughout the professional development intervention, he hoped to learn how to meet the needs of students considered high achievers while using the new curricula. To foster effective instruction, Mr. Carter aspired to make students the core to his teaching practice and demonstrated a

willingness to modify lessons for students including high achievers (Blanton et al., 2006). Also, Mr. Carter was unsure how to address the students' cultural needs. Due to a lack of experience in serving students' needs culturally and linguistically, Mr. Carter only identified students' academic differences before this study. He acknowledged a need to learn strategies to serve all learners while using the new mathematics and ELA curricula to ensure a fair and equitable education.

To this point, teachers' comments revealed a negative perception toward instructional effectiveness to support critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. This negative perception was gathered during the pre-focus group interview prior to the intervention. In the following section, countering comments were gathered and demonstrated teachers' positive perceptions toward effective instruction to support critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. Three assertions demonstrated teachers' positive perceptions in the following section. These comments were gathered during the post-focus group interviews and four one-on-one teacher interviews.

Post-focus Group: Adopted New Methods

Results from the post-focus group data indicated teachers adopted new methods to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. It appeared teachers were more comfortable with planning structures to support students' critical thinking skills. First, teachers confidently discussed strategies to support students' critical thinking skills by using a school-wide method called design-thinking. In this context, design thinking was a cyclical process used in the inclusive classroom involving five engaging steps: empathy, define a problem, ideate,

prototype, and test the solution. Second, teachers claimed to increase effective teaching practices to support students' critical thinking by emphasizing a growth mindset in the classroom. One fourth grade-teacher, Ms. Green, stated, "One of my biggest takeaways was mindsets in terms of how students think about their own learning and how they think about themselves" (Focus group, December 4). A third differentiated instructional concept included cultural responsive teaching (CRT) practices. In the next section, a fourth-grade teacher, Ms. Garza, explained how she incorporated CRT by using students' names and cultural experiences in story problems to engage her learners. Based on the post-focus group and one-on-one interviews, this study asserted that third- and fourth-grade teachers perceived themselves as delivering more effective instruction to support students' critical thinking by using design-thinking, emphasizing a growth mindset, and using cultural responsive teaching in the inclusive classroom.

Implementing design thinking: Assertion 1. Ms. Noble, a third-grade teacher, expressed the significance of purposeful planning to implement strategic ways to allow students to explore and review standards. The process she referred to was design-thinking, which was a cyclical method used to support teachers in differentiating instruction to support students' critical thinking in this study. Ms. Noble further elaborated,

I think planning or planning strategic ways to let students explore new standards or review standards is important. We have the design-thinking process and we're going through the design-thinking process with them [students], so allowing them to be creative, but also have like a foundation, a guideline. They're giving each other feedback. They're learning about each other, they're problem solving, and creating solutions and testing their solutions. I think it just comes down to our planning and how we are allowing students to explore. (Focus group, Ms. Noble, December 7)

In the quote above, the third-grade teacher made reference to the various components of design-thinking. In this cyclical process, the students empathized with each other as they collaborated to understand a real-world problem. In addition, the third-grade teacher discussed problem solving, creating solutions, and testing their solutions, which were all part of the design-thinking process. Ms. Noble elaborated on design-thinking by explaining the process further:

First, building their empathy on the whole, whatever your problem of the week is or your problem in general. Letting them build that foundation with the problem and understanding where they need to go. Then having them explore and come up with maybe ways that they'd want to solve it, and then they do a prototype. It doesn't always have to be like building something, but they're creating something and testing that. Then, they go back and they evaluate it and look at their feedback, and then revamp it however they need to. (Focus group, Ms. Noble, December 7)

Ms. Noble described the design-thinking process from her perspective. In the culturally, linguistically, and academically diverse inclusive classroom, she promoted student ownership in building the foundation to a problem and allowing students the freedom to understand the direction they choose to initiate. In line with Blanton and colleagues' (2006) research on effective instruction, Ms. Noble nurtured a classroom environment where ample time was devoted to maximize students' critical thinking as they progressed through the design-thinking process. Ms. Noble fostered critical thinking as she provided students the opportunity to develop ways to solve the problem at hand. Students worked collaboratively and considered others' thoughts. Together, they determined whether the information met the requirement and good logical sense to proceed with the assignment (Moore & Parker, 2012). As a group, students determined how to progress and develop a prototype. The group tested the outcome and sought feedback to improve their prototype until it met the classroom criteria (Moore & Parker, 2012).

Mr. Carter chimed in to support his colleague on design-thinking's effectiveness.

He shared,

I mean I think design thinking works. I mean it allows them to think critically, but it also meets students at their levels academically, culturally, interest wise, because there is no one right answer. With the empathize part, the ideate part, there is zero, I mean there's no right answer and so students are going to be able to use their prior knowledge and things that interest them in creating solutions. (Focus group, Mr. Carter, December 7)

Mr. Carter argued in support of design-thinking as it allowed students to think critically and provided an abundance of opportunities. Again, this idea reinforced Blanton and colleagues' (2006) research on effective instruction, as Mr. Carter described maximizing students' critical thinking and opportunities for response by using design-thinking. According to Mr. Carter, there was no one right answer. In addition, design-thinking supported students who were culturally, linguistically, and academically diverse in the inclusive classroom. Also, Mr. Carter emphasized students' ownership in the process as he discussed how students use their prior knowledge and interests in developing solutions to real-world problems.

Emphasizing a growth mindset: Assertion 2. During the post-focus group, a fourth-grade teacher, Ms. Green, shared the significance in implementing the growth mindset philosophy in the classroom to support students' critical thinking. By using the growth mindset philosophy, she discussed how this concept impacted ways students feel about their learning and themselves. Ms. Green shared the following:

One of my biggest takeaways was mindsets in terms of how they [students] think about their own learning, and how they think about themselves. Just bringing that to the forefront, especially if they were getting feedback from another student or feedback from me. Do they go into a negative fixed space, or are they thinking growth? Or are they goal-oriented and stuff like that? They're just more thoughtful and intentional on their end about their own learning. I think that them having that knowledge when I ask them certain questions, they're in a different

mindset than they were before this semester of learning. I think that was huge in their critical thinking, because they are more critical about themselves than they were before. (Focus group, Ms. Green, December 4)

This fourth-grade teacher, Ms. Green, emphasized how she observed students exercising a different mindset in the classroom as they progressed through the fall semester.

Students appeared to be more critical in their own thinking. Whether the feedback materialized from a classmate or the teacher, students were “thinking about their thinking” to ensure they practiced the growth mindset (Moore & Parker 2012). In Ms. Green’s culturally, linguistically, and academically diverse inclusive classroom, students appeared to be more critical in their work than they were at the start of the fall semester.

Ms. Green continued to further describe her observations:

Once we talked about it [mindset] and I modeled how I would think when I get feedback, now they’re doing it on their own. When they get a test, or when they get a challenge, they use that vocabulary of, “Oh, I need to think about my mindset,” or “I need to use this as an opportunity, instead of a time to think I failed and give up.” On a spelling test, I have a student that always gets low scores and he goes, “Oh, this is just information for me for next time. I need to study a little more maybe.” He was thinking of strategies to do better instead of—because the first time he got a spelling test, he crumpled it up and threw it away and now he’s highlighting words that he needs to study in terms of doing better instead of being like, “I can’t do this.” That was pretty recent. I didn’t talk about mindsets, I just saw him taking that initiative. (Focus group, Ms. Green, December 4)

In her inclusive classroom, Ms. Green transferred the growth mindset learning from professional development to the classroom and modeled how to receive feedback using this philosophy. After practicing this strategy, students began “thinking about their thinking” and engaging in whether their mindset fit a fixed or growth model (Moore & Parker, 2012). Students used feedback given by others to adjust for future success on assignments like a spelling test. To promote effective instruction, Ms. Green created time for students to provide routine feedback to each other (Blanton et al., 2006). Ms. Green

fostered a learning environment where students embraced mistakes and learned from them. These actions led students taking an initiative to think about the growth mindset criteria to change their perceptions about assignments.

As Ms. Green completed her response, her colleague, Ms. Young, added to this assertion. She observed similar student actions in her inclusive classroom. Ms. Young responded,

I definitely feel like I'm the same way in my classroom. I'm seeing just how I have conversations with some of my students to help them understand why they're getting the grade on this test or what can they do to go through and fix that. One of the things that I've seen is on their assessments for online, the first time they took the assessment online, I didn't see as many good grades. I was like, "This is your first time going from a completely paper test to something online." It's completely different. There's always more room for growth and they're kind of like, "Oh my gosh, yeah, you're right." Then when we took it again kids were coming up to me like, "I got 100% on my test." It was just cool to see them go from, "I know that I can improve on this; this is my first time switching from a paper to an online test." I know it's completely different to going to the next a week later for a test and there coming up with like a smile on their face because, "Hey, I did better than the last time." (Focus group, Ms. Young, December 4).

Ms. Young experienced similar conversations about mindsets with students in her classroom. Students focused on improving their academic performance using a growth mindset. With new curriculum in English language arts and mathematics, students switched from using paper to online materials. The teacher used the switch to an online curriculum as an opportunity for growth. Like other effective teachers, Ms. Young utilized multiple resources (Gagnon & Mattingly, 2015) like the growth mindset philosophy to motivate students to embrace change. Therefore, Ms. Young's students were more positive about the shift. The students embraced the growth mindset idea and focused on improvement with practice over time.

During the one-on-one interview session, the mindset professional development also made a major impact on third-grade teacher, Ms. Noble. When asked about her instructional effectiveness in supporting critical thinking in diverse student populations, she stated,

For me, I think it's [mindset philosophy] actually been nice because I've been learning how to do it myself. Giving that definitely think-loud time or reflection time has been very truthful in my class, for me personally, and I'm open to sharing that with them because then they can see even adults make mistakes, or even your teacher does things maybe that changes things to better them as a person, and it's not just fluffiness type of things. I think learning about mindset or learning about making mistakes. I talk to them about going home and reading or going home and doing certain things with family, how I can better myself as a person and how I can implement that in school. Or, how if we don't clean our room at home, so it frustrates us when we go to school because we're in trouble, so then it shoots us down when we're doing math. Things trickle down to each other, and how we can refocus our energy during certain times of the day on what we're really truly doing. (Teacher interview, Ms. Noble, December 7)

In Ms. Noble's culturally, linguistically, and academically diverse classrooms, students learned the growth mindset through think-aloud modeling. Ms. Noble engaged in thinking out loud and reflecting with her students to demonstrate adults making mistakes. In addition, she explained how what happens at home transfers to the inclusive classroom, impacting subjects like mathematics. According to Blanton and colleagues' (2006) research, effective teachers continually search to understand the diverse students' needs and develop strategies to support their learning. In Ms. Noble's diverse inclusive classroom, she understood the need to change students' mindsets to motivate them to learn. Ms. Noble discussed how mindsets trickle from home to school and the growth mindset served as an opportunity to refocus. She developed a think-aloud strategy to support students' critical thinking in her inclusive classroom.

Using cultural responsive teaching: Assertion 3. In the one-on-one interview process, Ms. Garza discussed ways she implemented cultural responsive teaching in the classroom. In her planning, she strategically developed word problems using students' names and discussed cultural topics pertaining to her students in the inclusive classroom. Ms. Garza explained,

So yesterday's lesson, we were doing math and we had to solve word problems with division, and so small things like incorporating the students' names into the word problem so that way they're being included. Also, at the beginning of the lesson, relating it to—we all celebrate Christmas, so relating it to Christmas. This is what Joseph is doing during Christmas, and we need to help him out to solve this problem. (Teacher interview, Ms. Garza, November 29)

In this classroom, Ms. Garza served only ELL students in an ELD setting. She built strong relationships with her students and families. To get to know her students, Ms. Garza commonly invited students to have lunch in her classroom. To support effective instruction, she searched to understand her students and considered strategies to support their learning (Blanton et al., 2006). Ms. Garza demonstrated a “strong sense of personal caring” about the students in her classroom (Ruddell, 1995, p. 455) during these lunch interactions. In addition, Ms. Garza identified as Latina and spoke fluent Spanish; therefore, students and parents identified with her on multiple levels. Through relationship building with students, Ms. Garza understood the significance in using students' names in story problems to generate interest. Also, she knew her students' religious backgrounds to discuss Christmas as a cultural experience. By using references such as students' names and cultural experiences, Ms. Garza observed that student engagement increased. This aligns with the cultural competence indicator in cultural responsive teaching. This indicator refers to Ms. Garza's ability to culturally understand her students represented in the classroom. By embedding students' names and cultural

experiences, she recognized the role culture plays as to the foundation in her students' education (Santamaria, 2009).

During a classroom observation, another fourth-grade teacher, Ms. Green, used cultural responsive teaching by using her parents as examples. This occurred during a science lesson when students were making predictions. She said,

My dad is a construction worker. He has to predict how high the wall has to be. If the wall was too high or too low, the house would be messed up. My dad had to predict how high the wall needed to be. My mom has to predict what to do for a man who was in a bad accident. He can't talk. So, she takes care of him and she has to predict how to help him. (Field note observation, September 25)

In this example, Ms. Green made reference to her parents and described a vivid experience to teach prediction. The students related to these descriptions due to the relationships they have with their own parents as well as being provided a real-world example. Ms. Green tapped into the sociopolitical consciousness component of CRT by using a construction worker and caregiver, who served as careers the Latino students could relate to in this inclusive classroom (Santamaria, 2009). As an effective teacher, Ms. Green demonstrated she understood the students represented (Blanton et al., 2006), their role within culture and the connection to the community. Connecting these components, Ms. Green understood how to provide culturally competent instruction in the classroom as well (Santamaria, 2009).

During the third professional development session, teachers experienced the significance of CRTs in the inclusive classroom to make learning fair and equitable for every child. Using a questionnaire, teachers' responses were gathered anonymously. One teacher explained, "Cultural awareness is essential to teaching diverse learners. I need to better engage with my students within the culture in order to best serve them"

(Questionnaire, October 25). To better serve students, this teacher recognized that culture can be used as a catalyst to engage learners in the classroom (Santamaria, 2009). Another teacher shared the following after the same professional development session:

I learned the importance of cultural teaching and how cultural teaching looks in the classroom. I am taking away the importance of being culturally aware as a teacher and how understanding my students and their background only builds that environment to feel safe, cared about, and appreciated. (Questionnaire, October 25)

In the quote above, a second teacher identified the importance of CRTs in the inclusive classroom to make learning fair and equitable for each child. This teacher made the connection between understanding the students' culture and fostering a classroom environment that feels safe for learning. In addition, the teacher indicated how identifying with the students' culture leads to children feeling cared about (Ruddell, 1995) and appreciated in the inclusive classroom, which bolsters confidence and self-esteem. Both of these characteristics serve as prerequisites to increasing students' academic progress. To promote effective instruction, this teacher recognized complexities in the classroom (Tomlinson & McTighe, 2006) and used culture as the foundation to learning (Santamaria, 2009).

In this section, four assertions surfaced. One was a negative assertion about teachers' perceptions of instructional effectiveness in supporting students' critical thinking across diverse cultures, linguistics, and achievement levels in inclusive classrooms prior to participating in the intervention. Post-intervention, three positive assertions on teacher's perceptions on instructional effectiveness were exposed. All four assertions were presented to the participants for the sole purpose of member checking at the study's conclusion. Participants engaged in either confirming or modifying each

assertion based on their understandings. In addition, participants were given the option to add comments to explain remaining opinions. Member checking served as a method to strengthen each assertion.

Research Question #2 Findings

To this point, this study addressed teachers' perceptions of their instructional effectiveness to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. During this study, teachers demonstrated a negative perception of their instructional effectiveness to support students' critical thinking prior to the intervention. The negative assertion resulted from an unfamiliar curriculum, which led to a lack of confidence and experience. On the other hand, teachers displayed a positive perception of their instructional effectiveness to support students' critical thinking skills post-intervention. These positive assertions included implementing the use of design-thinking, emphasizing a growth mindset, and using cultural responsive teaching in the inclusive classroom.

In this section, the second research question is addressed: How do differentiated instructional strategies influence third- and fourth-grade teachers' abilities to support students' critical thinking skills across cultures, linguistics, and achievement levels? Research Question #2 expands on the teachers' use of differentiated instructional strategies to support students' critical thinking. The methods used to gather data included observational field notes, one-on-one student interviews, and an anonymous questionnaire.

Results for Qualitative Data

Through the use of grounded theory and triangulation, the data results suggested teachers implemented three differentiated instructional strategies consistently in inclusive classrooms. Instructional scaffolds, collaborative group work, and project-based learning emerged as differentiated instructional strategies that influence teachers' abilities to support students' critical thinking skills across cultures and linguistic, and achievement levels. In the following section, differentiated instructional strategies influencing third- and fourth-grade teachers' abilities to support students' critical thinking skills across cultures and linguistics and achievement levels are discussed.

Instructional scaffolds. Lucas (2011) proposed Linguistically Responsive Teaching (LRT), a scaffolding framework, to support ELLs. This framework identified four components: extra-linguistic supports, supplement and modify written text, supplement and modify oral language, and provide clear and explicit instructions. In line with extra-linguistic support, Ms. Lively, a third-grade ELD teacher, demonstrated how to use graphic organizers during her reading period. During an observation, students filled out graphic organizers as they read a story for the second time. As students discovered unfamiliar words in each paragraph, the new vocabulary was written into a graphic organizer. An example students wrote into their graphic organizer included the vocabulary word inventor. Ms. Lively used questioning strategies to define the word as her students used context clues from the textbook. Ms. Lively asked, "What do you think the word inventor means?" (Field note observation, October 24). One student responded, "It means to make something, to make something new. An example is a cell phone. You can talk on it and send something to your family" (Field note observation, October 24).

During a one-on-one interview, Anna, one of Ms. Lively's students, further described the use of graph organizers in the classroom. Anna said,

For vocabulary, we work in groups and we have to try to find out what the word means. The definition, the difference of it, you have to make a sentence for it, and a picture. Then, we have to present it with the whole group, with our group, and we work together to find them out. We usually have a group of four so each person has a job. (Student interview, November 28)

Anna was a third-grader in Ms. Lively's ELD classroom where all students were identified as second language learners. She liked to be challenged and maintained a leadership role in the classroom. She described working in groups with four students on a scaffold strategy like using graphic organizers to learn vocabulary. Like the classroom observation above, she explained how the group exerted critical thinking skills to define vocabulary words, provide an antonym, use the word in a sentence, and draw a picture to represent the meaning. This explanation aligned to the observation in Ms. Lively's classroom described above.

Scaffolds to support vocabulary knowledge occurred across the third-grade.

During another one-on-one interview, a third-grade student, Ella, from Mr. Carter's classroom said,

Reading to yourself gives us the chance to read the books and we can extend our vocabulary because we're writing down the words that we don't know. I'm pretty sure when he [Mr. Carter] collects all of our reading plans, he's going to show all of us what those words mean and help us understand. He helps us during our read to self like he did today. He was checking it and making sure that these are words that I really need help with. (Student interview, November 28)

Mr. Carter implemented a reading plan system where students read silently and wrote down unfamiliar words in a notebook. The teacher collected the notebook weekly to review these unfamiliar words. During daily self-reading time, the teacher reviewed the words with each student on an individual basis to ensure they understood the meaning.

This method promoted student ownership over selected vocabulary. To make learning fair and equitable, Mr. Carter tailored the vocabulary focus during each conference to meet each child's need.

In addition to graphic organizers, teachers implemented other scaffolds such as sentence frames in their inclusive classrooms. During a classroom observation in Ms. Garza's classroom early in the semester, she referenced sentence frames students were to use when writing down observations. It was a science lesson and students were making observations about a box figure in the center of a table in the classroom. The students examined the figure and wrote their observations using sentence starters such as, "I can observe . . ." (Observation field notes, September 25). Once students gathered their observations, Ms. Garza initiated a discussion using the sentences created by the students.

In a lesson delivered by Ms. Noble, sentence frames were implemented for student usage. It was Patriots' Day and students were commemorating heroes who risked their lives during the September 11, 2001 terrorist attacks in Pennsylvania, Washington D.C., and New York City. Students were engaged in watching Kid President, a YouTube child personality, on video who led a discussion on heroes. The message delivered in the video was to inspire people to be extraordinary citizens. Ms. Noble's students closed their eyes and visualized a person in their lives who served as a hero like those memorialized on Patriots' Day. She asked, "Who is a hero in your life that protects you and keeps you safe?" (Observation field notes, September 11). Once the students opened their eyes, the students were assigned to write about that person using sentence frames. Ms. Noble expected third-grade students to use the following sentence frames, "A hero is . . . because . . . I am thankful for them because . . ." (Observation field notes, September

11). Students were provided the opportunity to sit in a place of their choosing as long as they were working on the assignment. Both, Ms. Garza and Ms. Noble demonstrated effective use of LRT by supplementing and modifying text through the use of sentence frames to support students' critical thinking skills in inclusive classrooms (Lucas, 2011). These teachers designed sentence frames to highlight important concepts to support their students (Brown, 2010).

To corroborate these observations in the classroom, students openly discussed scaffold-usage strategies during post one-on-one interviews. Ella described how her teacher puts instructions on the board to support their learning. According to Lucas (2011), students benefit from clear and explicit instructions to support learning. Ella described how her third-grade teacher was "kind of different from my other teachers at my other school" (Student interview, November 28). As the researcher I asked her follow up questions to probe further. Ella replied,

He's better because he helps us more. The instructions, that's really helpful, because at my old school, all my teachers, they just said the instructions. They just said it, so that was kind of hard because some people—the next day, if they were asking that day and then needed to do it the next day, then they wouldn't get the instructions because she would only say it and not remember it. Our teacher, he writes the instructions on the board for us. He's different. (Student interview, November 28)

During the interview, I asked clarifying questions to ensure I understood her response correctly. Ella assured me her teacher cared about her learning so he wrote the instructions on the board for assignments in the case they were not understood orally. As Lucas (2011) suggested, listing instructions on the board supports students' learning in the inclusive classroom, especially ELLs. In one quote, Ella said, "That's important

because it helps us learn and it shows that our teachers, they really want us to learn about this stuff” (Student interview, November 28).

In this section, Linguistically Responsive Teaching (LRT), a scaffolding framework to support ELLs was discussed. This study reinforced the four LRT components including the use of extra-linguistic supports, supplement and modify written text, supplement and modify oral language, and provide clear and explicit instructions. In this research study, LRT worked in tandem with differentiated instruction. According to Lawrence-Brown (2004), teachers who implement differentiated instruction prepare “additional supports for struggling learners” (p. 37). The participants created graphic organizers, prepared sentence frames, and established explicit instructions to support all learners to make learning fair and equitable. In the next section, the data results for collaborative group work are explained.

Collaborative Group Work

In this study’s results, third- and fourth-grade teachers used collaborative group work as a differentiated instructional strategy to support students’ critical thinking. Although collaborative group work emerged as a major theme in this study, teachers were exposed to productive group work, a similar concept during the 2016-17 school year. This concept did not transfer to the classroom until this research study was underway. As teachers recognized collaborative group work served as a catalyst to support students’ intellectual development, this differentiated instructional strategy gained traction in the inclusive classroom (Vygotsky, 2016). Students learned through social interactions with their peers. These interactions paved the way to developing complex ideas, cognitive thinking, and elaborate understanding. Furthermore, Jaramillo (1996) claimed social

interactions occur prior to independent cognition. As third- and fourth-grade teachers implemented collaborative group work strategies, students learned critical thinking skills through interaction with their peers.

During this study, working in groups was common practice in third- and fourth-grade inclusive classrooms. In Ms. Green's classroom during English language arts, the following conversation was recorded: "Talk to your neighbor before we talk about how plants and animals are connected" (Observation field notes, October 24). A fourth-grader said to his partner, "They are connected because if they are not healthy, they won't eat and they can't help each other" (Observational field notes, October 24). His partner responded, "The coral has to be healthy. Algae is like dirty teeth" (Observation field notes, October 24). When the teacher led a whole-class discussion about the connections, one fourth-grader said, "The parrot fish gives the coral food to be healthy. In return the coral gives a home" (Observation field notes, October 24). In this instance, Ms. Green allowed students time to process information using a partner-turn-and-talk strategy prior to having the discussion as a whole class. Providing time for students to talk with a class partner allowed students time to gather ideas, process information, and comprehend the reading verbally with a peer before participating in a class discussion in reference to the reading.

During one-on-one student interviews, students discussed the significance of collaborative group work in the inclusive classroom. One third-grader from Ms. Harper's classroom, Camry, in particular explained,

Working in groups, we can figure out the answer quicker. It's easier because we both have our answers, and if we think one's wrong, then we can kind of say which one would be right because if we think one is wrong, that means that we

don't want to agree, but we can still find the answer together. (Student interview, November 28)

Based on Camry's perspective, working collaboratively supported learning as students shared their understandings with each other. Although group participants offered various responses during collaboration, students chose the best response to meet the class requirement.

In addition to participating in collaborative group work, third- and fourth-grade teachers were flexible with seating arrangements to enrich this cooperative experience. In Ms. Lively's third-grade classroom, the following conversation was observed:

You may sit anywhere in the classroom you would like. Move there. If you want to sit on this side, find someone you would like to work with today. Find someone who will help you work along the way. Once you know who that person is, please give them a high five. Grab a partner please. I would like you to talk to your partner about what happened on page 56 and 57. Tell them what you remember about the reading on those two pages. Practice retelling and summarizing. (Observation field notes, September 21)

During this observation, students were permitted to sit anywhere in the classroom as long as they were productively working in groups. It was common throughout the study to find students sitting in alternative seating arrangements in multiple classrooms. During classroom observations, alternative seating included students sitting on pillows, stools, buckets, lounge chairs, and exercise balls. Students appeared to be more engaged in collaborative group work as they selected the best seating arrangement for critical thinking.

Collaborative group work and flexible seating was also observed in Mr. Carter's third-grade classroom. As students were solving math problems using arrays, Mr. Carter stated,

The problems are in your zip lock bag. Problem solve with your partner. Meet up with your partner around the classroom. Save the round table for me. I want to work with some people up there. Make sure you have a pencil and sit next to your partner. Once seated, I will give you your bags to start your group work. (Observation field notes, November 8)

During this classroom observation, Mr. Carter assigned groups of two to work together in seating arrangements selected by the students. In addition, he organized red, green, and clear zip lock bags with various problems inside. The color coded bags included problems at the ability level for each group. The students worked together in a convenient area to solve problems while the teacher monitored progress and pulled a small group to a round table in front of the classroom.

Every student interviewed during the one-on-one process discussed collaborative group work in their classroom. Camry stated, “My friends help me when I don’t get it. They help me by supporting me like one of my friends helped me when reading and coloring something we had to do” (Student interview, December 1). Anna shared, “When we’re working together, sometimes she has a person be like the leader, like if we don’t understand something” (Student interview, December 1). Finally, Hanson added, “Working in groups supports me because if I need help there will be people there to support me. Sometimes I will ask them for help instead of raising my hand” (Student interview, December 1). These students’ quotes support the literature claiming collaborative group work stimulates students’ intellectual development (Jaramillo, 1996). This confirms students learn from the interaction with others in the inclusive classroom.

In this section, collaborative group work was discussed. According to Robb and Bucci (2015), cooperative group work was common practice in teachers’ classrooms where differentiated instructional strategies were embedded. In this study, third- and

fourth-grade classroom observations and one-on-one student interviews reinforced the prominence of collaborative group work in inclusive classrooms. In addition, collaborative group work aligned with Vygotsky's (2016) socio cultural theory, which emphasized students learn through social interactions. In the next section, the data results for project-based learning are explained.

Project-based Learning

In this study's results, third- and fourth-grade teachers used project-based learning as a differentiated instructional strategy to support students' critical thinking. According to Robb and Bucci (2015), project-based learning served as a characteristic found in teachers' classrooms where differentiated instructional strategies were embedded. To support multiple ways students learn, teachers implemented project-based learning in their inclusive classrooms. During classroom observations, teachers fostered conversations about challenging academic vocabulary, promoting peer observations using critical thinking, and stretching academic skills (Robb & Bucci, 2015). As third- and fourth-grade teachers implemented project-based learning, students' critical thinking skills were developed.

In Mr. Knowles fourth-grade classroom, students were observed making presentations about solutions to real-world problems identified by students. Mr. Knowles guided students through the design-thinking cycle to arrive at solutions to their identified problems. Therefore, students engaged in each of the five steps: empathy, define a problem, ideate, develop a prototype, and test solutions. Over two weeks, students developed projects while working in groups of three to four during class time deemed

appropriate by the teacher. A culminating event took place in the classroom where students presented projects to a visiting class from the fifth-grade level.

During the observation, a group of fourth-graders presented their projects and the following information was recorded:

We watched a model dam fail so we studied our own dams to make. I defined a problem. Arizona and Mexico need water. So, I decided to make a dam somewhere to replace water at once for Arizona and California. We got feedback from people, they used comments like “I notice” and “I wonder.” This is the rapid prototype. We wanted it to be durable so it doesn’t fall down. I would change the water amount so the cement dries faster. This is our dam. You can touch it. It won’t break. This was our prototype when we first started out. This is concrete made of sand and water. (Observational field notes, October 11)

After students presented, the fifth grade students were provided opportunities to ask questions and offered feedback to refine projects in the future. At the end of the presentations, Mr. Knowles gathered his students in a group and synthesized this exercise. He exclaimed, “I think you did a wonderful job. Who would like to share something you are proud of?” (Observation field notes, October 11). One fourth grader said, “I put a lot of effort in myself” (Observation field notes, October 11). Another student added, “I was really thinking of criteria for success when presenting” (Observation field notes, October 11). Another student concluded, “I am proud that we worked together and focused” (Observation field notes, October 11). Students demonstrated critical thinking as they criticized the outcomes to their presentations. Mr. Knowles reinforced his students’ comments and reiterated the pride he shared for each student’s success.

In a third-grade classroom, students were observed giving feedback to each other after going through the same project-based learning process as above. The following conversation was witnessed between third-graders:

The presenter did not make eye contact with the audience. The presenter spoke loudly and clearly sometimes. The presenter explained the project so I understand it. The project shows a real-world application. A suggestion is to make better eye contact. The presenter spoke clearly sometimes. Speak more clearly for the future. The project was sometimes original. I would like more detail put into your presentation. (Observation field notes, October 11)

To provide clear and precise feedback, third-grade teachers used a common rubric to guide their students' conversations. These rubrics supported students by providing items in a checklist to watch for as students presented their projects. Students demonstrated "thinking about thinking" as they critiqued the presenters using the rubric criteria provided by the third-grade level teachers (Moore & Parker, 2012, p. 2).

During one-on-one interviews, Camry corroborated how important it was to have guides like the rubric to support their learning. When asked if there was something special about Ms. Harper, his classroom teacher, Camry said,

Yeah, there's something special about my classroom that helps me learn is when she puts poster boards on the class wall and we can see it. It's a visual to help us. It's helpful because when we don't get it, then we can look at the poster board and now we get what to do, because that helps us learn. (Student interview, November 28)

Figure 1 below is one of the posters Camry was referring to during his interview.

Provided rubrics and posters like this one in Ms. Harper's classroom helped students learn to give appropriate feedback, especially when building critical thinking during project-based learning.

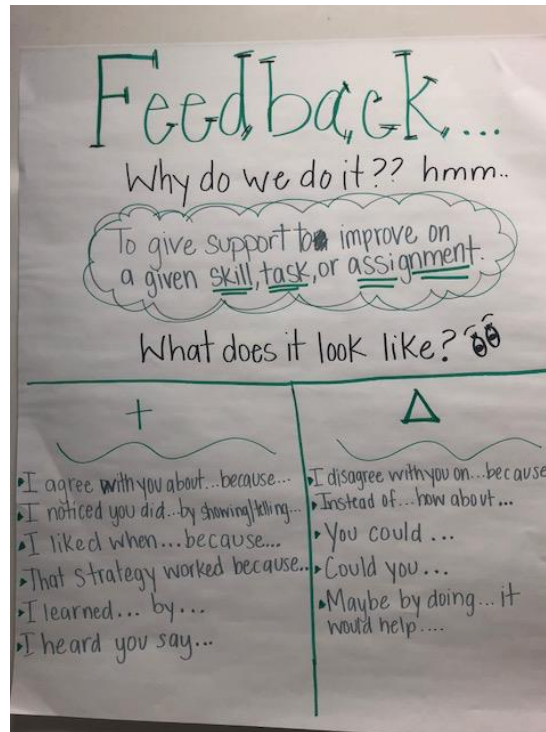


Figure 1. Poster boards supporting student feedback during project-based learning

In this section, project-based learning was discussed. In Robb and Bucci's (2015) research on differentiated instruction, students engaged in project-based learning in inclusive classrooms. This strategy was a common characteristic found in third- and fourth-grade teachers' classrooms as they implemented differentiated instructional strategies. All teachers used design-thinking to support project-based learning. In this study, project-based learning served as a differentiated instruction tool to engage students in critical thinking through collaboration, questioning, and problem-solving. The classroom observations and one-on-one student interviews reinforced the significance of project-based learning to meet the needs of each individual child to make learning fair and equitable. In the next section, the data results are shared to answer this study's third research question.

Research Question #3 Findings

To this point, this study addressed teachers' perceptions of their instructional effectiveness and use of differentiated instructional strategies to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. Research Question #3 expands on how teachers can make further use of differentiated instructional strategies to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. The methods used to gather data included teachers' personal journals and anonymous professional development questionnaires.

Through the use of grounded theory and triangulation, the data results suggested teachers can make further use of differentiated instructional by implementing the following strategies in inclusive classrooms. Grouping, growth mindsets, and teaching to accelerated learners emerged as differentiated instructional strategies teachers can make further use of to support students' critical thinking skills. In the following section, strategies are discussed to demonstrate how third-and fourth-grade teachers can make further use of differentiated instructional strategies to support students' critical thinking skills across cultures and linguistic and achievement levels.

Instructional Grouping

Grouping emerged as a strategy to further develop after teachers participated in the professional development intervention. Mr. Knowles, a fourth-grade teacher, reinforced this idea with the following reflection:

As my own model of instruction fits a mode for personalized learning, I plan to meet with the smallest group of students I can at one time. What this means is that I have tailored my instruction enough to where the majority of my students can

teach and support one another, that I am only needed to work with specific scaffolds and supports during a given lesson. So far, I have designed my instructional math minutes to provide a more individualized approach to learning. For reading, I have implemented personalized components for the re-read, but still need more differentiation embedded. (Teacher journal, 2017)

Mr. Knowles plans to structure learning so his fourth-grade students support each other while he works with an identified small group of students in his inclusive classroom.

Therefore, he will work with a small group to scaffold for students with similar needs (Robb & Bucci, 2015). This approach also falls in line with Lawrence-Brown's study (2004) reinforcing maximizing learning for struggling students by "devising additional supports" such as small group instruction (p. 37).

Mr. Carter, third-grade teacher, also indicated making further use of intentional grouping to develop differentiated instructional strategies in the inclusive classroom. In his reflection, Mr. Carter stated,

Strategies I will implement include purposeful homogeneous partners, heterogeneous partners, stand up/hand up/pair up, and choice partners. In homogeneous groups, kids get the work done quickest. Conversations are focused because they aren't usually focused. The work is well done. In heterogeneous groups, I feel one student dominates the conversation unless I make it more purposeful. Like when I tell one student to do the work the other to check it. In stand up/hand up/pair up, some students have trouble finding a partner. Conversations are less focused. Using choice partners, kids enjoy the freedom. The work and conversations are surprisingly focused when students practice picking good partners. (Teacher journal, 2017)

According to the quote above, Mr. Carter plans to group students intentionally to support learning in his third-grade inclusive classroom. By making use of homogeneous grouping, Mr. Carter reinforces Lawrence-Brown's (2004) idea on providing an appropriate education for students who are gifted and talented or those students with disabilities. Grouping students homogeneously, Mr. Carter can facilitate learning at the

pace appropriate for the learner, making learning fair and equitable for students who accelerate through the curriculum.

In this section, intentional grouping was discussed as a differentiated instruction strategy third- and fourth-grade teachers can make further use of in inclusive classrooms. After each professional development session, teachers' personal journals and reflections revealed the significance of intentional grouping to support students' critical thinking, especially in providing an appropriate learning environment for all students (Lawrence-Brown, 2004). In the next section, the data results for growth mindsets are explained.

Teachers' Mindsets

To implement differentiated instruction in the inclusive classroom, growth mindsets emerged as a characteristic to supporting students' critical thinking across cultures and linguistic and achievement levels. Various teachers explained how the book, *Mindset: The New Psychology of Success*, by Carol Dweck (2008) impacted teaching practices. One teacher anonymously shared the following excerpt:

I believe I am ready to take this to the next step and continue to have a growth mindset in my life as a teacher and an individual. I would truly like to continue to reflect on this as a person at the end of the school year and see how much I have implemented and how much it has helped my students grow as individuals. I will find ways for my students to take this knowledge home with them in order to have these same conversations with the family members as well. (Questionnaire, November 29)

Based on data, the growth mindset was a powerful idea to support teachers in the classroom. As teachers gravitated toward a growth mindset, they fostered a growth mindset in students to bolster self-confidence and academic achievement. A second teacher anonymously shared the following:

The growth mindset really impacted me. It will help me develop as a person as well as a professional. I am one of those people who is scared of taking risks and

afraid of failing. The growth mindset allowed me to embrace challenges and learn from them. (Questionnaire, November 29)

The teacher above indicated how the mindset philosophy was a powerful tool to help develop personally and professionally. In the following quote, a third teacher also anonymously indicated how the growth mindset impacted his/her experience,

This experience has helped me develop as a teacher through the opportunities given and the strategies built. The mindset book had such depth topics that really allowed me to reflect and start to work on how my mindset impacts students in the classroom, in the school, and in my personal life. The strategies that were used in the professional development such as sorting, grouping, conversation structures, and ways to get personable with students will help in the classroom also. (Questionnaire, November 29)

In this section, growth mindset data were discussed as a pre-requisite to making further use of differentiated instructional strategies in third- and fourth-grade inclusive classrooms. In this study, teachers' mindsets served as an ideology to making learning fair and equitable for all students (Rist, 2000). For teachers to embrace differentiated instructional strategies like scaffolds, collaborative group work, or project-based learning, adopting a growth mindset was necessary. Without a growth mindset, supporting all students' critical thinking remained challenging. The teachers' personal reflections after professional development revealed the significance of growth mindsets to support students' critical thinking. In the next section, the data results for teaching to accelerated learners are explained.

Teaching Accelerated Learners

During the professional development intervention, supporting gifted learners emerged as the most requested learning topic according to the responses generated by anonymous questionnaires completed. The final professional development intervention focused on ways to support accelerated learners or students with special gifts. During this

session, teachers learned about compacting the curriculum, providing extension activities, and self-selected independent study assignments for students (Winebrenner, 2012). After this session, one third-grade teacher shared, “I am going to be teaming up with third-grade teachers to develop appropriate templates for independent units of study” (Questionnaire, November 29). In addition, another teacher stated, “I am going to plan ahead of time extension activities and menu boards for my students. This will be responsive to my students’ needs and, therefore, hopefully boost academic achievement” (Questionnaire, November 29). While discussing compacting the curriculum, a third teacher indicated, “The most difficult first strategy will really help all of my students. It will allow them to become confident learners in charge of their own learning.” (Questionnaire, November 29). Allowing students to work on the most challenging problems, first, permitted teachers to evaluate student knowledge to determine where to begin lessons in the curriculum. Based on these results, teachers plan to make further use of these three differentiated instructional strategies to support students who accelerate in the curriculum.

Some teachers voiced excitement in making further use of differentiated instructional strategies to support students who are gifted and accelerated in the curriculum. For example, one teacher stated,

I will continue to work with my gifted students in a variety of ways. I think it would be a fun way to do a choice board as well as a self-selected independent study to give them a variety and choice. They are always interested in sharing the new things they are interested in and we can help them share their passions with others in class. (Questionnaire, November 29)

This teacher appeared excited to try new ideas such as choice boards and self-selected independent study strategies with gifted learners in the inclusive classroom. This new

attitude about serving gifted learners was different than past practices. In the past, teachers allowed the gifted teacher to serve and enrich the gifted learners using a pullout program. After this study, teachers appeared more willing to support gifted students using strategies learned in the professional development intervention. In addition to implementing new strategies, this teacher discussed encouraging gifted students to share their passions with other students in the inclusive classroom. Encouraging this behavior, other students may be inspired or motivated by the passion displayed by gifted students.

One teacher summarized the significance of making learning fair and equitable for every child by expressing the need to tailor education for both students experiencing academic struggles and those performing at higher academic levels. The teacher said,

I want to encourage students to strive to new levels everyday no matter where their learning and learning styles are. Students who are lower need more support in the importance and why of their academics. Higher leveled student need variety and a voice in the class and have to be able to share their passions with other students. Like it was said during our professional development, it is important to plan for these moments and really take the time out to implement the right sets of supports for the right people. (Questionnaire, November 29)

In the above quote, this teacher expressed making learning fair and equitable no matter the student's learning style. This teacher not only expressed the significance in providing accelerated learners choice and ownership, but also expressed the need to support students who struggle. According to this teacher, making learning fair and equitable takes time and planning to support each learner at an appropriate academic level. Therefore, rejecting the notion that delivering a one-size-fits-all lesson is acceptable.

In this study's beginning, teachers struggled to support students who accelerated through the curriculum, especially those who were gifted and talented. Teachers lacked the training to determine how to best serve high-achieving students. Focusing on

compacting the curriculum, extension activities, and self-selected independent assignments for students (Winebrenner, 2012); teachers were equipped with differentiated instructional strategies to stimulate students' critical thinking, especially accelerated learners. According to Lawrence-Brown's (2004), teachers who differentiate instruction "provide an appropriate education" for all students including those with special gifts or learning disabilities (p. 37). Providing teachers training served as a catalyst to support students' critical thinking and making learning equitable for all students.

In this chapter, qualitative data addressed the three research questions in this study. First, teachers' perceptions of instructional effectiveness were shared pre- and post-intervention. Second, differentiated instructional strategies influencing third- and fourth-grade teachers' abilities to support students' critical thinking skills were discussed. Finally, how teachers can make further use of differentiated instructional strategies to support students' critical thinking skills were presented. In the next chapter, interpretations and discussions related to these results are explained.

CHAPTER 5

DISCUSSION

This study examined the impact on students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms. The most common themes included unfamiliar curriculum, implementing the use of design-thinking, emphasizing a growth minded, using cultural responsive teaching, instructional scaffolds, collaborative group work, project-based learning, instructional grouping, teachers' mindsets, and teaching accelerated learners. The following section is organized by each of them that surfaced during this study.

Themes

Unfamiliar Curriculum

As this study began, teachers struggled after acquiring new mathematics and ELA curricula during the fall semester. This led to teachers feeling unconfident and inexperienced in their instructional effectiveness to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. Teachers indicated they were not equipped to use differentiated instructional strategies to support students' critical thinking skills until becoming more familiar with the learning materials.

Focusing on unfamiliar curriculum, this theme aligned with Schumm and Vaughn's (1991) research that indicated teachers avoid implementing differentiated instructional strategies for various reasons. According to Schumm and Vaughn (1991), teachers lack training to support modifications for various types of learners, especially those students who accelerate in the curriculum. Using new mathematics and ELA

curriculum, third- and fourth-grade teachers struggled to identify critical concepts, ideas, and skills to serve as structures for making adjustments to accommodate students' academic progress (Schumm & Vaughn, 1991; Tomlinson et al., 1997; Vaughn & Schema, 1994). Adopting new curricula in mathematics and ELA served as an obstacle to providing differentiated instructional strategies to support students' critical thinking skills in inclusive classrooms.

In this study's beginning, participants recognized their inability to differentiate instruction resulting from adopting two new curricula simultaneously. Although research indicated challenges increase due to high-stakes testing mandates imposed by federal legislation (Callahan, Tomlinson, Moon, Brighton, & Hertberg, 2003; Vaughn & Schema, 1994), this was not the case in this research study. Based on evidence, teachers perceived the new curricula adopted served as an obstacle to effective instruction to ensure learning for all children. Utilizing new curriculums served as a primary focus over making students the main objective to teaching practices (Blanton et al., 2006). Participants struggled with confidence and experience while using these new resources. This study suggested limitations in research regarding teachers' perceptions on using newly adopted curricula and learning differentiated instructional strategies concurrently. More research is necessary related to teachers' perceptions on using differentiated instructional strategies while using new and unfamiliar curriculum.

Implementing Design-Thinking

The participants demonstrated how design-thinking, a cyclical method, allowed students to explore and review standards in an inclusive classroom. The design-thinking process was used as a differentiated instructional tool for teachers to support students'

critical thinking across cultures and linguistic and achievement levels. As mentioned in Chapter 4, this cyclical method required students to empathize with others during collaboration, discuss problem-solving, create solutions, and test their results. Therefore, design-thinking aligned with Moore and Parker's (2012) critical thinking concept. As students walked through the classroom doors, they were expected to interact with others and the environment to make sensible decisions and draw appropriate conclusions. This was evident in design-thinking as students consistently critiqued their own thinking and thinking of others when exploring standards in the inclusive classroom (Moore & Parker, 2012).

Furthermore, the participants demonstrated how design-thinking promoted student ownership in building a foundation to solve real-world problems and allowing students the freedom to choose the assignment's outcomes. Teachers fostered critical thinking by granting students opportunities to develop problem-solving strategies. Students worked cooperatively and critiqued others' ideas. Aligning with Moore and Parker's (2012) research on critical thinking, students determined whether the information met the requirement and good logical sense using design-thinking. Students maintained ownership in developing a prototype and testing outcomes while seeking feedback to improve assignments using design-thinking across cultures, linguistics, and achievement levels in inclusive classrooms.

Moreover, design-thinking allowed students to use prior knowledge and interests in this study. Teachers implemented the design-thinking method as a differentiated instructional strategy as students worked collaboratively (Robb & Bucci, 2015). Using design-thinking, teachers promoted ownership as students worked together to solve real-

world problems. According to third- and fourth-grade teachers, students developed multiple solutions to a given problem and tested the results. In this study, design-thinking supported students to think critically across cultures, linguistics, and achievement levels in inclusive classrooms.

Emphasize a Growth Mindset

Research participants provided evidence that implementing a growth mindset philosophy supported third- and fourth-grade students' critical thinking across cultures and linguistic and achievement levels in the inclusive classroom. Displaying a growth mindset while delivering lessons, teachers impacted how students felt about their learning and self-confidence. This aligned with Lawrence-Brown's (2004) research on differentiated instruction, which indicated teachers devised additional resources to help struggling students. Embedding a growth mindset, teachers observed changes in students, especially when exerting a growth mindset. According to the participants, students appeared to be more critical in their own thinking and their classmates' thinking.

The growth mindset concept aligned with Moore and Parker's (2012) research that students "think about their thinking and thinking of others" against certain criteria like the growth mindset. Dweck (2008) indicated individuals who maintain a growth mindset confront challenges, refuse labeling, persist through mistakes, and believe in effort. Therefore, teaching students to harness the growth mindset criteria served to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

As participants implemented the growth mindset philosophy, students focused on improving their academic performance. For example, students made the shift from paper

to online materials in the new mathematics and ELA curricula adoptions. Teachers fostered a growth mindset to advance the way students feel about change. In turn, the curriculum adjustments served as a positive experience for students. Also, teachers used think-aloud models to support students to embrace risk-taking and making mistakes as an opportunity to learn. Teachers tapped into students' internal motivation (Ruddell, 1995) to stimulate growth mindset strategies to increase academic progress across cultures, linguistics, and achievement levels in inclusive classrooms.

Using Cultural Responsive Teaching

During this study, participants' demonstrated how cultural responsive teaching impacted students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. Teachers like Ms. Garza, began developing caring relationships with students in her ELD classroom (Ruddell, 1995). She invited students to her classroom during lunchtime and established ways to connect with students. Ms. Garza used additional time as an opportunity to learn about students' interests, hobbies, social activities, personal problems, and relationships with family members in the community. She identified as Latina and spoke Spanish; therefore, students identified with her and developed high trust levels. Building relationships allowed students to feel safe, secure, and comfortable learning in the classroom environment. Ms. Garza made personal connections to connect the curriculum (Fry & DeWit, 2010) and stimulated internal motivation to foster curiosity (Ruddell, 1995). Also, Ms. Garza noticed students' academic progress increased. Building relationships in the classroom catapulted critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

As relationships developed, teachers planned strategically to embed students' names in word problems during lessons in subject areas like mathematics. Also, teachers used cultural experiences such as Christmas to foster student engagement and critical thinking to solve problems in lessons. Connecting classroom instructional content to students' lives aligned to Fry and DeWit's (2010) studies on differentiated instruction. In addition, teachers used real-life references to draw interest from students. Children identified with these vivid descriptions due to personal connections to curriculum (Fry & DeWit, 2010). These accounts served as a launch to cultural responsive teaching in the classroom.

Aligning with Santamaria's (2009) research on CRT, third- and fourth-grade teachers used culture as a foundation to improve students' critical thinking skills across cultures and linguistic and achievement levels in the classroom. According to Santamaria (2009), there were three CRT indicators including academic achievement, cultural competence, and sociopolitical consciousness. During this study, participants began to plan lessons while considering each of these elements. Starting with academic achievement, teachers built relationships with students to foster critical cultural understandings and promoted a belief in learning for all students. Teachers sacrificed their lunch period to eat and make student connections. Second, teachers were culturally competent by seeking to understand the students, recognizing the role culture plays in education, and learning each child's background. Teachers embedded students' names in word problems and used real-life examples to support students' during classroom discussions. Finally, teachers developed sociopolitical consciousness by referencing Christmas and tapping into the students' religious backgrounds to establish relations.

These CRT components served to stimulate and engage students' critical thinking in inclusive classrooms.

Instructional Scaffolds

In this section, responses to the second research question are analyzed. To determine how differentiated instructional strategies influenced third- and fourth-grade teachers' abilities to support students' critical thinking skills across cultures and linguistic and achievement levels; observational field notes and one-on-one student interview transcripts were interpreted and discussed at length. In this study, three strategies emerged: instructional scaffolds, collaborative group work, and project-based learning.

Beginning with instructional scaffolds, this study demonstrated how teachers used the various LRT components to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. For example, teachers used graphic organizers to increase students' oral and written vocabulary knowledge. Using graphic organizers, students defined vocabulary, provided antonyms, used each word in a sentence, and drew picture representations. This aligned with research by Lucas (2011) on using extra-linguistic support as an LRT component. In this case, teachers used graphics organizers to support students' critical thinking skills while building a foundation in vocabulary.

Next, teachers implemented sentence frames in the inclusive classroom. In one case, students used sentence frames to make observations about a box figure in a fourth-grade science lesson. In another third-grade classroom students used sentence frames to describe hero characteristics for a lesson on Patriots' Day. This aligned with the LRT component, supplementing and modifying written text (Lucas, 2011). Teachers

demonstrated effective use of sentence frame structures to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

In a third-grade classroom, a student described how Mr. Carter wrote explicit instructions on the whiteboard to support students' critical thinking skills in the inclusive classroom. Mr. Carter was described as being *different* when compared to teachers in other schools (Student interview, November 28). Ella claimed her teacher cared about students (Fry & DeWit, 2010) as he wrote instructions on the board for assignments to support a better understanding. According to Ella (Student interview, November 28), this was especially helpful for students who were absent on a given day. As they returned to school the following day, they were able to reference the whiteboard to determine how to proceed in completing make-up work. This concept aligned with Lucas' (2011) research on the LRT component, as to clear and explicit instructions to support learning. Moreover, listing instructions on the board, teachers supported students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

In this study, instructional scaffolds emerged as a differentiated instructional strategy that influenced third- and fourth-grade teachers' abilities to support students' critical thinking skills. Instructional scaffolds served as additional supports to assist in student learning (Lawrence-Brown, 2004). Aligning with Lucas' (2011) research on LRT, teachers demonstrated effective instructional scaffold usage. The evidence showed how teachers in this study implemented LRT components from Lucas' (2011) research: using extra linguistic support, supplementing and modifying written text, and providing clear and explicit instructions. Participants utilized LRT to not only support ELLs, but

bolstered students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

Collaborative Group Work

This study demonstrated how collaborative group work served as a differentiated instructional strategy to influence teachers' abilities to support students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms. Before initiating whole group discussions, teachers focused on students talking to peers to gather ideas and thoughts. As students collaborated with each other, usually in pairs, they learned through social interaction (Vygotsky, 2016). Teachers embedded a turn-and-talk-to-a-partner strategy to enhance whole group discussions. Aligning with Vygotsky's socio cultural theory (2016), collaborative group work supported critical thinking and stimulated intellectual development. By providing this strategy, students listened to one another's ideas, analyzed others' thinking based on classroom criteria (Moore & Parker, 2012), and participated in whole group discussions.

Furthermore, students recognized collaborative group work as a significant differentiated instructional strategy. During one-on-one interviews, students discussed working together allowed them to generate quicker responses to teachers' questions. Hanson described how discussions with a partner led to sharing ideas and choosing the best response based on the collaboration to meet the teacher's requirement. This aligned to Moore and Parker's (2012) definition on critical thinking. Students participate in critical thinking by "thinking about thinking; we engage in it when we consider whether our thinking (or someone else's) abides by the criteria of good sense and logic" (Moore & Parker, 2012, p. 2). In this study, students determined collaborative group work served

as a differentiated instructional strategy to support their critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms.

Throughout this study, teachers embedded collaborative group work as a differentiated instructional strategy. Students corroborated the significance of working together, especially if they needed support from peers in the inclusive classroom. This study confirmed students learn through social interactions with others (Vygotsky, 2016). Furthermore, Jaramillo's (1996) research indicated social interaction must occur before independent cognition. As teachers implemented collaborative group work as a differentiated instructional strategy, students' confirmed interactions with peers impacted positively impacted student achievement.

Project-based Learning

During this study, teachers demonstrated how project-based learning served as a differentiated instructional strategy to influence students' critical thinking skills. While collecting observational field notes, students were observed giving presentations to an audience about developing solutions to real-world problems. Teachers implemented design-thinking as students identified problems and arrived at solutions. Guided by design-thinking, students worked in groups of three to four using five steps: empathy, define a problem, ideate, develop a prototype, and test solutions. Project-based learning aligned with Robb and Bucci's (2015) research as a characteristic found in classrooms where teachers differentiate instruction. At Star Mountain Elementary School, project based-learning was one strategy used to stimulate students' critical thinking.

As a culminating event to project-based learning, students presented projects to an audience. After each presentation, the audience was invited to ask questions and provide

feedback. The presenters used the feedback from the audience to improve their projects. The audience, usually made up of peers from another grade level, was provided with a rubric or criteria for thinking critically about presentations. Rubrics provided students with verbiage to use and checklists to reference for leaving meaningful feedback. As students provided feedback, this aligned to Moore and Parker's (2012) research that students were "thinking about thinking" and using the criteria on the rubric to make logical sense about each presentation. As demonstrated in this study, providing feedback stimulated students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms.

Instructional Grouping

In this section, responses to the third research question are discussed. To determine how third- and fourth-grade teachers can make further use of differentiated instruction to support students' critical thinking skills across cultures, linguistics, and achievement levels to increase student achievement, teachers' personal journals and responses from anonymous professional development questionnaires were interpreted. For Research Question 3, the following strategies emerged: instructional grouping, teachers' mindsets, and teaching accelerated learners.

To make further use of differentiated instructional strategies, this study demonstrated how teachers can further develop instructional grouping. Teachers like Mr. Knowles discussed ways to personalize learning for students. In his inclusive classroom, most students knew the material well enough to support each other in learning. By tailoring lessons to meet the specific learning needs of a small identified group, Mr. Knowles supported students' critical thinking. The quest to personalize learning for

students in a small group aligned with Robb and Bucci's (2015) research, which indicated teachers work with an identified small group of students to support learning using scaffolds. Also, Lawrence Brown's (2004) research focused on maximizing learning for struggling students, especially utilizing small group instruction. As teachers tailor lessons to support small group instruction, this strategy serves as one way teachers can make further use of differentiated instruction to support students' critical thinking across cultures, linguistics, and achievement levels to increase student achievement.

Also, teachers can make further use of differentiated instruction through instructional grouping by implementing various structures. Mr. Carter discussed using purposeful homogenous partners, heterogeneous partners, stand up/hand up/pair up, and choice partners. In structures such as homogeneous groups, students were described as being *focused* during conversations (Teacher journal, 2017). Instructional grouping like homogeneous structures aligned with Lawrence-Brown's (2004) research on providing an appropriate education, especially for students identified as gifted or special education. Using intentional instructional groups permitted the teacher to stimulate students' critical thinking at an appropriate pace for each learner including gifted students.

This section addresses teachers can make further use of differentiated instruction through the use of instructional grouping. In this study, teachers discussed how various instructional grouping structures could impact student achievement. Teachers recognized students represent various cultures, linguistics, and achievement levels; therefore, tailoring lessons to meet the individual needs in a small group is necessary. Instructional grouping served as one method teachers can make further use of differentiated

instructional strategies to make learning fair and equitable for every child in inclusive classrooms.

Teachers' Mindsets

A second strategy teachers can utilize to differentiated instruction to support students' critical thinking skills was adopting a growth mindset. Third- and fourth-grade teachers recognized the growth mindset had potential to help students develop intellectually, especially in critical thinking. This aligned with Rist's (2000) research, which indicated teachers' perceptions impacted students' academic potential. In addition, teachers' mindsets about students perpetuated from one year to the next (Rist, 2000). In this study, teachers recognized that to make learning fair and equitable embracing the growth mindset served as a prerequisite to differentiating instruction to support students' critical thinking skills.

As teachers recognized the growth mindset impacted academic growth, they fostered a classroom environment where challenges were embraced. Rather than discouraging mistakes, participants used these opportunities for learning. Teachers modeled growth mindset behavior and how it impacted their abilities both personally and professionally. When modeling the growth mindset, teachers noticed students applied this concept in the classroom. Students' critical thinking skills differed when using the growth mindset in the inclusive classroom. Students were more open to mistakes and adopted growth mindset as a learning mechanism. This aligned with Dweck's (2008) research on students' growth mindsets indicating persistence when making mistakes and facing challenges. Teachers demonstrated growth mindsets were important in making further

use of differentiated instruction to support students' critical thinking to bolster student achievement.

In this study teachers' mindsets impacted critical thinking in inclusive classrooms. Teachers recognized a need to adopt a growth mindset to increase academic achievement. In addition, teachers shared in the belief that all children can succeed when shifting mindsets (Jensen, 2009). A growth mindset bolstered students' self-confidence and academic achievement. Teachers' mindsets served as a prerequisite to differentiating instruction that can impact student achievement across cultures, linguistics, and academic progress in inclusive classrooms.

Teaching Accelerated Learners

Another approach was utilized to differentiate instruction to support students' critical thinking. In this study, teachers demonstrated an interest in learning new ways to support students identified as gifted learners. Teachers were eager in providing students' critical thinking skills to extend learning. This aligned with Robb and Bucci's (2015) research indicating teachers differentiate in class and assigning homework to increase students' self-efficacy. During this study, teachers recognized a need to further develop ways to reach gifted students to maintain interest, build self-efficacy, and enrich critical thinking.

In this study, teachers adopted three ideas to utilize differentiated instruction to support students' critical thinking skills. These concepts included compacting the curriculum, extension activities, and self-selected independent study assignments with an emphasis on gifted learners (Winebrenner, 2012). By implementing the above differentiated instructional strategies, this also aligned to Lawrence-Brown's (2004)

research on teachers “providing appropriate education for students with special gifts and talents” (p. 37). Teachers expressed excitement in exploring new ways to support accelerated learners. Throughout this study, teachers demonstrated a desire to make further use of differentiated instruction to support gifted students’ critical thinking skills in inclusive classrooms.

Although supporting gifted students served as challenging, third- and fourth-grade teachers embraced a new attitude toward enriching skills of accelerated learners. Teachers demonstrated a new found interest toward supporting gifted students, especially in critical thinking. Using strategies like compacting the curriculum, extension activities, and self-selected independent study assignments (Winebrenner, 2012) provided teachers a foundation to build their understanding. In this study, teachers discovered ways they can make further use of differentiated instructional strategies to support students’ critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

Implications for Practice

The purpose of this study was to determine how differentiated instructional strategies impacted teachers’ abilities to support students’ critical thinking skills to create equity in learning for all students. As principal at Star Mountain Elementary School, my responsibility served to ensure learning is fair and equitable for every student. After conducting research and participating in this 16-week professional development intervention, I embraced the emerging perspectives. The first implication on teachers’ practices resulted from reading the *Mindset: The New Psychology of Success* by Carol Dweck (2008). Many of the participants indicated how the mindset philosophy impacted

them personally and professionally. Although all but one teacher had at least two years teaching experience, this was the first time they focused on teachers' mindsets.

Emphasizing a growth mindset philosophy served as a breakthrough to supporting students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

During the last professional development session, teachers had the opportunity to complete an anonymous questionnaire about professional development intervention topic that had the greatest impact. One teacher said, "The growth mindset topic impacted my teaching the most. I am more reflective on my own mindset and my students' mindset. It is a powerful idea that can support students in and out of the classroom" (Questionnaire, November 29). This teacher acknowledged how adopting a growth mindset changed her teaching practice. She indicated she was more reflective in her mindset as well as that of her students. In addition, the teacher recognized the mindset philosophy as a critical tool to support students at school and away from the classroom. Possessing a growth mindset served as an instrumental prerequisite to providing differentiated instructional strategies to support students' critical thinking in inclusive classrooms.

A second teacher described how adopting a growth mindset permitted teachers the ability to take risks. This teacher explained:

The growth mindset really impacted me. It will help me develop as a person as well as a professional. I am one of those people that is afraid of taking risks and afraid of failing. The growth mindset will allow me to embrace challenges and to learn from them. (Questionnaire, November 29)

This teacher described the growth mindset impacted both personally and professionally.

The teacher experienced a new way to look at failure and risk-taking. By practicing a growth mindset, the teacher embraced challenges and learned from missteps. With a

change in mindset, teachers allowed themselves to take risks unlike experiences before this study.

Teachers' mindset impacted instructional practices during this study. Adopting a growth mindset enabled teachers to confront challenges, refuse labeling students, persist when making mistakes, and believe in effort and hard work. According to Dweck (2008), learning the growth mindset permits a person to go deep within, discover strengths, and persist when experiencing difficulties. In this study, teachers discovered how adopting a growth mindset served as a pivotal element to using differentiated instruction to supporting students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

As principal at Star Mountain Elementary School, teachers' mindsets have implications on my role as an instructional leader. Most teachers in this study identified as Caucasian and middle-class citizens. As demonstrated in this research, many factors impact students' success, especially across cultures, linguistics, and achievement levels. According to Jensen (2009), educators from non-minority or middle-class social statuses have difficulties understanding students' needs when coming from backgrounds considered challenging. This problem permeates when students come from poverty. Teachers tend to feel sorry for children, which leads to lowered academic expectations. As teachers create these inequitable circumstances in the classroom environment, students experience academic difficulties in future grade levels (Rojas & Liou, 2017). As an instructional leader, it is my responsibility to debunk these teachers' perceptions.

At this study's beginning, teachers expressed how they possessed a fixed mindset. Mr. Carter described his experience:

The mindset piece has been very beneficial because even though I feel I project an aura of positivity, I am not always the most positive person when I am alone with my thoughts. I can fake it really well in public, but it's sometimes a different story when I am alone. My mind goes right to the negative when something happens in life or school. I feel a change because of our book, however. I am trying my best to approach every situation as a learning experience, especially when it comes to the classroom. It's easy to be down after a hard day in the classroom, and I think it's alright to feel that way in the moment, but my reflection time later has been different. I've always been able to find the positive during those difficult days, but I am spending even more time now figuring out why things went wrong and what I can do differently next time. My students will learn and grow even more if I am able to continue with the positives and adjust the negatives. (Teacher journal, 2017)

Mr. Carter was a well-respected teacher at Star Mountain Elementary School. In this study, he indicated how he had the potential to focus on the negative aspects, especially during challenging days in the classroom. Although he maintained incredible relationships with students and teachers, Mr. Carter had the ability to “fake” his mindset. This leads me to believe there are other teachers throughout Star Mountain Elementary who are “faking” their mindsets without having strategies to change the way they perceive children. It was not until Mr. Carter participated in the book study on *Mindset: The New Psychology of Success* by Carol S. Dweck (2008) that he was able to make adjustments to his perceptions. He recognized his mindset permeated in the classroom with his students. By adopting a positive growth mindset, Mr. Carter believed his students will *learn and grow*.

As an instructional leader, making learning fair and equitable for every child is at this study's center. In this research, teachers' mindsets emerged as a key element to embracing differentiated instructional strategies across cultures, linguistics, and achievement levels to stimulate student' critical thinking in inclusive classrooms at Star Mountain Elementary School. It is my responsibility to put structures in place to combat

fixed mindsets and deficit thinking. Invalidating myths in teachers' mindsets from those who were raised in middle- or upper-class social environments remains a critical step (Jensen, 2009). Creating an environment where students are not being judged or labeled is imperative (Dweck, 2008). Hosting staff meetings to inspire and motivate teachers to embed differentiated instructional strategies to make learning available to all children is essential (Jensen, 2009). Focusing on each child's culture, linguistic ability, and academic achievement level empowers teachers to use a student's identity to propel the curriculum and classroom experience to ignite the critical thinking, which represents the goal of instructional leadership in this study.

During this action research study, my mindset changed. At this study's beginning, I wanted to work solely with third-grade teachers. It was not until my dissertation proposal defense during spring 2017 that my committee required me to invite another grade level of teachers to participate in this study.

Initially, I chose to work solely with third-grade teachers due to their reputation at SMES. These teachers had the most longevity of working together on campus. In addition, they were considered to be a skillful, collaborative, and well-respected professional group. With that in mind, it was my desire to take this already proficient group and stretch their professional learning to make them instructionally exceptional to meet the cultural, linguistic, and academic students' needs in diverse, inclusive classrooms.

At the onset, I conducted classroom observations using Nigel Holmes' instrument to measure third-grade teachers' mindsets. To my surprise, I learned all four third grade teachers possessed fixed mindsets. Although third-grade teachers were considered to be

effective teachers at SMES, I discovered they avoided challenges, quit easily, rarely took risks, and sometimes felt threatened by others (Dweck, 2008) at this study's beginning.

These discoveries altered my mindset as I recognized my misconceptions on third-grade teachers' abilities. With this in mind, I realized there might be other blind spots on campus where I might need to explore teachers' mindsets at other grade levels in future research. Through this discovery, I embraced the need to not only work with third-grade teachers, but also I accepted the challenge of working with fourth grade teachers as well.

Over this study's progression, I witnessed a change in third- and fourth-grade teachers as they embraced the ideas of Dweck's (2008) research on mindsets. Teachers began to discuss this shift openly during professional development and recorded their thoughts in personal journal entries. I heard stories on how teachers were more willing to take risks in the classroom, make mistakes and use them as learning opportunities, and listen to feedback to improve their instructional practices to support students (Dweck, 2008). As teachers became more motivated to make the shift from a fixed to a growth mindset, my inspiration to support other teachers grew.

By this study's conclusion, I recognized I had deficit thinking at this study's start. Initially, as I limited the scope of this study to work solely with third-grade teachers, there were numerous teachers who would have benefited by participating in this research. I was fixed on third grade teachers due to the longevity of classroom experience they possessed when SMES' first and second year teachers would have benefited from this action research study. Therefore, I look forward to replicating this study school wide at the start of the 2018-19 school year.

As the researcher, this study has implications on my leadership practices as principal. Based on this study's results, instructional leaders like principals assume a mindset when managing school buildings. According to Arnander (2013), leaders develop as either formal leaders or mindset leaders. Formal leaders adopt formal titles, assume responsibility, maintain accountability, and possess authority over the organization. The power remains with the person at the organization's top spot. Unlike formal leaders, mindset leaders empower the members in the organization. Mindset leaders serve to develop growth mindsets in others, share responsibility, maintain a proactive approach, and share authority with stakeholders (Arnander, 2013). Serving a school community, this implies that principals have the power to diminish or inspire the motivation in others depending on the leadership style adopted.

Fostering a positive environment, mindset leaders motivate teachers to support students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms. Teachers interact with students and impact learning throughout the school day. They are on the frontline in the classroom and stand in the best position to make decisions to provide on the spot differentiated instruction. As principals, it serves the organization best to value good leadership, spread these values, and empower teachers to take action as leaders in the school community (Arnander, 2013). Ideally, principals serve to establish an environment conducive to learning so others in the organization accomplish their work. Inspiring leaders to make decisions on the spot and fostering a positive learning environment promotes ownership as teachers support students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms.

According to Arnander (2013), mindset leaders who focus on positive experiences usually acquire favorable outcomes. To build mindset leadership in the school community, administrators foster an environment where everyone assumes a leadership role, spreads positive leadership in action, invites people to forums to discuss concepts for improvement, and empowers others by distributing resources to support their ideas, beliefs, and projects (Arnander, 2013). To apply these concepts at PMSD, I will promote mindset leaders in our organization by motivating other administrators, especially in differentiated instructional strategies. In addition, I will lead by example and invite other principals to professional development sessions on differentiated instruction. Finally, I will designate school resources such as funding to invest in teachers' and administrators' ideas, beliefs, and projects to support students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms. To promote a positive atmosphere, the ultimate goal serves to multiply mindset leadership throughout the organization.

In this section, implications for practice as teachers and administrators are discussed. In this research, teachers' and administrators' mindsets impacted perceptions toward delivering differentiated instructional strategies to support students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms. In the next section, the focus is on implications this study has on research.

Implications for Research

During this 16-week qualitative study, considering additional research remains necessary. This study's purpose was to determine how differentiated instructional strategies impacted teachers' abilities to support students' critical thinking skills across

cultures, linguistics, and achievement levels in inclusive classrooms. Differentiated instruction serves as one effective teaching method used to meet students' needs in diverse classroom settings. Participants in this study planned to meet the students' academic needs by tending to their interests in the inclusive classroom setting (Goddard et al., 2015). Participant interviews allowed me to gather narrative data to learn about the in-depth experiences of individuals (Plano Clark & Creswell, 2015). As a researcher, these new understandings initiated next steps in further research. It was a substantial process to observe participants' practices, read their reflections, and discuss their experiences. Third- and fourth-grade teachers at Star Mountain Elementary School exemplified how focused research can make an impact on students' critical thinking and academic progress.

This research could be extended to various audiences across the educational spectrum. In this study, third- and fourth-grade teachers in inclusive classrooms participated. Furthering this research at other grade levels across the school including special area teachers who specialize in art, music, technology, and physical education remains necessary. Although third- and fourth-grade teachers were structured in a self-contained, inclusive setting, replicating this study in middle schools and high schools where teachers focus on one subject area is recommended. Also, this study focused on students representing various cultures, linguistics, and achievement levels; replicating this research in any academic setting serves meaningful. Additionally, it would be critical to understand how these differentiated instructional strategies apply to other groups not represented at Star Mountain Elementary School. As principal at Star Mountain

Elementary School, it is imperative to recognize the educational experiences demonstrated by the teachers and students in this study.

Another area I could embed this research in is teacher training programs. In the Mary Lou Fulton Teachers College at Arizona State University (ASU), student-teachers in the iTeach residency program would benefit. At this study's beginning, I spoke with a first-year teacher, Ms. Hawkins, about her experience at Star Mountain Elementary School. At the time, Ms. Hawkins indicated she was not trained in differentiated instruction to support the varying students' academic needs, especially those identified as gifted. Ms. Hawkins related, "All classes in college only focused on students with individual education plans (IEP) and not gifted" (Interview, March 24, 2016). This was Ms. Hawkins' experience from attending Westward State University in the Midwest. However, teacher training programs across the country could benefit from this research. ASU's iTeach program could embed this study into the curriculum for student-teachers in the residency program. Perhaps the findings in this study could expose insight on how to support students' critical thinking skills in diverse classroom settings. Demonstrating ways teachers could embed differentiated instructional strategies, such as scaffolds, collaborative group work, and project-based learning, would benefit student-teachers, especially during their first teaching year. In this study, teachers found great value in differentiated instruction training to support students' critical thinking skills in diverse settings.

In this section, implications for further research were discussed. Replicating this research in other academic environments like other K-12 schools and teacher training

programs across the country were suggested as viable options in this study. In the next section, the focus is on the next planned research cycle following this study.

Next Steps

To promote this project in future research, the next study cycle involves recruiting more teachers at various grade levels to participate in the four-professional development sessions. In addition, recruiting the current third- and fourth-grade participants in this study to co-facilitate these professional development opportunities remains imperative. The third- and fourth-grade participants' stories serve as successful examples of differentiated instruction implementation to support students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms. Having their endorsement will clear the path for more teachers to participate throughout Star Mountain Elementary School and Park Meadows Elementary School District.

Using a constructionism approach in the next research cycle, third- and fourth-grade participants possess firsthand experience to co-construct meaning in inclusive classrooms. Alongside other teachers, they will develop meaning based on the engagement with students in their inclusive classroom environments (Crotty, 1998). The current third- and fourth-grade teacher participants will be able to access and distribute professional development materials using the learning experiences from this study. As the researcher, I encourage these teacher facilitators to make necessary recommendations or adjustments as needed. Once this study is replicated at the school level, advancing this research project districtwide serves as an immediate next step. This proposed research study is scalable, duplicable, and maintains an equitable learning experience for all students. Currently, there is no focus on differentiated instructional strategies to support

students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms in Park Meadows School District.

Limitations to the Study

This study occurred at Star Mountain Elementary School, which is my professional social context. Prior to generalizing these results in an additional context, the following limitations must be considered. First, as the primary researcher, I served as the third- and fourth-grade teachers' supervisor and formal evaluator. Also, I was the student-participants' principal through this study's duration. Therefore, the possibility remains that third- and fourth-grade teachers and students were persuaded by my authority to share biased ideas.

Second, I built strong collegial relationships with third- and fourth-grade teachers over a five-year period. Establishing a rapport with each teacher may have caused a positive effect causing teachers to be relaxed and comfortable throughout this study. Replicating this study on a new or unfamiliar setting might not have the same impact.

Finally, 63% of third- and fourth-grade teachers possess four or more years teaching experience. Teachers with experience tend to have higher levels of confidence and self-efficacy. In this study, teachers were selected to participate due to their longevity in the school. As the researcher, I recognized there was the potential for personal bias based on my commitment to serving the most confident and effective teachers at Star Mountain Elementary School during this study. Having these perspectives may have led to developing blind spots when analyzing and reporting on data. However, I intended to strengthen results in this study by recruiting my instructional coach as the teacher interviewer at this study's end.

Lessons Learned

In this section, I share learning experiences as a practitioner in my social context. The goal in this study was to make learning fair and equitable for every child. In doing so, I had to prevent teachers from implementing a one-size-fits-all lesson to students, especially across cultures, linguistics, and achievement levels. To accomplish this prevention, changing teachers' mindsets and allowing time for learning new curriculum were necessary. After reflecting on the outcomes in this study, I moved closer to accomplishing this goal. Through this learning experience, I identified areas to consider in future research.

Beginning with teachers' mindsets, I learned deficit thinking was ever-present in my social context. The deficit thinking concept ran deep, not only at the school level, but the district level as well. At this year's beginning, I analyzed data alongside district personnel. During this data analysis process prior to the first day of school, it was common to refer to students as having deficits because they did not meet the grade level standards on the AzMERIT statewide assessment. As the school year began, I noticed this deficit thinking belief perpetuated into my school context. Before teachers could focus on differentiated instruction, I recognized a need to change teachers' mindsets toward students. Teachers needed to identify there was a problem in the way they think about children before we could focus on differentiated instructional strategies. As teachers persisted through the book study on Dweck's (2008) research on mindsets, a shift in teachers' perceptions emerged. As teachers' mindsets changed, they were prepared to listen, embrace, and embed differentiated instructional strategies to support

students' critical thinking skills across cultures, linguistics, and achievement levels in inclusive classrooms.

Another learning experience was teachers' response to learning two new curricula in ELA and mathematics. I learned to be patient and persistent with the differentiated instruction intervention although teachers were hesitant as they were overwhelmed with new curricula. I recognized teachers did not yet know the resources nor did they have access to all of the online materials for students. It was imperative to provide teachers with time to get familiar with the adopted curriculum. I also recognized teachers needed training in both ELA and mathematics curricula before collecting any valid results in this study. As the primary researcher, starting this study after teachers were familiar with the curricula would have been more beneficial. To replicate this study in the future, I recommend waiting until teachers are familiar with their teaching resources before beginning the intervention and data collection. During this study's schedule, I remained patient and persistent in this research to get results.

In this section, lessons learned in this action research study were described. Both teachers' mindsets and curriculum knowledge served as learning experiences. In the next section, concluding thoughts are presented.

Concluding Thoughts

The research participants in this study undoubtedly demonstrated how differentiated instructional supports students' critical thinking in inclusive classrooms. Once teachers were familiar with the curriculum and adopted a growth mindset (Dweck, 2008), obstacles were lifted to embrace differentiated instructional strategies. To summarize the findings, third- and fourth-grade teachers embedded instructional

scaffolds like graphic organizers, sentence frames, and explicit instruction (Lucas, 2011) to make learning fair and equitable for every child, especially those who were linguistically diverse. Collaborative group work served as another differentiated instruction strategy to support students' critical thinking skills, especially in culturally and academically diverse settings. According to Vygotsky (2016), students learn through interaction with others prior to independent practice. In addition, project-based learning served as a differentiated instructional strategy to foster critical thinking as students worked together, defined real-world problems, developed solutions, and critiqued others' ideas. Teacher participants in this study experienced change once the path was clear to support students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms at Star Mountain Elementary School.

Moreover, the student participants in this study demonstrated the impact of making learning fair and equitable in the inclusive classroom. These small voices delivered the most powerful message in this research. Third- and fourth-grade students described ways teachers differentiate instruction to support their critical thinking. Students described ways in which vocabulary came alive in the classroom by using collaborative groups to define words, provide antonyms, use the word in a sentence, and draw picture representations (Student interview, November 28). Another student vividly explained how her teacher explicitly listed instruction on the white dry-erase board to support students, especially those who may have been absent the day before (Student interview, November 28). Students discussed how working in groups supported their critical thinking as they figured out answers quicker by bringing their ideas together (Student interview, November 28). Observing students give feedback to each other made

an enormous impact on critical thinking in this study. Watching a third-grader share feedback with a peer presenter about eye contact, voice volume, and project originality served as an indicator there was an emphasis on critical thinking in these classrooms. Students demonstrated ownership in the inclusive classroom and reinforced teachers demonstrated the ability to differentiate instruction to make learning fair for all children.

At Star Mountain Elementary School, participants successfully embedded differentiated instruction to support students' critical thinking in inclusive classrooms. Although children learn in unique ways, ensuring all students learn was demonstrated throughout this study. Students came to school with various skill sets across cultures, linguistics, and achievement levels. Teachers proved their ability to meet students' critical thinking needs by accepting diversity as an asset. Eliminating actions like delivering a one-size-fits-all lesson plan, teachers adopted the concept of tailoring lessons to meet the students' needs. In this study, teachers recognized they were teaching students instead of standards like CCSS (2010) or policies like NCLB (2002). Once teachers were familiar with curriculum, they used resources to leverage support for students. Although we still implement pullout models for gifted and special education services, third- and fourth-grade teachers became aware they needed to make learning fair and equitable for every child. Tailoring lessons to meet the needs of all learners is the responsibility of each classroom teacher regardless of the programs implemented at the school. As this study comes to a close, I recognize there is still more to know about the unique ways students learn. Fortunately, I had the opportunity to participate in this research study, which made a difference in the lives of third- and fourth-grade students at Star Mountain Elementary School. Teacher participants in this study fostered classroom

environments where differentiated instructional strategies support students' critical thinking across cultures, linguistics, and achievement levels in inclusive classrooms. At Star Mountain Elementary School, we are committed to continuing our quest to making learning fair and equitable for every child.

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APPENDIX A
STUDENT PARTICIPATION INVITATION

APPENDIX A

Dear Parent:

I am a graduate student under the guidance of Professor Daniel D. Liou in the Mary Lou Fulton College of Education at Arizona State University. I am conducting a research study to examine the influence of a differentiated instructional support program for teachers working with third-grade students.

I am inviting your child's participation, which will involve a 20 to 25 minute interview with your child once in August and a second time in December of 2017. Your child's participation in this study is voluntary. If you choose not to have your child participate or to withdraw your child from the study at any time, there will be no penalty. Likewise, if your child chooses not to participate or to withdraw from the study at any time, there will be no penalty. The results of the research study may be published, but your child's name will not be used.

Although there may be no direct benefit to your child, the possible benefit of your child's participation is to improve the practice of his or her teacher. There are no foreseeable risks or discomforts to your child's participation.

Throughout the study, I will be using coded identifiers to protect your child's identity. Responses will be confidential. The results of this study may be used in reports, presentations, or publications but your child's name will not be known/used. If applicable, results will only be shared in the aggregate form.

If you have any questions concerning the research study or your child's participation in this study, please call me at (623) 478-6205 or Dr. Daniel D. Liou at (602) 543-2883.

Sincerely,

Richard K. Ramos

By signing below, you are giving consent for your child _____ to participate in the above study.

Signature

Printed Name

Date

If you have any questions about you or your child's rights as a subject/participant in this research, or if you feel you or your child have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the Office of Research Integrity and Assurance, at (480) 965-6788.

APPENDIX B
FOCUS GROUP INTERVIEWS

APPENDIX B

1. How do you define the diverse student population in your classroom? What are the diverse student needs?
2. How do you define differentiated instruction?
3. How do you feel about your instructional effectiveness in meeting the needs of the diverse student population in your classroom?
4. What is an inclusive classroom? Provide examples.
5. What are you currently doing in your classroom to meet the varying cultural needs of your students? Linguistic needs? Achievement levels? What resources are you using?
6. Describe a lesson you effectively delivered to meet the diverse needs of all students in your classroom. What made you feel successful?
7. Tell me how you feel about planning lessons to meet the cultural, linguistic, and achievement level diversity in your classroom. What factors contributed to feeling this way?
8. What instructional strategies are you using to effectively meet the diverse cultural, linguistic and achievement levels of your students? Why did you select these particular strategies? How do you know they are effective?
9. How do you increase your students critical thinking skills? Explain.
10. How does group work support student learning? How often do students work in groups? How do you plan for group work?
11. When students work independently, what is your role? How do you foster independent practice?

APPENDIX C
FOUR-PART QUESTIONNAIRE

APPENDIX C

Directions: Please answer each question thoroughly to synthesize today's professional development. Your open and honest responses will help develop further research to support teachers in the future.

1. What new learning are you taking away from this session?
2. After this session, what implications does the new learning have on your teaching practice and student achievement?
3. Based on your new understandings, what action steps will you put into practice in your classroom?
4. After participating in the differentiated instruction professional development, what areas/topics impacted your teaching practice the most? How?

APPENDIX D

TEACHER ADVANCEMENT PROGRAM RUBRIC

APPENDIX D

Score:	Exemplary	Field Notes
Standards and Objectives	<ul style="list-style-type: none"> • All learning objectives and state content standards are explicitly communicated. • Sub-objectives are aligned and logically sequenced to the lesson's major objective. • Learning objectives are: (a) consistently connected to what students have previously learned, (b) know from life experiences, and (c) integrated with other disciplines. • Expectations for student performance are clear, demanding, and high. • State standards are displayed and referenced throughout the lesson. • There is evidence that most students demonstrate mastery of the objective. 	

Score:	Exemplary	Field Notes
Presenting Instructional Content	<p>Presentation of content <u>always</u> includes:</p> <ul style="list-style-type: none"> • visuals that establish: the purpose of the lesson, preview the organization of the lesson, and include internal summaries of the lesson. • examples, illustrations, analogies, and labels for new concepts and ideas. • modeling by the teacher to demonstrate his or her performance expectations. • concise communication. • logical sequencing and segmenting. • all essential information. • no irrelevant, confusing, or non-essential information. 	

Score:	Exemplary	Field Notes
Teacher Knowledge of Students	<ul style="list-style-type: none"> • Teacher practices display understanding of each student’s anticipated learning difficulties. • Teacher practices regularly incorporate student interests and cultural heritage. • Teacher regularly provides differentiated instructional methods and content to ensure children have the opportunity to master what is being taught. 	

Score:	Exemplary	Field Notes
Activities and Materials	<p>Activities and materials include <u>all</u> of the following:</p> <ul style="list-style-type: none"> • support the lesson objectives; • are challenging; • sustain students’ attention; • elicit a variety of thinking; • provide time for reflection; • are relevant to students’ lives; • provide opportunities for student-to-student interaction; • induce student curiosity and suspense; • provide students with choices; • incorporate multimedia and technology and; • incorporate resources beyond the school curriculum texts (e.g., teacher-made materials, manipulatives, resources from museums, cultural centers, etc.). • In addition, sometimes activities are game-like, involve simulations, require creating products, and demand self-direction and self-monitoring. 	

Score:	Exemplary	Field Notes
Aca- demic Feed- back	<ul style="list-style-type: none"> • Oral and written feedback is consistently academically focused, frequent, and high quality. • Feedback is frequently given during guided practice and homework review. • The teacher circulates to prompt student thinking, assess each student’s progress, and provide individual feedback. • Feedback from students is regularly used to monitor and adjust instruction. • Teacher engages students in giving specific and high quality feedback to one another. 	

Score:	Exemplary	Field Notes
Managing Student Behavior	<ul style="list-style-type: none"> • Students are consistently well-behaved, and on task. • Teacher and students establish clear rules for learning and behavior. • The teacher uses several techniques such as social approval, contingent activities, and consequences to maintain appropriate student behavior. • The teacher overlooks inconsequential behavior. • The teacher deals with students who have caused disruptions rather than the entire class. • The teacher attends to disruptions quickly and firmly. 	

Score:	Exemplary	Field Notes
Instructional Plans	<p>Instructional plans include:</p> <ul style="list-style-type: none"> • measurable and explicit goals aligned to state content standards. • activities, materials, and assessments that: <ul style="list-style-type: none"> ○ are aligned to state standards. ○ are sequenced from basic to complex. ○ build on prior student knowledge, are relevant to students' lives, and integrate other disciplines. ○ provide appropriate time for student work, student reflection, and lesson and unit closure. • evidence that plan is appropriate for the age, knowledge, and interests of all learners. • evidence that the plan provides regular opportunities to accommodate individual student needs. 	

Score:	Exemplary	Field Notes
Teacher Content Knowledge	<ul style="list-style-type: none"> • Teacher displays extensive content knowledge of all the subjects she or he teaches. • Teacher regularly implements a variety of subject-specific instructional strategies to enhance student content knowledge. • The teacher regularly highlights key concepts and ideas, and uses them as bases to connect other powerful ideas. • Limited content is taught in sufficient depth to allow for the development of understanding. 	

APPENDIX E

ONE-ON-ONE TEACHER INTERVIEW QUESTIONS

APPENDIX E

1. How do you define the diverse student population in your classroom? What are the diverse student needs?
2. How do you define differentiated instruction?
3. How do you feel about your instructional effectiveness in supporting critical thinking in the diverse student population in your classroom?
4. What is an inclusive classroom? Provide examples.
5. What are you currently doing in your classroom to support critical thinking based on cultural differences of your students? Linguistic differences? Achievement differences? What resources are you using?
6. Describe a lesson you effectively delivered to support critical thinking of the diverse students in your classroom. How do you know you were successful?
7. Tell me how you plan lessons to support critical thinking across cultures, linguistics, and achievement levels in your classroom. What factors contribute your success?
8. What instructional strategies are you using to effectively meet critical thinking in the diverse cultural, linguistic and achievement levels of your students? Why did you select these particular strategies? How do you know they are effective?
9. How do you increase your students critical thinking skills? Explain.
10. How does group work support student learning? How often do students work in groups? How do you plan for group work?
11. When students work independently, what is your role? How do you foster student independent practice?

APPENDIX F

ONE-ON-ONE STUDENT INTERVIEW QUESTIONS

APPENDIX F

1. How is your teacher helping you learn?
2. What activities help you learn the most in your classroom?
3. What does your teacher do to help you learn?
4. How do you know your teacher is successful at helping you learn?
5. What is your teacher doing to help your friends learn?
6. What does your teacher do to help students who have difficulties?
7. What does your teacher do to make sure you are successful at school?
8. How does working in groups support your learning?
9. When working independently, how does your teacher support your learning?