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SPATIAL AWARENESS LANGUAGE FOR ENGLISH LANGUAGE LEARNERS

by

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A capstone submitted in partial fulfillment of the requirements for the degree of Master
of Arts in English as a Second Language.

Hamline University

Saint Paul, MN

May 2020

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DEDICATION

To my students because they encouraged me to become a better educator. They allowed me to learn about myself and grow, both professionally and personally in the last decade. My experiences with them have motivated me to continue to teach and learn.

To my content expert and mentor, Andrea Wenker, for her guidance and inspiration to become an EL teacher. To my team, Sara Bradfield and Jillian Tourville, for their support that helped me balance work and school throughout these past three years.

To my family for their support through this journey. You have taught me that hard work and perseverance can help you achieve your goals.

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CHAPTER ONE

Introduction

My Experiences

In my experience of teaching, I have taught Kindergarten in two different schools that had a high population of English learners (ELs). After graduating from Winona State University, I began teaching at an urban K-8 charter school. The majority of the ELs were Hmong and Karenni speaking students. When I was using *Investigations* (TERC, 2017) as their math curriculum, there was a unit on positional words such as *above*, *below*, and *between*. Several ELs had difficulty using those words in the correct context. They did not know how to describe pictures using those words. They had to draw pictures in a specific location on the paper and I remember that it was hard for them to complete that task. As a Kindergarten teacher for the past decade, I have found myself struggling with teaching spatial awareness to English learners (ELs).

I struggle because it seems like my students lack the language needed to understand how to use positional words such as *on top of*, *between*, *next to*, or *in front of* when describing where objects are located. To help with my struggle, I explored the following questions: *How can Spanish-speaking ELs develop their spatial awareness language? What role do cross-curricular connections play in developing spatial awareness language?* Finding answers to these questions helped me better support the ELs in their language development of spatial awareness. I am able to teach them multiple ways of using positional words so they can comprehend spatial awareness better.

My classroom consists of 25 students and almost half of them are identified as ELs. At my previous school, more than half of the students were identified as ELs. Currently, we do not have a social studies curriculum, but we have new literacy and math curricula. Spatial awareness Minnesota state standards are covered in Language Arts and Social Studies (see Table 1 and Table 2).

Table 1

Kindergarten Minnesota State Language Arts Standard, 2010

Language Arts: Language Usage
0.10.1.1 Demonstrate command of the conventions of standard English grammar and usage when writing and speaking.
Use the most frequently occurring prepositions (e.g. to, from, in, out, on, off, for, of, by, with).

Table 2

Kindergarten Minnesota State Social Studies Standard, 2011

Social Studies: Geography - Geospatial Skills
0.3.1.1.1 People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.
Describe spatial information depicted in simple drawings and pictures. (e.g. up, down, left, right, near, far, back, in front of).

For literacy, we use the *Fountas and Pinnell* curriculum (Fountas & Pinnell, 2019), which is designed to give high-impact training through effective interventions, professional books, and essential classroom resources. There are several parts of the

curriculum which include: interactive read-aloud, reading mini lessons, shared reading, guided reading, independent reading, and phonics, spelling, and word study. We also use it for our benchmark literacy assessments. The interactive read-aloud correlates with the minilessons with their units (Fountas & Pinnell, 2019). For math, we use *enVision* (Pearson, 2020) which is a program that helps students develop an understanding of math concepts through problem-based instruction, small-group instruction, and visual learning. *Investigations* (TERC, 2017) is the other math curriculum that we use to promote active thinking and learning. It also helps the students explore mathematical ideas and develop understanding and fluency.

Since there are two standards that cover spatial awareness using positional words (see Table 1 and Table 2), I wanted to explore my research question and find best practices to teach the concept. To help build their spatial awareness vocabulary, it was helpful to expose them to the language in more than one content area.

Having introduced my research questions, in the remainder of this chapter, first I shared more details of my personal journey of how I observed the struggle of ELs using positional words that led me to the current project. Next, I also shared a couple teaching experiences that involved spatial awareness language and how the ELs did not know how to describe something. Then, I further explained the purpose of this project. Finally, I summarized my personal and professional connections to the research questions to show why I chose this project.

My Personal Journey

I grew up in a city in the northern part of Minnesota. I grew up speaking English as my first language; I did not know anyone who was acquiring English as an additional language. In school, I cannot remember having difficulty with understanding vocabulary words such as *on top of*, *between*, *next to*, or *in front of*. Unfortunately, I cannot compare what I knew to that of a non-native English speaker because there were not any at my school. When I started teaching, I immediately recognized the need for language focus in the area of spatial relationships with ELs. While teaching the unit of spatial awareness, using positional words, the students could say the words such as *on top of*, *between*, *next to*, and *in front of*, but they did not understand the meaning of those words. After teaching the concept with visuals, manipulatives, and worksheets, the native English speakers eventually understood the concept. They could use the correct positional words when describing where something is. I noticed that several ELs went back to pointing where something was or instead of not using positional words, they used “there” or “here.” That caught my attention because I realized that they did not understand the meanings behind the positional words.

At first, I wondered why the ELs could not understand positional words because to me, growing up, they were simple. I have heard those words growing up outside of the classroom which gave me more exposure to the language. As the teacher, I might have moved too quickly with the lessons and did not give enough time to explain the meanings of the words. My assumption was that they have also heard these words in their everyday life outside of the classroom. If they are not exposed to the language, then it will be

difficult for them to learn it at the pace that I was teaching. I had the advantage of developing spatial awareness language because of my native English speaker status and prior exposure to the language. For the ELs, they might have been exposed to spatial awareness, but not the language that is used to express it in English. When they learn how to use the spatial awareness language, it might take them longer to comprehend because they need to learn how to pronounce the positional words, as well as understand their meanings. They have to do twice the work of being able to say the positional words and understand their meanings (Cardenas-Hagan, Carlson, & Pollard-Durodola, 2007).

When I was learning a second language in middle and high school, I understood their struggles. It was easy for me to write the non-native language I was learning, but it was difficult to pronounce the words and remember what their meanings were.

Based on the above observations and similar ones noted by other researchers and practitioners, I wanted to find ways to help the ELs feel less overwhelmed with learning spatial awareness language.

My Teaching Experience

In my teaching experience, I have found that there has not been enough success between ELs and spatial awareness. The students seemed to need more work on building their vocabulary which consists of positional words. They also needed to understand what each positional word meant. When the students were asked to describe a picture, too often, the ELs would just point to the picture or say “there”, instead of using positional words such as *on top of*, *between*, *next to*, or *in front of*. My goal was to find ways to help

them develop their use of positional words so next time they need to describe where a ball is in the playground picture, they would say, “It is on top of the slide.”

At the first charter school where I taught at, there were ELs who spoke Hmong or Karenni as their first language. When the ELs had to explain where an object was, they would often point and say nothing. Or, they would say “there” or “here”, still not using positional words. Even if they were prompted for a task such as, “Is the cat on top of the rug or under the rug?” the ELs tended to point because they either were too shy to answer or they did not know what to say.

For social studies, we did not have a curriculum, so during the map unit, it was difficult to teach positional words. As a first-year teacher, I did not have the knowledge or resources to best support the ELs. I felt like the map unit was not effective for the ELs because they were still having trouble comprehending the meanings of the positional words. We also had power standards which were standards that the administration chose as the most important standards to teach at this school so not all of the literacy standards were being covered such as the one on positional words. Because of that, I lacked the motivation to teach the language arts standard on positional words. It was not a main focus of mine and because of that, I did not differentiate the lessons for the ELs. After seeing repeated results, I realized that I needed to change my ways of teaching and go beyond the resources given to me.

After I left that school, I went to an urban Pre-K-8 charter school. This is the school that I am currently teaching at and the majority of the ELs are Hispanic and Hmong students. When I first started teaching at my current school, we used the *GO*

Math! curriculum (Houghton Mifflin Harcourt, 2017) and had to make use of supplements for our social studies curriculum. The ELs were still struggling with spatial awareness language and how to use it. They often did the same thing that the other ELs did at my previous school such as pointing or using one-word answers that were not positional words.

We are using a new curriculum called *enVisions* (Pearson, 2020) for the math curriculum and I have used the supplements from *Teachers Pay Teachers*, an online marketplace (TpT, 2019) to help cover the social studies standard. I was hoping that different curriculums would help the ELs develop their spatial awareness language, but I realized that there needs to be differentiation for them that does not exist in the various curriculums. ELs needed to develop their spatial awareness language through different contexts than native English speakers. ELs needed to have time and more resources to help support the language of the positional words and their meanings.

Capstone Context and Rationale

This capstone project is taking place at an urban Pre-K-8 charter school where the majority of the school population is Hispanic. In Kindergarten, there are eight Hispanic ELs which is 16% of the total number of students and in my classroom, there are four identified Hispanic ELs. For the past five years, there has been a higher number of Hispanic ELs in the Kindergarten. The previous year, there were 67% of Hispanic ELs and the year before that, there were 84% of Hispanic ELs in Kindergarten. This year, the majority of the identified ELs in Kindergarten have shifted to Hmong speaking students.

The capstone project is focused on the Hispanic ELs because based on my experience, they have had previous struggles with using the spatial awareness language and being able to understand the meanings of positional words. Even though the research questions are focused on Spanish-speaking ELs, the project can be a helpful guide to all ELs. It can be a supplement for any ELs who are struggling to develop their spatial awareness language.

There were many factors that contributed to the reason why Hispanic ELs are struggling with their spatial awareness language. Church (2006) explained that learning spatial awareness language is difficult because of the factors associated with language acquisition. Lack of exposure is another reason why they are struggling. Because Spanish is their native language, their families may only speak Spanish at home. The ELs may not get enough exposure to English outside of the classroom. Another reason for their struggle would be their limited time learning about how to use positional words. If they are in Kindergarten, that gives them less than six years to develop the vocabulary, let alone their own language.

I would like the ELs to stay motivated when learning new concepts. Since developing spatial awareness language has been one of the more difficult ones, creating a unit that is targeted for ELs has benefited them. This capstone project sought to create a learning unit that is engaging for the students and included interactive strategies with oral communication tasks. The unit consisted of differentiated lessons because the Spanish-speaking ELs were at different proficiency levels than native English speakers. I also did my best to make real-life connections to keep the ELs engaged.

Personal and Professional Significance

This capstone project holds personal significance for me because as an educator, it is my job to know how to best meet all of my students' needs. Once I become an EL teacher, I will need to be able to scaffold the lessons so the students can apply their gained knowledge into the content areas. My role is to provide an effective education for ELs so they can increase their proficiency levels. This project focused on the speaking and listening domains.

Developing spatial awareness language has a professional significance for ESL education because the concept can be applied to multiple content areas. When the ELs can apply one concept to different content areas, it helps them make connections. When the ELs are taking state or national tests, knowing spatial awareness language can also help with answering questions or statements. I have seen statements such as "Put the ball under the table" or "Put the teddy bear between the ball and cone." The ELs will see questions and statements on tests beyond Kindergarten so if they can attain the knowledge early on, that will help them in the future. As they get older, they can apply their spatial awareness knowledge in other classes, as well as outside of a classroom.

Conclusion

This chapter presented my research questions and rationale for why I focused on spatial awareness, along with my personal journey, as well as my teaching experiences and observations. I explained the capstone context and rationale for why this is important and what personal and professional significance it has.

In this project, I investigated the following questions: *How can Spanish-speaking ELs develop their spatial awareness language? What role do cross-curricular connections play in developing spatial awareness language?*

Chapter Two consists of the literature review related to spatial awareness language development, Hispanic EL language development, and cross-curricular connections. Chapter Three outlines my capstone project by describing the audience, unit outcomes, instructional strategies, and assessments. Chapter Four includes my reflections on creating the capstone project.

CHAPTER TWO

Literature Review

Introduction

From my experience as a Kindergarten teacher, I learned that my biggest challenge was teaching spatial awareness language to English learners (ELs). The struggle was getting these students to understand the meaning of positional words such as *on top of*, *between*, *next to*, or *in front of*. This has guided me to the research questions: *How can Spanish-speaking ELs develop their spatial awareness language? What role do cross-curricular connections play in developing spatial awareness language?*

I am interested in learning about their spatial awareness language development at such a young age. The audience for my capstone project are be Hispanic ELs in Kindergarten because I want to see if I can improve their understanding of spatial awareness language. Spatial awareness language includes positional words such as *on top of*, *between*, *next to*, and *in front of*. The literature that is reviewed in this section includes research on how students develop language through various types of learning. For the past several years, students have had a difficult time comprehending the concept and applying it to other content areas (Raynolds & Uhry, 2009). With research from the literature, I was able to create my capstone project based on the findings. The research has guided me into creating an effective unit on spatial awareness language for the Hispanic ELs.

This chapter provides a review of the literature on ELs, spatial awareness language, and cross-curricular connections. The section on ELs focuses more on Hispanic ELs in primary level grades, as well as their language development. There are United States and Minnesota statistics provided on ELs and Hispanic ELs to give background on their population. The section also discusses their second language acquisition and the factors that affect it. Under the challenges for Hispanic ELs, there is a discussion on the reading achievement gap, lack of vocabulary, comprehension, and cognates.

This section also includes the importance of cross-linguistic transfer and how their L1 affects their L2. Certain parts of speech in Spanish that is translated to English are compared to help understand the difference between L1 and L2 (Raynolds & Uhry, 2009). The focus on how phonemic and phonological awareness development affects the Hispanic ELs, primarily in the younger grades is also discussed. How they struggle and what activities are done to help them are also included, as well as the activities that will be modified to best educate them on spatial awareness language (Mathes, Pollard-Durodola, Cardenas-Hagan, Linam-Thompson, & Vaughn, 2007).

The next section is on spatial awareness language. It explains more in-depth with common words and phrases that the ELs struggle with such as *on top of*, *left*, *right*, and *in front of*. Comprehension of spatial awareness language is examined and the relationship between language and cognition is explored. The relationship emphasized how important it is to use the language. The theory of embodied semantics is explained and how it can be useful to ELs.

The last section explores the advantages of making cross-curricular connections in correlation with developing spatial awareness language. It also summarizes ideas of how to incorporate spatial awareness language in specific content areas. Examples of how ELs can use their spatial awareness language in physical education, mathematics, social studies, science, and literacy are discussed. The main two domains that the ELs perform with spatial awareness language are listening and speaking.

English Learners (ELs)

The National Education Association (2011) known as NEA explained that an English learner is a student who has difficulty speaking, listening, reading, and writing English sufficient to deny the individual the opportunity to participate in society and does not have the ability to successfully achieve in classrooms taught in English. An English learner also speaks another language other than English at home. According to the Migration Policy Institute (2010), from an NEA policy brief, more than 70% of the EL students in the United States speak Spanish at home. The number of ELs in U.S. schools is higher than 4 million students and that population has grown 60% in the last decade. More than 80% of the ELs are not immigrants, which means they were born in the U.S. (Breiseth, 2015).

Minnesota statistics. To be considered an EL student in Minnesota, these students need to complete a Minnesota Language Survey and participate in an English-language screening assessment (Minnesota Department of Education, 2017). Depending on the results from the assessment, that determines if the student can be enrolled in the EL program. Another key component is notifying parents with the scores

from the initial placement. Parent notification is required. Minnesota Department of Education's (2018), known as MDE, latest report on the student population of ELs was 8.4% which meant more than 74,000 students in the state were identified as ELs. Just in Minnesota, the ELs speak 225 different languages. The majority of the ELs which were 69%, scored in the intermediate level of the ACCESS test. The ACCESS test measures students' academic English language in four domains: listening, speaking, reading, and writing. (MDE, 2018).

Hispanic ELs. According to NEA (2011), 80% of the ELs in the United States are Hispanic. Because the EL population is growing, there has been a need for more EL programs and trained teachers to help support this population. There are Hispanic ELs in 45 of the states and in Minnesota, the top language spoken other than English is Spanish. With such a high population of Hispanic ELs, many schools have been implementing different strategies to meet the needs of the Hispanic ELs. Teachers are being trained with a better cultural understanding through professional development, community outreach has been increasing and parental involvement is helping the Hispanic ELs succeed (NEA, 2011).

Hispanic ELs challenges. Even though there has been an increase of success, there are still challenges. If Hispanic ELs come from poverty, it is more difficult for parents to become involved with the school (NEA, 2011). Depending on their jobs and hours of their jobs, being involved at home can also be difficult. It can be a challenge for parents to support their children when they, too, are an English learner. If they only speak Spanish at home, they can't help their child with homework or other activities given by

teachers. Student achievement is more difficult, due to the lack of support and resources at home (NEA, 2011).

Reading achievement gap. The student achievement gap between Hispanic ELs and their native English-speaking peers is most visible on tests. The Hispanic ELs score lower on standardized tests than native English-speaking students and that has become a concern for educators who want that population to succeed (Ford, Cabell, Konold, Invernizzi, & Gartland, 2012). There has been research that states how the Hispanic EL proficiency is affecting their reading development. Ford et al. (2012) explained that the effect their first-language oral development has on their literacy skills is impacting their reading comprehension. Through observations and data, when the Hispanic ELs answer a question about spatial awareness language on standardized tests, they often have difficulty answering correctly (Ford, Cabell, Konold, Invernizzi, & Gartland, 2012). They click on an answer, not listening or comprehending the whole question.

Literacy development. There were also other studies that revealed how low the Spanish-speaking ELs oral language skills were, which meant that there needed to be effective instruction for them to improve on their speaking proficiency levels (Cardenas-Hagan, Carlson, & Pollard-Durodola, 2007). The population of Hispanic ELs is growing and it is suggested that there are benefits of using their native language to support literacy instruction (Ford et al., 2012). Understanding the research behind the literacy development of Spanish-speaking students can help with the way spatial awareness language is taught.

Comprehension. Reading comprehension can include the ability to gather meaning from a word and that has been a struggle for Hispanic ELs. Gathering meaning when using spatial awareness language has been a difficult task and will be discussed in the following section. ELs may have trouble mastering new concepts, such as spatial awareness because they cannot comprehend the new language being used (Robertson, 2000).

Vocabulary. Spatial awareness language for ELs is often new vocabulary, especially for those beginning readers who are entering Kindergarten. According to Robertson (2000), ELs must use the words they hear orally to make sense of the words they sound out. But if the words are not a part of their everyday vocabulary, it will be more difficult for them to understand the meaning. Even if the average EL may know at least 5,000 words entering Kindergarten, those words are in their native language, not in English, which makes it harder for them to catch up on their basic vocabulary foundation (Robertson, 2000).

Lack of cross-linguistic cognates. Cross-linguistic cognates are words that share form and meaning in two languages. An example between English and Spanish would be *helicopter* and *helicóptero* (Kelley & Kohnert, 2012). When learning spatial awareness language, for ELs, most of the words are not cross-linguistic cognates which makes it difficult for them to acquire. Examples between English and Spanish are: *on top of* - *encima de*, *between* - *entre*, *next* - *cerca de*, and *in front of* - *enfrente de*. When ELs learn a second language, they encode new words for concepts that they already know in their

first language. This is difficult for ELs because the translation equivalents often look and sound different in their first and second language (Kelley & Kohnert, 2012).

Cross-linguistic transfer. There was a study that examined the development of English phonemic awareness and phonic skills. Two of the four groups were of high and low reading level English-Spanish bilinguals (Brice & Brice, 2009). The authors also discussed how the interlanguage theory related to the bilingual students. It stated that their first language phonology interacts and affects their second language phonology. Their L1 can affect their L2 positively, as long as there is not negative transfer (Brice & Brice, 2009). There was not as big of a gap between monolingual and bilingual groups as expected because the students perceived English sounds as if they were Spanish so that helped them with their phonemic awareness (Brice & Brice, 2009).

This section discussed some of the statistics of the EL and Hispanic EL population in the United States and Minnesota. It also covered some of the challenges that Hispanic ELs face in the classroom such as their achievement gap and difficulty to retain vocabulary and comprehension in the L2. The next section will be on spatial awareness language and how positional words are difficult to understand for Hispanic ELs. It also describes ways to help develop spatial awareness language by using visuals and tactile objects.

Spatial Awareness Language

According to the Minnesota Department of Education, MDE (2011), there are two Kindergarten state standards that use spatial awareness language. One is from the social studies state standard that uses positional words such as: *up, down, left, right, near, far,*

back, and *in front of*. The other state standard is from language arts and it uses prepositional words such as: *to, from, in, out, on, off, for, of, by*, and *with*. The capstone project will focus on the social studies positional words to help develop spatial awareness language for the Hispanic ELs.

Spatial awareness language comprehension. There are certain positional words that will be taught first because they are more common cross-linguistically. According to Grigoroglou, Johanson, and Papafragou (2018), teaching *in front of* or *back* would be easier to teach first because children gain knowledge of those words between the ages of two and three while using objects. The Hispanic ELs will learn spatial awareness language easier when taught with the words that they were first learned in their native language.

Using spatial awareness language such as *in front of* or *between* is essential for describing the location of an object relative to another object (Burigo & Knoeferle, 2015). According to Burigo and Knoeferle (2015), having visuals will help comprehend spatial awareness. ELs often depend on visuals to help them with understanding the meaning of a word so having visuals when learning new vocabulary will be useful. During the capstone project, objects and visuals will be essential in each lesson to help support the ELs language development.

Use of objects. Children who can describe where an object is can also listen to directions about spatial awareness. Such students can improve on multiple academic skills by developing spatial awareness (Stevens-Smith, 2004). For example, if the ELs can point to the correct cloud from listening to the directions, “Point to the cloud that is

above the tree”, the ELs could hopefully be able to explain the description of the cloud that the teacher points to using spatial awareness language. The ELs would then be able to say, “The cloud is above/on top of the tree.” Linguistic and physical comprehension of spatial awareness can help the children transfer their knowledge in many content areas. Motor development and increase of vocabulary by using the positional words are beneficial for children for years to come (Stevens-Smith, 2004).

Research explained why it is important to let children experiment with objects to develop their spatial awareness. Using objects can help them with their vocabulary because they can practice describing their spatial viewpoints (Miller, 2006). Brown (2016) and Sparks (2013) described how learning mathematics can help with spatial awareness because lessons can be integrated with each other. If spatial awareness language can be taught in various content areas, that can also help the ELs with their language acquisition. The more they are exposed to the language, the more they will understand the meanings of those words.

Relationship between language and cognition. Miller, Vlach, and Simmering (2017) stated that learning spatial awareness skills can predict achievement in various content areas. There has been research on the relation between children’s early language and their ability to develop spatial skills. Children were asked to perform spatial tasks using spatial and non-spatial languages. Children who were between the ages of three to five years old could perform better spatial skills when they used spatial language such as *left*, *right*, and *middle* compared to when they used non-spatial language. Because of

these results, theorists believe that producing spatial language at a young age helps increase their vocabulary, as well as their spatial task performance (Miller et al., 2017).

Embodied semantics. A theory called embodied semantics (ES) will be helpful for ELs to develop their spatial awareness language because when using ES, to find the meaning of a word, there are sensorimotor representations involved (Bottini, Bucur, & Crepaldi, 2016). That means to help understand a word, there is activation of sensorial and motor representations such as visual or tactile object. Having visuals, as previously stated, will support the ELs understanding of spatial awareness language. The capstone project will also involve tactile objects for the ELs to see and feel to help them give spatial descriptions.

Communication. Church (2006) defined spatial awareness and how it is beyond just having an awareness of the body in space. It can also be linguistic and that is one of the main focuses of my capstone project. It is crucial and essential to understand the positional words because the ELs need to develop their sense of direction and location (Church, 2006). Spatial awareness language for children in early childhood is best developed through interactions with people and objects (Miller, 2006).

If ELs can verbalize their spatial tasks using spatial awareness language, they can comprehend the tasks better. Performing spatial tasks while using spatial awareness language can benefit the ELs in multiple content areas because they can use what they already know and apply it to other tasks.

This section summarized what spatial awareness language is and the challenges that ELs face. It also offered ideas of how to better teach spatial awareness language,

especially for ELs. The next section discusses why cross-curricular connections are beneficial for ELs and what ways to integrate spatial awareness language in various content areas such as in physical education, mathematics, and literacy, and science. It also describes the importance of making cultural connections and differentiating the lessons for the Hispanic ELs since they are at different proficiency levels.

Cross-curricular Connections

Spatial awareness language has been a difficult concept for some ELs to comprehend because of the language acquisition and meaning behind the specific terms (Church, 2006). ELs need to understand the meaning of the terms to help with their overall perception of things and their relativity to objects. Understanding terms or phrases such as *in front of*, *next to*, *left*, and *right* are crucial to early childhood development. The following literature helps explain the positive effects on how applying a concept to more than one curriculum or content area can be beneficial to the students.

Spatial awareness language is an important unit to focus on because it can be taught beyond the Minnesota state social studies standard. Since the audience for my capstone project is Hispanic ELs, being motivated to learn can also make it easier to understand the language.

Motivation. Cross-curricular teaching helps improve student learning because of the collaboration that is done (Alexander, Walsh, Jarman, & McClune, 2008).

Whichever area I teach spatial awareness in first, I can also transfer that lesson into another content area. The more it is taught, in various areas, the better chance I have at helping the ELs comprehend the language. A study was done to see if cross-curricular

learning helped engage the students by being more motivated to learn. Birchinall (2013) described multiple ways that the cross-curricular model can be presented; through context-based learning, creativity, and kinaesthetic learning. Miller (2006) said children who comprehend the meaning of the words can use their understanding in multiple academic areas. One way to positively reinforce cross-curricular connections is by applying movement in an academic way.

Physical activity. Physical education can be integrated into different content areas (Hollett, Sluder, Taunton, & Howard-Shaughnessy, 2016). According to Hollett et al. (2016), when the students are involved in physical activity, the brain is able to make stronger connections with the content. ELs can benefit from body movement because it can improve their cognitive and kinesthetic learning domains, as well as help develop their spatial awareness skills. For example, instead of describing *left* from *right*, they can listen to directions such as, “Jump to the left” or “Raise your right hand.” Even though learning spatial awareness concepts start before primary school years, their use of verbalizing spatial language comes after. Beyond using movements, objects are also useful. The more language ELs use when making spatial descriptions, the easier it will be to transfer the language from their L1 to their L2.

Mathematics. Sparks (2013) researched how learning spatial skills can help students develop math and abstract reasoning at an earlier age. Following directions related to math skills can help with their fine-motor skills. When they understand the spatial awareness language, then that is easier for them to follow directions. If the ELs are learning about shapes, directions can involve spatial awareness language such as,

“Draw a triangle on the top of the paper” or “Draw a square on the bottom left side of the paper.” Integrating spatial awareness language with mathematics can be done with multiple units such as numbers, shapes, attributes, and patterns.

Focusing on the importance of learning mathematics, but in a way that allows students and teachers to think beyond the surface is what can help ELs with their spatial awareness language. It is also interdisciplinary which helps with the diversity of the unit (Brown, 2016). Brown’s work is relevant to my capstone project because he emphasizes on how cross-curricular learning can help ELs apply their spatial awareness knowledge in other classes. Creating a spatial awareness unit during math is useful, especially when language is needed to be developed. Describing where a shape or an object is located helps increase their verbal skills. If they can comprehend where something is located, that increases their listening skills. By comprehending, they can physically point or move the object. Sparks (2013) explained that when children do repeated actions, it can help with their visual-motor skills. Connecting math skills with other skills such as art or reading seemed to help with the student’s academic achievement.

Mathematics challenges for Hispanic ELs. Rivera and Waxman (2011) reported that the United States has a challenge of improving academic achievement in mathematics among Hispanic ELs due to several factors such as student motivation, student and parent involvement, home life, and use of time at home. Some ways to help non-resilient students included changing the home learning environments and change ways to teach mathematics in the classroom. There is a growing number of Hispanic ELs who show patterns of underachievement in school and making cross-curricular

connections can help them with their attitudes towards learning mathematics (Rivera & Waxman, 2011). While making cross-curricular connections, it is also important to connect their culture with the lessons to create a more comfortable environment.

Science. Plummer and Kuhlman (2008) emphasized the effectiveness of cross-curricular teaching. The example they use focuses on literacy and science content areas. For ELs, oral communication skills are important and they describe how reading and writing can help with explaining science experiments. Listening to the steps of a science experiment that includes spatial awareness language such as *in*, *on*, and *off* is another way to integrate the use of the language.

Cultural connections. When making connections with the students, the teacher bonds with them which helps with both the teaching and learning (Fabillar & Jones, 2003). Since the capstone project is focused on Hispanic ELs, to understand their culture and find a way to use it in the lessons can help with the bond.

Brain surfing. Lenski (2001) described a strategy called brain surfing, which is a strategy that helps students make connections with integrated units because studies show that students don't always make connections as easily as we think. To help the students make connections, brain surfing focuses on having discussions to help students combine their knowledge from various subjects (Lenski, 2001). Brain surfing is an intertextual cognitive strategy that helps students integrate subject matter and expand intertextual thinking by asking specific questions and having discussions (Lenski, 2001). This is a strategy that can be used with the capstone project, as long as it is modified to be used

with Kindergarten ELs. It would also be an effective strategy because of how much communication and speaking skills are required.

Differentiation. While teaching spatial awareness language in various content areas is beneficial, the ELs still need to be offered differentiation opportunities. Since interventions were helpful for native Spanish speakers to make reading successful for them (Mathes, Pollard-Durodola, Cardenas-Hagan, Linam-Thompson, & Vaughn, 2007), planning on teaching the concept of spatial awareness language in small groups will be most effective for the Hispanic ELs. When teaching a lesson or a unit, it will be important to remember to modify the lessons for the different levels of ELs. Those at a lower proficiency level will need different instruction than those who are almost at the exit level of EL program. The authors revealed that it cannot be assumed information learned in one language will automatically transfer to a second language. Transfer across language takes time and if ELs do not comprehend the lesson immediately, that is okay because their second language acquisition development is a process (Mathes et al., 2007).

Multiple intelligences. Howard Gardner's Multiple Intelligences has inspired my desire to make cross-curricular connections with spatial awareness language, specifically the visual-spatial intelligence. Gardner explained how understanding all of the intelligences will help create more effective ways to teach. Even though there are some researchers who challenged Gardner's Multiple Intelligences, educators have believed that his theory encourages them to look beyond the narrow confines of the dominant discourses of curriculum (Smith, 2007). Multiple Intelligences also give support for diverse learners, which is the population of the audience for this project. Since the

audience is Spanish-speaking ELs, Gardner's Multiple Intelligences supports other cultures and gives them more opportunities to learn in different ways (Smith, 2007).

For some ELs, describing the location of an object using spatial awareness language may be a struggle because of the lack of vocabulary and development of positional words. If there can be lessons taught in various content areas about the same concept, that can increase the development of positional words for the ELs. They can also make more connections to their life if a concept is taught in several content areas. The sections that were discussed in this literature review relate to the audience in the project and the lessons that will be in the capstone project.

Summary of Literature Review

The literature that was described in the above sections covered the statistics and growth of Hispanic ELs in school, what challenges they face academically, what spatial awareness language is and how visuals and objects can help ELs retain that language, and different ways spatial awareness language can be used on cross-curricular content areas. The challenges that Hispanic ELs face are underachievement with literacy because of their struggle with vocabulary and comprehension. Understanding the meanings of words has been difficult and research has shown that making cross-curricular connections can help with that. There are also outside factors such as motivation and lack of parent involvement that contribute to their achievement gap, but literature has described ways to improve on their achievement. Using visuals, objects, and movements has been helpful for early childhood Hispanic ELs because it helps develop their kinesthetic and cognitive skills.

The gap. Even though there has been research on how cross-curricular connections can help ELs with their spatial awareness language, there hasn't been an article that stated which content area helps them best with that concept. The capstone project will focus on the social studies content area because spatial awareness language is most relevant to the social studies state standard. This capstone project will have core lessons that will focus on listening to spatial awareness language and using the language to make descriptions. Maps will be used as visuals and the ELs will create parts of a map and place them in specific areas to practice their descriptive tasks of the unit. Making sure the unit is hands-on and interactive will help the ELs stay motivated to learn spatial awareness language.

The capstone project will consist of a social studies unit using spatial awareness language and the lessons will be described more in depth in Chapter Three. There will be examples of how spatial awareness language can also be used in other content areas so the resources are offered in multiple ways. The unit will have objectives focusing on comprehending spatial awareness language by orally describing where objects are using positional words and by listening to directions that include spatial awareness language.

Conclusion

The purpose of this literature review was to answer the following research questions: *How can Spanish-speaking ELs develop their spatial awareness language? What role do cross-curricular connections play in developing spatial awareness language?* The literature helped offer ways that could help Spanish-speaking ELs develop their spatial awareness language. Repeated movement, visuals, and objects were

the main ways to develop their language. It was concluded that cross-curricular connections have a positive role in developing spatial awareness language.

Chapter Three provides more details on my capstone project. It gives a description of why I'm doing it based on my personal and professional experiences and how it was created. The audience and setting are both described, as well as the research paradigm. Chapter Three lists the outcomes, instructional strategies, and assessments that are used. The unit includes ways to best support the Hispanic ELs in developing their spatial awareness language.

CHAPTER THREE

Project

Introduction and Rationale

I studied the development of spatial awareness language because I wanted the Spanish-speaking ELs in Kindergarten to understand the meaning of positional words. Through my teaching experience, I have noticed that several ELs have had difficulty using positional words such as *on top of*, *between*, *next to*, or *in front of* in the correct context. They did not know how to describe pictures using the correct positional words. Sometimes they would just point to the picture or say one-word answers that were not positional words. They also had to draw pictures in a specific location on the paper such as *on top of*, *between*, *next to*, or *in front of* and that was a difficult task for them to complete.

As a Kindergarten teacher for the past decade, I have found myself struggling with teaching spatial awareness language to English learners (ELs), as noted in Chapter One. Thus, in the current project, I created a unit focusing on spatial awareness language to help answer the two questions: *How can Spanish-speaking ELs develop their spatial awareness language? What role do cross-curricular connections play in developing spatial awareness language?*

The curricular project that is part of this capstone is described in the following sections of introduction and rationale of why I am creating this spatial awareness language unit, setting and audience of who this unit is targeted for which are

Kindergarten ELs, unit outcomes and overview for the whole unit, instructional strategies that will best support the ELs learning, pilot assessment to create a baseline, formative and summative assessments, research theory and framework, project timeline of when this unit will be complete, and materials that are needed for each lesson.

Project Description

I plan to teach spatial awareness language through lessons on maps and landforms. The unit has objectives focusing on using spatial awareness language to describe where objects are in pictures. The ELs are going to display their ability to use spatial awareness language by saying positional words. Although the unit focuses on a social studies standard, I explain and give examples of how spatial awareness language can also be applied to other content areas.

The ELs learn how to explain the different positions of objects in pictures. By learning spatial awareness language in one unit, the ELs also recognize how positional words can be used in other content areas. Revisiting spatial awareness language in several units gives the ELs the opportunity to learn the concept in various ways. Each student has a different learning style and one unit might be more effective than another.

There are eight lessons that focus on spatial awareness language through a social studies unit. The first and last lessons consist of a pre-assessment and post-assessment. The pre-assessment and post-assessment have a rubric to check if they made progress by the end of the unit. The first lesson focuses on the vocabulary words *on top of* and *bottom* and the students create a map of their bedroom. The second lesson focuses on the three vocabulary words *above*, *under*, and *below* and the students create a map of their house.

The third lesson focuses on the vocabulary words *in front of* and *behind* and the students create a map of their street.

Each student has their own My Map Packet to create and keep all their maps in one packet. During the fourth and fifth lessons, the students create landforms and bodies of water out of clay and paint to complete their state map. The students do different interactive strategies to stay engaged while using the vocabulary words *between* and *next to*. The students create a treasure map after participating in a Jack Hartmann video of Goin' On a Treasure Hunt during the sixth lesson (Hartmann, 2016). They also describe their maps using the vocabulary words that they learned from the previous lessons.

The students use *Me On the Map* by Joan Sweeney as the example of how to create their maps (Sweeney, 1998). The book consists of a bedroom, house, street, and state map. The last lesson before their post-assessment is on their map of choice. In their packet, they decide to create their favorite kind of map. There is also a checklist to use during informal observations while the students describe their maps. Supplemental lessons for language arts, math, and physical education are also included in the project to give other educators ideas of how to use spatial awareness language in their content areas.

Relevant standards. The capstone project consists of a unit on spatial awareness language that is taught through social studies lessons. There is also a Kindergarten Minnesota state language arts standard that consists of prepositions that can help the ELs with using positional words. The Kindergarten Minnesota state standards are shown in the following tables.

Table 3

Kindergarten Minnesota State Language Arts Standard, 2010

Language Arts - Kindergarten
Language Usage
0.10.1.1 Demonstrate command of the conventions of standard English grammar and usage when writing and speaking.
Use the most frequently occurring prepositions (e.g. to, from, in, out, on, off, for, of, by, with).

Table 4

Kindergarten Minnesota State Social Studies Standard, 2011

Social Studies - Kindergarten
Geography - Geospatial Skills
0.3.1.1.1 People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.
Describe spatial information depicted in simple drawings and pictures. (e.g. up, down, left, right, near, far, back, in front of).

Framework

Theory of multiple intelligences. Howard Gardner's Multiple Intelligence was the theory that inspired my capstone project. Out of the eight multiple intelligences that Gardner explained which are visual-spatial, linguistic-verbal, interpersonal, intrapersonal, logical-mathematical, musical, bodily-kinesthetic, and naturalistic, the visual-spatial intelligence will be adapted into my project (Cherry, 2019). Currie (2003) described how

Gardner's theory could be used in a classroom to improve the learning of English as a second language. She stated that Gardner believed how people have different strengths through all of the intelligences and if combined, there can be major progress in an ELs learning.

The intelligence focused in this unit is visual-spatial because the ELs need to be able to interpret pictures, such as maps and charts. The ELs are to become aware of how to use tools such as maps and be able to describe where specific pictures are located on maps. Gaining knowledge in one intelligence can help the ELs in the other seven intelligences. For example, since they are building vocabulary using spatial awareness language, that can also help them develop their linguistic-verbal intelligence. They develop auditory skills and could be encouraged to say words and communicate more (Lane, 2011).

Even though this project was inspired by Howard Gardner's Multiple Intelligences, specifically the visual-spatial intelligence, Gardner explained that knowing all of the intelligences will increase the different ways to teach. Even though there are some issues with using Gardner's Multiple Intelligences, educators have believed that his theory encourages them to look beyond the narrow confines of the dominant discourses of curriculum. Multiple Intelligences also give support for diverse learners. Since the audience is Spanish-speaking ELs, Gardner's Multiple Intelligences supports other cultures and gives them another opportunity to learn in a different way (Smith, 2007).

Understanding by Design. For this unit, the Understanding by Design (UbD) framework was used to help the ELs come to an understanding of spatial awareness

language and transfer their learning to other content areas. According to Wiggins and McTighe (2011), UbD allows me to think purposefully when it comes to creating lessons that best suits the ELs background knowledge on spatial awareness language. With Gardner's spatial intelligence adapted into the project, the UbD framework starts with the long-term desired results for developing spatial awareness language. I started with the three-stage "backward-design" process of deciding on the desired results of what spatial awareness language I want the ELs to develop, what kind of evidence they need to show me to prove that they developed spatial awareness language, and how I planned to achieve the desired results (Wiggins & McTighe, 2011). At the end of the framework, I reflected on the learning of the ELs and made the needed adjustments to give better instruction.

Setting and Audience

According to the information provided by the Minnesota Department of Education (MDE, 2019), 40% of the students at the Pre-K-8 charter school for which this project was designed for were identified as EL, without counting Pre-K. When looking at the Pre-K home language survey, there were 30 out of 40 Pre-K students who speak another language at home. That would increase the percentage to 47% of students who speak a language other than English at home. MDE or World-Class Instructional Design and Assessment (WIDA) does not have data on Pre-K students because they have not yet agreed on a common assessment tool to use.

The demographics from the selected Pre-K-8 charter school provided by MDE in 2019 show that the top three race/ethnicity groups are: 41% of students are Hispanic or

Latino, 32% of students are Asian, and 13% of students are Black or African American. The reported languages spoken at the school are Spanish, Hmong, French, and Yoruba. According to the Kindergarten ACCESS School Frequency Report - 2019, 47% of the ELs were at the Entering proficiency level of Oral Language (50% listening + 50% speaking), 65% of the ELs were at the Entering proficiency level of Literacy (50% reading + 50% writing), and 71% of the ELs were at the Entering proficiency level of Comprehension (70% reading + 30% listening). This capstone project focuses on the speaking and listening domains which hopefully improve their scores in the Oral Language and Comprehension sections of the ACCESS test.

The setting is in a Kindergarten classroom, where all of the content areas are taught. The targeted students for this project are Spanish-speaking ELs, but the unit can also be used for other ELs and examples are given in a later section. I chose Spanish-speaking ELs because that is the dominant EL group in the school. Even though the unit focuses on Kindergarten standards, other educators who have ELs at a Kindergarten speaking or listening proficiency level can also use this to help with their spatial awareness language.

Unit Outcomes and Overview

The long-term goal for this project would be for the ELs to apply their spatial awareness language to other content areas. I want them to apply what they learned to other classes so it will be easier for them to comprehend other concepts. For example, in social studies, they can say during a map unit, “The tree is by the house.” In literacy, “The author’s name is on the bottom (of the front cover).” I have observed that in guided

reading groups during literacy stations, the ELs do not know where the bottom of the page is so they point to the title (which is usually on the top). In physical education, they can listen to directions, “Stand behind the yellow line.” The physical education teacher at the school where I teach at has told me that directions using spatial awareness language have been difficult for the ELs to understand. Once the students develop their spatial awareness language, they will have the ability to make cross-curricular connections.

The unit consists of social studies lessons that focus on reading a map and using positional words. The ELs were taught landforms in a previous unit, so this unit expands their knowledge on landforms, while introducing spatial awareness language. The lessons have two main objectives that include: recognizing where an object is in a given picture after listening to directions that include spatial awareness language and identifying where objects are in the given picture by using spatial awareness language.

The first objective focuses on the listening domain that will help them with oral language and comprehension. I want the ELs to listen to the positional words that I say and recognize where the object is located in the picture. The second objective focuses on the speaking domain that will help with the oral language. Besides listening to the spatial awareness language, I also want them to speak using spatial awareness language through guided and independent activities. There are whole group, small group, and partner activities for them to practice using their spatial awareness language.

Before teaching the first lesson, I planned on giving a pre-assessment to have a baseline of where they were with spatial awareness language. I wanted to see if they point to an object or would be able to say positional words in the correct context. The baseline

helps me plan better to see which lessons I should focus on more, whether it is the listening or speaking domain. The unit consists of social studies content, along with developing their spatial awareness language throughout the lessons.

Instructional strategies. To develop spatial awareness language, the ELs need visuals and hands-on experience. For visuals, I use posters, charts, the SmartBoard, the whiteboard, books and videos. The ELs draw or move objects in pictures to help them learn kinesthetically. I want them to be able to talk about what they are doing and do think alouds to help with their speaking and thinking. The think alouds are done during the whole group part of the lessons. The ELs do a turn and talk to get more practice with speaking and listening. Turn and talks are also done during the whole group part of the lessons. The ELs partner up, sitting knee to knee and say sentences using positional words in them. One partner speaks first, while the other listens. They take turns speaking and listening. Turn and talks (2012) are helpful for ELs because it gives them a chance to share their thinking in a low-risk setting. It allows them to have time to think about how to develop their oral language. The more they can talk out loud with their thinking process, the better it can help them. Verbalizing their thoughts will help the teacher, the other students, and themselves. I want them to participate as much as possible so they can be involved in the learning experiences.

After the ELs transition from whole group to small group there are other opportunities where they do more communicating with me rather than their peers. I do informal observations of listening to their language to see if they know how to correctly use positional words in sentences. The lessons are taught when a paraprofessional is in

the classroom to support the ELs with their language. I want them to be supported by having an interpreter for the ELs who need it. Explaining the directions or vocabulary in Spanish, as well as in English helps the ELs comprehension of the spatial awareness language.

There are multiple listening and speaking activities that are included in the project. The ELs listen to directions and then I see if they can comprehend the spatial awareness language. For example, I tell ELs to draw the mountain under the sun. I observe if they can complete the task. I also tell the EL to draw a tree next to the house. If they do it correctly, that shows their comprehension of positional words such as *under* and *next to*. After the listening activities, they participate in speaking activities. They look at a map and answer questions such as, “Where is the river? Where is the hill?” The ELs need to use their spatial awareness language to describe the location of the landforms.

Other activities would consist of using manipulatives such as clay objects and placing them in the correct spot on the map and participating in hands-on activities with small groups and partners. In partners, they orally share where objects are in pictures using spatial awareness language. At the beginning and end of the unit, the ELs take a question and answer (Q&A) assessment.

Assessments

Pilot assessment. As part of the project, I created an informal pilot assessment to see if the questions I asked were on target with my unit. Figure 1 is a visual of the pilot assessment. The rubric is listed in Table 5 and the questions are listed in Table 6.



Figure 1. Pilot Assessment Picture Activity

Table 5

Rubric for Pilot Assessment

Rubric:
2 - Says correct positional word
1 - Says incorrect positional word
0 - Does not say a positional word

Table 6

Questions from Pilot Assessment

Student	Question
Boy (entering Kindergarten)	Where is the sun?
	Where is the house?
	Where is the soccer ball?
Girl (entering 1st grade)	Where is the sun?
	Where is the house?
	Where is the soccer ball?
Boy (entering 1st grade)	Where is the sun?
	Where is the house?
	Where is the soccer ball?
Girl (entering Kindergarten)	Where is the sun?
	Where is the house?
	Where is the soccer ball?

Formative and summative assessments. The assessments that are part of the project include quantitative and qualitative information. From the observations I make and checking the pre-assessment scores, I can see how well they know how to use spatial

awareness language. In the pre-assessment, I ask them five questions and then I record which ones they answered incorrectly and see if there were any patterns.

Mackey and Gass (2005) described an assessment called Picture Tasks which is used in this capstone project (p. 89). This type of task can be used with a single individual whose task it is to put the story together on his or her own. I would give the students time to think about the story and gather their thoughts. I would also listen to how the ELs use their spatial awareness language. The ELs would answer questions about the maps that they look at. I would listen to their use of positional words as they describe where objects are located on the map.

Project Timeline

The timeline of this project development took place from July 2019 to May 2020. In the summer of 2019, I started to think of a topic that would interest me to do more research with ELs. Then I began to do research on spatial awareness language, Spanish-speaking ELs language development, and the effects and benefits of cross-curricular connections. In the fall of 2019, I was finalizing my first three chapters of the capstone project to get a concrete idea of how to create the project. I started doing research on how many ELs there were at the school I am currently teaching at, how many Kindergarteners were identified and ELs and checked on their ACCESS scores. After looking at the data, I realized that many of the Kindergarten ELs were at the entering proficiency level for listening and speaking. Instead of focusing on one domain for the project, I thought it would be better to focus on two domains.

In the spring of 2020, I developed my project. I created a unit, focusing on the social studies standard with the content of maps and landforms. I gathered materials that I wanted the ELs to use and thought of gradual releases activities to include in the lessons. In April of 2020, I completed my project that focused on spatial awareness language and how it can be used to make cross-curricular connections.

Materials. The materials that would be used are visuals that are student friendly and relatable to their culture. It's important to make real life connections to build a higher interest in learning. The visuals are pictures from books, videos, and other materials. There are positional words on vocabulary cards that are posted in the classroom so the students can refer back to them when describing what they see in each visual. For the assessments, the materials included are the questionnaires, checklists and rubrics.

Conclusion

The purpose of this chapter was to provide an overview of my capstone project and explain its rationale. The setting, audience, and outcomes were described to give more details to what the project will consist of. This chapter also provided the strategies and assessments that are used, as well as research theories that supported the need to do this capstone project. The final outcome of the project was described in the project timeline and materials sections. The next chapter reflects on my project's journey which focused on the research questions: *How can Spanish-speaking ELs develop their spatial awareness language? What role do cross-curricular connections play in developing spatial awareness language?*

CHAPTER FOUR

Conclusion

Introduction

To help teach the ELs spatial awareness language, I explored the answers to the research questions: *How can Spanish-speaking ELs develop their spatial awareness language? What role do cross-curricular connections play in developing spatial awareness language?* In order to answer the questions, I looked at data that related to ELs in the United States and Minnesota, breaking it down to more specific data of Hispanic ELs. I also reviewed literature on language development with Hispanic ELs, spatial awareness language strategies, and how cross-curricular connections were helpful in developing spatial awareness language. After reviewing the literature, I created a social studies unit that would help ELs develop their spatial awareness language. I also added ideas of how you can teach spatial awareness language in other content areas to make cross-curricular connections.

This chapter describes what I learned through this capstone project as a researcher and creator of a unit on spatial awareness language. It also recaps the literature that was reviewed to help answer the research questions. I discuss the implications and limitations that occurred in this project. In this chapter, suggestions of related research projects are mentioned and I explain how I applied the results to my teaching. Last, I describe how this capstone project was beneficial to the profession and the ELs.

Capstone Reflection

As I reflect on my professional and personal growth as a result of this capstone project, I am very satisfied with how the unit was created. As I started out planning the unit, I had too many ideas that did not flow or would not transition smoothly. I found various books and videos that would help the students develop spatial awareness language, but nothing seemed to flow smoothly from one lesson to the next. After I decided to stick with one book and base my lessons from that book, I saw more clarity in creating the unit. One map flowed into the next, with each one adding more details and objects to it. It is easier for the ELs to build off of one text than to listen to numerous texts that do not have any connections. The ELs need consistent visuals and repetition, so referring back to one map throughout the unit is beneficial for their learning.

For personal growth, I realized that after almost a decade of teaching, creating this unit was easier than I thought. Once I started writing the first lesson, I kept writing the others because the ideas were fresh in my mind and that helped with the smooth transitions. I have more confidence in creating a unit when a curriculum is not available. I also feel like I can create more units beyond a social studies unit on maps because of the knowledge that I gained throughout the years. Based on the state standards and my experience, I can think of various interactive strategies that would keep the ELs engaged to help develop their language in specific content areas. I feel like I am more willing to speak up and give my ideas to co-workers because of the confidence boost from this capstone project.

Major Learnings

As I was creating the unit, I realized that there are various types of ways to teach ELs spatial awareness language. Creating a social studies unit on maps is just one way, but spatial awareness language is used in multiple content areas. For language arts, I often tell the students, “Write your name on the top of the paper,” or “Start your sentence on the left side.” For math, a unit on 2D and 3D shapes can be intertwined with positional words. When I teach shapes and the students have to describe where objects are in a picture, they often use the phrases, “It is on top of the table,” or “It is between the cube and the cone.” Maybe in the 1st trimester, positional words are introduced in a language arts unit, but then positional words would be revisited in the 2nd trimester during a math unit. For all educators, it is important to know that spatial awareness language can be taught in various content areas.

Connections to Literature Review

From a researcher’s perspective, I learned how many factors there are that Hispanic ELs face with second language acquisition, which included poverty, lack of resources and support due to family members who are also an English learner (NEA, 2011). I also learned how the number of Hispanic ELs is growing in the United States, as well as in Minnesota. There are 45 states in the United States that have Hispanic ELs (NEA, 2011). Developing language that is unfamiliar with non-native English speakers can be a struggle for multiple reasons. As an educator, it is my job to best support them by learning about their culture and making connections. After reviewing literature on spatial awareness language, I learned that movement such as gestures and visuals were

helpful for students because they were repeatedly doing or seeing them in the classroom (Bottini, Bucur, & Crepaldi, 2016). Doing kinesthetic activities where ELs could also see the word posted helped them because they were using their cognitive skills. Along with the vocabulary word, I also put a picture next to the word to support the visual learners. Making a connection with the word and picture can be useful for the students because it will help them remember how some words are different than others.

Another connection I made with the literature review was how cross-curricular connections were beneficial to students. Brown (2016) gave an example of how cross-curricular connections can help ELs apply their spatial awareness knowledge in various classes. If the ELs are being taught shapes and how to describe where the shapes are located in a given picture during a math unit, the ELs can use their previous knowledge of spatial language to explain where a mountain is located on a map during a social studies unit. When a concept was reviewed in other content classes, the ELs could make connections which will reinforce their language development. Teaching lessons in various content areas helps the concept become interdisciplinary (Brown, 2016). Even though the concept is the same, how it is taught is not and that is also another way to differentiate for the Hispanic ELs. The ELs would have the opportunity to learn through various content areas. They might make better connections in one content area than another.

The literature has confirmed that the Hispanic ELs are struggling to understand specific vocabulary, such as spatial awareness language. Rivera and Waxman (2011) explained that beyond the previous factors already mentioned, motivation is another

factor that is associated with their struggle. Motivation to learn, do their work, or acquire a second language is a challenge for Hispanic ELs. It is suggested that making cultural connections is an effective idea to help make the students feel more welcome in a comfortable and trusting setting (Rivera & Waxman, 2011).

Learning about Howard Gardner's Multiple Intelligences has inspired me to do this project because he sets an example of how one intelligence can support another (Currie, 2003). I took his theory and applied it to how making cross-curricular connections can help the ELs retain spatial awareness language. Smith (2007) explained that Gardner's Multiple Intelligences supports cultures and gives them various opportunities to learn in different ways. For the ELs, depending on their proficiency level, I want to offer them the same thing, which is a unit that consists of differentiated lessons to best support their level.

Professional Significance

This capstone project is significant because it has the potential to help Hispanic ELs develop spatial awareness language. Learning spatial awareness language in Kindergarten can benefit the students because they could use what they learned and apply it to other content areas in future grade levels. Spatial awareness language is also used in everyday life such as *on top of*, *between*, *next to*, and *in front of*. Instead of having the ELs point to the location of an object or saying "here", they would increase the vocabulary that they use throughout their lives.

Implications. My capstone project has several implications in the areas of Hispanic ELs, ESL teachers, other content area teachers, and the development of spatial

awareness language. One implication is that the Hispanic ELs have the opportunity to learn spatial awareness language from a unit that is interactive. Instead of just listening to a story and talking about positional words in a whole group, the ELs would create something of their own to help them practice using their spatial awareness language. Also, they have the chance to create various kinds of maps to help them use their language in different instances. Besides drawing, they also have the opportunity to do more kinesthetic learning with cutting and gluing and creating landforms and bodies of water with clay. This capstone project includes the support of the classroom teacher, EL teacher, and paraprofessional so everyone can be involved in supporting the ELs with their new language development. This unit can be used in multiple grade levels, all depending on the proficiency levels of the ELs. The maps can also be modified to fit the ELs interest to make better connections.

After creating the unit, I thought of many ideas of how to teach ELs spatial awareness language. The ideas go beyond what is in this project because I also thought of how I can support other teachers such as Specialists who teach music or art. The art teacher could direct the students during a drawing lesson. The art teacher could say, “Draw a flower next to the house,” or “Draw a bee on top of the flower.” As long as the spatial awareness language is being taught throughout the school year, in different classes, the students are getting that reinforcement of the language.

Limitations. There were a few limitations that occurred when I was creating this unit. The number of adults in the classroom was a factor when creating the lessons. Ideally, the lessons would go as planned if there were three adults in the classroom

because they could offer language support and monitor behavior while the EL teacher delivers the lessons. If another teacher used this unit but does not have any extra support in the room, the independent activities might be difficult to manage, depending on their engagement and behavior. They could modify the lessons by teaching them in small groups that are pulled out of the main classroom. That would help the students be more attentive and focused. Also, depending on the class size and other accommodations that need to be made, this unit might be better if it is taught in the classroom or in a smaller room with a smaller group.

Another limitation I thought of as I was creating the unit was how the ELs fine motor skills were because they have to create clay pieces that either look like landforms or bodies of water. If the students struggle with creating things with their hands, then it might be difficult for me to identify what they created out of the clay. In the unit, I did partner them up so hopefully, at least one partner can create the clay land or water, while the other one can paint it. The other limitation I encountered was writing about the prior background knowledge when creating the state map lesson. If the ELs still struggled to learn about the different types of landforms and bodies of water, they might still have difficulty remembering what they were while creating the state map. If students create a river for the map but call it a pond, then they need to be re-taught the different types of landforms and bodies of water. A review of them could be included in a separate lesson prior to creating them out of clay pieces.

Future Steps

Before offering the unit to my colleagues, I would love to teach it to my own students. I am interested to see how this unit can show improvement from their pre-assessment to post-assessment. Also, I can see which lessons worked best and which ones I need to change or replace. I plan on offering this unit to other classrooms and EL teachers who are interested in using it. Even if they would like to use parts of it, either the strategies or templates that I created, I would be happy to offer my knowledge to them. There have been other content teachers who have asked me about how I teach spatial awareness language and now I have materials to share.

Conclusion

Prior to this unit, I was struggling with the idea of how to help ELs develop their language that would be useful in various content areas. I also thought about what kind of language they would need to learn that would help them in future grade levels. Spatial awareness language such as *on top of*, *between*, *next to*, and *in front of* came to mind because students use it on a daily basis in multiple content areas. That led me to my research questions: *How can Spanish-speaking ELs develop their spatial awareness language? What role do cross-curricular connections play in developing spatial awareness language?*

Exploring my personal and professional journeys throughout this capstone project has offered me more insight on ELs and their language development. After doing a literature review on Hispanic ELs and learning about their challenges that occur at home that factor in the challenges in school, I wanted to best support them with a consistent and

engaging unit. Researching about spatial awareness and how to teach it through movement and communication helped me develop this unit. Reading about cross-curricular connections also gave me more ideas of how to integrate spatial awareness language into multiple units. By creating this unit, I gained more knowledge on what kind of support ELs need to help them learn a new language. I set expectations of what I wanted the unit outcomes to be, how to gradually release the lessons and which assessments would be used.

In this chapter, I reflected on the process and what I learned from creating my capstone project and how it connected to the literature review. I also shared the personal and professional growth I made from creating this unit. Once the unit was complete, I discovered the implications and limitations which led me to the future steps that I would like to take that involved this capstone project. If I can support my colleagues, as well as the students with the unit, then I have succeeded. I am proud of the confidence that I gained from creating this unit because I can use it in my future teachings with ELs.

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