TEACHER PERCEPTIONS OF EDUCATIONAL SUPPORTS THAT HELP
BRIDGE THE SCIENCE ACHIEVEMENT GAP FOR ENGLISH LANGUAGE
LEARNERS: A PHENOMENOLOGICAL STUDY

by

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DISSERTATION

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ABSTRACT

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The University of Texas at Arlington, 2021


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English language learner (ELL) students account for 19.6% of the Texas public school system (Texas Education Agency, 2019). National and state assessment data showed a learning gap between ELL students and their non-ELL counterparts, specifically in science (Texas Education Agency, 2017a; United States Department of Education, 2015). This qualitative study was conducted to examine how teachers of ELL students in a dual language program perceived the educational supports they received affected student achievement in science. The teachers who were interviewed had worked diligently to reduce the achievement gap in science.

Using social cognitive theory as a theoretical framework, I explored how teachers perceived educational supports affected student achievement in science. Teacher participants were asked about their experiences with instructional and administrative

supports as well as professional developments they attended and how those supports affected their teaching and student performance. Two administrators also were interviewed for the research study. I attempted to discover the factors that teachers perceived helped their students achieve passing results in science.

Three themes resulted from the data findings. The three themes included vocabulary instruction, visuals, and hands-on activities as integral to student achievement; strategies learned in professional developments (including non-science-based training) in their science classrooms; and administrators focused on resource allocation and alignment so that teachers could focus on student learning. Instructional supports including building vocabulary, first language knowledge, and providing resources were identified as essential to student achievement. Many participants who attended non-science content professional development applied the strategies learned there to their science classrooms.

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DEDICATION

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**CHAPTER 1**

**INTRODUCTION**

There were approximately 2,754,000 foreign-born immigrant children under the age of 18 in the United States in 2019. Of those children, 49% were from Mexico, Latin America, or the Caribbean (U.S. Census Bureau, 2019). Approximately 68% of foreign-born individuals (children and adults) came from a Spanish language home. The United States Department of Education (per the No Child Left Behind Act of 2001) classifies students who speak a language other than English as English language learners (ELLs) (Abedi, 2008). These students are expected by their state education agencies to master the English language within a short timeframe (Adams & Jones, 2006; Guo & Koretz, 2013; Rios-Aguilar, Gonzalez Canche, & Sabetghadam, 2012). The students who are unable to do so fall behind their non-ELL peers (Adams & Jones, 2006; Batt, 2008; Kim & García, 2014; Stoddart, Pinal, Latzke, & Canaday, 2002).

These English language learners take their state's achievement tests along with students who have mastered the English language (Palmer & Snodgrass Rangel, 2011). The National Assessment of Educational Progress (NAEP) 2015 science assessment results showed that 9% of ELL students performed at or above a proficient level (United States Department of Education, 2015). Disaggregated 2015 NAEP data showed that 17% of Texas ELL students performed at or above a proficient level. NAEP data also showed that nationally 41% of non-ELL students scored at or above a proficient level, as compared to 45% of non-ELL Texas students who scored at or above a proficient level (United States Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2015). The

achievement gap between ELL and non-ELL student groups was 22% on the NAEP test, whereas the achievement gap between the same two groups in the state of Texas was 28% (United States Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2015). These data indicate that the achievement gap between ELL students and their non-ELL counterparts continues to persist. In the next section, I discuss the English-only language policy for ELL students which may have an impact on ELL student achievement.

**English-only ELL Language Policy**

Although researchers have proposed that dual language bilingual programs are more effective for ELL students, by 2002 several states had instituted English-only teaching programs for their ELL student population (California Collier & Thomas, 2004; Cummins, 1979; Thomas & Collier, 1997; de Jong, 2008). Supporters of an English-only (immersion) educational program for ELL students believed teaching ELL students the English language through sheltered English was more effective for student learning than were traditional bilingual programs (Adkins, 2010; Echevarria, Vogt, & Short, 2008; Fritzen, 2011). California's Proposition 227, Arizona's Proposition 203, and Massachusetts's Question 2 included policy written for ELL language acquisition. The propositions from Arizona and Massachusetts were identical in language and noted the use of English as the leading language of both the state in which the proposition was written as well as the leading language for science (Arizona Department of Education, n.d.; Massachusetts Legislature, n.d.b.). The propositions described the inadequacy of educational systems to provide adequate education for ELL students. The language of the proposition further stated that the immersion of ELL students into an English-only

education program would facilitate the acquisition of the necessary fluency in English to gain economic and social advancement "as is the American dream" (Arizona Department of Education, n.d., p. 1; Massachusetts Legislature, n.d.b, para. 4).

Proposition 227 from the state of California, Proposition 203 from the state of Arizona, and Question 2 from the state of Massachusetts required all ELL students to be taught in a sheltered instruction program in an English-only classroom setting (Arizona Department of Education, n.d.; California Department of Education, 2018; Massachusetts Legislature, n.d.b). The California proposition required that ELL students be taught in English because English is the public language for California (California Legislative Information, 1998, para. 1). The law for both Arizona and Massachusetts (repealed in 2017), as well as California's Proposition 227 (repealed in 2016), noted the inadequate education of ELL students and cited ELL students' low acquisition of English as the reason for their inadequate achievement scores (Katznelson & Bernstein, 2017; Massachusetts Legislature, 2017). Thus, the implementation of sheltered instruction strategies to help facilitate the learning of English for all ELL students in an English-only setting was the educational standard (Arizona Department of Education, n.d.; California Department of Education, 2018; Massachusetts Legislature, n.d.). The sheltered instruction classroom setting is designed for ELL student participation for no more than one year, after such time the students are to be placed in an English as a second language classroom setting.

Researchers have studied the effects of a one-year sheltered instruction setting for ELL students and have found the results were not as expected (Gáandara, 2000; Garcia & Curry-Rodriguez, 2000; Guo & Koretz, 2013; Hamilton & Krashen, 2006). Gáandara

(2000), Garcia and Curry-Rodriguez (2000), Guo and Koretz (2013), and Hamilton and Krashen (2006) examined the efficacy of these propositions and found that the ELL students who were educated in these settings have not necessarily progressed as much as was expected. Data for the state of California showed that there was little to no difference for ELL student achievement in English-only programs as compared to bilingual programs (California Department of Education, 2018). Data for the state of Arizona showed that ELL students performed lower than non-ELL students after the implementation of Proposition 203 (Rios-Aguilar, Gonzalez Canche, & Sabetghadam, 2012). In a study of the impact of Proposition 203 on ELL students, Rios-Aguilar, Gonzalez Canche, and Sabetghadam (2012) found that ELL students continued to fall behind their non-ELL peers in reading and math, even with a daily four-hour block of English language development (Rios-Aguilar et al., 2012). Guo and Koretz's study of third-grade ELL student reading achievement for Massachusetts indicated no statistical difference between ELL students before and after the implementation of Question 2.

Amselle and Allison (2000) examined the effectiveness of California's Proposition 227 three years after its implementation and found that ELL students in all grades showed improvement, especially ELL students in elementary grades. Garcia and Curry-Rodriguez (2000) researched the efficacy of Proposition 227 and analyzed the SAT-9 tests administered to all students in California in Grades 2-11, regardless of language ability. The SAT-9 is administered in English only. After reviewing the data for 1999 and 2000, Garcia and Curry-Rodriguez found no statistical differences between Limited English Proficient (LEP) and non-LEP student gains. The data indicated that

there were no significant differences for ELL English acquisition as had been theorized when implementing the English-only curriculum for ELL students.

Other researchers have found that sheltered English strategies are as effective as traditional bilingual programs (Baker, 1998; de Jong, Gort, & Cobb, 2005; Rossell & Baker, 1996). Barnett, Yarosz, Thomas, Jung, and Blanco (2007) found that a two-way bilingual immersion program was just as effective as an English immersion program. A two-way program is comprised of ELL students and general education students. Barnett et al. found no significant difference in terms of English acquisition between preschool-age children in two-way immersion bilingual programs and those in English immersion programs. Two-way immersion programs addressed the inadequate first language of preschool-age students as well as the issues of English acquisition for those same students. Researchers have indicated that both sheltered instruction and dual language programs were similarly effective for ELL students (Barnett et al., 2007). Sheltered immersion and dual language programs are bilingual programs that can be used to teach ELL students in the state of Texas.

**Texas ELL Academic Programs**

Texas is home to 10.4% of the total foreign-born population in the U.S. (U.S. Census Bureau, 2019). In the 2018-2019 academic school year, the state of Texas had 1,066,640 English language learners enrolled in public schools (Texas Education Agency [TEA], 2019). That number amounted to 19.6% of the total population of Texas's public-school student enrollment. ELL student needs include teaching methods designed to improve their lack of English language knowledge and teaching methods that are designed to help them learn the curriculum being taught (Barrow & Markman-Pithers,

2016; Gonzalez-Herrera, 2017). The teaching methods for ELL students vary from state to state, with some states instituting English immersion approaches in which students are placed in an English-only speaking classroom and instructed in English at their "readiness level, using methodologies such as simplified language and highly structured lessons" (Guo & Koretz, 2013, p. 122). The term *readiness level* refers to a student's ability to use the English language while reading, writing, speaking, and listening. Other states require a bilingual classroom setting for their ELL students (Ovando, 2003). A bilingual classroom setting requires students to be taught in their native language. The setting can be divided into different programs through which varying degrees of native language usage are offered (Garcia, 2009).

In Texas, educational policy for ELL students focuses on mastery of the English language. Chapter 89 of Texas's educational code states that the goals of bilingual education are to ensure ELL students become fluent in all aspects of English acquisition and to receive an equitable education in relation to native English speakers (TEA, 2012). However, the focus on English creates *de facto* subtractive bilingualism, which inhibits student learning. In focusing on English acquisition, rather than content knowledge, students can fall further behind their peers (Au, 2009; Palmer, Henderson, Wall, Zúñiga, & Berthelson, 2015; Palmer & Lynch, 2008; Solano-Flores, 2008) and often begin losing their native language as it is systematically replaced by English. The loss of their native language causes a subtractive bilingualism. Subtractive bilingualism is defined as the slow removal of a student's first language while the student is in the process of learning the second language (García, 2009; Valenzuela, 2002). These Spanish-speaking ELL students, both native born and foreign born, face the loss of not only their first language,

but also their connection to a culture based on that language (Rabasa, 2005; Ramanathan, 2014; Rasool, 1998).

Achugar and Pessoa (2009) asserted that English acquisition is the goal for ELL students and that the home is where ELL students should maintain their first language. Achugar and Pessoa found that Spanish speakers who lived in the border area of Texas kept their first language, however the researchers also stated that it was necessary to learn English for economic and job-related reasons. Valdez (1997) found that some Spanish speakers were wary of teaching non-ELL students Spanish because they believed that it would lead to a loss of power for the Spanish speakers. Valdez posited that there would be no advantage to being bilingual if everyone else was also bilingual.

Although researchers have indicated that a biliterate, bilingual student can perform as well as non-bilingual students academically, there are no specific policies in place for ELL students to become bilingual (Gomez, 2006; Gomez, Freeman, & Freeman, 2005; Jiménez-Castellanos & García, 2017; U.S. Department of Education, n.d.). Language policies for ELL students focus on English language acquisition, not creating a biliterate, bilingual student. Both the U.S. Department of Education and Texas Education Agency ELL language policy require students to become fluent in English (TEA, 2012; U.S. Department of Education, n.d.).

**Texas English Language Learner Policy**

Texas's educational policy, Chapter 89, Subchapter BB (TEA, 2012) declared that students who are native speakers of languages other than English should be placed in a classroom that will enable them to become fluent English speakers. TEA (2012) indicated,

The goal of bilingual education programs shall be to enable English language learners to become competent in listening, speaking, reading, and writing in the English language through the development of literacy and academic skills in the primary language and English. Such programs shall emphasize the mastery of English language skills, as well as mathematics, science, and social studies, as integral parts of the academic goals for all students to enable English language learners to participate equitably in school. (p. 1)

Students who are enrolled in a bilingual program should become fluent in all aspects of English acquisition as well as achieve content mastery by the end of their public-school career. The students are required to learn essential mathematics, science, and language arts skills and to become fluent English speakers, readers, and writers (TEA, 2012).

Depending on the availability of language services, students are placed in a bilingual classroom setting where the teacher speaks and teaches in the students' first language (TEA, 2012). The goal is for ELL students to use their first language to learn English in either a bilingual or ESL setting (TEA, 2012).

Although Texas's ELL educational policy has provisions for teaching ELL students in a bilingual classroom setting, Valenzuela (2002) posited that Texas classrooms lack a "culturally neutral perspective" (p. 236) and do not value ELL student culture, preferring instead to replace the ELL home culture with the dominant culture. Other researchers have suggested that English is the primary language in the United States and have stressed the importance of providing ELL students with every opportunity to learn the English language (Baker, 1998; Rossell & Baker, 1996). However, Valenzuela suggested that schools in compliance with the Texas ELL policy

educational goal would replace students' culture and language with Texan culture and the English language. The state-mandated policy becomes culturally and linguistically subtractive in nature as it replaces the ELL student's home language and culture. Replacing the ELL student's culture can cause a lowered self-esteem and a lack of participation in classroom discourse as the student may not feel valued or a part of their school community (Au, 2009; Esquinca, 2012; Hampton & Rodriguez, 2001).

## Subtractive Language Policies

A subtractive language classroom is one in which the student's first language is systematically reduced as a second language is added. Replacing one language with another often results in a monolingual student who speaks only the second language (Adams & Jones, 2006; Garcia, 2009; Valenzuela, 2002). Many educators see the first language as a barrier to educational attainment and creates de facto policies that systematically replace the first language with a second language (Flores, 2016; Hughes, Shaunessy, Brice, Ratliff, & Patricia, 2006). These subtractive policies can be seen in transitional bilingual programs. Transitional bilingual programs, also called early-exit bilingual programs, transition ELL children from a bilingual classroom into an English-only classroom within 2 or 3 years, at either third or fourth grade. However, the goal of dual language programs is to move students at the end of elementary school, at either fifth or sixth grade (Flores, 2016; Martinez & Martinez, 2014; Tong, Lara-Alecio, Irby, Mathes, & Kwok, 2008). ELL students in a transitional bilingual program would receive less time in their first language and as such would not have the same first language development as students in a dual language program.

Some researchers have posited that bilingual education policies that require English fluency as an educational endpoint have far-reaching implications for ELL students. The focus on English fluency rather than first language fluency inhibits ELL student learning opportunities (Au, 2009; Cummins, 1979; García & Kleifgen, 2010; Palmer et al., 2015; Palmer & Lynch, 2008; Thomas & Collier, 2002). These policies become subtractive in nature "when increasing acquisition of the dominant language corresponds with a slowing or even reversing of development in their heritage language," in this case Spanish (Macarthur, Wright, & Taylor, 2000, p. 65). According to Worthy, Rodríguez-Galindo, Czop Assaf, Martínez, and Cuero (2003), the primary goal of most U.S. bilingual education programs is to develop proficiency in English. Maintaining home language and culture is at best a secondary goal (Flores, 2016). Thus, traditional bilingual education models tend to be assimilationist and subtractive in nature (Roberts, 1995), with long-term social and academic effects (Lee, Adamson, Maerten-Rivera, Lewis, Thornton, & LeRoy, 2008). This focus on the development of the second language for ELL students is the primary goal for education in both Texas and in the United States (Flores, 2016; Texas Education Agency, 2012; U.S. Department of Education, 2002b). There is no language in the policy that states that maintenance of the native language is a goal for ELL education (Texas Education Agency, 2012; U.S. Department of Education, 2002b). According to U.S. Department of Education (2012b) policy and Texas Education Agency (2012) policy, ELL students should achieve English language proficiency and academic achievement at a pace comparable to native English speakers.

The focus on English attainment without maintaining the first language comes at a cost for ELL students (Cummins, 1979). Macarthur et al. (2000) stated that ELL students face potential cognitive and emotional issues resulting from the loss of their culture and native language and that subtracting the first language might mark the extinction of that language altogether. However, there are those who believe ELL students should focus on English acquisition to ensure they are learning (Kymlicka, 1997). Kymlicka (1997) disagreed with the notion that immigrants should not be required to learn English. Kymlicka noted that immigrants must learn the language and customs of the new society to which they have migrated. Learning the common language of the new society helps the individual to have equal access to educational, economic, and governmental opportunities. Kymlicka posited that it is not necessary to assimilate fully into the new culture and leave the old culture behind, but that individuals should learn the new language and culture to become full participants in the new society. Dual language programs use ELL students' first language to help them acquire their second language, thus the ELL students do not give up the first language to become full members of their new societal culture.

## Statement of the Problem

The purpose of this phenomenological study was to examine the perceptions of elementary dual language ELL teachers regarding the effectiveness of instructional, professional developments, and administrative supports to help students overcome the achievement gap in science. A phenomenological approach was conducted to examine the teachers' perspectives regarding their experiences with those supports.

There has been a decades-long academic achievement gap between ELL students and their non-ELL peers (Johnson, Bolshakova, & Waldron, 2016; Lee, 2005; Lee et al., 2008; Ryoo, 2015). The learning gap between ELL students and non-ELL students on the fifth-grade science State of Texas Assessments of Academic Readiness (STAAR) test was 12 percentage points in 2016, 16 percentage points in 2017, and 10 percentage points in 2018. In 2016, there were 74% of non-ELL students who passed the science STAAR test as compared to 62% of ELL students who passed the science STAAR test. Then, in 2017, there were 74% of non-ELL students who passed the science STAAR test as compared to 58% of ELL students who passed the science STAAR test. In 2018, there were 76% of non-ELL students who passed the science STAAR test and 66% of ELL students who passed the science STAAR test (TEA, 2006; TEA 2016a; TEA, 2017a; TEA, 2018a). According to STAAR data, the prospective teacher participants' dual language passing rate on the science STAAR test was approximately 80% in 2016 and 2017 and approximately 70% in 2018 (TEA, 2016c; TEA, 2017b; TEA, 2018c). These results showed that ELL students were close to closing the achievement gap in science.

The science teachers I interviewed used a dual language program to teach their ELL students. Dual language is a form of bilingual instruction that Texas allows to be used to teach ELL students. In dual language classrooms, students receive 50% of their instruction in English and 50% of their instruction in Spanish. The students are taught science in the Spanish language in the dual language program.

The district at which the prospective teacher participants are employed implements the Gomez and Gomez (1995) model dual language program (L. Gomez, personal communication, March 27, 2017). The Gomez and Gomez model prescribes a

Spanish-language teaching model for science, with the students spending between 50-90 minutes in science according to grade-level (Gomez, 2016). The model requires that science and social studies be taught in Spanish to ensure the continued development of academic language in their first language, Spanish. The students learn social studies and science content vocabulary in English as part of the specialized vocabulary enrichment center to supplement their English vocabulary knowledge (Gomez, 2016). The specialized vocabulary enrichment (SVE) center was created so that students could develop content vocabulary in the opposite language of instruction. Gomez and Gomez (n.d.) created the SVE center specifically to ensure dual language students have the opportunity to learn non-cognate and false cognate vocabulary in the opposite language of instruction to help ensure that dual language students become biliterate as well as bilingual. The students then learn the vocabulary and complete activities that require them to use the new vocabulary in fun activities to demonstrate understanding (Gomez & Gomez, n.d.).

Researchers have found that the incorporation of students' first language in learning specific content, such as science, allows students to acquire the content more thoroughly, rather than relying on learning content vocabulary and focusing on reading strategies to learn the content (Au, 2009; Creese & Blackledge, 2010; Planas & Civil, 2013). Multiple researchers have studied how ELL science teachers meet student needs in monolingual English science classrooms and what supports the ELL teachers perceived helped meet student needs (Johnson et al., 2016; Lee, Adamson, Maerten-Rivera, Lewis, Thornton, & LeRoy, 2008; Lee, Buxton, Lewis, & LeRoy, 2006; Lee & Luykx, 2005; Ryoo, 2015; Silva, Weinburgh, Malloy, Smith, Marshall, 2012). The researchers found

limited research exists that pertains to teaching students in their first language. For example, Johnson et al. (2016) reported that students who used conversational Spanish during classroom participation accessed their prior knowledge and vocabulary in Spanish as well as English translations to help them learn. However, academic instruction was only in English. Although there is a dearth of research on ELL second language acquisition (Austin, Blume, & Sánchez, 2013; Cummins, 1979; Guzman, 2002; Mahoney, Thompson, & MacSwan, 2005; Thomas & Collier, 2002), research centered on ELL science content was limited. Studies regarding teaching methods designed to facilitate ELL learning in science were lacking (Lee, 2005). This research was needed because there was little research related to science learning for ELL students, especially learning in their first language, Spanish (McEaney, Lopez, & Nieswandt, 2014). I sought to add to the literature by researching the supports that teachers perceive have an effect on ELL students' science learning.

## Purpose of the Study

The purpose of this qualitative study was to examine elementary dual language ELL teachers' perceptions of the supports to help students overcome the achievement gap in science. A phenomenological approach was conducted to examine teachers' perspectives regarding their experiences with those supports. I interviewed eight dual language science teachers and two administrators to discover (a) what instructional methods ELL teachers perceived helped bridge the learning gap between their ELL students and non-ELL students, (b) what curriculum supports helped bridge ELL learning gaps, and (c) what administrative supports helped bridge ELL learning gaps. I also sought to understand how the teachers used the supports they received to help their students

achieve academically in science in hopes to add to the literature in the area of ELL teaching pedagogy. A set of research questions was used to identify the types of supports the teachers received and the effects the teachers perceived the supports had on their students' achievement in science.

**Research Questions**

I used the following research questions to guide the study:

1. What instructional methods do ELL science teachers perceive contribute to closing the achievement gap between ELL and non-ELL students?

2. How do ELL science teachers perceive that professional development contributes to closing the achievement gap between ELL and non-ELL students?

3. How do ELL science teachers perceive that administrative support contributes to closing the achievement gap between ELL and non-ELL students?

**Theoretical Framework**

The theoretical lens of this study was social cognitive theory. Bandura (1988) posited that social cognitive theory is used to understand how an individual's behavioral change is affected by environment, behavior, and other personal and cognitive factors. The belief that a person can exercise control and affect change in his or her life is a tenet associated with this theory. Human agency allows for the individual implementing the change to feel in control and take responsibility for life changes to affect a positive behavioral change. In human agency, the individual understands the future outcomes he or she seeks can be affected by the actions he or she takes. As such, the individual will take responsibility for his or her actions, and, in turn, feel in control of their life.

Bandura (1989) suggested that human agency and avoidance of negative situations allows the individual to take on challenges that are perceived as within their capabilities. Another factor in human agency is the understanding that one's environment impacts how the individual views his or her capabilities. The individual who understands his or her environment will be able to foresee factors that can affect whatever change the individual wishes to make. Foresight allows individuals to go beyond environmental factors and shape the outcome for themselves (Bandura, 2001).

Much of human behavior is influenced by individuals' beliefs in their abilities to perform (Bandura, 1989, 2001). This effectiveness is regulated by personal agency. The stronger the belief in self-efficacy, the deeper the belief the individual will have that he or she can accomplish the task set before him or her. These beliefs allow the individual to risk accepting challenges that are more difficult and may have some risk of failure. The individual's "perceived cognitive control self-efficacy" (Bandura, 1989, p. 1178) helps the person cope with the prospect of failure and any negative thought that may arise from the challenge. Although the individual may understand that the task will be difficult to complete, the belief in one's self-efficacy allows for the individual to fulfill the task.

I used social cognitive theory to describe how teachers are able to meet the challenges related to teaching science to ELL students. According to Bandura's (1988) three core beliefs, the use of social cognitive theory in organizations relies on developing competencies through modeling, strengthening people's beliefs in their competence, and goal setting, which are directly related to self-motivation. I used Bandura's social cognitive theory to describe how teachers perceived the supports they received.

The participants in this study were asked about how they perceived the supports they were provided to teach their ELL students affected their teaching and students' achievement. The interview questions pertained to modeling, professional development, and administrative supports. These interview questions correlated to Bandura's three beliefs of competency, modeling, and goal setting (Bandura, 1989). Bandura (1989) stated that a person who has a strong belief in his or her competency will see challenges as opportunities to master, rather than obstacles. Modeling and goal setting help build up that sense of competency. Bandura (1989) stated that modeling is the first step toward gaining competency in one's abilities. The individual needs frequent practice and experiences to develop proficiency. The individual then begins the process of goal setting to motivate himself or herself to continue to perform the tasks he or she learned and to monitor his or her performance. These three competencies relate to the study because the teacher participants were asked about their perceived competencies teaching science in their program, and what administrative supports helped them reach those competencies. The data from the research questions were expected to contribute to the dearth of literature on this subject (Austin et al., 2013; Cummins, 1979; Guzman, 2002; Mahoney et al., 2005; Thomas & Collier, 2002).

## Significance of the Study

Researchers who have studied ELL student science instruction have focused on content mastery through literacy and content-specific vocabulary instruction in the English language (Johnson et al., 2016; Lee & Luykx, 2005; Lee et al., 2006; Lee et al., 2008). ELL students who are exposed to these learning strategies are able to demonstrate their understanding of the science content through formal assessments such as

achievement testing. However, a large achievement gap persists between Texas ELL students and their non-ELL counterparts. Texas data from 2018 showed a 10% achievement gap in science between ELL and non-ELL students (TEA, 2018a), yet the cohort of students of the participants I interviewed had bridged that achievement gap (TEA, 2016c; TEA, 2017b; TEA, 2018c).

The educators I interviewed taught science to Spanish-speaking ELL students in the students' first language, Spanish. One aspect of the dual language model is for students to use their prior knowledge or educational experience to learn the content in Spanish. The teacher builds content knowledge and vocabulary in students' first language to ensure there are no language barriers in the classroom. Students communicate with each other and the teacher using first language, prior knowledge, and educational experiences to demonstrate science learning without having to struggle with translations (Gómez, 2006). The students take their state science achievement tests in Spanish, allowing for further assessment of learning (Gómez, Freeman, & Freeman, 2010).

While multiple researchers have focused on literacy when teaching ELL students (Calderón, Slavin, & Sánchez, 2011; Castañeda, & Bautista, 2011; Cole, 2013; Pacheco, 2010), little focus has been placed on teaching science to ELL students without focusing on acquiring the English language. Emphasizing English acquisition takes time away from content-specific learning in the classroom. McEaney, López, and Nieswandt (2014) suggested that states that place an emphasis on bilingual education contribute to a more positive learning environment for ELL students in science. Thus, ELL students in a bilingual setting often fare better on achievement tests than ELL students not in a bilingual program (McEaney, Lopez, & Nieswandt, 2014).

This study included an examination of elementary dual language ELL teachers' perceptions of instructional, professional development, and administrative supports to help students overcome the achievement gap in science. Success was defined as a passing score on the fifth-grade science STAAR test. I interviewed teachers in a dual language program where ELL students learned science in their first language, Spanish. ELL students are more apt to understand the information being learned when they use their native language resources (Au, 2004; Cummins, 1979; Hakuta, Butler, & Witt, 2000; Hansson, 2012). Without a language barrier to hamper the information that is being processed, the students should be able to understand the contents being taught.

Although there is an achievement gap between ELL students and their non-ELL peers, TEA (2017d) data have indicated that ELL students have been more successful in passing the State of Texas Assessment of Academic Readiness (STAAR) test in Spanish than in English. In this study, I sought to discover what supports dual language ELL science teachers perceived helped their students bridge the science achievement gap. The research questions of this study were designed to discover how ELL teachers were able to facilitate bridging the achievement gap for their students. The data from the research questions were expected to contribute to the literature on this subject (Austin et al., 2013; Cummins, 1979; Guzman, 2002; Mahoney et al., 2005; Thomas & Collier, 2002).

**Methodology**

A qualitative methodology was employed to examine teachers' perceptions of instructional, professional development, and administrative supports. A phenomenological approach was used to gain an understanding of the teachers' perceptions. I sought to understand the meaning of the experiences of the participants

(Heidegger, 1985) and how teachers perceived that their supports have helped them bridge the science achievement gap for their students. The data consisted of interview transcripts and the memos I took while reading the transcripts. The memos were used to note ideas and themes that emerged as the transcripts were reviewed.

The interview questions were reviewed by a panel of experts in K-12 education who had advanced degrees in education to ensure that the questions were not leading and that they corresponded to the research questions (Creswell & Poth, 2018). The questions were designed for participants in the K-12 educational field. I interviewed eight dual language ELL teachers and two administrators from a campus. I used a purposeful sample to recruit participants to help ensure that the participants were knowledgeable of the phenomenon that was studied (Creswell & Poth, 2018).

**Recruitment**

Participants were recruited after Institutional Research Board and school district approvals were obtained. After I was permitted to move forward with the study, I emailed the prospective participants who met the study criteria, at least three years teaching science in the dual language program for the teacher participants, and directly supervise the dual language program and dual language teachers for the administrator participants. A recruitment email was sent in which I detailed the parameters of the study and explained what the participants were expected to contribute to the study. I began the interview process and subsequent data collection after I had received confirmation that the teacher and administrator participants agreed to be a part of the study. I emailed an informed consent document to all the participants informing them of the research to be

conducted. Included were the research title, why they had been selected, how I would collect the data, and information pertaining to confidentiality.

## Data Collection

I served as the instrument in this qualitative research study (Creswell & Poth, 2018). As the instrument, I created the interview protocols and collected and analyzed the data. I created two protocols, one for the teacher participants and one for the administrator participants. The interview protocols for the teacher and administrator participants were designed to answer the research questions (Creswell & Poth, 2018). The open-ended, semi-structured interview questions were used to gain an understanding of how the participants perceived the supports they received affected their teaching and to allow the participants to expound on their responses (Fontana & Prokos, 2007). The interview questions were designed to (a) provide the participants' teaching experience and (b) allow the participants to reflect on their perceptions of how the supports they received affected ELL students' learning.

I interviewed eight dual language teacher participants in addition to two administrators. The teacher participants had taught in the dual language program setting for at least three years. Each teacher had taught science in the dual language program for at least three years and had taught science in the Spanish language. The administrators had worked at the campus for at least three years, supervising the prospective teacher participants and the dual language program. The administrators had experience coaching and supervising dual language teachers and leading a dual language program. Each of these participants was interviewed individually to gather data for the study.

The one-on-one interviews were held via an online platform and lasted between 45 and 60 minutes. Each interview was recorded with a personal digital recording device as well as a secondary personal recording device to help mitigate any unforeseen complications with the devices. The administrators were current supervisors of the dual language teachers. The administrators were responsible for the supervision of the dual language teachers and were responsible for supporting the dual language teachers through curriculum design, instructional pedagogy, and targeted professional development. The administrators worked with the teachers to implement the dual language program and aided in using appropriate instructional strategies for ELL students. They also decided which curriculum the teachers would use in the classroom, evaluated the teachers' teaching methods to determine teacher efficacy, and selected the professional developments the teachers attended to enhance their content knowledge and teaching skills.

During the interviews, I asked the participants about their perceptions of the supports they received that informed teaching and ELL pedagogy. During the administrators' interviews, I asked about supports offered to the ELL teachers that were specifically designed to support ELL learning. I also asked how the administrators followed-up with their ELL teachers to ensure that the professional development supports impacted instruction.

The teacher interviews continued until data saturation was reached (Creswell & Poth, 2018). This occurred after six teacher interviews. The interviews were transcribed and reviewed to begin the data collection process. The data collected were treated to first- and second-cycle coding processes.

**Treatment of the Data**

The interviews were audio-recorded and transcribed verbatim. I took analytic memos during the interviews to help organize significant ideas that arose during the interviews (Creswell & Poth, 2018). Interviews were transcribed verbatim to help ensure that each interview thoroughly reflected the participants' voice and experiences regarding the supports they received (Creswell & Poth, 2018). I created a profile of each participant, detailing the experiences and information in the interviews (Creswell & Poth, 2018; Seidman, 2013). Next, I labeled each transcript to create a separate file for each participant (Seidman, 2013). Then I reviewed the profiles to look for common themes among each profile. The common themes were placed in a matrix spreadsheet to identify recurring themes and any connections between the themes.

I took analytic memos during and after the interviews to organize my thinking and note any significant statements related to the research questions (Creswell & Poth, 2018; Maxwell, 2013). The purpose of analytic memos was to "facilitate reflection and analytic insight" while noting ideas that occurred during the interviews and served as a guide to develop the themes that emerged from the interview data (Maxwell, 2013, p. 20). The memos were in the form of written notes. I used the memos to help organize my thoughts and noted any follow-up questions (Creswell & Poth, 2018; Maxwell, 2013; Miles, Huberman, & Saldaña, 2014; Moustakas, 1994).

The data from the analytic memos were used to organize themes that arose from the interviews. These themes were clustered together, using the original language from the interviews to preserve each participant's voice. These themes were coded into useable chunks of information using first- and second-cycle coding (Miles et al., 2014). The

coded information allowed me to analyze the data from the interviews as the participants described their experiences with the supports they received and how those experiences shaped their teaching (Wertz, 2011).

I used first-cycle and second-cycle coding processes to code the data from the interviews and memos (Saldaña, 2015). In first-cycle coding, chunks of information were coded first using a descriptive coding process wherein one word or short phrase that summarizes the topic was clustered together to form chunks of data. Then the chunks were broken into smaller units of information to reflect the details of the initial coded information (Saldaña, 2015). The second cycle of coding was conducted to reduce the chunks of data into smaller units of information. After I described each chunk, I generated codes based on the patterns I found in the first-cycle coding (Miles et al., 2014), then I grouped together the patterns, or themes, that resulted from the data.

I organized the data from the second-cycle coding process and grouped them together according to theme. I created a matrix for the data which included a separate column for each theme. I created a list of the common themes from each interview and placed them in corresponding columns. Each matrix consisted of a research question and had three parts, one part for each research question. Data that corresponded to the research questions were grouped together and placed on the matrix for the corresponding research question. Each research question included terminology that was specific to the participants in the study such as program acronyms and program-specific terms as well as teaching strategy acronyms and verbiage.

**Definitions of Terms**

The following terms were used throughout the study.

**Collaborative learning.** Collaborative learning is the grouping of students to complete a task (Nickle, 2010). Students work together to complete the task, discussing the task and how to help each other understand the problem at hand.

**Cooperative learning.** Cooperative learning is the grouping of students to complete a task that cannot be completed alone (Nickle, 2010). The students in a cooperative learning group take on specific roles and responsibilities to complete the task assigned to them. Cooperative leaning is characterized by group teamwork and interdependence to complete the task.

**Dual language model**. The dual language model is a teaching program in which ELL students are taught in both their first and second language (García, 2009; Gómez et al., 2005).

**English as a second language (ESL).** English as a second language refers to the learning program in which English language learner students are taught English through a series of strategies designed to help them acquire the English language. An ESL class is taught in English, not in the students' first language (García, 2009).

**English language learner (ELL).** An ELL student is a student whose first language is a language other than English (García, 2009; United States Department of Education, 2002a).

**First language.** First language is an English language learner's home language (García, 2009). In this study, the students' first language students is Spanish.

**One-way dual language model.** The one-way dual language model is a teaching program in which ELL students who share the same language are taught together in the same classroom (Gómez, Freeman & Freeman, 2005; Thomas & Collier, 2002). In the one-way model, the Spanish-speaking students have varying degrees of English proficiency (Gómez et al., 2005).

**Second language.** The term second language is used to signify the new language the ELL student is learning (August & Shanahan, 2006; O'Malley & Chamot, 1990). In this study, English language is synonymous with second language.

**Sheltered instruction (SI).** Sheltered instruction is an approach used to teach ELL students. This approach is comprised of different strategies used to teach ELL students content as well as language. Sheltered instruction strategies include using slower speech, graphic organizers, cooperative learning groups, visuals, and content-specific vocabulary to help ELL students learn (Echevarria, Short, & Powers, 2006).

**State of Texas Assessments of Academic Readiness (STAAR).** The State of Texas Assessments of Academic Readiness is the annual assessment administered to students in Texas to measure the level of academic learning of students beginning in third grade in elementary school through junior high/middle school and ending in specified high school courses. The math and reading test scores for fifth and eighth grades and end-of-course high school exams are used to determine student retention and promotion (TEA, 2018d).

**Two-way dual language model.** The two-way dual language model is a teaching program in which ELL students and English-speaking students are taught together in the same classroom (Gómez et al., 2005). The two-way dual language students are a

heterogeneous mix of ethnic and socioeconomic backgrounds (Gómez et al., 2005). The Gómez and Gómez model requires students to be paired together via linguistic ability. Students help each other learn both the English and Spanish language with one partner being more fluent in English and the other partner being more fluent in Spanish (Gómez et al., 2005).

## Limitations

It is important to note the limitations of this research to help ensure validity and trustworthiness. One limitation of this study was the small sample size. Ten participants, eight dual language science teachers and two administrators, were interviewed. While the sample size was small, all available participants who met the criteria were interviewed.

Another limitation was the varying degrees of teacher experience and program knowledge. Due to yearly staffing changes, the teachers I interviewed had varying degrees of teaching experience, however they had taught for three years at their current school. The teachers also had varying degrees of experience teaching in a dual language program.

## Delimitations

There were several delimitations of this study. I interviewed only participants who were ELL science teachers in a dual language program setting and the administrators who worked with those teachers. The teacher participants were ELL teachers in a large school district in a metropolitan area of Texas. The study was specific to Spanish-speaking ELL students. The teachers I interviewed worked in a one-way, dual language program in which Spanish-speaking students were grouped together to learn content in Spanish and in English.

**Assumptions**

The data for the research study were collected from interviews from teachers and administrators as well as analytic memos. I assumed that the participants responded to the questions truthfully. I assumed that the teacher participants had knowledge of the dual language program and that the participants spent the time allotted teaching science in the Spanish language. The dual language program that the teachers followed required science content to be taught solely in Spanish. I assumed that the administrators had worked with the dual language teachers in the areas of professional development and curricular supports and that they understood the dual language program.

**Role and Background of the Researcher**

I have been a dual language teacher and have served as a teacher in a bilingual classroom setting for 15 years. I have an interest in teaching pedagogies focused on ELL students, specifically in teaching science to ELL students. A fifth-generation, Hispanic American who is fluent in both English and Spanish, I consider myself American yet hold onto my Hispanic roots and culture. In my work with Spanish-speaking ELL students, I found the educational gaps between ELL students and non-ELL students to be concerning. I became interested in teaching science to ELL students when I became a fifth-grade teacher and taught all subjects in a self-contained classroom.

The dual language program interested me because of the specificity in language teaching. Of specific interest was how dual language students learned English while being taught science in Spanish. Also of interest was how dual language students achievement scores compared to non-ELL students. Further, I wondered how the dual

language program would help ELL students learn content well enough to be successful on the STAAR test. These questions were the impetus for my research study.

## Organization of Dissertation Chapters

The study was organized into five chapters. Chapter 1 includes an introduction to the purpose of the research. The chapter includes English language learner student population data, ELL student educational policy for the state of Texas, and how these policies affect ELL student learning. Chapter 2 includes a review and discussion of literature related to the education of ELL students, instructional methods, professional development, and administrative supports that help teachers teach ELL students successfully. In Chapter 3, I discuss the methodology I used to analyze the data from the interviews. I employed a qualitative methodology for this study and explained why using it to analyze the data was appropriate. The chapter also includes a discussion of the program design, data collection and treatment, and the limitations of the research. Chapter 4 includes a detail of the findings from the data gathered through participant interviews. In this chapter I described the participants selected for the interviews and discussed the findings and overarching themes that stemmed from the interviews. Chapter 5 includes the conclusions of the study. I discussed the implications for research, practice, and theory that could be made from the findings. The chapter concludes with a summary of the study.

**CHAPTER 2**

**LITERATURE REVIEW**

According to the Texas Educational Agency (2019), as of 2019, there were more than one million English language learner (ELL) students enrolled in public schools in the state of Texas. These students are expected to participate in their English-speaking classrooms within a short period of time, regardless of their English language fluency (Adams & Jones, 2006; Guo & Koretz, 2013; Rios-Aguilar, Gonzalez Canche, & Sabetghadam, 2012). Texas state educational policy requires ELL students to be educated in a bilingual program according to their English language proficiency level (TEA, 2012). This chapter includes a review of ELL student obstacles and how teachers of ELL students are able to help them become active participants in their learning and reach academic success, as measured by student achievement test scores. Literature focusing on English language learner students, ELL student learning, and learning in the science classroom setting will be reviewed and discussed.

ELL students are students who speak a language other than English at home and who have varying degrees of English acquisition (Bailey & Kelly, 2011). Of the 1,014,830 ELL students in Texas in 2018, 90% were Hispanic students being served in bilingual/ESL classrooms (Texas Education Agency, 2018). The Texas Commissioner's Plan for Educating ELLs, Chapter 89, Subchapter BB, includes the requirement that bilingual programs for ELL students be centered on learning and mastering English through their native language (TEA, 2012). Literature regarding ELL students varies from specific pedagogy related to teaching ELL students to segregation from English-speaking peers, educational opportunities, ELL student self-identity, and issues with

bilingual programs aimed at ELL student learning. Included in the following literature review is an examination of ELL learning obstacles, attitudes about ELL students, and supports for ELL students.

## ELL Instructional Programs

The U.S. Department of Education (n.d.) requires that ELL students be taught in an appropriate program that is based upon educational theory, is well supported, and is periodically reviewed to ensure the program is successful. Programs that are approved for ELL learners include transitional bilingual education, structured immersion, bilingual/bicultural education, and English as a Second Language programs (U.S. Department of Education, 1991). In this section I discuss the ELL instructional programs of sheltered instruction and dual language. I review and discuss each program, define the goals of the programs, and review the programs' effectiveness in helping ELL students become successful learners.

### Sheltered Instruction

One instructional program used to teach ELL students is sheltered English instruction. This instructional program is used in Arizona (Arizona Department of Education, n.d.). The purpose of implementing the sheltered English immersion program is to assist ELL students to become proficient in English in one year's time (Arizona Department of Education, 2019). Arizona English language education law requires all ELL students be taught in English. The ELL students participate in a sheltered English instruction program for one year and then transfer to a general education English-only classroom or will persist in a sheltered English instruction classroom until they are proficient in English. The state assessments will be used to determine if the students are

to be transferred to an English-only classroom after one year or continue in their sheltered instruction classroom (Arizona Department of Education, 2019; Massachusetts Department of Education, n.d.a.).

Arizona's ELL students receive four extra hours of English language development daily. At the end of the school year, ELL students take the Arizona English Language Learner Assessment (AZELLA) to determine their English language proficiency (Arizona Department of Education, 2019). ELL students who achieve a score of proficient on the AZELLA test are placed into a mainstream English language classroom. However, parents may request a waiver to place their children in a bilingual classroom setting rather than in an English immersion program.

The sheltered instructional model for ELL students used in the state of Arizona was studied to determine program effectiveness. Rios-Aguilar, González Canché, and Sabetghadam (2012) studied the effects of Arizona's ELL students' four-hour language arts block to determine the efficacy of structured English immersion teaching policy. Rios-Aguilar et al. (2012) also discussed the segregation of students during this time. The researchers conducted a longitudinal study of ELL student achievement data. Rios-Aguilar et al. reviewed data from the Arizona Instrument to Measure Standards (AIMS), TerraNova standardized tests, and the AZELLA. The ELL student data collected were restricted to state achievement test scores of students in grades two through eight. The researchers collected data from tests taken two years before the sheltered English immersion program implementation and two years after implementation and measured the differences between the student sub-group populations' achievement scores. They found that students in the four-hour block scored lower after program implementation.

The students who were not placed in the four-hour block performed considerably better, regardless of their ELL status.

Rios-Aguilar et al. (2012) then conducted regression analyses of fixed-effects and random-effects of time in the four-hour block to examine how the four-hour block affected student achievement in math, reading, and writing. The researchers found no statistical difference between test scores for ELL students participating in the four-hour block and students not in the four-hour block. Rios-Aguilar et al. found no statistically significant differences between the sub-groups in both reading and writing. There was some improvement in the reading analysis, however the ELL students' improvement was less than 1%. The regression analysis showed an improvement of 4.5% in writing, however, Rios-Aguilar et al. noted that the purpose for the sheltered English immersion program was to improve student fluency in English. Thus, writing would have been a focus for teachers which may have had an effect on writing test scores. Students in the sheltered English immersion four-hour block performed lower in math, reading, and writing than ELL students not in that program (Rios Aguilar et al., 2012).

Testing data for the ELL students in the four-hour block showed that the sheltered English programs was not as effective as predicted. Researchers have found the use of sheltered instruction programs in teaching ELL students to be less effective than the use of bilingual programs (Adams & Jones, 2006; Guo & Koretz, 2013; Rios-Aguilar et al., 2012).

**Bilingual Programs**

Along with sheltered instructional programs for ELL students, United States educational policy allows for bilingual programs to be implemented for ELL students (U.

S. Department of Education, 1990). Bilingual programs for ELL students are offered in 23 of the 50 states. The Gomez and Gomez dual language program, which the prospective participants for this study use, is implemented in 10 of the 23 states that offer bilingual programs for their ELL students (Gomez, 2016). Texas, Alaska, California, Colorado, Kansas, New Mexico, Illinois, Oklahoma, Oregon, and Washington have school districts that currently offer the Gomez and Gomez dual language program. This dual language program requires a 50/50 split of English and Spanish language teaching throughout the day. The students learn language arts and reading in English and Spanish, math and social studies in English, and science in Spanish. The students in these programs also receive specialized vocabulary enrichment in mathematics and reading.

The states that utilize bilingual dual language programs also incorporate the use of sheltered instruction as part of their second-language acquisition strategies (Gomez, Freeman, & Freeman, 2010; Estrada, Gomez, & Ruiz-Escalante, 2009). The specialized vocabulary enrichment program in the Gomez and Gomez model is used to teach ELL students content vocabulary in English and is comparable to targeted vocabulary instruction in the sheltered instruction program (Gomez, Freeman, & Freeman, 2010). These specialized vocabulary enrichment activities are used as a tool to allow students to access their prior knowledge in their first language, Spanish, and transfer that knowledge into the second language, English (Gomez, 2006).

Second language acquisition is essential to any bilingual program (Texas Education Agency, 2012; United States Department of Education, n.d.b.). Collier and Thomas (2004) conducted a longitudinal study to discuss the impact of one-way dual language and two-way dual language programs on ELL second language acquisition.

They studied 23 school districts from 15 different states over 20 years. The schools represented urban, suburban, and rural communities as well as all regions of the United States. Collier and Thomas gathered data from over 2 million bilingual/ESL student test scores and data from interviews with school and district administrators and school and classroom visits. The researchers found that dual language programs had a language gap closure of 70% to 100%, depending on program structure. The length of time spent in the student's first language contributed to the difference found between one-way and two-way dual language program effectiveness. Collier and Thomas found a correlation between English language acquisition and length of time spent in the first language. The researchers found that ELL students who spent more time learning in their first language had a higher level of content comprehension and learning.

### *Gómez and Gómez Model*

Richard Gómez and Leo Gómez created a dual language program that is a one-way model (Gómez, 2016). The Gómez and Gómez model is an enrichment program wherein students learn academic content in their first language (Spanish in this case), while they learn a second language, English (Gómez, 2016).

In Texas, as of 2016, 639 elementary schools, 17 middle schools, and five high schools used the Gómez and Gómez model to teach Spanish-speaking ELL students (Gómez, 2016). Students receive at least 50% of their instruction in their native language. Teachers are instructed to teach in either the first language or the second language, depending on the content being taught. The teacher does not translate for the students. Each ELL student has a bilingual partner who speaks and understands the language being used in the classroom. The ELL students can ask their bilingual partners to clarify or

translate what the teacher is saying (Gómez, 2016). Students are taught at grade level, with no remediation provided during large-group instruction. Remediation is provided during small-group instruction.

Students develop language fluency through academic content that is purposeful in teaching content vocabulary. The goal in teaching content-specific vocabulary is to create and maintain a bicultural, bi-literate school climate in these classrooms (Gómez, 2016). Students are taught reading and language arts in their first language in grades pre-K through first. English is integrated into reading and language arts beginning in the second grade. The integration continues through the end of fifth grade. Reading and language arts instruction are delivered in Spanish, then English, on alternating days. Math is taught in English from pre-K through fifth grades, while social studies and science are taught in Spanish from pre-K through fifth grades (Gómez, 2016). The teacher participants in this study worked with ELL students in a dual language program using this model.

## ELL Student Issues

In addition to learning a new language, ELL students face many learning obstacles including administrators' and teachers' negative connotations about their learning ability, the length of the ELL program, and segregation from their English-speaking peers (Au, 2009; Bibler, 2015; Civil, 2013; Cummins, 1979). However, researchers have suggested that the presence of ELL students can create a rich and inviting school environment which can overcome the negativity that is associated with ELL students (Marian, Shook, & Schroeder, 2013; Nora, 2013; Steele, Slater, Zamarro, Miller, Li, Burkhauser, & Bacon, 2015).

This section of the literature review is divided into six parts, beginning with the learning obstacles and benefits of bilingualism for ELL students: (1) negative connotations related to being an ELL student, (2) negative attitudes toward program length, (3) segregation of ELL students, (4) learning opportunities, (5) discourse, and (6) self-identity. In the first three sections, I review literature through which researchers have revealed the negative attitudes some teachers and administrators hold toward ELL students and their learning needs, as well as the segregation of ELL students from their non-ELL peers (de Jong, 2004; Planas & Civil, 2013). In the last three sections, I review literature through which researchers have revealed the learning opportunities ELL students can miss due to negative attitudes about bilingual education, discourse needed to alleviate those attitudes, and how bilingualism helps ELL students' self-identity, thereby increasing their academic progress (Alanis, 2000; Au, 2009; Creese & Blackledge, 2010; Planas & Civil, 2013; Romero & Arce, 2009).

In the following section I discuss how a negative attitude toward ELL students can result in lost opportunities to become part of the classroom discussion and demonstrate their content understanding I also explore how administrators who have a positive attitude toward ELL students and bilingual programs have positively affected learning opportunities for ELL students.

**Negative Connotation Related to the ELL Student Label**

Educators with preconceived attitudes about ELL students and bilingualism can have an effect on ELL student learning and efficacy (Baecher, Knoll, & Patti, 2013; DeMatthews & Izquierdo, 2017; Elfers & Stritikus, 2013). de Jong (2004) noted that administrators' negative attitudes toward ELL students and their ELL program can

impact student achievement, especially in mainstream classrooms. The lack of English

acquisition and proficiency is seen as a cause of low national and state achievement test

scores for ELL students (Adams & Jones, 2006; Batt, 2008; Kim & García, 2014; NAEP,

2015; Stoddart, Pinal, Latzke, & Canaday, 2002). In 2015, the achievement gaps in

science on the National Assessment of Educational Progress assessment test between

ELL and non-ELL students was 27%; ELL students scored far below their non-ELL

student counterparts (United States Department of Education, Institute of Education

Sciences, National Center for Education Statistics, National Assessment of Educational

Progress, 2015).

Bilingual students are sometimes treated as problematic due to low achievement

test scores, the length of time it takes some ELL students to learn English, and the length

of time ELL students remain in a bilingual program (Au, 2009; Creese & Blackledge,

2010; de Jong, 2004; Esquinca, 2012; Nora, 2013; Pacheco, 2010; Planas & Civil, 2013).

While low achievement scores and length of time in specialized programs are not unique

to ELL students, researchers have found a correlation between the negative attitudes

toward ELL students and the length of time they spend in bilingual programs and also a

correlation between the negative attitudes toward ELL students and some ELL students'

low achievement scores (Au, 2009; Creese & Blackledge, 2010; de Jong, 2004; Esquinca,

2012; Mays, 2008; Moschkovich, 2007; Nora, 2013; Planas & Civil, 2013). The ELL

students are not seen as valued members of the school community, nor are they valued as

students who bring diversity and culture to their school.

One reason that ELL students may not be viewed as valuable members of their

school community can be attributed to low ELL student performance on achievement

tests (Au, 2009). Au (2009) reported that diverse students with low achievement on high-stakes testing are seen as negatively affecting their school's performance ratings. A school's performance rating is partially measured by student achievement on standardized testing, required for all states per The No Child Left Behind Act of 2001 (NCLB) and Every Student Succeeds Act of 2015 (ESSA). The national testing mandate, ESSA, includes requirements for testing students in Grades 3-11 in subjects such as math, reading, writing, and science. In Texas, these tests are administered in English (Nora, 2013). Spanish translations of these state tests are available only from third through fifth grades. ELL student scores are a factor in determining the school's rating under the Closing the Gaps domain of the Texas Academic Performance Report (TEA, 2019).

One reason ELL students may perform at a lower rate is due to their language deficit (de Jong, 2004). Collier and Thomas (2004) and Cummins (1979) found that ELL students require 5-7 years to master their second language fully. During the 5-7 years the ELL students are being taught in their first language, they are learning strategies that will help them learn their second language. For example, Thomas and Collier (1997) stated that ELL students were able to transfer their literacy skills from their first language to their second language. As a result, ELL students who do not have the requisite 5-7 years to master both languages may not perform as well on standardized tests as other ELL students who have had the requisite 5-7 years.

In addition to the lack of second language acquisition, ELL students may also find that the dialect of Spanish used on the tests they take may not be the same as the Spanish dialect they speak (Abedi, Hofstetter, & Lord, 2004). Spanish-speaking ELL students come from varied dialectical countries; there is no one dialect of Spanish all ELL

students speak. One way educators can mitigate possible language obstacles to standardized testing is taking into consideration ELL students' testing language, determining which achievement test the ELL student should take, and the appropriateness of administering such tests to them at all given the student's educational background (Abedi et al., 2004).

Researchers have found that ELL students who persist in their programs perform on par with and often better than non-ELL students (Steele et al., 2015; Valentino & Reardon, 2015). Accordingly, keeping ELL students in their programs longer may be a way to mitigate low achievement on high-stakes achievement tests. Yet, negative connotations associated with ELL program length continue to persist (Bibler, 2015; Cheung & Slavin, 2012).

**Negative Attitudes about Program Length**

Bilingual programs vary in the United States, with each type of program having its own dictates and time limits. For example, the dual language programs used in the United States are designed to be one-way (ELL students only) or two-way (a 50/50 combination of ELL and non-ELL students). The time students spend in either program depends on the school district that is implementing the program. Thus, not all bilingual programs are completed within the same time frame (Collier & Thomas, 2004: Estrada et al., 2009). For example, in Texas, bilingual, transitional bilingual, early-exit bilingual, one-way dual language, and two-way dual language programs are available through elementary school, whereas the state of Colorado only funds the first five years of an ELL student's bilingual program (Colorado Department of Education, 2014; TEA, n.d.). The state of New Mexico prioritizes the funding of their bilingual program from

kindergarten through third grade. Funding for fourth through twelfth grades is dependent on the availability of funds after the budget for kindergarten and third grade is complete (New Mexico Public Education Department, 2004).

The bilingual program the teachers in this study follow and administer begins in Pre-K and extends through sixth grade in elementary schools (TEA, 2012). Administrators often view programs that take a longer time to complete as a cause for concern (Bibler, 2015; Cheung & Slavin, 2012; de Jong, 2004; Hakuta, Butler, & Witt, 2000; Lara-Alecio, Galloway, Irby, Rodríguez, & Gómez, 2004; McEneaney, López, & Nieswandt, 2014; Steele et al., 2015; Valentino & Reardon, 2015). Some critics have said that the length of the program keeps ELL students from fully assimilating into the majority culture (de Jong, 2004; Planas & Civil, 2013). Others say that the time needed to complete bilingual programs is too long and does not allow ELL students enough time to learn English because they are being taught in Spanish (de Jong, 2004; Planas & Civil, 2013). Critics fear that the bilingual program will inhibit ELL students from learning English at the same pace as native English speakers and those bilingual students will need remediation to reach grade-level mastery (Au, 2009; de Jong, 2004; Planas & Civil, 2013).

### Advantages to Longer Program Length

The longer ELL students stay in a bilingual program, the better they perform academically. As previously stated, ELL students require 5-7 years to develop the skills necessary to transfer knowledge from their first language to their second language (Collier, & Thomas, 2004; Cummins, 1979; Hakuta et al., 2000). However, some school administrators believe that ELL students will not acquire English while in a bilingual

program. Others believe that mainstreaming ELL students into an English program will increase the students' English acquisition rate and therefore increase their test scores (de Jong, 2004). The focus on English acquisition forms the basis for early-exit bilingual programs.

Although researchers have found there are advantages to a longer bilingual program, some administrators continue to believe that a shorter bilingual program results in higher achievement for their ELL students (Collier, & Thomas, 2004; Cummins, 1979; de Jong, 2004; Hakuta et al., 2000; Planas & Civil, 2013). Legislators in the state of Massachusetts believed a shorter, non-traditional program for ELL students was better than a longer, traditional bilingual program and passed a measure in 2002 called Question 2, requiring ELL students to be placed in a year-long sheltered instruction program. After the passage of Question 2 in Massachusetts, de Jong (2004) studied three school districts and found that some school administrators had a more positive attitude toward bilingual programs that exited ELL students earlier than other bilingual programs. The ELL students participating in the bilingual programs used by these school districts were transitioned into an English-only program after three years, which was less than the 5-7 years researchers have found ELL students need to learn the second language, English (Collier & Thomas, 2004; Cummins, 1979). Planas and Civil (2013) posited that the reason some administrators had a more positive attitude toward early-exit bilingual programs was because they perceived ELL students as *other* and not part of the general student population. The administrators wanted to exit the ELL students from the bilingual programs as early as possible to assimilate them into the mainstream culture (de Jong,

2004). According to de Jong (2004), administrators with this attitude fail to consider the linguistic and academic needs of ELL students.

### *Advantages to Dual Language Programs*

Some researchers who study dual language programs have found them to be more effective for ELL student learning as the programs utilize the ELL student's first language to teach content and as an aide in second-language acquisition (Gomez, Freeman, & Freeman, 2010; Estrada et al., 2009). Marian, Shook, and Schroeder (2013) sought to determine whether ELL or non-ELL student groups benefitted more from a dual language program that included a linguistic component. The majority-language (English-speaking) students showed content mastery at an earlier grade level than the minority-language students. ELL students also were able to increase in content mastery each year that they continued in their respective program. However, the researchers noted that the majority-language students had a higher socioeconomic status and may have had access to outside resources that might have influenced their acquisition of concepts and language development (Marian et al.). The researchers concluded that balanced language instruction benefitted both minority- and majority-language students.

Steele et al. (2015) found that the math and reading scores of dual language (two-way program) students increased each year that they continued in the program. The researchers also found that the English-language students in the same dual language program outperformed students in the general education program. Both the ELL and non-ELL student groups were able to show improvement in math and reading while in the dual language program.

Cheung and Slavin (2012); de Jong (2004); Hakuta et al. (2000); McEneaney, López, and Nieswandt (2014); Steele et al. (2015); and Valentino and Reardon (2015) examined the effectiveness of ELL bilingual educational programs. Cheung and Slavin, de Jong, Hakuta et al., McEneaney et al., and Steele et al. concluded that bilingual programs were more effective than English immersion programs or no bilingual program at all. Valentino and Reardon conducted a meta-analysis of bilingual program effectiveness and found that bilingual programs were not effective for bilingual children in kindergarten through first grade. The researchers found that kindergarten through first grade bilingual students scored lower in English language arts than English immersion students. However, the researchers found that the bilingual students began to catch up to their English immersion counterparts by second grade. Additionally, Valentino and Reardon found that English immersion students fared better in English language acquisition than did traditional bilingual students until fourth grade; after that time the traditional bilingual students outperformed the English immersion students. After analyzing the long-term effects of bilingual programs, Valentino and Reardon noted that bilingual students outperformed English immersion students.

McEneaney et al. (2014) compared the ELL educational policies and programs of seven states with the highest Hispanic populations in the U.S. (Texas, Arizona, California, Colorado, Florida, New Mexico, and Nevada). The researchers sought to determine whether ELL students in bilingual programs achieved higher test scores in science than ELL students in English immersion programs. McEaney et al. used data from the 2000 and 2005 National Assessment of Education Progress Report (NAEP) science tests. The researchers examined test data from states with the largest Hispanic

populations from 2000 and 2005 NAEP science tests. The researchers elected to study these states because Arizona, California, and New Mexico had abolished bilingual programs and Texas, Colorado, Florida, and Nevada had provisions for bilingual programs written into their educational policies. The states of Arizona, California, and New Mexico had provisions for English-only programs for ELL students written into their educational policies. The students who took the 2000 test would have benefitted from bilingual programs, however the students who took the assessment in 2005 would have been educated under the non-bilingual programs offered by those states. McEaney et al. (2014) compared the programs of each of these states using state achievement scores as their unit of measure. The students in the McEaney et al. study had been in their respective program (bilingual or other) for at least four years. The researchers found that the states that had abolished bilingual programs for their ELL student population scored lower than states that continued to offer bilingual programs.

In a meta-analysis of reading programs, Cheung and Slavin (2012) reviewed studies of structured English immersion programs, transitional programs, two-way bilingual immersion, and paired bilingual programs to determine the best program for ELL students. The researchers found that Spanish-speaking students in a two-way bilingual immersion program scored higher on their state's achievement test than students in structured English immersion programs. Authors of a four-year longitudinal study showed that structured English immersion students scored lower than the control group, indicating that offering some type of bilingual program is better than offering no program (Cheung & Slavin).

Steele et al. (2015) examined the effects of English immersion on ELL students in the U.S. and Canada. The researchers concluded that students in a dual language program out-performed students in a traditional bilingual program. According to Steele et al., a dual language program taught as prescribed was the best placement for ELL students as concluded by those students' academic achievement. Steele et al. found that the dual language students who persisted in their bilingual programs outperformed their peers in math and science.

de Jong (2004) and Hakuta et al. (2000) attempted to determine whether program length was an indicator of student academic achievement. In both studies, the researchers showed that students who continued in their bilingual program could achieve higher English proficiency and larger academic gains. de Jong noted that bilingual students fared better academically if they exited their program at a higher grade. Hakuta et al. found that academic language proficiency requires more time for mastery than oral language proficiency. The researchers also found that oral language proficiency takes 3-5 years for mastery, while academic proficiency takes 4-7 years. This indicated that ELL students needed more time in their first language to ensure academic achievement. Both de Jong and Hakuta et al. found that the longer an ELL student is in a bilingual program, the easier that student can transfer knowledge in his or her native language to the second language and show content and language mastery.

**Segregation**

Along with the negative connotations about the length of bilingual programs and low achievement test scores for ELL students, ELL students can also face segregation from the majority-language students due to their first language (Cummins, 1979; Planas

& Civil, 2013; Steele et al., 2015). Cummins (1979), Planas and Civil (2013), and Steele et al. (2015) have found that ELL students are segregated from their non-ELL peers when they are placed in classes specifically designed for non-English speaking students. This segregation is due to the length of time some students spend in the bilingual program. Learning opportunities for ELL students can be lost or enhanced, depending on the attitude of the administrator who is implementing the educational program for ELL students (Au, 2009; Nora, 2013).

Although bilingual classrooms are the most effective learning environments for ELL students (Collier & Thomas, 2004; Gomez, Freeman, & Freeman, 2010), the structure is important to the efficacy of the bilingual program. For example, some school administrators institute a program of remediation for ELL students who are behind due to their lack of English proficiency (Planas & Civil, 2013; Steele et al., 2015). The remediation approach to ELL student bilingual programs effectively segregates the ELL students from the rest of the student population. For example, Collier and Thomas (2004) posited that there is a deliberate segregation of ELL students from the regular student population due to ELL students being placed in remediation programs when they participate in a non-dual language program. ELL students in remediation programs often are grouped together by language deficiency rather than by ability. These ELL students often are taught together in a bilingual setting and thus do not spend as much time with the rest of the student population. Collier and Thomas found that, due to these groupings,

> often, negative perceptions have developed with classmates assuming that those
>
> students assigned to the transitional bilingual classes were those with problems,

resulting in social distance or discrimination and prejudice expressed toward

linguistically and culturally diverse students enrolled in bilingual classes. (p. 3)

A solution to the segregation of ELL students from their non-ELL peers is the incorporation of a two-way dual language program as part of their educational program. Steele et al. (2015) acknowledged that a two-way dual language classroom is most effective for the integration of ELL students with majority-language students. The two-way dual language program consists of majority-language students and ELL students learning in both languages throughout the day, allowing for both groups of students to help each other learn. Steele et al. found that the Spanish-speaking students in the two-way dual language program could either perform as well as or better than the monolingual students by the end of elementary school (fifth grade). The monolingual students in the two-way dual language program benefitted socially and academically from the addition of a second language as well as from the addition of peer learning. Including English-speaking students in a dual language program could have alleviated misconceptions English speaking students may have had toward ELL students (Nora, 2013). The parents of the non-ELL students could see their children were becoming more empathetic and accepting of ELL students due to their own experiences learning a second language (Nora, 2013).

In a two-way dual language class, first-language (Spanish) and second-language (English) learners are taught together, creating a heterogeneous classroom in which both sets of students can learn a different language, empathize with each other, and create bonds based on learning challenges (Marian et al., 2013). Both ELL and non-ELL students benefit academically and socially from these bilingual programs. However, the

state of Arizona segregates ELL students from non-ELL students when assigning

classroom settings rather than combining ELL and non-ELL students to facilitate learning

for both groups. ELL students in Arizona are segregated from their classmates by strict

adherence to the state's English-only laws (Adams & Jones, 2006; Guo & Koretz, 2013;

Ríos-Aguilar, González Canche, & Sabetghadam, 2012; Rolstad, Mahoney, & Glass,

2005; Thomas, & Collier, 1997; Worthy et al., 2003). Arizona law requires that ELL

students be assessed each year to quantify their English language proficiency (López,

2010). These results are then used to determine student placement in sheltered English

instruction classes.

ELL students in sheltered English instruction classes are required to have at least

a four-hour block of English language development apart from their other required

courses such as math and science (Ríos-Aguilar et al., 2012). Students who have the

lowest English language proficiency are placed in a four-hour or longer ESL block. The

students may be assigned to these special English language development blocks for the

entire school year (Ríos-Aguilar et al., 2012). The students are taught in the same

classroom for much of the day and do not see other non-ELL students regularly. The

length of time these ELL students spend separated from the rest of their peers can

exacerbate an existing segregation of students based on language ability. The segregation

demonstrates "the existing sociohistorical context of racism and classism in educational

policies, practices, and outcomes" (Gutiérrez, Asato, & Baquedano-Lopez, 2000, p. 100).

ELL students who were segregated from their non-ELL peers perceived they were

not learning enough English as non-segregated ELL students and that their first language

was not valued as a learning resource (Planas & Civil, 2013). Planas and Civil (2013)

found that students in bilingual classrooms face existing segregation from their peers when placed in bilingual classrooms without non-ELL peers. The researchers studied the tensions between the value placed on ELL students' first and second languages in the school setting. Planas and Civil studied a group of students who were native Spanish speakers learning Catalan in Spain, and a group of Mexican students who were learning English in Tucson, Arizona. The students in Tucson had been placed in a four-hour ESL block where they were able to speak both Spanish and English in the classroom. Although they were to speak only English in their mathematics classroom, their teacher allowed them to speak Spanish to communicate their content understanding. The ELL students did not experience much interaction with students from the majority-language group, which in turn made it difficult for the ELL students to practice their second language. Planas and Civil stated that the students felt that they were not learning enough English in their segregated setting. When the students were eventually transitioned to mainstream classes, the researchers noted that they were not as vocal or participatory in their mathematics class as they had previously been in the segregated classroom (Planas & Civil). Although the students had previously demonstrated their mathematical knowledge in the segregated classroom setting, they were not comfortable enough to participate in the English-only classroom due to their lack of English acquisition (Planas & Civil).

One reason the ELL students may not have felt comfortable participating in their English-speaking classrooms may be due to not having enough practice using their second language. The effects of little practice in the second language for ELL students who are in English-speaking classes can cause stiltedness in speaking and hesitancy in

classroom participation (Hampton & Rodriguez 2001; Planas & Civil, 2013). Schools can combat issues with hesitancy and stilted speaking by placing ELL students into a two-way dual language program. Two-way dual language programs have a 50/50 mix of first-language and second-language speakers (Planas & Civil, 2013). First- and second-language students can help each other during the learning process (Steele et al., 2015). A two-way dual language classroom setting can help to reduce both social and academic segregation and ensure ELL students adequately acquire the second language needed for academic progress.

**Language Acquisition**

Although Hakuta et al. (2000) determined that ELL students need 4-7 years to develop academic fluency, some administrators are more concerned with assessment scores and less concerned with ELL student language acquisition due to pressure to pass standardized tests (Palmer & Snodgrass Rangel, 2011). Often the time needed to develop academic language is disregarded and replaced by strategies designed to teach as much vocabulary and content knowledge as possible before the state assessments are given to the students. The purpose is to attempt to ameliorate the deficit ELL students have in English (Palmer, Henderson, Wall, Zúñiga, & Berthelson, 2015; Palmer & Lynch, 2008; Solano-Flores, 2008). Teachers often determine what and how they teach according to which high-stakes test the students will take (Palmer & Snodgrass Rangel, 2011). Teachers either focus on academic content or test-taking strategies (Palmer & Snodgrass Rangel, 2011). The researchers noted that the teachers felt pressured by their administrators to choose between using pedagogically sound teaching practices or using test-taking strategies designed to give students more experience taking the assessments.

The teachers believed that teaching students in their first language was more important than teaching test-taking strategies. However, the teachers felt pressure to use more English to prepare the students for their achievement tests. Although the ELL teachers felt pressure from administration to teach test-taking strategies to their students, the teachers indicated that ELL students scored higher on high-stakes standardized tests if they persisted in a dual language two-way bilingual program through fourth and fifth grades rather than in an English-focused program (Marian et al., 2013; Steele et al., 2015).

In a study conducted by Marian et al. (2013), ELL students in a dual language program were found to have higher test scores than ELL students in a transitional bilingual program. Marian et al. examined reading and math test scores for third through fifth grade ELL students in different bilingual programs in the same district. The researchers found that the ELL students who were placed in the two-way dual language program outperformed ELL students in transitional immersion programs. The researchers also found that the fifth-grade students outperformed students in the lower grades. The second-language students in the program outperformed the mainstream second-language students in reading in the third grade. Similar results were found in a study conducted by Steele et al. (2015). Steele et al. studied students who were placed in a lottery-based dual language immersion program. The researchers found that students in the dual language immersion program had the most positive gains in English/language arts as compared to peers not enrolled in the dual language immersion program. The students in the dual language immersion program also outperformed their peers in monolingual or transitional programs.

Teachers who do not follow their bilingual program faithfully due to achievement test pressures can hinder ELL students' learning opportunities (Au, 2009; Palmer et al., 2015; Palmer & Lynch, 2008; Solano-Flores, 2008; U.S. Department of Education, 2002a). The pressure for students to perform at high levels on an English-administered test creates an unwritten language policy valuing learning English over native language learning, in this case Spanish. The No Child Left Behind Act of 2001 and Every Student Succeeds Act of 2015 required all students be assessed annually in reading/English language arts, math, and science, as well as English language acquisition assessments for ELL students (United States Department of Education, n.d.). The achievement tests required by both the No Child Left Behind Act and Every Student Succeeds Act are written in English, with few exceptions for Spanish tests at the elementary level. Texas's version of the national achievement test is the State of Texas Assessment of Academic Readiness, which is administered to all students, including ELL students. The state of Texas does not offer Spanish language tests after the fifth grade (TEA, n.d.). With the focus on these tests, teachers become the arbiters of which language to emphasize and teach in the classroom (Au, 2009; Palmer et al., 2015; Palmer & Lynch, 2008; Solano-Flores, 2008; U.S. Department of Education, 2002a). As a result, the ELL students placed in bilingual classrooms receive less enriched academics and instead receive teaching focused on strategies to pass the achievement test they will take that school year (Au, 2009, Nora, 2013; Palmer et al., 2015; Palmer & Lynch, 2008). Students who do not pass the tests must instead receive content remediation to help them pass a second time, again taking the place of enriching content (Pacheco, 2010; Valentino & Reardon, 2015). These students participate less in the classroom when the focus is on language rather than

content mastery and may miss the opportunity to learn the content being taught (Au, 2009; Creese & Blackledge, 2010; Planas & Civil, 2013).

**Learning Opportunities**

In addition to the issue of ELL student segregation, ELL students face challenges to their learning opportunities. ELL students' learning opportunities can be affected by the attitudes of administrators and teachers regarding ELL students (Alanis, 2000; Romero & Arce, 2009; Wiley, Garcia, Danzig, & Stigler, 2014; Wiley & Lukes; 1996). Molle (2013) posited that many educators have a deficit perspective relating to ELL students due to the students' varying rates of English acquisition. Arias and Morillo-Campbell (2008) defined deficit perspective as blaming ELL students and their parents for students' low performance.

In a deficit perspective, ELL students are viewed negatively in terms of achievement scores and are seen as lowering the school's scores because they underperform on achievement tests. For example, teacher perceptions of ELL students' abilities that are not in line with ELL pedagogy, such as the need for linguistic accommodations to aid in learning, can hamper learning opportunities (Au, 2009; Creese & Blackledge, 2010; Nora, 2013; Palmer et al., 2015; Palmer & Lynch, 2008; Planas & Civil, 2013; Solano-Flores, 2008; U.S. Department of Education, 2002a; Valentino & Reardon, 2015). Solano-Flores (2008) found that students in bilingual classrooms did not reach the same level of success on high-stakes tests due to the lack of educational opportunities because of language barriers that lead to a remedial-teaching focus.

*High-stakes Testing*

In addition to the lack of educational opportunities caused by language barriers, ELL students also face educational issues with high-stakes testing. Palmer and Snodgrass Rangel (2011) discussed the issues with high-stakes testing accountability for ELL students. The researchers noted that the development and use of the first language for ELL students was important to the development of the second language and, as such, a factor in high-stakes testing. Cummins (1979) stated that ELL students require considerable development of their native language to be able to master complex mathematical and scientific computations as well as the concepts embedded in these subjects. Hansson (2012) also acknowledged the need for ELL students to utilize their first language to communicate their understanding of mathematics and to participate fully in their learning process. As stated earlier in the chapter, Cummins and Thomas and Collier (1997) stated that ELL students need 5-7 years of first language learning to transfer knowledge about abstract concepts into the second language. Additionally, Hakuta et al. (2000) determined that ELL students required at least 4-7 years to reach academic proficiency in their second language. The difference in time frames, 5-7 years versus 4-7 years, is the difference between English language proficiency and academic English language proficiency. Hakuta et al. determined that oral proficiency took approximately 3-4 years to develop and academic proficiency took 4-7 years to develop, confirming the need for first-language development before expecting second-language proficiency.

ELL students perform better academically when they are able to use their first language to learn the second language, and as a result participate more in the classroom

(Creese & Blackledge; 2010; Planas & Civil, 2013). Teachers who understood the need for ELL students to use their first language to learn the second language and allowed native language use in the classroom saw students participate more fully in their learning process. Planas and Civil (2013) and Creese and Blackledge (2010) noted that students who were not able to use their first language in the classroom participated less than students who were able to use their first language. ELL students unable to use their first language to participate in classroom discussion may feel as if their voice and power have been taken away from them (Au, 2009). They may begin to feel left out, causing them to lose learning opportunities for lack of ability to participate. Planas and Civil and Creese and Blackledge also noted that students were more engaged in the classroom when allowed to utilize their first language in group settings. The students then participated in class discourse in English with less hesitation.

**Discourse**

Teachers and administrators must have discourse regarding ELL student teaching pedagogy and their learning needs to ensure ELL students' needs are being met (Creese & Blackledge, 2010; Esquinca, 2012; Grabner, Saalbach, & Eckstein, 2012; Moschkovich, 2007; Planas & Civil, 2013). As previously mentioned, there can be a negative connotation to being classified as bilingual or ELL. Often ELL students are not seen as part of the norm group due to their first language not being English, which is the majority language in the U.S. and specifically in Texas. Discourse is needed to ensure that misconceptions and prejudices against ELL students are not continued in the educational realm.

Discourse is essential to understanding ELL students' learning needs. Moschkovich (2007) discussed mathematical discourse as a "sociocultural perspective" (p. 3) which should be explored to make the most of student understanding and learning of mathematics. This sociocultural perspective also can be applied to the science classroom. For example, Esquinca (2012) noted that mathematics has its own language that students must learn to acquire content knowledge. Students who use their first language in math are able to understand math using their prior knowledge and are able to transfer that understanding into English. They are then able to communicate their understanding in English. Lee, Adamson, Maerten-Rivera, Lewis, Thornton, and LeRoy (2008) also noted that science has its own language. ELL students must learn the language of science such as content vocabulary and expository writing rules to communicate learning.

As students are learning the language of the content being taught, they become more adept at participating in classroom discourse and are able to communicate their understanding and knowledge of the content. Mays (2008) noted that students' academic discourse leads them to a better understanding of what they are learning. Students can understand what they should be learning while they use their first language during content discussion, and are then able to process that information and then use their second language, English, with their classmates (Esquinca, 2012). The ability to use their first language in group settings can allow ELL students the opportunity to demonstrate their knowledge, and gives them time to translate that understanding into their second language. ELL students are then able to participate in class discourse and demonstrate a deeper level of understanding that they would not initially be able to communicate due to

their lack of English language knowledge (Creese & Blackledge, 2010; Esquinca, 2012; Grabner et al., 2012; Moschkovich, 2007; Planas & Civil, 2013).

**Self-identity**

ELL students who are able to use their first language to participate in the classroom also have increased positive self-identity, which can lead to more efficacious learning (Au, 2009; Creese & Blackledge, 2010; Esquinca, 2012; Hampton & Rodriguez, 2001). A healthy self-identity can help students participate more in the classroom. ELL students who are permitted to use their first language in the classroom become more confident and willing participants during classroom discussions (Creese & Blackledge, 2010; Planas & Civil; 2013).

The use of students' first language in academic settings helps students become confident in their learning and create a positive self-identity (Au, 2009; Creese & Blackledge, 2010; Esquinca, 2012; Hampton & Rodriguez, 2001; Mays, 2008). Gee (2004) stated that students cannot feel valued at school if their home language and culture are not valued. Students who are able to use and hear their first language at school have a sense of belonging in their school environment and begin to take responsibility for their learning. Having language and culture validated by majority-language speakers shows ELL students that they have value and creates a sense of community within the school (Au, 2009; Esquinca, 2012; Hampton & Rodriguez, 2001).

A way schools and teachers can validate ELL students' culture and language is to allow the students to communicate in their own language. An example of how students can communicate in their own language is allowing students to code-switch or translanguage. Code-switching or translanguaging involves the use of ELL students' first

and second languages simultaneously. Code-switching is a valuable use of students'

culture and language because it allows ELL students to share their content understanding

in their own words (Au, 2009; Creese & Blackledge, 2010; García, 2009). The use of the

code-switching vernacular is normal and helps to maximize student learning by allowing

students to use both languages simultaneously to express their understanding. The

students feel confident enough to share their learning and participate in the classroom

(Au, 2009; Creese & Blackledge, 2010). Code-switching allows students to ask questions

and explain their thought processes. These students are more apt to take risks in their

learning and they are more likely to use higher-order thinking processes to clarify

meanings and any questions they may have (Creese & Blackledge, 2010).

ELL students come to school with varying degrees of content knowledge, just as

monolingual students do. However, ELL students also are required to demonstrate

content knowledge/mastery while learning the second language. Allowing ELL students

to utilize their first language while demonstrating content knowledge/mastery helps to

ensure that the ELL students have a safe environment where communication and

participation are valued, regardless of language. ELL students are apt to participate more

freely in the kinds of environments that are inclusive of their language and culture (López

& Iribarren, 2014). Researchers have revealed the realities of the struggles ELL students

face academically and culturally (Au, 2009; Garcia, 2009; Planas & Civil, 2013). ELL

students face segregation and negative attitudes about their language and culture, yet they

continue to learn at a level that is comparative to non-ELL students.

**Teacher Supports Needed for ELL Student Success**

ELL students can face academic and cultural obstacles to their education. Teachers can mitigate the negative impact of learning obstacles that ELL students face. This section includes literature regarding ELL teachers' perceptions regarding what they deem is necessary to facilitate student learning. Teachers who believe in their own self-efficacy and the efficacy of their organization are more accepting of challenging goals and professional developments designed to achieve those goals, and will persevere through obstacles they may encounter while teaching (Goddard, Hoy, & Hoy, 2000). Those obstacles then become useful experiences that underscore perseverance is key to success (Bandura, 1989). Teacher self-efficacy is also affected by teachers' willingness to learn from the professional development courses they attend and their experience collaborating with teachers they view as successful (Goddard et al., 2000). These experiences with master teachers and professional developments form the basis for the types of supports and resources teachers believe will help them grow professionally. According to researchers, ELL teachers want instructional support for their programs, professional development tailored to ELL needs, and administrative support for their students and their program (Coleman & Goldberg, 2010; Elfers, Lucero, Stritikus, & Knapp, 2013; Elfers & Stritikus, 2014; Hansen, 2006; Hart & Lee, 2003; Lee & Maerten-Rivera, 2012).

**Instructional Supports**

Administrator advocacy is important when seeking support for instructional programs (Elfers et al., 2013; Elfers & Stritikus, 2014). Teachers seek instructional supports to teach their students properly (Coleman & Goldberg, 2010; Hansen, 2006;

Rader-Brown & Howley, 2014; Turkan, De Oliveira, Lee, & Phelps, 2014). Teachers request instructional supports that are specific to their ELL program and to ELL student learning. Teachers are able to create a classroom environment where ELL students feel comfortable enough to participate in class discussion when they work with facilitators and coaches to learn ELL instructional strategies and implement those strategies in their classrooms. Researchers have suggested that teachers want instructional support to learn how to scaffold their lessons, incorporate linguistic learning techniques, utilize cooperative learning groups with their students, and direct vocabulary instruction techniques (Banse, Palacios, Merritt, & Rimm-Kaufman, 2016; Calderón, Slavin, & Sánchez, 2011; Castañeda, & Bautista, 2011; Cole, 2013; Coleman & Goldenberg, 2010; Edmonds, 2009; Hansen, 2006; Hansen-Thomas, 2008; McEneaney et al., 2014; Medina-Jerez, Clark, Medina, & Ramirez-Marin, 2007; Medina-Jerez & Campbell, 2015; Nguyen & Cortes, 2013; Pacheco, 2010; Rader-Brown & Howley, 2014; Turkan et al., 2014).

*Scaffolding*

While scaffolding a lesson seems relatively simple for teachers, the problem is two-fold due to the differing levels of English acquisition and content knowledge ELL students possess. ELL teachers need to assess their students' level of English acquisition and content knowledge to support student learning (Castañeda, & Bautista, 2011; Echevarria, Vogt, & Short, 2008). The assessment may be formal or informal and serves to inform the teacher about the types of scaffolding required for comprehensible input (i.e., the point at which the ELL student understands the essence of what is being said to him or her) which is important for student learning (Li, 2013). Student comprehensible input occurs when the teacher uses various linguistic techniques to verify that the ELL

students understand the content being taught. The teacher adjusts his or her speech rate and tone, uses visuals, and reviews the new content with the students (Echevarria et al., 2008; Krashen, 1992).

As the teacher is adjusting his or her content delivery and reviewing the content for the students, the teacher is also building content knowledge, or scaffolding. The teacher can begin scaffolding the lesson after he or she has assessed the ELL students' level of English proficiency and prior knowledge. Prior knowledge refers to the existing knowledge ELL students have regarding the subject they are learning. Prior knowledge is not only gained through academic content, but is also the knowledge gained through familial and cultural interactions (Moll, Amanti, Neff, & González, 1992). Ways to scaffold a lesson include asking open-ended questions, following up with closed-ended questions, repeating, extending, rephrasing, modeling daily, and including ELL students in content discourse daily (Banse et al., 2016; Castañeda, & Bautista, 2011; Edmonds, 2009; Hansen, 2006; Nguyen & Cortes, 2013; Turkan et al., 2014). When asking open-ended questions, teachers can help students by providing linguistic supports such as a word bank and visuals (Echevarria et al., 2008). The students are able to use the word bank and/or visuals to formulate their answers to the questions posed in class. Students then can access their prior knowledge using the words and visuals the teacher has provided for them.

Teachers can use follow-up questions to help students work through their answers by guiding students to the correct answer. The teacher models how to use content vocabulary for the student by repeating, extending, and rephrasing questions using precise content language. The teacher also models the use of content vocabulary by

articulating appropriate responses and appropriate classroom discussion (Calderón et al., 2011). Students are encouraged to use their content vocabulary daily when engaging with the content. As the use of content vocabulary increases, the participation in classroom discourse increases.

In addition to instructional supports and scaffolding, Medina-Jerez, Clark, Medina, and Ramirez-Marin (2007) stated that the use of prior knowledge as a teaching strategy is beneficial for student learning. Teachers are able to make learning more engaging when they use students' prior knowledge during instruction (Lee & Buxton, 2013). Utilizing ELL students' prior knowledge also helps them to make content culturally relevant (Brooks, Adams, & Morita-Mullaney, 2010; DeMatthews & Izquierdo, 2017; Hamann & Reeves, 2013; He, Prater, & Steed, 2011; Lee & Buxton, 2013; Lopez & Iribarren, 2014; Medina-Jerez et al.; Medina-Jerez & Campbell, 2015; Scanlan & López, 2012). Researchers have stated that culturally relevant content is important to understanding ELL students and their learning needs (DeMatthews & Izquierdo, 2017; He et al., 2011; Lee & Buxton, 2013; Lopez & Iribarren, 2014; Medina-Jerez et al., 2007). Understanding the cultural funds of knowledge ELL students bring with them into the classroom environment and how to utilize that cultural knowledge helps the teacher create a welcoming and integrated environment that ELL students need to be successful in their learning.

### *Language Integration*

ELL students have linguistic needs that must be met to internalize and synthesize content knowledge successfully (Turkan et al., 2014). Mainstream teachers need to learn ELL students' academic and language backgrounds, understand ELL student linguistic

needs for content learning, and scaffold the lessons for ELL students. Integrating language learning into content is not reserved for reading and English language arts content classrooms; language can be integrated into other content areas such as science and mathematics (Calderón, Slavin, & Sánchez, 2011; Cole, 2013; Coleman & Goldenberg, 2010a; McEneaney et al., 2014; Medina-Jerez et al., 2007; Medina-Jerez & Campbell, 2015; Turkan et al., 2014). Integrating science-specific vocabulary and language into content learning can help ELL students better understand the material. ELL students can use content-specific vocabulary when they ask questions and make inferences regarding their learning when participating in classroom discourse. The students become active participants in their learning when they integrate language and vocabulary into their classroom discussions (Mays, 2008).

One way to integrate ELL students' language into classroom discourse while building their second language is to incorporate cooperative learning groups into the classroom daily routine (Calderón et al., 2011; Cole, 2013; Echevarria et al., 2008; Edmonds, 2009; Medina-Jerez & Campbell, 2015; Rader-Brown & Howley, 2014). Cooperative learning groups are used as a strategy for ELL students to participate more, as well as a tool to facilitate the use of complex questioning with ELL students (Rader-Brown & Howley, 2014). The student grouping is very structured, which is what distinguishes it from collaborative learning (Cole, 2013). This structure is what makes cooperative learning effective in the classroom setting. In cooperative learning groups, students work together to complete a task. Each student is assigned a role in the learning environment. Students learn their assigned tasks, become an expert on their task, then teach the task to their group (Cole, 2013).

*Peer-mediated Learning*

Peer-mediated learning is another version of cooperative learning that has been suggested as a method for promoting language acquisition for ELL students (Cole, 2013). In the Gomez and Gomez dual language program, students are paired together, using their English language abilities as a tool to help each other learn content and to complete classroom tasks (Gomez, 2016). Teachers dominate the discussion in many traditional classroom and very little time is dedicated to opportunities for student-led active learning. Therefore, there is less time for students to collaborate (Rader-Brown & Howley, 2014). ELL teachers should use student-led learning strategies when planning student activities that include second-language use (Echevarria et al., 2008). ELL students in peer-mediated classrooms work together in pairs or groups to learn the content at hand. Student pairs can work collaboratively or cooperatively, and those same pairs can be used as peer tutoring groups in the classroom (Adkins, 2009; Echevarria et al., 2008).

ELL students in peer-mediated classrooms show a significant gain in oral and written testing outcomes (Cole, 2013). Teacher-led learning silences ELL students and lessens their opportunity for language acquisition due to the short length of time ELL students can participate verbally in their learning. In teacher-led classrooms, the teacher does not allow for students' verbal response nor give students the opportunity to actively participate in their learning (Cole, 2013). The students lead the learning in peer-mediated classrooms. ELL students are able to practice their formal (academic) and informal (basic interpersonal) English skills with each other and their teacher in peer-mediated classrooms without feeling that they are not using the correct language or vocabulary

(Cole, 2013). Cole (2013) found that ELL students in these types of classrooms showed significant gains on national assessments of oral and written reading tests.

## *Higher-order Thinking*

ELL teachers should ask higher-order thinking questions during classroom discussions (Echevarria et al., 2008; Pacheco, 2010; Rader-Brown & Howley, 2014). While initially difficult for ELL students, teachers who use higher-order thinking questions positively affect ELL student learning by not watering down the content so that ELL students can learn at the same pace as non-ELL students (Echevarria et al., 2008; Pacheco, 2010; Rader-Brown & Howley, 2014). ELL students work collaboratively in groups or pairs as this type of grouping provides instructional support for ELL students. Working collaboratively also allows ELL students to use their first language in a less stressful environment. ELL students in this type of environment are able to develop more confidence in the classroom (Echevarria et al., 2008; Hansen, 2006). The students are free to make mistakes using their second language because they know the other students are there to support their learning and will help them with questions or language support.

## Professional Development

Teachers' needs for professional development were discovered while reviewing the literature regarding what ELL teachers stated were specific to their students: content-specific professional development, linguistic acquisition strategies, sheltered instruction strategies, and coaching to implement professional development (Echevarria, Short, & Powers, 2006; Franco-Fuenmayor, Padrón, & Waxman, 2015; He, Prater, & Steed, 2011; Lee & Maerten-Rivera, 2012; Lee & Buxton, 2013; Molle, 2013; Song, 2016). Each of

these areas of need corresponds to ELL pedagogies related to instruction and cultural relevance.

### *Content-specific Professional Development*

Researchers have found that teachers have requested content-specific professional development to stay current with new pedagogies and teaching strategies (Brooks et al., 2010; Elfers & Stritikus, 2014; Franco-Fuenmayor, Padrón, & Waxman, 2015). For example, Brooks et al. (2010) interviewed school administrators to determine how to create an inclusive learning environment for ELL students. The administrators in this study noted that their teachers felt more supported and included as their administrators attend professional development designed to support ELL student learning. Elfers and Stritikus (2014) researched how administrators support ELL teachers. The researchers found that teachers identified teacher collaboration and ELL-focused curriculum and resources as specific needs for effective teaching. Other requested professional developments are culturally relevant curriculum and materials for their ELL students, teaching strategies specifically tailored for ELL oral language development and the use of ELL background knowledge, instructional models that are specific to ELL students, and collaborative learning environments (Brooks et al.; Elfers & Stritikus, 2014; Franco-Fuenmayor, Padrón, & Waxman, 2015).

Franco-Fuenmayor, Padrón, and Waxman (2015) found that teachers needed to include best practices and management of effective instruction as part of their skill sets. Effective instructional practices would entail ensuring the curriculum is appropriate for ELL students and using assessment data to review and refine teaching activities that would help students succeed (Morrison et al., 2019; Orlich, Harder, Callahan, Trevisan,

& Brown, 2012). Teachers who understand the importance of effective instruction understand that they must have knowledge of the content they are teaching. Hart and Lee (2003) and Lee and Maerten-Rivera (2012) stated that teachers reported a need for more specific teaching strategies that related to content. Not only do teachers need to know their content, but they also need to learn how to make their content teaching meaningful and relatable to their students. Differentiating content delivery helps all students, most especially ELL students, due to students' varying degrees of English acquisition. ELL students who are given more than one opportunity to learn content have a higher probability of understanding the content being taught and can communicate their understanding more effectively (Lee & Buxton, 2013; Lee & Maerten-Rivera; Molle, 2013).

### *Professional Development for Linguistic Acquisition*

ELL teachers need to understand their students' linguistic needs to make content comprehensible for their students. ELL students have specific linguistic needs related to second-language acquisition. Hart and Lee (2003) stated that there is a need to have professional development that is not only specific to content, but also specific to understanding how to merge the second language with the content. He et al. (2011) posited that teachers need more professional development in linguistic acquisition as it relates to ELL students. Teachers need to understand the way in which ELL students develop their second language. Once the ELL teacher gains an understanding of how to integrate linguistic acquisition skills into student learning strategies, the ELL students are likely to acquire content more effortlessly (Lee & Maerten-Rivera, 2012).

One area related to the linguistic acquisition needs of ELL students is first-language support in the classroom. Effective teachers understand the need for varying the levels of oral communication for ELL students and adjust for those varying levels of English-language usage (Lee & Buxton, 2013). These teachers support ELL students' use of first language when they are making meaning of the content and communicating their understanding of the content being presented. Rodríguez (2013) posited that integrating second-language acquisition activities into content learning provides a more relevant educational experience for ELL students. This is because ELL students have prior knowledge that can help them learn content. Prior knowledge includes ELL students' content knowledge, reading comprehension, and language development they have learned in their first language. This prior knowledge can be transferred to content comprehension in the second language once ELL students are able to integrate their first language in the classroom. Teachers who attend professional development designed to implement the integration of language and content are better able to facilitate ELL student learning, understand the specific learning needs of ELL students, and learn how to create curriculum units specific to those needs.

*Sheltered Instruction Professional Development*

Professional development designed to meet linguistic acquisition needs for ELL students include bilingual strategies used in sheltered instructional strategies. Sheltered instruction strategies are designed to be an integration of ELL instructional pedagogy and ELL instructional strategies and are designed to be used specifically for ELL students (Hansen-Thomas, 2008). However, many teachers are unfamiliar with these instructional strategies (Echevarria et al., 2006). Echevarria et al. (2006) noted that fewer than 13% of

the nation's teachers had received professional development centered on teaching ELL students. Many ELL teachers feel inadequate when teaching their students because they are held responsible for ELL teaching strategies, yet they may not have an adequate understanding of those strategies or how to use them in the classroom (Franco-Fuenmayor et al., 2015).

Teachers need administrative supports to implement the sheltered instructional strategies they learned in their professional development. Instructional coaches and facilitators are administrative staff members who are familiar with a school's bilingual program and are familiar with current strategies to teach ELL students. Coaches attend the professional development courses along with teachers to ensure they also are familiar with the program and strategies that are taught (Elfers, Lucero, Stritikus, & Knapp, 2013; Elfers & Stritikus, 2014; Molle, 2013; Stufft & Brogadir, 2011). Coaches can help ELL teachers implement these strategies correctly to ensure the teachers follow the program dictates (Molle, 2013; Song, 2016).

### *Inclusive Professional Development*

Professional development should not be attended by teachers alone. Coaches and facilitators are master teachers who are trained to help facilitate program directives and strategies. Coaches and facilitators should be kept abreast of new teaching strategies and pedagogies to ensure they can exemplify best teaching practices for teachers. Molle (2013) stated that teachers need proper facilitation of professional development sessions to ensure that they are implementing the strategies and pedagogies they have learned. Facilitators work to develop and structure the professional development for teachers (Molle). Facilitators set up professional development sessions for teachers, create an

atmosphere of inquiry among the participants, manage and direct teacher interaction and discussion, and bridge the distance between the professional development the teachers attend and the bilingual program in their school (Molle).

The facilitators understand professional development may conflict with teacher beliefs as to how ELL students learn, which may cause ethical or ideological dilemmas for those teachers (Molle, 2013). These dilemmas might stem from the belief that ELL students need to be normalized to their instructional methods, or that there is a generic teaching method that will improve ELL learning (Bartolome, 1994; Molle, 2013). Facilitators who provide inclusive professional development take into consideration the need for culturally responsive teaching methods as well as strategies designed for ELL students to share the knowledge they are learning (Bartolome 1994; Molle, 2013). The teachers who then implement these instructional strategies designed for ELL learning needs display a mind-shift from their previously held deficit beliefs regarding ELL students (Molle, 2013).

Teachers who receive professional development designed for ELL instructional needs require time and support to implement those strategies in their classrooms. Song (2016) recommended instructional coaching to accompany professional development. Instructional coaching, like instructional facilitation, involves meeting with a teacher before a lesson, identifying the strategy the teacher will implement, evaluating the teacher while he or she implements that strategy in the classroom, debriefing about the teaching cycle, and discussing how to use the strategy to improve student learning (King, Neuman, Pelchat, Potochnik, Rao, & Thompson, 2009; Song). The difference between facilitation and coaching is that the coach and the teacher work together to construct a plan of action

to help the teacher gain mastery of the strategy being implemented. The instructional

facilitator does not work with the teacher to construct a plan of action. Instead, the

instructional facilitator develops the plan of action to improve teaching and the teacher

implements that plan (Molle, 2013; Song).

Depending on the needs of the teacher (for example, novice versus veteran), the

coach directly supervises and collaborates with the teacher to create an action plan that

addresses areas of need (King et al., 2009; Song, 2016). The coach sets a course of action

which entails pre-conferencing with the teacher before the lesson to ensure that both

parties agree on the lesson to be observed. The coach observes the lesson and takes notes

while the teacher implements the lesson with the students. After the observation, the

coach conferences with the teacher to discuss areas of strength and weakness to help the

teacher refine and improve the lesson. This coaching cycle continues until the teaching

has progressed sufficiently in those areas of weakness. Song (2016) studied teachers who

participated in a coaching cycle. The teachers reported that their knowledge of ELL

language acquisition improved, as did their students' academic and social behaviors

(Song).

**Administrative Supports**

ELL teachers request support from their administrators in the areas of staffing,

program support, and creating an inclusive school environment. School administrators

have the power to staff ELL programs with teachers who have the pedagogical

knowledge needed for teaching ELL students (Armendáriz & Armendáriz, 2002; Baecher

et al., 2013; Brooks, Adams, & Morita-Mullaney, 2010; DeMatthews & Izquierdo, 2017;

Elfers et al., 2013; Elfers & Stritikus, 2014; Lopez & Iribarren, 2014; Rocque, Ferrin,

Hite, & Randall, 2016; Scanlan & Lopez, 2012; Theoharis & O'Toole, 2011). Staffing

bilingual programs with qualified teachers helps to ensure program implementation and

efficiency (Armendariz & Armendariz, 2002; DeMatthews & Izquierdo, 2016;

DeMatthews & Izquierdo, 2017).

Researchers have found a deficiency in adequate teacher preparation and training

when it comes to teaching ELL students (Armendáriz & Armendáriz, 2002; Baecher et

al., 2013; Elfers, Lucero, Stritikus, & Knapp, 2013). ELL student academic needs are

more than learning subject-related content. They also have linguistic needs that must be

met to ensure the student learns the content as thoroughly as possible. Teachers of ELL

students who are not prepared to integrate language into content teaching risk creating

lost opportunities for ELL students to show content mastery (Baecher et al., 2013; Elfers

et al., 2013). Teachers who are prepared to teach ELL students understand the importance

of integrating language into content learning. ELL students benefit from linguistic

supports that include the use of their first language when needed, word banks, and/or

alternative assessments as a means of measuring student learning. However, many ELL

teachers are not aware of the necessity of linguistic supports ELL students need to be

successful in the classroom (Bartolome, 1994; Molle, 2013). Administrators who are

cognizant of the needs of ELL students can staff their programs more adequately,

ensuring that the teachers are aware of the linguistic and academic needs of the students

they serve (Armendáriz & Armendáriz, 2002; Baecher et al., 2013; Brooks et al., 2010;

DeMatthews & Izquierdo, 2017; Elfers et al., 2013; Elfers & Stritikus, 2014; Lopez &

Iribarren, 2014; Rocque et al., 2016; Scanlan & Lopez, 2012; Theoharis & O'Toole,

2011).

*ELL-focused Support*

ELL teachers require professional development and ongoing support specifically tailored to their ELL program (Armendáriz & Armendáriz, 2002). Administrators have a duty to ensure ELL teachers are knowledgeable about the latest ELL pedagogies and support the implementation of those pedagogies in the classroom. Baecher et al. (2013) posited that administrators who support ELL teachers with relevant and timely professional development and coaching also affect ELL student learning. The professional development and coaching supports ensure that ELL teachers are adequately equipped with the latest curriculum and resources ELL students need to learn (Elfers & Stritikus, 2014). Administrators are the gatekeepers for ELL learning and have a responsibility to ensure that curriculum and resources for ELL students are pedagogically sound.

Professional development opportunities should not occur only once; they should be ongoing to sustain teacher growth and fidelity to the program (Elfers et al., 2013). Administrators can use ongoing professional development to reinforce ELL teaching pedagogy and the teachers' capacity to work with their ELL students (Elfers et al., 2013). Teachers who are involved in long-term professional development have more time to become proficient in the program, are focused on their own mindset toward the program, and take time to become familiar with program goals and initiatives (McIntyre, Kyle, Chen, Muñoz, & Beldon, 2010). The longer the ELL program, the more time teachers have to judge program effectiveness. The teachers can then use that time to communicate their thoughts about the program to their administrators.

After ensuring that professional development, curriculum, and resources are adequate for their program, administrators must provide support to teachers to ensure the program is being implemented faithfully (Elfers et al., 2013). To guarantee fidelity to the program guidelines, administrators should employ teacher coaches who are program experts and can monitor and adjust the implementation of the program for teachers as needed. Support staff such as coaches and other administrators who work with ELL teachers and students should become familiar with the program requisites, pedagogy, and strategies aimed at helping ELL students achieve success (Elfers et al., 2013).

*Collaboration*

Along with supports focusing on ELL learning, teachers need administrators who understand their need to collaborate with each other and with the administration team when implementing their academic program and creating program goals (Baecher et al., 2013; Brooks et al., 2010; DeMatthews & Izquierdo, 2017; Elfers et al., 2013; Elfers & Stritikus, 2014). Collaboration allows teachers to learn from each other and create a sense of community within their program. ELL teachers can work together to vertically align their program and discuss any questions about the program, students, and student needs. Administrators who involve the ELL program teachers in the design and implementation of program policy help create teacher ownership of the program.

Another advantage of creating a collaborative environment for teachers is the creation of an inclusive school-wide environment in which the diversity of ELL students is valued (Menken & Solorza, 2015). The school environment is culturally and linguistically inclusive (Baecher et al., 2013; Brooks et al., 2010; DeMatthews & Izquierdo, 2017; Elfers et al., 2013; Elfers & Stritikus, 2014; López & Iribarren, 2014;

Menken & Solorza 2015; Rocque et al., 2016; Scanlan & López, 2012; Theoharis &

O'Toole, 2011). Allowing ELL students to use their first language in social spaces and in

the classroom helps ELL students feel part of their learning environment, validating their

contribution to the discourse in the classroom (Baecher et al., 2013; Brooks et al., 2010;

DeMatthews & Izquierdo, 2017; López & Iribarren, 2014; Menken & Solorza, 2015;

Scanlan & López, 2012).

### *Cultural and Linguistic Awareness*

There is a difference in pedagogies related to teaching content and teaching ELL

students, thus the need for culturally- and linguistically-relevant education. ELL-specific

teaching pedagogy refers to supporting ELL linguistic and cultural needs in addition to

content knowledge. DeMatthews and Izquierdo (2016, 2017) theorized that

administrators with a social justice approach to teaching ELL students understand the

importance of high-quality, engaging content for their students. These administrators also

ensure the school environment is culturally and linguistically welcoming for their ELL

students. The administrators understand the need to include parental support in the

mission and vision for their schools. Understanding ELL cultural, linguistic, and

academic needs while building relationships with ELL families helps bridge the family-

school connection that is integral to ELL student achievement (DeMatthews &

Izquierdo). They also understand the importance of empowering ELL families to take

charge of their students' learning and learning programs (DeMatthews & Izquierdo;

Niehaus & Adelson, 2014). Administrators who take the time to understand ELL

students' cultural and linguistic needs create an environment where ELL students can

fully participate in both their education and their community. Administrators who

validate the culture and language of ELL students help to create a sense of self-worth in those students, which leads the students to become active participants in their education (Au, 2009; Esquinca, 2012; Hampton & Rodriguez, 2001).

## Summary

This chapter included literature regarding ELL student obstacles such as cultural and language barriers as well as educational opportunity loss due to those barriers. They also face negative perceptions regarding their learning abilities, academic and social needs, and perceptions regarding their learning programs which can affect their learning opportunities. Despite negative connotations of ELL students and their learning abilities, ELL students can excel in public schools if they are given the support they need to acquire language and content. ELL students who are in a culturally- and academically-inclusive environment have a better opportunity to close the achievement gap between themselves and non-ELL students (DeMatthews & Izquierdo, 2017). The literature in this chapter also focused on ELL teachers and their needs to facilitate their students' success. Teachers are an important part of the process and make the difference in closing the achievement gap for their ELL students when they have access to all the supports necessary for their ELL program. In Chapter 3, I discuss the methodology I used to analyze the data gathered from the interviews. I explain the design of the study and the approach I used to analyze the data gathered for the study and discuss my role as the instrument used to gather and analyze the data. Chapter 3 also includes an overview of the participants selected for the study and how the participants were selected.

**CHAPTER 3**

**METHODOLOGY**

Texas is home to more than one million limited English proficient (LEP) students (TEA, 2018). The educational gap in science for these LEP students and their non-English Language Learner (ELL) student counterparts persists, with 2017-2018 State of Texas Assessment of Academic Readiness (STAAR) data indicating a 20% gap in science (TEA, 2018a). Researchers have posited that LEP students begin their educational path in a deficit compared to their English-speaking peers, due in part to their lack of English acquisition (Adams & Jones, 2006; Batt, 2008; Kim & García, 2014; Stoddart, Pinal, Latzke, & Canaday, 2002). The results of national math, reading, and science exams indicate that, as a group, ELL students' academic achievement falls behind their non-ELL peers' academic achievement (Batt, 2008; Roberts & Bryant, 2011; U.S. Department of Education, 2015). While national data indicated a 32% science achievement gap between ELL and non-ELL students on the 2015 National Assessment of Educational Progress (NAEP) science test (U.S. Department of Education, 2015), 2017-2018 STAAR science test data showed a 5% achievement gap between fifth-grade ELL students and their non-ELL peers, coming closer to closing the achievement gap of 15% from the previous school year (TEA, 2018a). The passing rate for Texas's fifth-grade students on the 2017-2018 school year science test was 76% for all students, while the passing rate for ELL students was 71% (TEA, 2018a).

Researchers have suggested that teachers seek professional development and instructional and administrative supports directly related to their educational program and that meets the needs of their students (Armendáriz & Armendáriz, 2002; Coleman &

Goldenberg, 2010; Echevarria et al., 2006; Hansen, 2006; Song, 2016; Theoharis &

O'Toole, 2011). Calderón, Slavin, and Sánchez (2011); Elfers, Lucero, Stritikus, and

Knapp (2013); and Rader-Brown and Howley (2014) posited that teachers believe their

instruction and students benefit from receiving these supports. The participants in this

study were asked about their needs in terms of administrative supports, and how the

supports they received affected student performance.

In this study, I examined dual language ELL teachers' perceptions of

instructional, professional development, and administrative supports to help students

overcome the achievement gap in science. I interviewed dual language science teachers

of ELL students, for whom a science achievement gap was being bridged, to determine

the teachers' perceptions of the impact of educational supports on their students' science

scores. The teacher interviews were used to provide the data about the supports the

teachers perceived had contributed to their students' academic success and had helped to

bridge the achievement gap in science. Data from the interviews of administrators were

sought to affirm the data from the teacher participants. All data collected were in the form

of interview transcripts and analytic memos. The data were coded into useable chunks of

data that were analyzed for emerging themes. Data similar in theme were grouped

together.

**Design of the Study**

This study was qualitative in nature. In a qualitative study, the researcher seeks to

reveal and describe phenomena that occur in the world through observations (Creswell &

Poth, 2018). The role of the researcher is to observe the phenomenon in its natural

setting, collect data, ensure participants' voices are integrated in data reporting, and

reflect on the data collected (Creswell & Poth). As the researcher in this study, it was important that I understood the meaning the phenomenon held for each participant (Maxwell, 2013).

I designed the study to gather data pertaining to participants' perceptions of educational supports that have positively affected student achievement in science. ELL student achievement was defined by Texas STAAR test scores that were above those of national peers. I used a phenomenological approach to describe the experiences the study participants had with the supports they received and also described the meaning the participants had attributed to those experiences.

Edmund Husserl founded the phenomenological theory in the early 20th century (Reiners, 2012). Husserl wrote, "Natural knowledge starts with experience and remains *in* experience" (2014, p. 9). Husserl stated that knowledge is gained through experiencing a phenomenon, and that the description and perception of that occurrence were integral to comprehending the experience. Husserl's phenomenology is a purely descriptive discipline (Reiners, 2012). He was an observer to the phenomenon and described what was occurring without ascribing any meaning to the phenomenon itself (Husserl, 2014). The individual's experiences should be defined only by his or her description (Husserl, 2014; Reiners, 2012). In Husserl's description of phenomenology, the phenomenologist makes a thorough description of the phenomenon and does not ascribe any meaning to the phenomenon he or she is describing (Dowling, 2007). The event is described by detailing the occurrence thoroughly and explicitly. The individual who is experiencing the phenomenon describes how that occurrence shaped his or her understanding of the phenomenon.

Simon and Goes (2011) defined Husserl's phenomenology as using logical thinking to reach an understanding of the phenomenon that the individual is witnessing. The outsider observing the phenomenon is a recorder of the event who describes the occurrence with specificity (Wertz, 2011). The outsider (in this case the researcher) is tasked with recording and detailing the phenomenon without adding any interpretation to the happening. However, a literal description of the phenomenon does not accurately define the meaning of the phenomenon to the individual experiencing it. Heidegger (1985) saw the phenomenon as part of an experience and posited that the experience shaped the meaning of the phenomenon (Heidegger; Schacht, 1972). For Heidegger, phenomenology was more ontological, a study of the relationship between experiences and their meaning to the individual, rather than epistemological, the detailing of the experience. Heidegger theorized that phenomenology was the study of reality and how we create it. He did not detach from the experience, but instead took the experience and interpreted it reflectively, as it occurred (Dowling, 2007; Englander, 2016; Goulding, 2005; Starks & Brown Trinidad, 2007). For Heidegger, the essence of phenomenology came from the experience and the meaning the experience created as the individual lived and reflected on it. Wertz (2011) defined this reflection as a description of the lived experience. In the lived experience, there is no outside perspective, only the perspective of the person experiencing the phenomenon. The person living the experience gives meaning to the phenomenon (Dowling, 2007; Goulding, 2005; Starks & Brown Trinidad, 2007; Wertz).

Both Husserl (2014) and Heidegger (1985) require the researcher to detail and describe a phenomenon (Heidegger; Husserl). However, Heidegger delved deeper into

the meaning of the phenomenon, requiring the researcher to reflect on the meaning of the occurrence (Heidegger). Heidegger sought to discover the meaning of what had occurred and how that meaning shapes the phenomenon (Heidegger; Schacht, 1972). A phenomenological lens was appropriate for this study because I sought to discover the meaning the participants ascribed to their experiences and their perception of how those experiences had affected their students' achievement in science.

The interview questions in this study were open ended and descriptive in nature to help ensure a proper description of each participant's experience and to describe thoroughly the meaning the experience held for each participant (Dewey, 1996; Maxwell, 2013; Seidman, 2013). The interview questions were used to ask dual language science teachers to describe their experiences and any meaning the experiences held for them. I searched for commonalities in the teachers' experiences with their supports to discover the meaning they ascribed to those experiences (Creswell & Poth, 2018). Two administrators also were interviewed to affirm the supports the teachers received.

I used a purposeful selection of participants as they had knowledge of the phenomenon being studied. The teacher participants had taught in the dual language setting together for at least three years. Each teacher participant had also taught science in Spanish, following the dual language program dictates. The administrators also worked with the teachers for at least three years. I employed a phenomenological lens to analyze the data from the interviews. The interview questions pertained directly to the three research questions posed in this study.

**Research Questions**

The following research questions guided this study:

1. What instructional methods do ELL science teachers perceive contribute to closing the achievement gap between ELL and non-ELL students?

2. How do ELL science teachers perceive that the professional development in which they participate contributes to closing the achievement gap between ELL and non-ELL students?

3. How do ELL science teachers perceive that administrative supports impact their teaching and contribute to closing the achievement gap between ELL and non-ELL students?

The objective of the first research question was to explore teacher participants' perceptions of varying ELL instructional methods and how these methods affected student achievement. Researchers have posited that teachers want instructional supports that include scaffolding lessons, incorporating linguistic integration into lessons, utilizing cooperative learning strategies, addressing content-specific needs distinct to ELL students, and using ELL students' prior knowledge (Banse, Palacios, Merritt, & Rimm-Kaufman, 2016; Calderón et al., 2011; Castañeda, & Bautista, 2011; Cole, 2013; Coleman & Goldenberg, 2010; Edmonds, 2009; Hansen, 2006; Hansen-Thomas, 2008; McEneaney, López, & Nieswandt, 2014; Medina-Jerez et al., 2007; Medina-Jerez & Campbell, 2015; Nguyen & Cortes, 2013; Pacheco, 2010; Rader-Brown & Howley, 2014; Turkan, De Oliveira, Lee, & Phelps, 2014).

The second research question was used to examine ELL teachers' perceptions regarding the professional development courses they had attended and which, if any, of the courses were perceived to be effective in helping them teach ELL students science. The participants were asked to describe their experiences with the professional developments they attended.

Researchers have suggested that teachers want content-specific professional development opportunities that are focused on the linguistic needs of ELL students, are research-based, and that have teaching supports built into the implementation of the training (Franco-Fuenmayor et al., 2015; Hart & Lee, 2003; Lee & Buxton, 2013; Lee & Maerten-Rivera, 2012; Molle, 2013; Rodríguez, 2013). Content-specific and ELL-specific professional developments help teachers increase their teaching pedagogy skills as well as become proficient in the content in which they teach.

I used the third question to explore how ELL teachers perceived that administrative supports affected their teaching abilities and their students' learning. Researchers have stated that teachers seek qualified colleagues for ELL programs, input regarding ELL program selection, and creation of an inclusive educational environment for ELL students (Armendáriz & Armendáriz, 2002; Baecher, Knoll, & Patti, 2013; Brooks, Adams, & Morita-Mullaney, 2010; DeMatthews & Izquierdo, 2017; Elfers, Lucero, Stritikus, & Knapp, 2013; Elfers & Stritikus, 2014; Lopez & Iribarren, 2014; Rocque et al., 2016; Scanlan & Lopez, 2012; Theoharis & O'Toole, 2011).

Researchers have posited that administrators who involve teachers in the staffing of ELL programs and seek teacher input regarding ELL program supports allow teachers to take ownership of the educational process for their students (Armendáriz &

Armendáriz, 2002; Baecher et al., 2013; Elfers & Stritikus, 2014). Elfers et al. (2014) found that administrators believed that teachers took ownership of programs designed to support them when the administrators involved them in the decision-making process. Baecher et al. (2013) recommended that administrator candidates and teacher candidates be placed together within an ELL program setting to collaborate to create improved ELL programs for their schools. I sought to discover what supports and professional developments teachers used to facilitate student achievement.

## Instrumentation

I served as the instrument in this qualitative study (Poggenpoel & Myburgh, 2003). I designed the interview protocol, selected participants, recorded interviews, and analyzed data. It is the researcher's responsibility to ensure that the study has been designed effectively so that the findings result in meaningful information. The interview questions in this study were open ended in nature to provide participants ample opportunity to be thorough in their responses. Poggenpoel and Myburgh (2003) stated that the researcher creates a context in which "respondents share rich data regarding their experiences and life world" (p. 418). It was my intent to create an atmosphere in which the participants were comfortable enough to share their experiences and perceptions openly and honestly.

Two interview protocols were designed for this study. The first protocol was designed for the teacher participants. The second protocol was designed for the administrators. Both protocols were created to answer the three research questions. The protocols differed with regard to participants' respective job description yet were focused on participants' perceptions of supports received that affected student achievement.

The interview questions were open ended and were used to inquire about participants' experiences with the phenomenon (Creswell & Poth, 2018). Three experts in the field reviewed the interview questions to ensure that the questions were appropriate and not leading (Creswell & Poth, 2018). The experts selected to review the interview questions were educators who had worked in the K-12 educational system and had completed research in the education field. All of the experts had advanced degrees in education.

The protocol consisted of 16 open-ended questions that were divided into four sections. The interview protocol included questions about the teachers' backgrounds, teaching experience, and experiences with instructional supports for science classrooms. The questions were used to ask about any supports that the teachers perceived had positively affected student learning and what types of additional supports they would have liked to receive. The teachers were also asked about their experiences with professional development opportunities they had attended specific to teaching ELL students and administrative supports they had received to teach science and support their ELL program. In addition to asking about their experiences with professional developments, I asked about how the professional development opportunities had affected their teaching and about the types of supports the teachers' administrators had provided to help close the achievement gap for students.

The interview protocol for the administrators consisted of 19 questions that were divided into four sections. The questions I asked centered on the professional developments to which the administrators sent their teachers, the instructional supports that were provided to teachers, and their beliefs about how the supports were expected to

be used to impact students' science scores. I also asked about their experiences with ELL students and ELL programs and about any professional developments they had provided to ELL teachers that were designed specifically for ELL students' needs.

The interview protocols were created to provide the participants with an opportunity to reflect on their experiences with supports designed to positively affect learning in a dual language program. The participants who had been selected to take part in the study presented their personal perspectives about the phenomenon being studied.

## Participant Selection

I used a purposeful sample to select the participants for this study (Creswell & Poth, 2018). The participants were dual language teachers of ELL students or supervised dual language teachers. The participants in this study were selected based on their experience with the phenomenon I sought to study and were employed at one school campus.

I sought to interview teachers who taught dual language science students who had at least three years of educational experience and at least three years teaching at their site. The students of the teacher participants had a lower achievement gap in science as compared to the same achievement gaps on the STAAR and NAEP assessments. First- and second-year dual language teachers were excluded due to their limited teaching experience. I also sought to interview two administrators who were tasked with teacher preparation and dual language program training.

The prospective participants received a recruitment email through which I requested their participation in the study (see Appendices E and F). The recruitment letters included information about the parameters of the study, details about the purpose

of the study, and information about why the individuals were being asked to participate. The letters also included information about participation being voluntary and notification that the participants' identities would be kept confidential.

Participants who responded affirmatively to the recruitment email were provided with an informed consent document (see Appendix D). The informed consent document included the definition and purpose of the study, information regarding the duration of the interviews, and the responsibilities of the interviewer. I informed the participants via the consent form that the interviews would be recorded and transcribed.

## Data Gathering

Data were collected through interviews and analytic memos. I interviewed eight first through fifth-grade dual language science teachers and two school administrators. The administrators served as the supervisors of the dual language science teachers.

I assigned pseudonyms for the participants, campus, and school district to help ensure the confidentiality of the participants. Each interview was held via an online platform at a time that was convenient for each participant. Each interview lasted between 45 and 60 minutes and focused on teacher perceptions of instructional supports, professional development, and administrative supports. The teacher participants also were asked why they became teachers of ELL students, what their perceptions of ELL instructional strategies were, and how the instructional supports impacted their teaching. The teachers were asked about their perceptions of the professional development meetings they attended, administrative supports they received, and how these supports impacted their teaching. Input from the administrators was valuable to the research study; it was used as a source of data to help to confirm the teacher participant data. The

administrators were asked about their experiences with the dual language program, what they believed their roles in teacher and program support were, and how they believed the program functioned in their school. The administrators were asked about how they perceived their instructional and administrative supports impacted teacher and student efficacy as well as how professional development affected teacher efficacy.

I continued interviews until data saturation was reached (Creswell & Poth, 2018). I reached the data saturation point when I found that the data collected did not provide any new information (Creswell & Poth, 2018). An additional digital recording device was used to record the interviews as a secondary back-up and all interviews were transcribed verbatim.

I used the data from administrator interviews to confirm the supports they provided, and the supports reported by the teacher participants. I took analytic memos during the interviews and while reading the transcripts to summarize the interviews and used the memos to organize themes that resulted from the data (Creswell & Poth, 2018; Maxwell, 2013). The data from the interviews and memos were analyzed for emerging themes.

## Treatment of Data

The interviews were transcribed verbatim and data collected from those transcriptions were analyzed "to provide an understanding of the common experiences of the participants" (Creswell & Poth, 2018, p. 79). I began the analysis of data after the data from the interviews and analytic memos were compiled. Using memos to summarize the data helped to ensure that the data were as free from bias as possible and helped to ensure the conclusions made and perspectives gained from the data were valid.

The analytic memos were used to organize my thoughts during and after the interviews. Memos are a way of developing a textural description of the phenomenon the participant is experiencing (Creswell & Poth, 2018). I used the analytic memos as a tool to organize my thoughts. Questions that evolved from the analytic memos were added to the interviews as they were conducted (Maxwell, 2013).

I began the data collection process after the interviews were completed. I read the interviews numerous times to get a feel for what the participants were experiencing. I began to analyze the data using a horizontalization process in which I created a textural description of the interviews. Horizontalization is the listing of, and the preliminary process of grouping, the statements in some semblance of order and ensuring every statement has equal value (Moustakas, 1994). I bracketed statements that stood out, then I searched for horizons, or statements that stood out "as invariant qualities of the experience" (Moustakas, 1994, p. 192). Invariant qualities are those statements that are not repeated or overlapping and that can be clustered together (Creswell & Poth, 2018; Moustakas, 1994). I then returned to the outstanding statements and created a structural description, searching for the meaning these statements had for the participants.

After going through this process for each transcript, I used a first-cycle coding process during which I wrote down what each participant said about the supports they received, using words or phrases (Miles, Huberman, & Saldaña, 2014). The first-cycle coding process entailed using a descriptive coding process where one word or phrase represents topics and/or themes that arose from the interviews. Those words were noted as topics/themes that came from the interviews. Then those words or phrases were chunked together to create first-cycle codes. I then looked for patterns in the data

collected and grouped the data together to form useable chunks. The data were analyzed

further as I searched for any additional themes and/or phrases that may have emerged

from the initial chunks of data (Saldaña, 2015).

After I completed the first-cycle coding, I began the second-cycle coding process.

Second-cycle coding entailed taking the first-cycle data and generating codes based on

patterns that were found within the first-cycle data (Miles et al., 2014). I looked for a

pattern within the chunks of data and then reviewed those chunks and searched for causes

for the perceptions or explanations. I then searched for any overarching concepts within

analyzed chunks. I used the data to create a matrix that listed each code (theme or

pattern) derived from the second-cycle coding process and cataloged them according to

the corresponding research question. The matrix I created was essentially a table in which

I listed my three main patterns–instructional supports, professional development, and

administrative supports. I then analyzed the data from the matrix so that I could

determine the patterns that emerged from the initial data analysis. I looked for patterns

that answered the research questions to discover the emerging themes. I went back to my

analytic memos and interviews to confirm that the themes I found were in fact what the

participant said in the interview (part of the triangulation process).

After coding the data, I created an individual textural description for each

participant's interview transcript. A composite textural description is one in which the

individual themes from each participant are grouped together into universal themes

(Moustakas, 1994). The textural description ensured that I quoted clear images of the

phenomenon, along with the thoughts, feelings, and perceptions that the participants

expressed (Creswell & Poth, 2018; Moustakas, 1994). After compiling the data, I

examined the data and considered the possible structural qualities that reflected the textural qualities of the interviews. I grouped the data into themes emerging from the experiences the participants had with the supports they received.

**Trustworthiness**

Trustworthiness in qualitative research is based on credibility, transferability, dependability, and confirmability (Connelly, 2016; Guba, 1981; Morrow, 2005; Porter, 2006; Shenton, 2004; Sinkovics, & Alfoldi, 2012). Credibility is assured by thoroughly describing the data, triangulating the data, and examining previous research (Guba, 1981; Morrow, 2005; Rolfe, 2006; Shenton, 2004). To ensure transferability, the researcher must explicitly detail the data collected. Details to be described should include the number of participants, selection criteria, study limitations, and data collection and treatment (Shenton, 2004). Dependability is ensured through the consistency of the research and the explicit tracking of research activities. To ensure dependability, I explained the research thoroughly to allow for others to repeat the study (Guba, 1981; Morrow, 2005). Confirmability of the findings was ensured by creating an audit trail wherein I described the processes I used to collect, analyze, and interpret data (Shenton, 2004).

As a researcher, I must be cognizant of and acknowledge my own interests in the research (Seidman, 2013). I was a dual language teacher in an elementary school and recognized that I have my own opinions and perceptions regarding the supports I received to teach my own students. As such, I strove to be continually aware of these opinions and perceptions as I conducted each interview to ensure I was not leading the interview to the conclusions I might have already had. After the interviews, I listened to

and transcribed each interview. I triangulated the data from the interviews and analytic memos to help ensure the validity of the data collected. Each of these steps helped ensure the validity and trustworthiness of the data collected. The interviews, transcriptions, and analytic memos served as the foundation of the data collected for this study. These data were used to help determine any relationship between teacher supports and ELL student learning.

## Summary

In this study, I examined the relationship between teacher supports and bridging the science achievement gap for ELL students. I focused on ELL dual language science teachers and two administrators. I sought to understand the types of supports the teachers received and the effects the teachers felt the supports had on their students' achievement in science. The findings of the study are presented in Chapter 4. In Chapter 5 the conclusions and implications of the study are shared.

**CHAPTER 4**

**DATA ANALYSIS**

The teachers who participated in this study shared their perceptions of how the supports they received helped their English language learner (ELL) students. The purpose of this chapter is to report the data gathered in this study. The data were gathered through participant interviews and reflect the participants' perceptions of what supports helped bridge the achievement gap in science.

This chapter is divided into four sections. The first section consists of biographical data relating to the participants in the study. In the second section I describe the instructional supports the teachers received from their administrators. The third section contains a description of the professional development the teachers have attended that was focused on science and ELL students and a description of what the teachers believed to be effective professional development opportunities. The fourth section contains a discussion of what the teachers felt were the supports the administration team members provided that were directly related to their science classroom. In the fifth section I detailed the supports the administrators provided for the teachers and the dual language program.

**Participants**

This section is comprised of a description of the eight teachers and two administrator participants in this study. The participants shared why they became educators and how their personal lives influenced their decision. Eight elementary dual language science teachers and two elementary administrators participated in this study. The teacher participants discussed their perceptions of supports they received that helped

them support ELL student learning. The administrator participants discussed the supports they provided their teachers and how they perceived those supports helped to facilitate ELL student learning. The teachers taught dual language science and had at least three years of teaching experience. The administrator participants supervised the dual language program and the teacher participants.

**Participant Backgrounds**

The participants in this study were women in the K-12 educational field. Nine of the ten participants identified as Latina/Hispanic and one chose not to identify ethnicity. Five of the participants were immigrants whose native language was Spanish. The participants' ages ranged between 30-60. Five of the participants had earned a master's degree or higher. All participants were certified to teach in an elementary setting. The participants' experience in teaching and administration ranged from more than 5 years to approximately 25 years. All of the teacher participants taught science in Spanish in the dual language program in first through fifth grades.

*Helen*

Helen said she had always wanted to be a teacher. She remembered playing school as a child and knew that she would become a teacher when she grew up. She said it was almost as if becoming a teacher was a natural progression from her days playing school. As a child, Helen would frequently help her friends with their schoolwork. She shared that she loved to see students learn and be successful and enjoyed helping students get on the "right track."

Helen said she believed her role as a teacher was to encourage her students. She felt that she encouraged students to learn the curriculum and also instilled the importance of being respectful to others and treating others as they would like to be treated. Helen believed that educators not only teach curriculum but also skills that would help students to be successful in life. She believed students should understand that although their home environment may not be ideal, they can learn how to treat each other with kindness and respect at school.

### Teresa

Teresa said she became a teacher because she understood the value of education and wanted to be a positive role model for Latino children. She believed ELL students would be more successful if they had a positive role model who was of their same ethnicity. Teresa loved watching her students grow academically. Being a teacher helped her make a change in her students' lives.

Teresa believed that her role as a teacher was to help students learn. She used students' native language to teach and also used cognates, language, and grammar similarities in their native language to teach the second language to her students. Teresa said that she built relationships with her students to be more effective.

### Eliza

Eliza was an English learner herself who had gone through the process of learning English as a newcomer to the country. She had wondered if she could become a teacher but thought she did not have the magic she felt teachers needed to be successful. Eliza started her path to teaching as a substitute before forming relationships with teachers who

later encouraged her to try teaching. She said she would continue to teach for as long as she continued to love the work.

Eliza shared that her role as a teacher was to provide the support students needed to learn. She loved teaching her language and said she felt that differentiation and content knowledge were key to helping students learn. Eliza felt that understanding her students was essential in ensuring she was meeting each student's learning needs.

### Carrie

Carrie said that she always wanted to become a teacher. She came to the United States as a young child and attended bilingual classes as a student in a public school. Carrie shared that she had teachers who really seemed to care for her and who made a difference in her education. She always wanted to be that kind of teacher for her students.

Carrie believed that her role as a teacher was to support her students as they learned the English language and instill in them a good work ethic. She said that she believed she must encourage a sense of self-advocacy in her students and that that was important because some students do not or would not advocate for themselves due to their timidity. Carrie believed that helping her students find their voice would help them both educationally and personally.

### Frida

Frida shared that she fell into teaching and then found it to be fulfilling. Frida began her career teaching Spanish. She loved teaching others her language, especially children. She was pleasantly surprised at how well children were able

to become bilingual so quickly. She believed she would be a good teacher for these children.

Frida found herself to be an advocate for her students. She believed the classroom should be a space where the student is treated equally and that she needed to ensure there was good communication between the classroom and home environments. She said she tried to be a good role model for students as a teacher and a learner, focusing on modeling what she believed were good learning behaviors. She wanted to ensure her students learned and tried to give them all the skills necessary to become good learners.

### Emily

Emily said she loved learning about different cultures and meeting new people. She said she learned about students' home countries and tried to incorporate their cultures into the classroom as much as possible. Emily also said another reason she enjoyed teaching was because she could see the changes in her students as they learned. She said that seeing students grow as learners brought her much enjoyment.

Emily shared that her role as a teacher was to help students learn. She strongly believed that building relationships with parents and parental support were key to student learning. Emily said she made sure she was communicating with parents throughout the school year to build a relationship where the parents could come to her with any questions or concerns they may have. Building the home-school connection was important to Emily because she believed that connection would support her students' learning.

*Lally*

Lally shared that she remembered playing school with the neighborhood children and playing with imaginary friends when there were no other children to play with. When she was older and could decide the career she wanted to pursue, she chose to become a teacher.

Lally believed she would have to cultivate a safe classroom space for her students if she wanted to be an effective teacher. She believed that to create a safe space for her students she would first have to form personal relationships with them. Lally said she began with ensuring her students knew she loved and cared for them. She believed students would perform at a higher level when they felt they were in a safe space.

*Natasha*

Natasha loved learning and helping others. She took her love of learning and decided to become a teacher. Natasha felt she would be a good role model for children as a teacher and wanted to give them enriching learning experiences.

Natasha believed she could positively affect students academically and personally. She said her role as a teacher was to affect student learning by allowing students to experience as much hands-on learning as possible. She created a classroom where the students could explore and experience what they were learning about. She believed those experiences would facilitate student learning and allow for the students' curiosity to create new learning. She believed in encouraging her students' curiosity and using their curiosity as a learning tool.

*Gloria*

Gloria was an administrator who worked with dual language teachers. Gloria said the job chose her; she didn't choose the job. While she was teaching, she was asked to provide training and model lessons for other teachers. Gloria said her goal was to continue working as an educator in different capacities.

Gloria shared that her role was to support her teachers with resources and materials as well as provide them with guidance as needed. Gloria believed that working in various grade levels as a teacher prepared her for working with teachers as she understood the curriculum and teacher expectations. She said she had been trained in the dual language program so she could support the teachers and students. Gloria said she had chosen the strategies she believed would be useful for ELL students and shared them with dual language teachers to ensure the teachers were kept abreast of dual language teaching strategies.

*Amanda*

Amanda, an administrator who worked with the dual language teachers, said she worked with teachers to support the dual language program. Amanda said her role as an administrator was to ensure that the teachers were adequately prepared for their bilingual program, in this case the dual language program. She said that she ensured that all teachers were trained in the Gomez and Gomez dual language program used for their ELL students. Amanda also made certain that teachers were trained in the Texas English Language Proficiency Assessment System (TELPAS) and Language Placement Assessment Committee (LPAC) standards.

**Themes**

Three themes emerged as a result of responses from study participants. The three themes included 1) teachers identified vocabulary instruction, visuals, and hands-on activities as integral to student achievement; 2) teachers applied strategies learned in professional developments (including non-science-based training) in their science classrooms; and 3) administrators focused on resource allocation and alignment so that teachers could focus on student learning. The following section includes an overview of each theme, detailed descriptions, and quotes from participants.

The first theme, teachers identified vocabulary instruction, visuals, and hands-on activities as integral to student achievement, developed through interview data collected regarding the supports teacher participants believed contributed to student achievement in science. The teacher participants believed that various teaching techniques combined with lesson models as a guide helped ensure lessons were taught as thoroughly as possible and helped teachers be more effective in the classroom. The teachers perceived that different teaching strategies helped to ensure their ELL students were provided with a variety of experiences as they learned science. Multiple teachers shared that implementing different teaching strategies helped to ensure a differentiated learning environment for their ELL students. Further, the teacher participants said that hands-on activities helped solidify student learning. Many believed that providing students with multiple experiences in science made the content more comprehensible for students.

In support of the second theme, teachers applied strategies learned in professional developments (including non-science-based training) in their science classrooms. Several teacher participants shared that there were not enough new professional developments for science and the quantity of science-focused professional development opportunities was small. Several teachers had attended various science professional developments that provided them with lessons and activities for use with their ELL students. They stated that the professional development was very helpful in providing them with activities and learning strategies for use in the dual language classroom.

Three teacher participants stated that they attended professional development for other content areas. The three teachers stated that they used the strategies they learned in those professional developments in their science classrooms. The teacher participants identified the lack of science professional development and strove to alleviate that issue through the use of strategies and teaching tools learned in other professional developments. They acknowledged their need for science professional development as the science-specific professional development was not available. They used the strategies learned in other professional developments to suit their needs in science. The teacher participants' resiliency in using these strategies allowed them to continue to help their students learn science.

For the third theme, administrators focused on resource allocation and alignment so that teachers could focus on student learning, the participants perceived that campus administrators provided support by providing the teachers with resources and materials, opportunities to participate in lesson modeling, and open channels of communication. The teachers stated they could go to the members of the administration team with

concerns or questions about their students and dual language program and the members of the administration team would make themselves available to them. The teacher participants said that their administrators would provide resources when requested.

Many of the teacher participants stated they felt their administrators were supportive in their requests for lesson modeling and were willing to facilitate those requests though modeling lessons themselves or bringing in someone from outside the school to model lessons when needed. One teacher participant noted her instructional coach made weekly visits to her classroom to inquire about her needs, while another teacher said that her instructional coach would tutor a small group of struggling students. The constant communication between the administrators and teachers via alignment and planning allowed the teachers to focus on student learning without having to spend time on other administrative duties. Each of these supports was integral to the students' success as, overall, most of the teachers felt they made a positive impact in their teaching.

**Theme 1: Teachers identified vocabulary instruction, visuals, and hands-on activities as integral to student achievement**

The first theme focuses on the instructional supports teachers perceived contributed to closing the science achievement gap for their ELL students. The teacher participants described being taught several different teaching strategies during staff meetings and professional development activities that they could use with their students and how those strategies affected student learning. The teachers described exposing their students to the language of science using vocabulary activities, visuals, books, and

student discourse. They also described ensuring students experienced science through hands-on activities such as stations, research, and writing in the science classroom. The teachers described time as an invaluable resource, especially allotting enough time for students to fully absorb the content and complete the activities they were assigned.

### *Vocabulary*

The teacher participants described language as an important part of teaching science to their students. When asked about the relevance language had to teaching science the teachers described exposure to science content vocabulary as being integral to learning for their students. The teachers described having students who had a lack of science knowledge, especially in the area of vocabulary. Eliza stated the hardest part of teaching ELL students was students' lack of vocabulary knowledge:

> most of these are not used, they never heard of the proper, scientific
> vocabulary...so sometimes they know the concept, but because they don't
> understand a word or two...it's hard for them.

Eliza noted that exposure to vocabulary helped her students relate to the science concepts being learned. The more that students were exposed to vocabulary the more they were able to make connections to the learning. The students began to show content mastery as they connected to the vocabulary.

Teresa stated that vocabulary knowledge was important for student learning due to the amount of vocabulary the students encountered during testing. She said that science vocabulary was extensive because it was not just content related but also related to academic language, which students were lacking. Teresa created stations for learning vocabulary in her science classroom. Students would work together to complete research

assignments related to the content being learned. The students would have time to discuss and write about what they were learning. As a result, students were able to understand the concepts while completing the stations and research because they were participating in discussions, using the vocabulary they had learned.

Helen also noted that vocabulary was important to learning science. She shared that she provided her students with more exposure to vocabulary so they could practice it through student discourse and the sharing of ideas:

> They can read a book about it…having them talk…sharing ideas and sharing out, maybe with their bilingual partner whenever that's possible so they can help each other learn. I think they really learn from each other a lot.

Helen explained that students were more likely to internalize their learning if they used the content vocabulary during classroom discussions. Helen also made sure to have visuals of the vocabulary words so that students would have daily vocabulary reinforcement.

Gloria noted that she found vocabulary to be an issue with student learning. She shared that some of the vocabulary words were cognates, the same in English and Spanish, however students who were unfamiliar with the English vocabulary would code-switch (Au, 2009; Creese & Blackledge, 2010; García, 2009) for the words that were not cognates. Gloria stated that students who have more exposure to the language do very well academically.

Both of the administrators noted that vocabulary is important to science learning. Amanda stated that students who did not have a grasp of science vocabulary did not fare well in science. She said that one reason for poor science vocabulary was language.

Amanda stated some of the ELL students were from different countries and came with their own dialectical language that was not taught explicitly with regard to science vocabulary. She gave an example of the word *sink*. She noted that Argentinian students would call the sink *pileta de la cocina* while Mexican students would call it a *fregadero*. She explained that students would not understand the word *fregadero*, so the teacher needed to be mindful to use synonyms as well to ensure the students were building their science vocabulary.

Gloria noted that vocabulary teaching was more intentional for dual language teachers. She stated teachers were focusing on vocabulary and using the correct scientific terminology so students could understand what was being taught:

I know we did…a bilingual…literacy center…just on science only because of all the vocabulary, and having the students understand, and what the vocabulary was really talking about because there's a lot of scientific terms that [students] just don't know.

Both of the administrator participants and teachers reflected on the need to ensure ELL students had enough exposure to scientific vocabulary. These participants found the lack of science vocabulary knowledge created a barrier to ELL science content learning. The teacher participants appeared to understand that their students had this deficit and created lessons to supplement vocabulary learning for their students, while the administrators also appeared to understand vocabulary knowledge was an issue for ELL students and strived to allocate resources for teachers to utilize in their classrooms.

*Visuals*

All of the teachers described using visuals in the classroom setting, not only for vocabulary but also for graphics the students were unfamiliar with but would see during science class. The teachers noted that the visuals helped with learning vocabulary and content for science. The visuals also helped with student assessment as the state assessment frequently included graphs and data tables the students would have to read and interpret and with which they had little experience.

Gloria stated that she emphasized using visual literacy strategies with her teachers. " I think what has helped is the district incorporating visual literacy now for everyone," she shared. Gloria said that students were not only learning the vocabulary but also discussing and talking about what they were learning. The discussions helped the students internalize the content which helped to increase the student success rate.

Helen stated she used visuals to teach science to reinforce the vocabulary for her students. She shared that students often did not know the names or properties of the materials with which they were working. As such Helen used visuals like anchor charts and visual vocabulary to ensure her students received as much exposure to the content as possible. She stated, "The more they see it, the more they practice, the more it's going to…stay with them."

Teresa, Frida, and Lally also said that they used visuals to introduce vocabulary to their students. Teresa incorporated the visuals in the stations the students completed during independent practice. She stated that having stations

for visual vocabulary helped students understand and master vocabulary so they could write about their learning. Frida stated she used visuals when introducing new vocabulary and also used a science notebook to record student learning. Lally said that her use of visuals was essential to student learning. She felt visuals were a large part of science learning as her students had limited experience with science vocabulary.

Gloria said that incorporating visual literacy helped students learn as they were able to "observe what they saw on a diagram and then discuss." The students would be more apt to understand the content and terminology in their own words and communicate their understanding to their partners. Gloria said she felt that training in visual literacy would help the teachers understand that science is not just a stand-alone concept, but also is enveloped in math and reading.

The participants identified the use of visuals as a viable resource to enrich student learning. They noted that the use of visuals gave students another avenue to learn and understand vocabulary and content and provided students the ability to apply their learning through discussion and practice. Most participants agreed that visuals were essential to helping students visualize and process new learning and vocabulary.

*Activities*

The use of books and hands-on activities were also classroom instructional supports that teachers attributed to successful teaching. The teachers described using books in stations and centers for independent science research. The students would have conversations and discussions with each other while they were completing their research and, as a result, the students would have a better understanding of the concepts. Eliza and Helen also used books to enrich their students' exposure to science vocabulary. Both

teachers described the importance of hands-on activities to cement student understanding and learning. Helen stated that having hands-on activities allowed students to see and experience concepts students were unfamiliar with, leading to student inquiry and learning.

The participants found that hands-on activities were also essential to understanding and internalizing science content. They shared that hands-on activities were useful as the students would be able to experience science learning, then share with a partner. The sharing and discussion were essential to internalizing and communicating students' understanding of the content and allowed for teachers to assess students' knowledge.

**Theme 2: Teachers applied strategies learned in professional developments (including non-science-based training) in their science classrooms**

The second theme focuses on the professional development teachers perceived was lacking for science and the strategies learned in non-science professional development they used to positively affect closing the science achievement gap for their ELL students. The teacher participants described the professional developments they attended which were designed for both their ELL students and science classrooms, as well as the professional development they would have liked to have had as an option. The teacher participants' responses varied due to the grade levels they taught. For example, some of the lower grade teachers described science academy and lesson planning professional developments. Some of the upper grade teachers described not attending science professional developments. One teacher did not attend trainings and said the

professional developments were the same each year. One teacher noted not being required to attend science professional development, and another teacher attended a visual literacy professional development. However, the visual literacy professional development was not focused on ELL learning nor science learning. The requested professional development was related to sessions such as stations/center ideas, collaboration, and hands-on activities. The administrators discussed the recommended professional development for teachers such as hands-on activities, vocabulary enrichment, and modeling.

### *Science Professional Development*

The teacher participants who attended science professional development described going to a science academy for new teachers, science activities for use in class, nature center activities, and visual literacy sessions. Several teachers attended a science academy that resulted in science lessons as well as stations for their students' independent practice time. Eliza noted that the professional development focused on different activities using books and other resources to research about science. Helen shared that she attended a training for activities to incorporate into her bilingual learning centers. Emily said that she attended nature center activities professional development. The activities corresponded to the content being taught at that time. Lally said that she attended district trainings, but they did not make an impact on her in terms of learning new teaching strategies.

Other teachers had a different experience. Teresa said that she was not required to attend science professional developments because she also taught writing, "Honestly, I did not attend any science professional developments just because the focus was on

writing," she said. Carrie said she attended a visual literacy professional development. Her experience was that the training was more focused on the state assessment in that teachers were given resources that focused on graphics and pictures the students would have to interpret. The students would have some kind of graphic or picture on the state assessment, so the professional development was geared toward providing the students with more exposure to those types of visuals in preparation for the state assessment. Carrie said students "don't always see that, if they have not been taught how to read a table or how to read a graphic; they don't know. So I think that training...really helped."

There appeared to be no consistent science professional development for the teacher participants. Five of the teacher participants attended professional development in science and three did not. The teacher participants acknowledged the importance of attending professional development as part of increasing their science knowledge and would have liked to have attended professional development designed for both content and ELL student needs.

### *Hands-on Activities*

Teresa used her centers to provide students with hands-on research activities. The students worked together to complete a research assignment focused on the content they were learning and then presented their assignment in class. She said she felt students needed more activities where they had diagrams and visuals to dissect and understand which is why she believed the research centers were valuable to student learning. Eliza and Helen used hands-on activities to increase student learning, focused on vocabulary development

through activities, and focused on science experiments the students could do in the classroom. "If they don't know the word, they can see it firsthand and...they can have experience with it and practice with it," Helen said.

Some teachers noted that they did not always have the materials needed for the lessons from the professional developments. They expressed frustration with having to order the materials from their administrators and wait for the order or purchase the materials themselves to teach the lesson. They would have liked for the materials to be available either at the professional development or on campus for immediate use.

### *Lesson Modeling*

Lesson modeling was perceived as essential by almost all of the teacher participants. Modeling was viewed as a way to share content updates and served as a forum through which to share new teaching strategies. Teresa stated that due to her lack of training in science, she would have liked to have had more modeling so she could be sure she was teaching the content to the best of her ability:

> Sometimes in the training we learn these things, but sometimes it's also good just to see it in action, like seeing someone come to your classroom and actually do it and see how the kids interact and how kids learn...then coming and observing us to see if we're teaching it correctly...if the students are mastering the concept.

Helen said that she attended professional developments as a new teacher where lessons were modelled for her. She shared that the modeled lessons were useful because they provided the teaching strategies she lacked as a new teacher. Carrie stated as a new teacher she would have loved someone to model lessons for her to emulate. "Modeling lessons helps, especially at the beginning when you don't know what you're doing,

especially as a new teacher," she shared. Carrie and Emily also said that the modeling should include resources to help implement the lessons in the classroom so they could be successful teaching the lesson.

*Language Resources*

Language resources identified were Spanish-language resources such as curricula and books. Both Helen and Eliza had Spanish language science books for their classroom. Helen said that it was difficult to get Spanish books and wanted to ensure there were enough for her students. Frida and Emily believed in the importance of having reading materials such as books and magazines for their students to read and use as research materials. Eliza wanted more Spanish-language curriculum for her classroom. She noted that she had just received a resource that included handouts for her students as well as an online resource with lessons for students to complete in Spanish, however those were relatively new resources as well as being only two resources that supplemented the curriculum. Teresa had some language resources but shared that more resources would be helpful.

The teacher participants identified three different types of professional developments they attended. The participants attended science content professional development, curriculum focused professional development, and non-science professional developments where they learned how to implement hands-on science activities, received updates to curriculum, and received language support for their ELL students. The teacher participants felt that attending these types of professional developments would have increased their science content knowledge and help them teach science more effectively.

**Theme 3: Administrators focused on resource allocation and alignment so that teachers could focus on student learning**

The third theme focuses on the administrative supports the teachers perceived that supported the learning of English language learners in science. The teacher participants described allocation of resources, planning/data meetings, and lesson modeling as supports provided by their administrators. The administrator participants were asked what supports they provided for their teachers to support their ELL students. The administrator participants described planning/data meetings, professional developments, and assessment preparation.

*Resources*

Most of the teacher participants stated that the administrators provided resources needed to teach science. Resources provided were in the form of supplemental materials such as curriculum designed for science learning, books, and materials for the classroom. Eliza stated that she felt "like administrators have tried to provide us with the tools with the resources that we need to each in a second language…for example…books...that we...had in English but not Spanish" as well as purchasing Stemscopes, a science learning program that had a Spanish-language translation for their ELL students. She also shared that she was given the freedom to teach science freely in her classroom.

Helen stated that she had everything she needed to teach science. The instructional coach frequently came to her classroom to inquire about her needs and, if there were any, would help to provide resources:

> She comes in a couple of times in the morning, and asks, "Do you need anything, can I get anything for you?" I know for soil I needed soil samples because there

was no soil in the science lab, so she was able to get some from the nature center. So stuff like that, if you need something and we're busy, they're able to assist us.

Teresa shared that her administrators provided bilingual resources for her ELL students such as Spanish-language science-related materials. Carrie also said that the administrators provided all the materials needed for her science classroom, "By making sure we do have the materials and that we have the money allotted for supplies because it is a lot of supplies that you need." Emily shared that her administrators would provide needed materials and resources when she asked. Emily and Frida also stated they were able to get tutoring and small-group lessons for their students provided by the instructional coach. Natasha stated that her administrator provided funds for before and after school tutoring for her ELL students in science.

Five teacher participants said that they received all the materials and supplies they needed for the required hands-on science activities. Anything those teachers needed was provided through their science lab or purchased with funds allocated for science. Three of the teacher participants noted that sometimes there were not enough supplies in the science lab due to each grade level teaching the same content at the same time. Those teachers shared that although the materials were on campus, they had to request the supplies from the administrators. The administrators also provided ELL language support through Spanish-language science curriculum and materials. They provided tutoring and small-group instruction for students who were in need.

*Lesson Modeling*

The teachers described lesson modeling as part of the supports the administrators provided for them. The teachers stated modeling lessons was beneficial especially when they were unsure how to teach the content. Carrie stated, "modeling lessons helps especially at the beginning when you don't know what you're doing, especially as a new teacher." She thought the model lessons were beneficial for teachers and felt lesson modeling would have helped her be more successful in teaching science.

Helen also stated modeling lessons was useful, even though it may not be in Spanish. She stated the weekly meetings were useful because the instructional coach would have the teachers share lessons with each other and discuss how to incorporate those lesson ideas into their own classrooms. The instructional coach was instrumental in facilitating a collaborative environment where the teachers would model lessons for each other.

Lesson modeling was important to teachers as it gave them another resource for teaching science. As new teachers, the participants were sometimes unsure of how to best teach science and appeared to be grateful to have lessons demonstrated for them and would use the models as a basis for their teaching. The teachers also stated the facilitation of collegial modeling was beneficial.

*Planning/Data Meetings*

The teacher participants stated their weekly planning/data meetings were beneficial to their science teaching. The teachers described administrators identifying areas of student weakness for reviewing or reteaching, identifying the Texas Essential

Knowledge and Skills (TEKS) Student Expectations (SEs) to be taught next along

with lessons related to those SEs and facilitating teacher collaboration.

Frida said that her instructional coach was prepared for the data meetings

by having the testing information and TEKS the team would be discussing ready

for the meeting. Teresa shared that her planning meetings would include the

TEKS they were to teach along with possible resources needed for those lessons.

What was described as most important to Teresa was the collaborative planning

time she and her colleagues shared as well as the trust of her leadership team.

Eliza said that her instructional coach delivered a well-prepared, structured

data meeting, with clear expectations set for the teachers. She also said that she

felt supported by her instructional coach. Carrie stated that she thought the

instructional coach was prepared for their data meetings and would have a plan

for the next groups of SEs the students would be learning. "She knows exactly

what we're teaching," said Carrie.

The teacher participants agreed that having their administrative team prepared for

planning and data meetings was beneficial. The administrator participants also stated that

they would prepare for the meetings with their teachers. Amanda said that she prepared

trainings for the teachers to ensure that they understood program requisites as well as

state assessment requirements for their students. She believed the best support she could

give teachers was preparing them at the beginning of the school year. The preparation

ensured the teachers had the knowledge they needed to begin the year successfully.

Gloria shared that she helped teachers incorporate science into math and

reading when planning future lessons. She said that science was embedded in

reading and math and that it was important for all teachers to be able to find ways to show students how science is part of math and reading. Gloria noted that science was not a main focus in third and fourth grades due to state testing, so she had to look at the data after district testing to determine which SEs were low and needed focus. She would plan how to incorporate science into math and reading and add enriching visual literacy into the science block. Gloria stated that using the data from testing and then creating strategies to reteach the low SEs was beneficial to student learning.

> Teresa stated that the administrators were:
>
> very involved in helping us come up with ideas on how to reteach,
> even...discussing with us reasons, maybe why students had misconceptions,
> try[ing] to create plans for us like we create a plan to teach the next unit to ensure
> the students are successful.

She said she felt that collaboration in planning for student misconceptions would help her to understand why students would misunderstand the concept and give her a strategy to resolve those misconceptions. Having the administrators prepare for the meetings with data and resources was a great help to Teresa.

The planning/data meetings were beneficial to teachers in that they were able to identify areas of need and strategies to use to focus on those areas of need. The teacher participants appreciated the time and effort the administrators put into the planning and data meetings. They were appreciative that the administrators took the time to ensure they had all the information needed to be able to perform their teaching duties. The administrator participants understood that being prepared for meetings with data and

planning strategies was an integral part of the supports they could provide for their teachers.

## Conclusion

This chapter included a description of the supports teachers perceived to be essential to supporting the science learning of students who are English language learners. The chapter also included the supports the administrators provided for their science dual language teachers. The three research questions regarding instructional supports, professional development, and administrative supports were answered via data gathered from teacher and administrator interviews. The teacher participants described the supports they received and how they affected their students' learning. The administrators described the supports they supplied to their teachers and how they felt the supports affected student learning.

**CHAPTER 5**

**CONCLUSIONS AND SUMMARY OF THE STUDY**

Texas's public schools English Language Learner (ELL) population was 1,066,640 in 2019 (Texas Education Agency [TEA], 2019). English Language Learner students accounted for 19.6% of student enrollment. These students often have difficulty learning at the same pace as their non-ELL counterparts as exhibited by national and state assessment data such as the National Assessment of Educational Progress (NAEP) and State of Texas Assessment of Academic Readiness (STAAR) tests (United States Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2015; TEA, 2006; TEA 2016a; TEA, 2017a; TEA, 2018a).

This study focused on the ELL/non-ELL achievement gap in science with regard to the NAEP and STAAR tests. The NAEP 2015 science test results indicated a national achievement gap of 22% and a state achievement gap of 28% with respect to Texas (United States Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2015). However, Texas's state assessment test data indicated an 8% achievement gap between ELL and non-ELL students, which was less than the national achievement gap (Texas Education Agency, 2018c). Although the achievement gaps differed from state and national assessments, it was clear that an achievement gap persisted for ELL students.

The purpose of this research was to explore teachers' perceptions of the effectiveness of the supports they received in respect to ELL science achievement. In this

chapter I provide an overview of the study, data, and findings. I also include implications for further research and possible contributions to teaching pedagogy.

## Summary of the Study

English language learners (ELL) students make up almost 20% of the student population in Texas (Texas Education Agency, 2019). Researchers have suggested these students are at a disadvantage when entering public school due to their lack of English acquisition (Adams & Jones, 2006; Batt, 2008; Kim & García, 2014; Stoddart, Pinal, Latzke, & Canaday, 2002). Studies have centered on English-language acquisition for ELL students to ameliorate their learning disadvantages, however very little research has focused on science achievement (Austin, Blume, & Sánchez, 2013; Cummins, 1979). The purpose of this research study was to fill the gap in ELL science achievement by researching what teachers perceived helped them bridge the learning gap for their ELL students. I used a qualitative approach to examine teachers' perceptions of the supports they received that helped them bridge the science gap for their ELL students. I used a purposeful sampling of dual language teachers and administrators who worked together. The participants were chosen because of the low achievement gap their ELL students have in science. The study was guided by three research questions:

1. What instructional methods do ELL science teachers perceive contribute to closing the achievement gap between ELL and non-ELL students?

2. How do ELL science teachers perceive that the professional development in which they participate contributes to closing the achievement gap between ELL and non-ELL students?

3. How do ELL science teachers perceive that administrative supports impact their teaching and contribute to closing the achievement gap between ELL and non-ELL students?

The data collected for this qualitative study came from teacher and administrator interviews. The interview protocol contained open-ended questions designed to allow the participants to reflect on their perceptions about supports they felt affected student achievement in science. The interviews were conducted via an online platform with the camera off to help ensure participant confidentiality. Each interview was recorded. I took analytic memos as I conducted each interview to make notes regarding outstanding statements and follow-up questions, as well as questions that needed clarity.

The interviews were transcribed verbatim and treated to a horizontalization process, grouping salient statements (Moustakas, 1994). The statements that arose from the transcripts were treated to a first-cycle and second-cycle coding process and examined for emerging themes (Miles, Huberman, & Saldaña, 2014). I then created a matrix of the themes that emerged from the initial coding process (Miles et al., 2014). The themes were then grouped together according to their corresponding research to form a description of the thoughts and perceptions of each participant.

**Summary of the Findings**

The key findings in this study involved the perceptions the participants had regarding the supports they perceived helped to close the achievement gap for their ELL students. Bandura's Social Cognitive Theory (1988) was used in this study to determine how the participants were able to affect change in their work environments with regard to their ELL students. Bandura (1988) suggested an individual's perceptions are affected by

his or her environment, behavior, and other cognitive and personal factors when viewed through the social cognitive theory lens. Human agency, associated with social cognitive theory, is the belief that a person can control and positively affect his or her life by taking responsibility for their actions.

The key findings in this study were grouped into the following three categories: (1) the instructional methods the participants perceived contributed to closing the achievement gap for their ELL students, (2) the professional developments the participants perceived contributed to closing the achievement gap for their ELL students, and (3) the administrative supports the participants perceived contributed to closing the achievement gap for their ELL students. The following section is a discussion of the findings and how they connect to the research questions posed in this study.

**Research Question 1: What instructional methods do ELL science teachers perceive contribute to closing the achievement gap between ELL and non-ELL students?**

Researchers have suggested that teachers seek instructional supports for their ELL program to positively affect student learning (Matherson & Windle, 2017). Matherson and Windle stated teachers sought professional developments that were "interactive, engaging, and relevant for their students." The teacher participants discussed the professional developments they attended and how they were useful in their classrooms. They identified three instructional strategies they perceived contributed to their students' achievement in science. The first area they identified was vocabulary instruction. The participants stated that enriching vocabulary knowledge was important to ensuring the students were able to comprehend the content lessons. They said that they used vocabulary word walls, content boards, student discourse, and writing assignments to

teach their students vocabulary. Mays (2008) posited that students become active participants in their learning when language and vocabulary is integrated into their learning and discussions. The administrator participants also acknowledged the importance of vocabulary knowledge for ELL student learning and shared that they understood that not all ELL students speak the same dialects. They recognized a need to supplement vocabulary with synonyms.

The second instructional support identified by the teacher participants was the inclusion of visuals in lesson planning and teaching. Echevarria, Vogt, and Short (2008) and Krashen (1992) stated that visuals play an important part in teaching ELL students because they contribute to students' comprehensible input. The teacher participants said that incorporating visuals into their content and vocabulary teaching allowed students to view vocabulary in its different modalities. One teacher participant stated she used visuals such as anchor charts to enrich her students' exposure to science. The teacher participants agreed that visuals were an important support for student learning. The administrator participants also stated that the use of visuals was critical to students' ability to learn the content and vocabulary. They felt that the use of visuals would provide an avenue for more student discussion. One administrator stated that she provided lesson supports in the use of visuals for her teachers for use in science as well as other content areas.

The third support teachers identified in bridging the achievement gap was the use of hands-on activities in the science classroom. The teacher participants noted two types of hands-on activities. Stations and centers were provided for students to work independently on research projects to be completed in partner and group settings. The

stations and centers required students to work together to complete a project and then share the learning with their partners and/or groups. This communication was seen as critical to the internalization and understanding of the content being taught. Echevarria et al. (2008) and Cole (2012) wrote that working in groups is a viable strategy teachers of ELL students should utilize to ensure students participate more freely in the classroom setting. The group setting also allows students to become experts in the research they are completing. The second type of hands-on activities was science experiments. The participants noted that science experiments where students could touch and manipulate materials helped students form a better understanding of the content they were learning. The students would work together with a partner or in groups to complete an activity and then would have time to communicate their learning to each other and the class. The teachers believed the hands-on activities helped the students internalize the learning.

**Research Question 2: How do ELL science teachers perceive that the professional development in which they participate contributes to closing the achievement gap between ELL and non-ELL students?**

Researchers have identified professional development centered on ELL students and their learning needs as integral to their understanding and content learning (Echevarria, Short, & Powers, 2006; Molle, 2013; Song, 2016). Three professional developments were identified that were specifically perceived to affect student achievement. The first professional development identified was the new teacher academy science-focused professional development. Many participants stated that the professional development was useful in that it gave them a greater understanding of the content they would be teaching, some activities and lessons to implement in the classroom, and

teaching strategies for their students. Researchers noted that content-specific professional development opportunities are important for effective content teaching (Elfers & Stritikus, 2014; Franco-Fuenmayor, Padrón, & Waxman; 2015). The second professional development identified by the teacher participants was the curriculum updates they attended periodically throughout the year. The curriculum professional development was designed so that the teachers were kept abreast of the upcoming content to be taught and lessons that were included. The teachers received updates on any changes made to the curriculum. Matherson and Windle (2017) found that teachers believe that professional development is effective when it is relevant and provides models for them to follow. One teacher in the current study stated that she attended the field trip professional development because it was specific to the mandatory grade-level field trips for which they were preparing. The professional development prepared her for the lessons she would teach during and after the field trip and the connections being made to classroom learning. Another teacher said she attended the curriculum updates to ensure she had the most recent information available to teach her students.

The third professional development identified was not specific to science, however multiple teachers felt that the teaching strategies learned in these professional developments were useful in the science classroom and tailored the strategies for use in the science classroom. Aguirre-Muñoz, Park, Amabisca, and Boscardin (2009) stated there is a need to teach linguistic features in academic genres for students to understand the content being taught. The goal is to provide professional development for the teacher to provide students with linguistic tools for responding to and creating written text (Aguirre-Muñoz et al.). In doing so, students are able to deconstruct the linguistic

structures of what they are reading, using their existing language to better understand the content they are learning.

The professional development the teacher participants attended focused on reading and writing, which require teachers to use their knowledge of students' language and linguistic needs when teaching ELL students. The teacher participants said they used the strategies they learned in those professional developments in their science classrooms. One teacher stated she used the reading comprehension strategies she learned and tailored them to help her students learn science. She believed if the students were able to comprehend what they were reading, they would have a better grasp of the science content. Another teacher shared that she used the writing strategies she learned to help her students learn science content. She required her students to complete research projects and write about what they learned in science. She stated that students worked together to complete and present the assignment to the class. Another teacher stated that she attended a gifted and talented professional development that focused on differentiated strategies for student learning. The teacher stated she was able to take those strategies and apply them in science. She was able to differentiate learning according to student needs.

**Research Question 3: How do ELL science teachers perceive that administrative supports impact their teaching and contribute to closing the achievement gap between ELL and non-ELL students?**

Administrative supports were important to the functioning of the ELL program and the science classroom. Three administrative supports were identified that were specifically perceived to affect student achievement. The first support, the provision of resources, pertained to both printed curriculum resources and materials for science

experiments. Elfers and Stritikus (2014) posited that ELL teachers who are adequately prepared with the latest resources and curriculum positively affect ELL student learning. Teachers stated that their administrators supplied supplementary curriculum resources such as trade books and technology such as iPad applications and computer programs designed for science. They also stated that their administrators would locate and provide materials for experiments such as different types of soil and batteries for student use. Resources and materials for science were seen as essential to ELL students' learning.

The second administrative support identified by the teacher participants was lesson modeling. Researchers have stated that modeling lessons helps to prepare teachers for the classroom environment (Baecher, Knoll, & Patti, 2013; Brooks, Adams, & Morita-Mullaney, 2010; DeMatthews & Izquierdo, 2017). Three teacher participants said that modeling lessons was important especially when they were new teachers. As veteran teachers, they now seek model lessons to refresh their teaching and provide new ideas for their classrooms.

The third administrative support identified by five teacher participants was planning/data meetings. The meetings were held weekly and involved identifying the student expectations for the week's learning, identifying areas of weakness and/or need, and encouraging teacher collaboration. One teacher stated that planning meetings were beneficial as her team collaborated to plan the lessons and share teaching knowledge. Three teachers stated the meetings included student expectations, model lessons, and other teaching information needed to help ensure effective instruction. Almost all of the teacher participants felt that attending these meetings was beneficial in that they were adequately prepared for teaching future content. The planning and data meetings were

essential to teacher lesson preparation and understanding of student learning needs. The teacher participants also noted the data meetings included student assessment data. The data were used to determine student needs and helped them create a plan to meet the students' needs, be they remedial or enrichment.

## Discussion

The themes in this study revealed the teacher participants' experiences with supports they perceived to be integral to their students' achievement in science. The teacher participants identified supports they perceived to have been essential to the success of their ELL students in science. Teachers identified vocabulary instruction, visuals, and hands-on activities instructional supports that were essential to student achievement. The teachers applied strategies learned in professional developments (including non-science-based training) in their science classrooms. Teachers also shared that their administrators focused on resource allocation and alignment so that they could focus on student learning. While these supports were not identified by all the teacher participants, each factor was identified by most of the teachers.

The results of the data collected regarding supports teachers perceived to bridge the achievement gap in science for their ELL students are discussed in this section. The discussion includes teacher rationale regarding how they perceived the supports affected student achievement. I connect the findings to the literature and discuss implications to practice, theory, and research.

### Vocabulary Enrichment Contributed to Student Achievement

I sought to discover what instructional methods contributed to ELL student achievement in science. The participants identified vocabulary and first language mastery

as a factor in increasing student achievement. The participants in this study used the

students' first language, Spanish, to teach science content and vocabulary. Gloria

perceived that students' success was due to learning vocabulary through visuals and

practice. Amanda expressed the need for more culturally relevant vocabulary in the

classroom. Both of these administrator participants described enriching students'

vocabulary using students' first language to ensure that they maximized student learning,

supporting the theory that enhancing linguistic supports for ELL students through

language positively affected student learning (Echevarria et al., 2008).

The idea that students benefited the most when teachers provided a rich and

varied vocabulary learning experience (Calderon, Slavin, & Sanchez, 2011) was

supported by the findings in this study. Frida, Carrie, Natasha, and Eliza shared that they

enriched their students' vocabulary knowledge by making real-world connections. They

wanted to ensure that students were not only reading and defining words, but also

experiencing vocabulary when possible. Natasha said that she would point out various

vocabulary words during nature walks and field trips. She wanted her students to see

erosion so that they could fully comprehend the vocabulary. Carrie and Eliza used real-

world connections when introducing new vocabulary. For instance, they did their best to

have physical examples for students to interact with whenever possible. Providing

students with enriching vocabulary activities was perceived to positively affect student

learning.

The teacher participants used the students' first language for direct vocabulary

instruction. Five teacher participants stated that language mastery was gained through

student discussions, group work, and writing. They stated that the students would use the

new vocabulary learned during those activities. Researchers have suggested that students with a first language mastery are more likely to perform at a higher rate than students who do not have first language mastery. For example, Creese and Blackledge (2010) found that students who mastered their first language were more apt to perform better academically than students who had not mastered their first language. In addition, Planas and Civil (2013) posited that students who used their first language in classroom discourse participated with more regularity. Participants in the current study perceived that first language mastery was integral to student success.

**Professional Development Contributed to Student Achievement**

The second research question I sought to understand was how professional development affected student achievement. The findings were both unexpected as they revealed the participants attended little to no professional development. I then questioned how this situation affected their teaching and student learning. The participants who indicated they attended content-specific professional development stated that they attended as new teachers. Any recent science professional development was specific to one or two lessons and not focused on ELL student learning needs in science. Three other participants did not attend any professional development specific to science. The participants acknowledged a desire to attend science-specific professional development to gain a deeper understanding of science content and new teaching strategies for use with their ELL students. Helen said that she would have liked to attend professional development specific to science that provided resources and teaching strategies she could bring back and use with her ELL students. These findings supported research stating teachers want content-specific professional development to learn content and new

learning techniques to ensure they are making the subject meaningful for their students (Hart & Lee, 2003; Maerton-Rivera, 2012).

Franco-Fuenmayor et al. (2015) posited that teachers who felt inadequate when teaching content may not have an adequate grasp of teaching strategies or how to use them to effectively teach their students. This was supported by participants' responses indicating that they felt that attending science-specific professional development would enhance their students' understanding and learning as well as increase their teaching skills. However, the findings also indicated that teachers used the teaching strategies learned in the non-specific professional development in their science classrooms. The participants reported they tailored the professional development to suit the science content being taught. For example, Frida attended a professional development specific to gifted and talented student learning needs. She used the teaching strategies and tools she learned and tailored them for her science classroom. Although there was science professional development available to them, some teacher participants shared that the professional development was the same each year and did not offer them new teaching strategies or classroom resources. Science-specific professional development continues to be a need for ELL science teachers.

**Resource Allocation and Alignment Contributed to Student Achievement**

The third research question I posed was to identify the administrative supports the participants perceived positively affected student achievement in science. The data indicated that teacher participants perceived that support for their ELL program positively affects student performance, supporting Armendáriz and Armendáriz's (2002) research that teachers want support for their academic programs. Five participants

identified ELL program supports (resources, lesson modeling, and planning/data meetings) as factors in student achievement. Baecher et al. (2013) posited that administrators who provide their teachers with program support and teaching resource materials would positively affect student learning outcomes. The state test data of the students of the teacher participants in the current study indicated an achievement gap in science for ELL students that was less than the state achievement gap. Almost all of the teacher participants stated that their administrators provided resources and materials for their dual language program and would seek additional resources if the teachers requested them.

Many participants stated that their administrators provided some lesson modeling. Administrators would also facilitate model lessons from district specialists or other teachers if they were unable to model the lessons. The participants shared that they used the modeled lessons to refresh and update their teaching skills in science.

Elfers, Lucero, Stritikus, and Knapp (2013) posited that administrators should become familiar with program requisites to help ELL students be successful. Five participants specifically discussed the administrators' knowledge of the dual language program. The administrators conducted planning and data meetings that were specific to their ELL students and their learning needs. The administrators relayed important student testing data and gave teachers the relevant information regarding content to be taught as well as content that may need remediation. Future considerations for research could include determining how teacher and administrator collaboration might affect student learning outcomes and whether administrators perceive teacher input in program design is beneficial and/or necessary.

**Conclusions**

The purpose of this study was to determine which supports ELL teachers perceived to contribute to bridging the science achievement gap for their students. In the study, I focused on ELL science teachers due to the achievement gap between ELLs and their non-ELL peers in the area of science (Texas Education Agency, 2018a; United States Department of Education, 2015). The participants in this study were teachers whose students' achievement gap was lower than the state and national achievement gap. The data from the study indicated instructional supports such as vocabulary enrichment and curriculum materials, professional development such as training in science content for ELL students and hands-on activities, and administrative supports such as lesson modeling and planning/data meetings to identify areas of need. The participants in this study described how these supports helped bridge the achievement gap in science.

The findings in this study allowed for an analysis of the perceived contributing factors regarding achievement in the area of science. The participants were able to identify several examples of supports. First language mastery and content vocabulary were perceived as essential to student learning. The participants perceived that students who mastered their first language were able to use their language skills to learn new vocabulary and thus gain new knowledge. Calderón Slavin, and Sánchez (2011) stated that ELL students should have direct vocabulary instruction that includes visuals and word learning strategies to better learn vocabulary. The participants acknowledged the importance of vocabulary building and how it impacted their students.

The participants perceived that professional development for science, curriculum, and professional development that emphasized linguistic development were essential to

student learning in the second theme. Molle (2013) stated that professional development focused on ELL learning needs was essential to meeting ELL student needs, and Song (2016) stated that administrators who provided more systematic professional development that included hands-on activities as well as content for ELL teachers would better support the ELL classroom. Professional development for science content and curriculum gave the teachers useful teaching tools and activities for use in the classroom and provided teachers with current learning strategies for use with their ELL students. Five of the participants attended professional development that focused on the students' linguistic needs and used those strategies to teach their ELL students science. The participants were able to tailor the strategies to their students' needs in order to positively affect student learning.

The third theme was that administrators focused on resource allocation and alignment so that teachers could focus on student learning. Elfers and Stritikus (2014) posited that administrators can positively affect ELL student achievement by supporting their teachers. Many of the participants in the current study identified receiving resources and materials as a support received from their administrators. They also stated that the administrators would provide additional supports if requested. Lastly, overall the teachers perceived that the administrators were knowledgeable about ELL students and the dual language program and facilitated planning/data meetings that focused on ELL student learning. Each of these supports was perceived as positively affecting students through supporting teacher knowledge and performance.

This study contributes to ELL science learning literature as there is currently a modicum of literature focused on ELL science learning needs (McEaney, Lopez, &

Nieswandt, 2014). Data regarding the supports found in this research suggest that teachers are able to persist with professional development in other content areas and have found the use of alternative teaching methods from non-science professional developments to be useful for teaching science.

The data suggested that the teachers used the training and resources to determine how best to teach their students. The teachers' perceptions of how to use non-science professional development in the science classroom provide a basis for possible professional developments and training in science for teachers of ELL students as well as possible curriculum and resources created for ELL science learning. Finally, the participant data from this study provided an insight into ELL science learning and how teachers are able to overcome achievement gaps that persist for ELL students in science.

## Implications

The teacher participants identified instructional and administrative supports they perceived to be beneficial to student learning such as vocabulary enrichment, lesson modeling, and providing resources. Professional developments focused on ELL learning needs as well as content-focused training were identified as resources teacher perceived to be beneficial to teaching their students science. These supports were thought to have had a positive effect on student learning as teachers were taught learning strategies and pedagogy specific to ELL students' needs. These results are significant as they provide an insight into how ELL teachers have overcome achievement gaps in science and may provide a framework from which to design ELL teacher preparedness programs and professional developments for ELL teachers focused on science.

**Implications for Research**

Much literature regarding ELL student learning needs has focused primarily on reading (Calderón et al., 2011; Castañeda, & Bautista, 2011; Cole, 2013). The data in this study revealed a lack of science professional development as noted by some of the teacher participants. Research regarding content-specific professional development and its effects on ELL student learning outcomes is recommended. Future studies could provide more insight into professional developments and programs designed for ELL student learning needs.

Future research could examine the experiences of additional dual language teachers and administrators and explore whether teachers and administrators identify the same supports as the participants in this study. Additional studies could include a comparison of the supports participants perceive to be beneficial to closing the achievement gap for ELL students in science.

**Implications for Practice**

The data in this study revealed instructional and administrative supports teachers perceived were instrumental to closing the achievement gap in science for their ELL students. The teacher and administrator participants identified similar supports such as vocabulary enrichment, hands-on activities, and collaboration. Not all teachers were provided these supports, and the teachers who did not receive these supports requested more training in these areas. An opportunity exists for administrators and district curriculum experts to create professional developments designed to meet these needs, such as direct vocabulary instruction.

The administrators and curriculum experts could also create opportunities for teachers to collaborate with curriculum experts to design curriculum for ELL students that include visual literacy, vocabulary enrichment, and hands-on activities designed specifically for science learning. The curriculum could include content-specific vocabulary with visuals for each TEKS and student expectation in English and Spanish. The curriculum would also include lesson plans and assessments for each student expectation. Although the district has supplemental vocabulary which includes these components, there is a need for lessons and assessments written specifically for ELL student learning needs.

Further, implications for administrator preparation and certification programs also exist. Preparation and certification programs could provide administrators with opportunities to review and evaluate learning-centered supports for teachers. The administrators would have the opportunity to review available supports that could enhance teaching skills and student learning. An opportunity also exists to prepare administrators to support their school's ELL program.

**Implications for Theory**

I used Bandura's (1988) social cognitive theory as the theoretical lens for this study. Social cognitive theory takes into consideration that a person's experiences shape the understanding of his or her world. I used this lens as a guide in creating the interview protocol. Each participant was asked to explain his or her perceptions of supports that have helped his or her students learn science. The themes that emerged from the interviews supported the view that a person's experiences shape their perceptions of the

phenomenon they are experiencing. Each participant described how each experience shaped their view of the supports they received.

For the first theme, teachers identified vocabulary instruction, visuals, and hands-on activities they perceived as integral to student achievement. Teachers described modeling as an instructional support they felt was essential to their students' success. Bandura's (1988) social cognitive theory states that competency can be developed through modeling, which corresponds to the teachers' perceptions of its importance. Further research could be conducted to determine if modeling lessons for teachers affects student achievement on state and national assessments.

For the second theme, teachers applied strategies learned in professional developments (including non-science-based training) in their science classrooms. However, from the interviews, teachers described a lack of professional development specifically in the area of science. Five teacher participants stated that they received professional development for science. However, three of the five teachers attended science professional development in other districts or attended science professional development specific to one specific area in science such as content for a field trip. The two teachers who attended science-specific professional development were responsible for preparing their students for the state science exam. The other three teacher participants stated that they did not receive any science specific professional development but were able to use the tools and strategies they learned in other professional developments and tailor them to their science classroom. Further research into teacher resiliency could be conducted to determine what factors contribute to teacher resiliency and how to translate those factors into professional developments.

The third theme was administrators focused on resource allocation and alignment so that teachers could focus on student learning. The teachers perceived that the administrative supports were integral to student achievement. The supports reinforced teachers' abilities to teach and instilled more confidence in their teaching. The teachers' experiences and their subsequent effects correlate to Bandura's (1989) social cognitive theory in that the administrative supports strengthened their beliefs in themselves as teachers which affected their teaching abilities. Further research into teacher self-confidence and its effects on student achievement could be conducted to determine a possible correlation between self-confidence and teaching efficacy.

## Summary

The substantial number of ELL students in the United States, specifically Texas, and ELL students' learning needs were the impetus for this study. As of 2019, Texas ELL students made up almost 20% of the student population (Texas Education Agency [TEA], 2019). Overall, these ELL students have fallen behind their non-ELL peers in science (Texas Education Agency, 2018a; United States Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress, 2015). However, not all ELL students experienced the same achievement gap. The students of the participants in this study had bridged the achievement gap in science. The purpose of this study was to examine the supports science teachers of ELL students perceived helped their students achieve at a higher rate than the state average. The insight the participants provided was valuable in that it may provide ideas for increasing ELL student achievement through intentional instructional and professional development supports focused on ELL linguistic and learning needs and

program supports that focus on teacher pedagogy. Partnering teachers and administrators when deciding curriculum, resources, and professional development may lead to more effective teaching and higher student achievement not only for ELL students but for all students.

APPENDIX A

**Interview Protocol for Teacher Participants**

Interview Protocol for Teacher Participants

I will interview the teachers in a neutral setting of their choice. The following interview

questions will be asked. Probes such as "tell me more' and "please elaborate" will be

asked throughout the interview.

Please tell me about yourself.

Why did you decide to become a teacher?

Tell me about your experience teaching ELL students.

What do you think you do as a teacher who helps your students learn?

Please provide some examples.

What instructional methods do you use to help your ELL students learn science?

How do you think those methods have helped your students be successful?

What instructional supports do you think you may need to help your students be

successful in science?

What kinds of professional development do you receive that are designed to teach your

students more effectively?

What kind of professional development do you think you should receive that is geared

toward bilingual education?

What should that professional development look like?

Tell me about how your administration team supports you and the bilingual program.

Please share specifics about how they help.

What kind of support do you get from the administration?

Please provide some examples.

What, in specific, would you like for your administrator to do to help support your classroom?

What kind of support do you get from your instructional coach?

Tell me more about those supports in specific.

What, in specific, would you like for your instructional coach do to help support your classroom?

Is there anything else you would like to tell me that we have not already discussed?

APPENDIX B

**Interview Protocol for Administrative/Instructional Coach Participants**

Interview Protocol for Administrative/Instructional Coach Participants

I will interview the administrators in a neutral setting. The following are the interview

questions I will ask.

Please tell me about yourself.

Why did you decide to become an administrator/instructional coach?

Tell me about your experience working with ELL students.

What do you do to ensure your ELL teachers are adequately prepared to teach ELL

students?

What do you think you do as an administrator/instructional coach that helps your school's

ELL students learn?

Tell me about the instructional supports you provide your ELL teachers.

Do you provide any supports for your ELL teachers that are different than those provided

to your general education teachers? Please explain.

What do you think helps your ELL science teachers be successful?

Please provide examples.

What role does professional development play in helping ELL teachers close the

achievement gap in science?

What kinds of professional development do you recommend for your ELL science

teachers?

Please tell me why you chose those professional development courses.

What makes those professional development better than others?

Do you attend the professional developments to which you send your ELL teachers? Please share why/why not.

How do you track teachers' learning in professional development?

Please tell me what you do to follow up with the teachers.

What supports do you provide your ELL teachers to help implement what they have learned in their professional development?

What program supports do you provide your ELL teachers to help them bridge the achievement gap in science?

How do you encourage a collaborative environment within your ELL teaching staff? Please provide some examples.

How do you create a school environment that is language and culture inclusive?

Do you believe that the inclusivity impacts ELL teachers' success? Please explain.

Is there anything else you would like to tell me that I haven't asked?

APPENDIX C

**Recruitment Letter for ISD**

Recruitment Letter for ISD

Dear _____,

My name is Monica E. Manning. I am a doctoral student at the University of Texas at Arlington, in the Department of Educational Leadership and Policy Studies. I am researching English language learner teachers who teach science in a dual language setting and administrators who support the English language learner teachers. The title of the research to be conducted is "Teacher Perceptions of Educational Supports that Help Bridge the Science Achievement Gap for English Language Learners: A Phenomenological Study".

I am researching teaching perceptions of: (1) what instructional supports ELL teachers perceive help bridge the learning gap in science, (2) what professional developments ELL teachers perceive help bridge the learning gap in science, and (3) what administrative supports ELL teachers perceive help bride the learning gap in science. The intent is to add to the literature base for science instruction for English language learners.

I am contacting you to obtain authorization to conduct interviews with teachers at a school in your school district, _____School. I seek to interview dual language teachers who teach science at the campus and two administrators. The campus has consistently outscored dual language students throughout the state of Texas, and as such is why I am seeking to interview the teachers who work together. It is expected that I will interview between 10 and 12 participants from this campus.

I plan to ask the teachers open-ended questions. The interview will be audio recorded and recordings will be transcribed. Participants' comments will not be identified by name in the transcription. Each participant will be assigned a pseudonym for transcription purposes. The interview recording will be kept with the transcription so that accuracy of the transcription can be checked at any time. Publications and presentations may arise from the data collected.

Participation in this research study is voluntary. The teacher participants have the right to decline participation in any or all study procedures or quit at any time at no consequence. Should the participants choose not to complete all study procedures, their data may or may not be used as per their request.

Every attempt will be made to see that the identifying information is kept confidential. All data collected [including transcriptions/recordings if applicable] from this study will be stored for at least three (3) years after the end of this research. The results of this study may be published and/or presented at meetings without naming the participants, school, and school district. Additional research studies could evolve from the information that was provided, but the data will not be linked to the participants, school, or school district. Although the participants' rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the UTA Institutional Review Board (IRB),

and personnel particular to this research have access to the study records. Identifying information will be kept confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above.

Questions about this research study may be directed to Monica E. Manning, monica.manning@mavs.uta.edu and/or Casey G. Brown, PhD, cgbrown@uta.edu. Any questions you may have about the participants' rights or a research-related injury may be directed to the Office of Research Administration; Regulatory Services at 817-272-2011 or regulatoryservices@uta.edu.

Respectfully yours,
Monica E Manning
Educational Leadership and Policy Studies
PhD Student
Cohort 7

APPENDIX D

**Informed Consent Document**

Informed Consent Document

**TITLE OF PROJECT**
Teacher Perceptions of Educational Supports that Help Bridge the Science Achievement
Gap for English Language Learners: A Phenomenological Study

**RESEARCH TEAM**
**PRINCIPAL INVESTIGATOR**
Monica E. Manning
The University of Texas at Arlington
College of Education
Ph.D. Candidate, Department of Educational Policy and Leadership Studies
monica.manning@mavs.uta.edu

**FACULTY ADVISOR**
Casey Brown, Ph.D.
Professor and Associate Dean for Academic Programs
The University of Texas at Arlington
College of Education
cgbrown@uta.edu
817-272-7414

**IMPORTANT INFORMATION ABOUT THIS RESEARCH PROJECT**
The research team above is conducting a research study about ELL teachers' perceptions
about supports that have helped them bridge the science achievement gap for their
students. You can choose to participate in this research study if you are a teacher or
administrator to ELL students. Your participation is voluntary. Refusing to participate or
discontinuing your participation at any time will involve no penalty or loss of benefits to
which you are otherwise entitled. Please ask questions if there is anything you do not
understand.

The specific purpose of this research study is to study teachers' opinions of the most
effective way to teach ELL students so they may make the most gains academically and
what their administrators believe the most effective supports to affect student
achievement are. The intent is to inform institutional interventions aimed at decreasing
the achievement gap for this specific demographic group. The expected number of
participants is between 10-12.

This study has been reviewed and approved by an Institutional Review Board (IRB). An
IRB is an ethics committee that reviews research with the goal of protecting the rights
and welfare of human research subjects. Your most important right as a human subject is
informed consent. You should take your time to consider the information provided by this
form and the research team, and ask questions about anything you do not fully understand
before making your decision about participating.

**TIME COMMITMENT**
You will be asked to participate in one interview that will last approximately 60-90 minutes.

**RESEARCH PROCEDURES**
The interview will entail open-ended responses to a series of questions posed by the researcher. Your comments will not be identified by name in the transcripts. There is a possibility for a second interview if more questions arise from the first interview. The researcher will contact you via email if the need for a second interview arises. The second interview will last approximately 60-90 minutes. You will be assigned a pseudonym for transcription purposes. The interview audio recording will be kept with the transcript so that the accuracy of the transcript can be checked at any time. The audio recording and transcript will not be used for any future research purposes not described here. The interview will be audio recorded and recordings will be transcribed.

**POSSIBLE BENEFITS**
The benefits to participating on the study are the opportunity to contribute to ELL science pedagogy and potential professional developments that are focused on ELL science teaching.

**POSSIBLE RISKS/DISCOMFORTS**
There are no perceived risks or discomforts for participating in this research study. Should you experience any discomfort please inform the researcher, you have the right to quit any study procedures at any time at no consequence.

**COMPENSATION**
There is no monetary compensation associated with this study.

**ALTERNATIVE PROCEDURES**
There are no alternative procedures offered for this study. However, you can elect not to participate in the study or quit at any time at no consequence.

**VOLUNTARY PARTICIPATION**
Participation in this research study is voluntary and not a requirement of employment by your school district. You have the right to decline participation in any or all study procedures or quit at any time at no consequence. Should you choose not to complete all study procedures, your data may or may not be used as per your request.

**CONFIDENTIALITY**
The research team is committed to protecting your rights and privacy as a research subject. All participants, identifying features, schools, and school district will be kept confidential. Pseudonyms will be given for each participant, school, and school district. All paper and electronic data collected from this study will be stored and uploaded to the UTA O365 server for at least (3) years after the end of this research.

The results of this study may be published and/or presented without naming you as a participant, and not naming your school or school district. The data collected about you for this study may be used for future research studies that are not described in this consent form. While absolute confidentiality cannot be guaranteed, the research team will make every effort to protect the confidentiality of your records as described here and to the extent permitted by law. In addition to the research team, the following entities may have access to your records, but only on a need-to-know basis: the U.S. Department of Health and Human Services and the FDA (federal regulating agencies), the reviewing IRB, and sponsors of the study.

**CONTACT FOR QUESTIONS**
Questions about this research study or reports regarding an injury or other problem may be directed to Monica E. Manning, monica.manning@mavs.uta.edu, or Casey G. Brown, Ph.D., cgbrown@uta.edu. Any questions you may have about your rights as a research subject or complaints about the research may be directed to the Office of Research Administration; Regulatory Services at 817-272-2011 or regulatoryservices@uta.edu.

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study.

_____

Monica E. Manning                                                    Date

**CONSENT**
By signing this form, you are confirming that you understand the study's purpose, procedures, potential risks, and your rights as a research subject. By agreeing to participate, you are not waiving any of your legal rights. You can refuse to participate or discontinue participation at any time, with no penalty or loss of benefits that you would ordinarily have. Please sign below if you are at least 18 years of age and voluntarily agree to participate in this study.

_____

Signature of Volunteer                                               Date

*If you agree to participate, please provide the signed copy of this consent form to the research team. They will provide you with a copy to keep for your records.

APPENDIX E

**Teacher Recruitment Letter**

Teacher Recruitment Letter

Dear _____:

My name is Monica E. Manning. I am a doctoral student at the University of Texas at Arlington, in the Department of Educational Leadership and Policy Studies. I am conducting a study of teachers of English language learners who teach science in a dual language setting. More specifically, I am researching teachers' perceptions of (1) the instructional supports they perceive help bridge the learning gap in science, (2) the professional developments they perceive help bridge the learning gap in science, and (3) the administrative supports they perceive help bridge the learning gap in science.

You have been chosen to participate in this study because you are a current dual language teacher and teach science in the Spanish language. If you are willing to participate in this study, we would meet at a time and location convenient for you. The interview would take approximately 60–90 minutes. If we run out of time or you think of anything else you would like to tell me, follow-up interviews will be conducted at your convenience. I will contact you for a follow-up interview if additional information is needed.

Any information gathered in the interview will be kept confidential and used for educational purposes, including publications and presentations that may arise from the data collected. You will be assigned a pseudonym to protect your identity. Any personal information will be kept confidential.

If you have any questions regarding the questions we will be discussing for the interview or specifics regarding when and where the interview will be held, please feel free to contact me. Please let me know if you are willing to participate.

Sincerely,

Monica E. Manning
monica.manning@mavs.uta.edu

APPENDIX F

**Administrator/Instructional Coach Recruitment Letter**

Administrator/Instructional Coach Recruitment Letter

Dear _____:

My name is Monica E. Manning. I am a doctoral student at the University of Texas at Arlington, in the Educational Leadership and Policy Studies Department. I am conducting a study of teachers of English language learners who teach science in the dual language setting. More specifically, I am researching teaching perceptions of (1) the instructional supports they perceive help bridge the learning gap in science, (2) the professional developments they perceive help bridge the learning gap in science, and (3) the administrative supports they perceive help bridge the learning gap in science.

You have been chosen to participate in this study because you are a current administrator or instructional coach of a dual language teacher who teaches science in the Spanish language.
If you are willing to participate in this study, we would meet at a time and location that are convenient for you. The interview would take approximately 60–90 minutes. If we run out of time or you think of anything else you would like to tell me, follow-up interviews will be conducted at your convenience. I will contact you for a follow-up interview if additional information is needed.

Any information gathered in the interview will be kept confidential and used for educational purposes, including publications and presentations that may arise from the data collected. You will be assigned a pseudonym to protect your identity. Any personal information will be kept confidential.

If you have any questions regarding the questions we will be discussing for the interview or specifics regarding when and where the interview will be held, please feel free to contact me. Please let me know if you are willing to participate.

Sincerely,

Monica E. Manning
monica.manning@mavs.uta.edu

References

Abedi, J. (2008). Classification system for English language learners: Issues and recommendations. *Educational Measurement: Issues and Practice, 27*(3), 17-31. doi:10.1111/j.1745-3992.2008.00125.x

Abedi, J., Hofstetter, C. H., & Lord, C. (2004). Assessment accommodations for English language learners: Implications for policy-based empirical research. *Review of Educational Research*, *74*(1), 1-28.

Achugar, M., & Pessoa, S. (2009). Power and place: Language attitudes towards Spanish in a bilingual academic community in Southwest Texas. *Spanish in Context*, *6*(2), 199–223. https://doi-org.ezproxy.uta.edu/10.1075/sic.6.2.03ach

Adams, M., & Jones, K. M. (2006). Unmasking the myths of structured English immersion. *Radical Teacher, 2006*(75), 16-21. Retrieved from https://login.ezproxy.uta.edu/login?url=https://search-proquest-com.ezproxy.uta.edu/docview/218846890?accountid=7117

Adkins, J. N. (2010). *Speaking their language: A quasi-experimental study on effective English as a second language programs.* (Doctoral dissertation, Capella University). Retrieved from https://search.proquest.com/openview/8879a2fa6efe7e63315fc9e1d0e83b1d/1?pq-origsite=gscholar&cbl=18750&diss=y

Aguirre-Muñoz, Z., Park, J., Amabisca, A., & Boscardin, C. K. (2009). Developing teacher capacity for serving ELLs' writing instructional needs: A case for systemic functional linguistics. *Bilingual Research Journal, 31*(1-2), 295-322. doi:10.1080/15235880802640755

Alanis, I. (2000). A Texas two-way bilingual program: Its effects on linguistic and

    academic achievement. *Bilingual Research Journal, 24*(3), 225-248.

Amselle, J., & Allison, A. (2000). Two years of success: An analysis of California test

    scores after Proposition 227. *READ Abstract*. Retrieved from

    https://eric.ed.gov/?id=ED445542

Arias, B. M., & Morillo-Campbell, M. (2008). *Promoting ELL parental involvement:*

    *Challenges in contested times*. Retrieved from

    http://www.greatlakescenter.org/docs/Policy_Briefs/Arias_ELL.pdf

Arizona Department of Education. (n.d.). *Proposition 203*. Retrieved from

    https://cms.azed.gov/home/GetDocumentFile?id=58d003651130c012d8e906e5

Arizona, Department of Education. (2019). *Revised structured English immersion*

    *models. School year 2019-2020.* Retrieved from

    https://cms.azed.gov/home/GetDocumentFile?id=5cc36ecb1dcb250e8423e66c

Armendáriz, A. L., & Armendáriz, E. J. (2002). An administrative perspective of a two-

    way bilingual immersion program. *Bilingual Research Journal, 26*(1), 169-179.

    doi:10.1080/15235882.2002.10668704

Au, W. (2009). High-stakes testing and discursive control: The triple bind for non-

    standard student identities. *Multicultural Perspectives, 11*(2), 65-71.

August, D., & Shanahan, T. (2006). *Developing literacy in second-language learners:*

    *Report of the national literacy panel on language minority children and youth.*

    Lawrence Erlbaum Associates, Inc.

Austin, J., Blume, M., & Sánchez, L. (2013). Syntactic development in the L1 of

    Spanish-English bilingual children. *Hispania*, 542-561.

Baecher, L., Knoll, M., & Patti, J. (2013). Addressing English language learners in the

    school leadership curriculum: Mapping the terrain. *Journal of Research on*

    *Leadership Education, 8*(3), 280-303. doi:10.1177/1942775113498377

Bailey, A., & Kelly, K. (2012). Home language survey practices in the initial

    identification of English learners in the United States. *Educational Policy, 27*(5),

    770-804. Retrieved from

    http://epx.sagepub.com/content/early/2012/05/17/0895904811432137

Baker, K. (1998). Structured English immersion: Breakthrough in teaching limited-

    English-proficient-students. *The Phi Delta Kappan, 80*(3), 199-204.

Bandura, A. (1988). Organisational applications of social cognitive theory. *Australian*

    *Journal of Management, 13*(2), 275-302.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist,*

    *44*(9), 1175.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of*

    *Psychology, 52*(1), 1-26.

Banse, H., Palacios, N., Merritt, E., & Rimm-Kaufman, S. (2016). 5 Strategies for

    scaffolding math discourse with ELLs. *Teaching Children Mathematics, 23*(2),

    100-108. doi:10.5951/teacchilmath.23.2.0100

Barnett, W. S., Yarosz, D. J., Thomas, J., Jung, K., & Blanco, D. (2007). Two-way and

    monolingual English immersion in preschool education: An experimental

    comparison. *Early Childhood Research Quarterly*, *22*(3), 277-293.

Barrow, L., & Markman-Pithers, L. (2016). Supporting young English learners in the

United States. *The Future of Children, 26*(2), 159-183.

Bartolome, L. (1994). Beyond the methods fetish: Toward a humanizing pedagogy.

*Harvard Educational Review*, *64*(2), 173-195.

 Batt, E. G. (2008). Teacher's perceptions of ELL education: Potential solutions to

overcome the greatest challenges. *Multicultural Education, 15*(3), 39-43.

Bibler, A. (2015, December). Dual language education and student achievement. In *2015

Fall Conference: The golden age of evidence-based policy*. Institute of Social and

Economic Research, University of Alaska Anchorage.

Brooks, K., Adams, S. R., & Morita-Mullaney, T. (2010). Creating inclusive learning

communities for ELL students: Transforming school principals' perspectives.

*Theory into Practice, 49*(2), 145-151. doi:10.1080/00405841003641501

Calderón, M., Slavin, R., & Sánchez, M. (2011). Effective instruction for English

learners. *The Future of Children, 21*(1), 103-127.

California Department of Education. (2018). *Proposition 227 final report: Effects of the

implementation of Proposition 227 on the education of English learners, K-12*.

Retrieved from https://www.cde.ca.gov/sp/el/er/prop227summary.asp

California Legislative Information. (1998). *Education code – EDC. Title 1 general

education code provision*. Author. Retrieved from

http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&

division=1.&title=1.&part=1.&chapter=3.&article=1

Castañeda, M., & Bautista, N. (2011). Teaching science to ELLs, part II: Classroom-based assessment strategies for science teachers. *The Science Teacher, 78*(3), 40-44.

Cheung, A., & Slavin, R. (2012). Effective reading programs for Spanish dominant English language learners (ELLs) in the elementary grades: A synthesis of research. *Review of Educational Research, 82*(4), 351-395. doi:10.3102/0034654312465472

Cole, M. W. (2013). Rompiendo el silencio: Meta-analysis of the effectiveness of peer-mediated learning at improving language outcomes for ELLs: 1. *Bilingual Research Journal, 36*(2), 146-166.

Coleman, R., & Goldenberg, G. (2010). What does research say about effective practices for English learners? *Kappa Delta Pi Record, 46*(3), 106-111.

Collier, V., & Thomas, W. (2004). The astounding effectiveness of dual language education for all. *NABE Journal of Research and Practice, 2*(1), 1-20. Retrieved from http://njrp.tamu.edu/2004/PDFs/Collier.pdf

Collier, V., & Thomas, W. (2017). Validating the power of bilingual schooling: Thirty-two years of large-scale, longitudinal research. *Annual Review of Applied Linguistics*, *37*, 203-217.

Colorado Department of Education. (n.d.). *English language proficiency act (ELPA)FY 2018-2019C.R.S. 22-24-104 C.R.S. 22-24-108.* Retrieved from https://www.cde.state.co.us/cde_english/elpa-overview

Connelly, L. M. (2016). Trustworthiness in qualitative research. *MedSurg Nursing*, *25*(6), 435-436. Retrieved from

http://go.galegroup.com.ezproxy.uta.edu/ps/i.do?p=HRCA&sw=w&u=txshracd25

97&v=2.1&it=r&id=GALE%7CA476729520&sid=summon&asid=93817a88b2a

4b8fb43a0c48c797be1cb

Creese, A., & Blackledge, A. (2010). Translanguaging in the bilingual classroom: A

pedagogy for learning and teaching? *The Modern Language Journal, 94*(1), 103-

115.

Creswell, J., & Poth, C. (2018). *Qualitative inquiry and research design: Choosing

among five approaches* (4th ed.). Sage Publications, Inc.

Cummins, J. (1979). Linguistic interdependence and the educational development of

bilingual children. *Review of Educational Research, 49*(2), 222-251.

de Jong, E. (2004). After exit: Academic achievement patterns of former English

language learners. *Education Policy Analysis Archives, 12*(50), 1-20.

de Jong, E., Gort, M., & Cobb, C. (2005). Bilingual education within the context of

English-only policies: Three districts' responses to Question 2 in Massachusetts.

*Educational Policy*, *19*(4), 595-620.

de Jong, E. J. (2008). Contextualizing policy appropriation: Teachers' perspectives, local

responses, and English-only ballot initiatives. *The Urban Review*, *40*(4), 350-370.

DeMatthews, D., & Izquierdo, E. (2016). School leadership for dual language education:

A social justice approach. *The Educational Forum, 80*(3), 278-293.

doi:10.1080/00131725.2016.1173152

DeMatthews, D., & Izquierdo, E. (2017). The importance of principals supporting dual

language education: A social justice leadership framework. *Journal of Latinos

and Education*, 1-18.

Dewey, J. (1996). *The collected works of John Dewey*. Intelex Corp.

Dowling, M. (2007). From Husserl to van Manen. A review of different phenomenological approaches. *International Journal of Nursing Studies, 44*(1), 131-142. doi:10.1016/jijnurstu.2005.11.026

Echevarria, J., Short, D., & Powers, K. (2006). School reform and standards-based education: A model for English-language learners. *The Journal of Educational Research, 99*(4), 195-210. doi:10.3200/JOER.99.4.195-211

Echevarria, J., Vogt, M., & Short, D. (2008). *Making content comprehensible for English learners: The SIOP model*. Pearson/Allyn and Bacon.

Edmonds, L. M. (2009). Challenges and solutions for ELLs: Teaching strategies for English language learners' success in science. *The Science Teacher, 76*(3), 30-33.

Elfers, A., Lucero, A., Stritikus, T., & Knapp, M. (2013). Building systems of support for classroom teachers working with English language learners. *International Multilingual Research Journal, 7*(2), 155-174. doi:10.1080/19313152.2012.665824

Elfers, A., & Stritikus, T. (2014). How school and district leaders support classroom teachers' work with English language learners. *Educational Administration Quarterly, 50*(2), 305-344. doi:10.1177/0013161X13492797

Englander, M. (2016). The phenomenological method in qualitative psychology and psychiatry. *International Journal of Qualitative Studies on Health and Wellbeing*, *11*(1), 30682. doi:10.3402/qhw.v11.30682

Esquinca, A. (2012). Socializing pre-service teachers into mathematical discourse: the interplay between biliteracy and multimodality. *Multilingual Education, 2*(4), 1-20.

Estrada, V. L., Gómez, L., & Ruiz-Escalante, J. A. (2009). Let's make dual language the norm. *Educational Leadership*, *66*(7), 54-58.

Flores, N. (2016). A tale of two visions: Hegemonic whiteness and bilingual education. *Educational Policy, 30*(1), 13.

Fontana, A., & Prokos, A. H. (2007). *The interview: From formal to postmodern*. Left Coast Press, Inc.

Franco-Fuenmayor, S., Padrón, Y., & Waxman, H. (2015). Investigating bilingual/ESL teachers' knowledge and professional development opportunities in a large suburban school district in Texas. *Bilingual Research Journal, 38*(3), 336-352. doi:10.1080/15235882.2015.1091049

Fritzen, A. (2011). Teaching as sheltering: A metaphorical analysis of sheltered instruction for English language learners. *Curriculum Inquiry, 41*(2), 185-211. doi:10.1111/j.1467-873X.2011.00548.x

Gáandara, P. (2000). In the aftermath of the storm: English learners in the post-227 era. *Bilingual Research Journal, 24*(1-2), 1-13. doi:10.1080/15235882.2000.10162748

Garcia, E. E., & Curry-Rodriguez, J. E. (2000). The education of limited English proficient students in California schools: An assessment of the influence of Proposition 227 in selected districts and schools. *Bilingual Research Journal*, *24*(1-2), 15-35.

García, O. (2009). *Bilingual education in the 21ˢᵗ century: A global perspective.* Wiley-Blackwell.

García, O. (2009b). Emergent bilinguals and TESOL: What's in a name? *TESOL Quarterly, 43*(2), 322-326. doi:10.1002/j.1545-7249.2009.tb00172.x

García, O., & Kleifgen, J. A. (2010). *Educating emergent bilinguals: Policies, programs, and practices for English language learners*. Teachers College Press.

Gee, J. P. (2004). Discourse analysis: What makes it critical? In R. Rogers (Ed.), *An introduction to critical discourse analysis in education* (pp. 19-50). Routledge.

Gómez, L., Freeman, D., & Freeman, Y. (2005). Dual language education: A promising 50–50 model. *Bilingual Research Journal*, *29*(1), 145-164.

Gómez, L., & Gómez, R. (n.d.). *Dual language weekly focus. Specialized content vocabulary enrichment: 3ʳᵈ – 5ᵗʰ Grade*. Retrieved from http://gomezandgomez.com/files/114152297.pdf

Gómez, R. (2006). Promising practices: Dual language enrichment for ELL students K-12. *TABE Journal*, *9*(1), 46-64.

Gómez, R. (2016, July). *Three-day initial training on the Gómez and Gómez DLE model.* Region 10 Education Service Center.

Gonzalez-Herrera, M. (2017). *ESL and ELL program effectiveness: Providing academic success for students* (master's thesis). Retrieved from Digital Commons at CSUMB https://digitalcommons.csumb.edu/caps_thes_all/198/

Goulding, C. (2005). Grounded theory, ethnography and phenomenology: A comparative analysis of three qualitative strategies for marketing research. *European Journal of Marketing, 39*(3/4), 294-308. doi.org/10.1108/03090560510581782

Grabner, R., Saalbach, H., & Eckstein, D. (2012). Language-switching costs in bilingual
mathematics learning. *Mind, Brain, and Education, 6*(1), 147-155.

Guba, E. (1981). ERIC/ECTJ Annual review paper: Criteria for assessing the
trustworthiness of naturalistic inquiries. *Educational Communication and
Technology, 29*(2), 75-91. Retrieved from
http://www.jstor.org.ezproxy.uta.edu/stable/30219811

Guo, Q., & Koretz, D. (2013). Estimating the impact of the Massachusetts English
Immersion Law on limited English proficient students' reading achievement.
*Educational Policy, 27*(1), 121-149.

Gutiérrez, K. D., Asato, J., & Baquedano-López, P. (2000). "English for the Children":
The new literacy of the old world order, language policy and educational reform.
*Bilingual Research Journal, 24*(1-2), 87-112.

Guzman, J. M. (2002). Learning English. *Education Next, 2*(3), 58-66. Retrieved from
https://login.ezproxy.uta.edu/login?qurl=https%3A%2F%2Fsearch.proquest.com
%2Fdocview%2F1237804862%3Faccountid%3D71

Hakuta, K., Butler, Y., & Witt, D. (2000). *How long does it take English learners to
attain proficiency?* (Policy Report 2000-1). Retrieved from The University of
California Linguistic Minority Research Institute website:
https://escholarship.org/uc/item/13w7m06g

Hamann, E., & Reeves, J. (2013). Interrupting the professional schism that allows less
successful educational practices with ELLs to persist. *Theory into Practice, 52*(2),
81-88. doi:10.1080/00405841.2013.770325

Hamilton, K., & Krashen, S. (2006). Bilingual or immersion? *Diverse Issues in Higher Education*, *23*(5), 23.

Hampton, E., & Rodriguez, R. (2001). Inquiry science in bilingual classrooms. *Bilingual Research Journal, 25*(4), 461-478.

Hansen, L. (2006). Strategies for ELL success. *Science and Children, 43*(4), 22-25.

Hansen-Thomas, H. (2008). Sheltered instruction: Best practices for ELLs in the mainstream. *Kappa Delta Pi Record, 44*(4), 165-169. doi:10.1080/00228958.2008.10516517

Hansson, A. (2012). The meaning of mathematics instruction in multilingual classrooms: Analyzing the importance of responsibility for learning. *Educational Studies in Mathematics, 81*(1), 103-125.

Hart, J., & Lee, O. (2003). Teacher professional development to improve the science and literacy achievement of English language learners. *Bilingual Research Journal, 27*(3), 475-501. doi:10.1080/15235882.2003.10162604

He, Y., Prater, K., & Steed, T. (2011). Moving beyond 'just good teaching': ESL professional development for all teachers. *Professional Development in Education, 37*(1), 7-18.

Heidegger, M. (1985). *History of the concept of time: Prolegomena (Vol. 717). Translated by Theodore Kisiel*. Indiana University Press.

Hickman, L. (2009). *John Dewey between pragmatism and constructivism* (1st ed.). Oxford University Press.

Hughes, C. E., Shaunessy, E. S., Brice, A. R., Ratliff, M. A., & Patricia, A. M. (2006). Code switching among bilingual and limited English proficient students: Possible

indicators of giftedness. *Journal for the Education of the Gifted, 30*(7), 18-120.

Retrieved from

https://login.ezproxy.uta.edu/login?url=http://search.proquest.com.ezproxy.uta.ed

u/docview/222276089?accountid=7117

Husserl, E. (2014). *Ideas for a pure phenomenology and phenomenological philosophy.*

*First book: General introduction to pure phenomenology* (D. Dahlstrom, Trans.).

[Kindle version]. Retrieved from Amazon.com.

Jiménez-Castellanos, O. H., & García, D. (2017). School expenditures and academic

achievement differences between high-ELL-performing and low-ELL-performing

high schools. *Bilingual Research Journal*, *40*(3), 318-330.

Johnson, C., Bolshakova, V., & Waldron, T. (2016). When good intentions and reality

meet: Large-scale reform of science teaching in urban schools with predominantly

Latino ELL students. *Urban Education, 51*(5), 476-513.

Katznelson, N., & Bernstein, K. A. (2017). Rebranding bilingualism: The shifting

discourses of language education policy in California's 2016 election. *Linguistics*

*and Education, 40*, 11-26. doi:10.1016/j.linged.2017.05.002

Kim, W. G., & García, S. B. (2014). Long-term English language learners' perceptions of

their language and academic learning experiences. *Remedial and Special*

*Education 35*(5), 300-312. doi:10.1177/074193251452504

King, D., Neuman, M., Pelchat, J., Potochnik, T., Rao, S., & Thompson, J. (2009).

*Instructional coaching: Professional development strategies that improve*

*instruction.* The Annenberg Institute for School Reform.

Krashen, S. D. (1992). *Fundamentals of language education*. Laredo Publishing

Company.

Kymlicka, W. (1997). Do we need a liberal theory of minority rights? Reply to Carens, Young, Parekh and Forst. *Constellations*, *4*(1), 72-87.

Lara-Alecio, R., Galloway, M., Irby, B., Rodríguez, L., & Gómez, L. (2004). Two-way immersion bilingual programs in Texas. *Bilingual Research Journal, 28*(1), 35-54.

Lee, O. (2005). Science education with English language learners: Synthesis and research agenda. *Review of Educational Research, 75*(4), 491-530.

Lee, O., Adamson, K., Maerten-Rivera, J., Lewis, S., Thornton, C., & LeRoy, K. (2008a). Teachers' perspectives on a professional development intervention to improve science instruction among English language learners. *Journal of Science Teacher Education, 19*(1), 41-67. doi:10.1007/s10972-007-9081-4

Lee, O., Adamson, K., Maerten-Rivera, J., Lewis, S., Thornton, C., & LeRoy, K. (2008b). The intersection of inquiry-based science and language: Preparing teachers for ELL classrooms. *Journal of Science Teacher Education, 25*(5), 519-541. doi:10.1007/s10972-014-9389-9

Lee, O., & Buxton, C. (2013). Teacher professional development to improve science and literacy achievement of English language learners. *Theory into Practice, 52*(2), 110-117. doi:10.1080/00405841.2013.770328

Lee, O., Buxton, C., Lewis, S., & LeRoy, K. (2006). Science inquiry and student diversity: Enhanced abilities and continuing difficulties after an instructional intervention. *Journal of Research in Science Teaching, 43*(7), 607-636. doi:10.1002/tea.20141

Lee, O., & Luykx, A. (2005). Dilemmas in scaling up innovations in elementary science instruction with nonmainstream students. *American Educational Research Journal, 42*(3), 411-438. doi:10.3102/00028312042003411

Lee, O., & Maerten-Rivera, J. (2012). Teacher change in elementary science instruction with English language learners: Results of a multiyear professional development intervention across multiple grades. *Teachers College Record, 114*(8), 1-42.

Li, N. (2013). Seeking best practices and meeting the needs of the English language learners: Using second language theories and integrating technology in teaching. *Journal of International Education Research (JIER)*, *9*(3), 217-222.

López, F. (2010). Identity and motivation among Hispanic English language learners in disparate educational contexts. *Education Policy Analysis Archives, 18*(16), 1-29.

López, F., & Iribarren, J. (2014). Creating and sustaining inclusive instructional settings for English language learners: Why, what, and how. *Theory into Practice, 53*(2), 106-114. doi:10.1080/00405841.2014.885810

Macarthur, J., Wright, S. C, & Taylor, D. M. (2000). Subtractive bilingualism and the survival of the Inuit language: Heritage- versus second-language education. *Journal of Educational Psychology, 92*(1), 63-84. doi:10.1037//0022-0663.92.1.63.

Mahoney, K., Thompson, M., & MacSwan J. (2004). The condition of English Language Learners in Arizona: 2004. In A. Molnar (Ed.), *The condition of Pre-K 12 education in Arizona:* 2004 (EPSL-0405-102-AEPI). Arizona Education Policy Initiative, Education Policy Studies Laboratory, Arizona State University. Retrieved from http://www.asu.edu/educ/epsl/AEPI/EPSL-0405-106-AEPI.pdf

Marian, V., Shook, A., & Schroeder, S. (2013). Bilingual two-way immersion programs benefit academic achievement. *Bilingual Research Journal, 36*(2), 167-186.

Martinez, R. M., Slate, J. R., & Martinez-Garcia, C. (2014). English language learner boys and girls reading and math achievement as a function of early-exit and late-exit bilingual programs: A multiyear, statewide analysis. *Education Research International, 2014*, 1-10.

Massachusetts Legislature. (n.d.a.). *An act relative to the teaching of English in public schools.* Retrieved from

https://malegislature.gov/Laws/SessionLaws/Acts/2002/Chapter386

Massachusetts Legislature. (n.d.b.). *English language education: Section 4*. Retrieved from

https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXII/Chapter71A/Section4

Massachusetts Legislature. (2017). *HB 4032. An act relative to language opportunity for our kids.* Retrieved from https://malegislature.gov/Bills/190/House/H4032

Matherson, L., & Windle, T. M. (2017). What do teachers want from their professional development? Four emerging themes. *Delta Kappa Gamma Bulletin*, 83(3), 28-32.

Maxwell, J. (2013). *Qualitative research design: An interactive approach* (3rd ed.). Sage Publications, Inc.

Mays, L. (2008). The cultural divide of discourse: Understanding how English-language learners' primary discourse influences acquisition of literacy. *The Reading Teacher, 61*(5), 415-418. Retrieved from

http://www.jstor.org.ezproxy.uta.edu/stable/20204605

McEneaney, E., López, F., & Nieswandt, M. (2014). Instructional models for the acquisition of English as bridges in school science: Effects on the science achievement of U.S. Hispanic English language learners. *Learning Environments Research, 17*(3), 305-318.

McIntyre, E., Kyle, D., Chen, C., Muñoz, M., & Beldon, S. (2010). Teacher learning and ELL reading achievement in sheltered instruction classrooms: Linking professional development to student development. *Literacy Research and Instruction, 49*(4), 334-351. doi:10.1080/19388070903229412

Medina-Jerez, W., & Campbell, T. (2015). Myths about English language learning: How to overcome misconceptions and help ELLs learn both science and English. *The Science Teacher, 82*(4), 53-59.

Medina-Jerez, W., Clark, D., Medina, A., & Ramirez-Marin, F. (2007). Science for ELLs: Rethinking our approach. *The Science Teacher, 74*(3), 52-56.

Menken, K., & Solorza, C. (2015). Principals as linchpins in bilingual education: The need for prepared school leaders. *International Journal of Bilingual Education and Bilingualism, 18*(6), 676-697.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage.

Moll, L. C., Amanti, C., Neff, D., & Gonzalez, N. (1992). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory into practice*, *31*(2), 132-141.

Molle, D. (2013). Facilitating professional development for teachers of English language

   learners. *Teaching and Teacher Education*, *29*, 197-207.

   doi:10.1016/j.tate.2012.10.002

Morrison, G. R., Ross, S. J., Morrison, J. R., & Kalman, H. K. (2019). *Designing*

   *effective instruction*. J. Wiley

Morrow, S. L. (2005). Quality and trustworthiness in qualitative research in counseling

   psychology. *Journal of Counseling Psychology*, *52*(2), 250-260.

   doi:10.1037/0022-0167.52.2.250

Moschkovich, J. (2005). Bilingual mathematics learners: How views of language,

   bilingual learners, and mathematical communication affect instruction. Improving

   Access to Mathematics: Diversity and Equity in the Classroom. In N. Nasir & P.

   Cobb (Eds.), *Diversity, equity, and access to mathematical ideas*. Teachers

   College Press.

Moustakas, C. (1994). *Phenomenological research methods*. Sage Publications.

New Mexico Public Education Department. (2004). *Article 23. Bilingual multicultural*

   *education.* Retrieved from https://webnew.ped.state.nm.us/wp-

   content/uploads/2017/12/Article23-BilingualEducationLaw.pdf

Nguyen, H. T., & Cortes, M. (2013). Teaching mathematics to ELLs: Practical research-

   based methods and strategies. *Childhood Education, 89*(6), 392-395.

Nickle, C. E. (2010). *The effects of cooperative and collaborative strategies on student*

   *achievement and satisfaction in blended and online learning environments* (Order

   No. 3416872). Available from ProQuest Dissertations & Theses Global; Social

   Science Premium Collection. (741300811). Retrieved from

https://login.ezproxy.uta.edu/login?url=https://search-proquest-com.ezproxy.uta.edu/docview/741300811?accountid=7117

Niehaus, K., & Adelson, J. (2014). School support, parental involvement, and academic and social-emotional outcomes for English language learners. *American Educational Research Journal, 51*(4), 810-844. doi:10.3102/0002831214531323

Nora, J. (2013). Language as the lever for elementary-level English language learners. *Voices in Urban Education*, *37*, 6-13.

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition.* Cambridge University Press.

Orlich, D. C., Harder, R. J., Callahan, R. C., Trevisan, M. S., & Brown, A. H. (2012). *Teaching strategies: A guide to effective instruction*. Wadsworth Cengage Learning.

Ovando, C. J. (2003). Bilingual education in the United States: Historical development and current issues. *Bilingual Research Journal*, *27*(1), 1-24.

Pacheco, M. (2010). English-language learners' reading achievement: Dialectical relationships between policy and practices in meaning-making opportunities. *Reading Research Quarterly, 45*(3), 292-317. doi:10.1598/RRQ.45.3.2

Palmer, D., Henderson, K., Wall, D., Zúñiga, C., & Berthelson, S. (2015, March 3). Team teaching among mixed messages: Implementing two-way dual language bilingual education at third grade in Texas. *Language Policy, 15*(4), 1-21.

Palmer, D., & Lynch, A. (2008). A bilingual education for a monolingual test? The pressure to prepare for TAKS and its influence on choices for language of

instruction in Texas elementary bilingual classrooms. *Language Policy, 7*(3), 217-235.

Palmer, D., & Snodgrass Rangel, V. (2011). High stakes accountability and policy implementation: Teacher decision making in bilingual classrooms in Texas. *Educational Policy, 25*(4), 614-647. doi:10.1177/0895904810374848.

Planas, N., & Civil, M. (2013). Language-as-resource and language-as-political: Tensions in the bilingual mathematics classroom. *Mathematic Education Research Journal, 25*(3), 361-378.

Poggenpoel, M., & Myburgh, C. (2003). The researcher as research instrument in educational research: A possible threat to trustworthiness? (A: research_instrument). *Education*, *124*(2), 418-421, 320.

Porter, S. (2006). Validity, trustworthiness and rigour: Quality and the idea of qualitative research. *Journal of Advanced Nursing, 53*(3), 304.

Rabasa, J. (2005). Colonial/Postcolonial. *Dispositio, 25*(52), 81-93.

Rader-Brown, L., & Howley, A. (2014). Predictors of the instructional strategies that elementary school teachers use with English language learners. *Teachers College Record 116*(050306), 1-34.

Ramanathan, V. (2014). Overcoming colonial policies of divide and rule: Postcolonialism's harnessing of the vernaculars. *Review of Research in Education, 38*, 290-311.

Rasool, N. (1998). Postmodernity, cultural pluralism the nation-state: Problems of language rights, human rights, identity and power. *Language Sciences, 20*(1), 89-99.

Reiners, G. M. (2012). Understanding the differences between Husserl's (descriptive) and Heidegger's (interpretive) phenomenological research. *Journal of Nursing & Care*, *1*(5), 1-3.

Ríos-Aguilar, C., González Canche, M. S., & Sabetghadam, S. (2012). Evaluating the impact of restrictive language policies: The Arizona 4-hour English language development block. *Language Policy, 11*(1), 47-80.

Roberts, C. A. (1995). Bilingual education program models: A framework for understanding. *Bilingual Research Journal*, *19*(3-4), 369-378.

Roberts, G., & Bryant, D. (2011). Early mathematics achievement trajectories: English-language learner and native English-speaker estimates, using the Early Childhood Longitudinal Survey. *Developmental Psychology*, *47*(4), 916-930. doi:10.1037/a0023865

Rocque, R., Ferrin, S., Hite, J., & Randall, V. (2016). The unique skills and traits of principals in one-way and two-way dual immersion schools. *Foreign Language Annals, 49*(4), 801-818. doi:10.nn/flan.12238

Rodríguez, A. D. (2013). Bilingual and ESL pre-service teachers learn about effective instruction for ELLs through meaningful collaboration. *Gist: Revista Colombiana De Educación Bilingüe,* 12-34.

Rolfe, G. (2006). Validity, trustworthiness and rigour: quality and the idea of qualitative research. *Journal of Advanced Nursing, 53*(3), 304–310. doi:10.1111/j.1365-2648.2006.03727.x

Rolstad, K., Mahoney, K., & Glass, G. (2005). The big picture: A meta-analysis of program effectiveness research on English language learners. *Educational Policy, 19*(4), 572-594. doi:10.1177/0895904805278067

Romero, A. F., & Arce, M. S. (2009). Culture as a resource: Critically compassionate intellectualism and its struggle against racism, fascism, and intellectual apartheid in Arizona. *Hamline Journal of Public Law & Policy*, *31*, 179.

Rossell, C. H., & Baker, K. (1996). The educational effectiveness of bilingual education. *Research in the Teaching of English*, 7-74.

Ryoo, K. (2015). Teaching science through the language of students in technology-enhanced instruction. *Journal of Science Education and Technology, 24*(1), 29-42. doi:10.1007/s10956-014-9518-4

Saldaña, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). SAGE.

Scanlan, M., & López, F. (2012). Vamos! how school leaders promote equity and excellence for bilingual students. *Educational Administration Quarterly, 48*(4), 583-625. doi:10.1177/0013161X11436270

Schacht, R. (1972). Husserlian and Heideggerian phenomenology. *Philosophical Studies*, *23*(5), 293-314.

Seidman, I. (2013). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (4th ed.). [Kindle Reader Version]. Teachers College Press.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*(2), 63-75.

Silva, C., Weinburgh, M., Malloy, R., Smith, K. H., & Marshall, J. N. (2012). Toward integration: An instructional model of science and academic language. *Childhood Education, 88*(2), 91-95. doi:10.1080/00094056.2012.662119

Simon, M. K., & Goes, J. (2011). *What is phenomenological research*. Retrieved from http://dissertationrecipes.com/wp-content/uploads/2011/04/Phenomenological-Research.pdf

Sinkovics, R., & Alfoldi, E. (2012). Progressive focusing and trustworthiness in qualitative research. *Management International Review (MIR)*, *52*(6), 817-845. doi:10.1007/s11575-012-0140-5

Solano-Flores, G. (2008). Who is given tests in what language by whom, when, and where? The need for probabilistic views of language in the testing of English language learners. *Educational Researcher, 37*(4), 189-199.

Song, K. H. (2016). Systematic professional development training and its impact on teachers' attitudes toward ELLs: SIOP and guided coaching. *TESOL Journal, 7*(4), 767-799. doi:10.1002/tesj.240

Starks, H., & Brown Trinidad, S. (2007). Choose your method: A comparison of phenomenology, discourse analysis, and grounded theory. *Qualitative Health Research, 17*(10), 1372-1380. doi:10.1177/1049732307307031

Steele, J. L., Slater, R. O., Zamarro, G., Miller, T., Li, J., Burkhauser, S., & Bacon, M. (2015). *Effects of dual language immersion on students' academic performance*. EDRE Working Paper No. 2015-09. Available at SSRN: https://ssrn.com/abstract=2693337 or http://dx.doi.org/10.2139/ssrn.2693337

Stoddart, T., Pinal, A., Latzke, M., & Canaday, D. (2002). Integrating inquiry science and

    language development for English language learners. *Journal of Research in*

    *Science Teaching, 39*(8), 664-687. doi:10.1002/tea.10040

Stufft, D. L., & Brogadir, R. (2011). Urban principals' facilitation of English language

    learning in public schools. *Education and Urban Society, 43*(5), 560-575.

    doi:10.1177/0013124510380720

Thomas, W. P., & Collier, V. (1997). School effectiveness for language minority

    students. *NCBE Resource Collection Series, No. 9.* Retrieved from

    http://files.eric.ed.gov/fulltext/ED436087.pdf

Texas Education Agency. (2012). *Chapter 89. Adaptations for special populations*

    *Subchapter BB. Commissioner's rules concerning state plan for educating English*

    *language learners*. Author. Retrieved from

    http://ritter.tea.state.tx.us/rules/tac/chapter089/ch089bb.html-

Texas Education Agency. (2016a). *Texas Academic Performance Report. 2015-2016*

    *State STAAR performance.* Author. Retrieved from

    https://rptsvr1.tea.texas.gov/perfreport/tapr/2016/state.pdf

Texas Education Agency. (2016b). *2015-20167 Texas Academic Performance Report.*

    *District Name: _____ ISD. Campus Name: _____ Elementary. Campus Number:*

    *_____. 2016 Accountability rating: Met standard*. Author.

Texas Education Agency. (2017a). *Texas Academic Performance Report. 2017-2018*

    *State STAAR performance.* Author. Retrieved from

    https://rptsvr1.tea.texas.gov/perfreport/tapr/2017/state.pdf

Texas Education Agency. (2017b). *2016-2017 Texas Academic Performance Report. District Name: ____ ISD. Campus Name: ____ Elementary. Campus Number: ____ 2017 Accountability rating: Met standard*. Author.

Texas Education Agency. (2018a). *Texas Academic Performance Report. 2017-2018 State STAAR performance.* Author. Retrieved from https://rptsvr1.tea.texas.gov/cgi/sas/broker?_service=marykay&year4=2018&year2=18&_debug=0&single=N&batch=N&app=PUBLIC&title=2018+Academic+Performance+Reports&_program=perfrept.perfmast.sas&ptype=H&level=state&search=campname&namenum=&prgopt=2018%2Ftapr%2Fpaper_tapr.sas

Texas Education Agency. (2018b). *2016-17 Texas Academic Performance Report. District Name: ____ ISD. Campus Name: ____ Elementary. District Number: ____ 2017 Accountability rating: Met standard. 2017 Special Education Determination Status: Needs Assistance.* Author.

Texas Education Agency. (2018c). *2017-2018 Texas Academic Performance Report. District Name: ____ ISD. Campus Name: ____ Elementary. Campus Number: ____ 2018 Accountability rating: Met standard.* Author.

Texas Education Agency. (2018d). *Texas assessment program frequently asked questions. FAQ.* Author. Retrieved from https://tea.texas.gov/sites/default/files/Texas%20Assessment%20Program%20FAQs%2004.04.18.pdf

Texas Education Agency. (2019). *Enrollment in Texas public schools, 2018-2019.* (Document No. GE18 601 13). Author. Retrieved from https://tea.texas.gov/sites/default/files/enroll_2018-19.pdf

Texas Education Agency. (n.d.). *The new STAAR report card presentation*. Author.

Retrieved from

https://tea.texas.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=51539614

510&libID=51539614510

Theoharis, G., & O'Toole, J. (2011). Leading inclusive ELL: Social justice leadership for

English language learners. *Educational Administration Quarterly, 47*(4), 646-688.

doi:10.1177/0013161X11401616

Thomas, W. P., & Collier, V. (1997). School effectiveness for language minority

students. *NCBE Resource Collection Series, No. 9. Retrieved from*

*https://files.eric.ed.gov/fulltext/ED436087.pdf*

Thomas, W. P., & Collier, V. (2002). *A national study of school effectiveness for*

*language minority students' long-term academic achievement*. Center for

Research on Education, Diversity and Excellence. Office of Educational Research

and Improvement. Retrieved from https://eric.ed.gov/?id=ED475048

Tong, F., Lara-Alecio, R., Irby, B., Mathes, P., & Kwok, O. M. (2008). Accelerating

early academic oral English development in transitional bilingual and structured

English immersion programs. *American Educational Research Journal*, *45*(4),

1011-1044.

Turkan, S., De Oliveira, L., Le, O., & Phelps, G. (2014). Proposing a knowledge base for

teaching academic content for English language learners: Disciplinary linguistic

knowledge. *Teachers College Record, 116*(030308), 1-30.

United States Census Bureau. (2019). *Foreign Born: 2019 Current population survey*

 *detailed tables.* Retrieved from

 https://www.census.gov/data/tables/2019/demo/foreign-born/cps-2019.html

United States Department of Education. (1990). *Developing programs for English*

 *language learners: OCR memorandum.* Retrieved from

 https://www2.ed.gov/about/offices/list/ocr/ell/september27.html

United States Department of Education. (2002a). English language learners and high-

 stakes tests: An overview of the issues. *ERIC Digest*. Retrieved from

 http://files.eric.ed.gov/fulltext/ED470981.pdf

United States Department of Education. (2002b). *No Child Left Behind Act of 2001, Pub.*

 *L. No. 107-110, 115 Stat. 1425.* Retrieved from

 http://www2.ed.gov/policy/elsec/leg/esea02/pg107.html

United States Department of Education. (2015). *Program: Improving basic programs*

 *operated by local educational agencies (Title 4I, Part A).* Retrieved from

 https://www2.ed.gov/programs/titleiparta/index.html

United States Department of Education. (n.d.). *Office of Elementary and Secondary*

 *Education. Title I: Improving the academic achievement of the disadvantaged.*

 Retrieved from https://oese.ed.gov/offices/office-of-formula-grants/school-

 support-and-accountability/essa-legislation-table-contents/title-i-part-a/

United States Department of Education, Institute of Education Sciences, National Center

 for Education Statistics, National Assessment of Educational Progress (NAEP).

 (2015). *Science Assessment. National Center for Education Statistics 2015*

 *Science Grades 4, 8, and 12 assessment report cards. Summary data tables for*

*national and state average scores and achievement level results.* Retrieved from

https://www.nationsreportcard.gov/science_2015/files/2015_Science_Results_Ap

pendix.pdf

Valdes, G. (1997). Dual-language immersion programs: A cautionary note concerning the

education of language-minority students. *Harvard Educational Review, 67*(3),

391-430. doi:10.17763/haer.67.3.n5q175qp86120948

Valentino, R., & Reardon, S. (2015). Effectiveness of four instructional programs

designed to serve English learners: Variation by ethnicity and initial English

proficiency. *Educational Evaluation and Policy Analysis, 37*(4), 612-637.

doi:10.3102/0162373715573310.

Valenzuela, A. (2002). Reflections on the subtractive underpinnings of education

research and policy. *Journal of Teacher Education, 53*(3), 235-241.

doi:10.1177/0022487102053003007

Wertz, F. (2011). *Phenomenological research methods psychology: A comparison with*

*grounded theory, discourse analysis, narrative research, and intuitive inquiry.*

Retrieved from http://www.psyking.net/HTMLobj-

3827/Wertz.Phenomenological_Research_in_Psychology.pdf

Wiley, T. G., Garcia, D. R., Danzig, A. B., & Stigler, M. L. (2014). Language policy,

politics, and diversity in education. *Review of Research in Education*, *38*(1), vii–

xxiii. https://doi.org/10.3102/0091732X13512984

Worthy, J., Rodríguez-Galindo, A., Czop Assaf, L., Martínez, L., & Cuero, K. (2003).

Fifth-grade bilingual students and precursors to "Subtractive Schooling". *The*

*Journal of the National Association for Bilingual Education, 27*(2), 275-294.

doi:10.1080/15235882.2003.10162807

**Biographical Information**

Monica Esquivel Manning was born in Bakersfield, California. She moved to Texas with her mother and sister as a toddler and lived with her grandparents, aunts, and uncles until her mother met and married her stepfather. Monica and her family returned to California in the late 1980s where she lived in Bakersfield. She graduated from West High School in 1990. She moved back to Texas in 1991 and lived with her parents until she moved to the DFW metroplex in 1993.

Monica is currently working as a dyslexia therapist. She has 17 years of teaching experience in the bilingual and dual language setting and has taught 1st, 2nd, 4th, 5th, and 6th grades in both a self-contained classroom and as a math-only teacher. Monica has also served as the bilingual lead teacher for her campus and was nominated for Teacher of the Year twice.

Monica received her Bachelor of Arts in Political Science from the University of Texas at Arlington in 2003. She received her Master's in Educational Leadership and Policy Studies from the University of Texas at Arlington in 2012 and her Doctorate in Educational Leadership and Policy Studies from the University of Texas at Arlington in 2021.

Monica lives in Grand Prairie with her husband and cats. She enjoys reading all book genres and watching science fiction movies with her husband. She also enjoys traveling to visit with her family within the large state of Texas.