

Implementing Translanguaging with Multilingual ELLs in the Science Classroom

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Abstract

My experience working with teachers with little or no experience working with ELLs inspired the development of this capstone. This experience directed me to identify the problem I am addressing in this capstone. How can general education teachers implement translanguaging in science curriculum to support ELLs? Many content area teachers have not been formally trained in language acquisition strategies. For this reason, ELLs face linguistic and social emotional challenges as well as underperformance on assessments. For this reason, chapter 3 of this capstone is a PD in translanguaging targeted for middle school science teachers. The studies evaluated in this capstone revealed that translanguaging promotes the development of ELL students' academic and social language. Findings also showed that teachers used various translanguaging strategies in their classrooms to develop ELL students' comprehension, ability to engage in complex texts, content-based writing and their understanding of science content. Implications from the research point toward content area teachers needing to be formally trained and supported in using translanguaging with ELLs.

Keywords: ELL, translanguaging, L1, L2, metalinguistic awareness, pedagogy

Chapter 1: Introduction

Problem

English language learners (ELLs) make up the largest growing demographic in many school districts including mine. According to the U.S. Department of Education, National Center for Education Statistics (2019), ELLs are the fastest-growing student population group. By the year 2025, ELLs are likely to comprise 25% of the population of public school students in America. The increase of ELLs has highlighted the shortage of teachers with language acquisition pedagogy that work with ELLs. My experience working with teachers with little or no experience working with ELLs has led me to identify the problem I will be addressing in this capstone. In this capstone, I will be addressing the overarching questions: How can general education teachers implement translanguaging in science curriculum to support ELLs?

Terms and general key words used throughout this project include but are not limited to the following. First, English language learners or ELLs, are students who have a first language other than English and are developing proficiency in listening, speaking, reading and writing in English. According to Ellis (2012), L1 refers to a student's first language and L2 refers to any language other than the student's first language. Cummins (1981) developed the terms BICS and CALP. BICS are Basic Interpersonal Communicative Skills needed in social communication. CALP is Cognitive Academic Language Proficiency, which is the understanding of specialized and academic language needed to access content. In addition, translanguaging is a strategy that integrates the first language and culture as a way to develop a new language and understanding of a new culture. Professional Development or PD is ongoing teaching training in current research based theories, methods, and strategies that deepen pedagogy. Finally, pedagogy is the repertoire of strategies, best practices, techniques, methods, and theories that develop a teacher's

approach to teaching, learning, classroom management, and environment. A teacher is always reflecting and developing their pedagogy.

When content area teachers lack language acquisition strategies, it affects ELLs, bilinguals and multilingual learners' ability to gain content knowledge, develop academic language and feel successful. Wood et al. (2018) underscore when teachers feel unequipped to teach ELLs, they may look at this population of students as a burden. Often, teachers who do not know how to engage this diverse population of students neglect the needs of ELLs. Even so, all teachers are teachers of ELLs, so, all teacher should be have access to research based strategies to support the ELLs in their classroom through effective professional development.

Significance of the Problem

Many ELLs attend overcrowded schools with underqualified teachers. For that reason, as stated by Olivos and Sarmiento (2006), there are emerging and transitioning ELLs in content area classes receiving grade level materials is in a language they do not understand while being expected to reach the same grade level standards and pass the same high-stake assessments as their English language-speaking counterparts. Consequently, Ascenzi-Moreno (2018) found ELLs underperform their native English-speaking peers due to a lack of resources and qualified teachers in content areas.

What's more, teachers have biases, but they can change their mindset by confronting from where their bias stem. Lazar et al. (2012) pointed out that an educator can know the latest and best methods but if they do not recognize students limitless capacities, they will not see the brilliance that students from culturally and multilingual diverse communities bring into the classroom and will not serve them well. Wood et al. (2018) assert that many teachers feel their schools welcomed ELLs and incorporated cultural diversity in the school environment. However,

many teachers do not want ELL students in their classrooms giving reason to their lack of professional development or in-service training for working with ELLs.

Lastly, there are many issues with the assessments of ELLs. One example asserted by Figueroa et al. (2013), due to educators not having a grasp of language acquisition and using improper testing techniques, ELL students are misdiagnosed with having special needs. ELLs are not tested based on their cumulative knowledge using both languages, but based on what they know in only one language. This issue is producing invalid assessments of students' academic potential. According to Cummins (1981), a student's academic skills in their first and second language are interdependent. He explains that students will become fluent native speakers in one to two years (BICS) but it takes five to seven years of immersion for the student to have native speaker academic fluency (CALP). Even more than this, a student needs to develop a common underlying proficiency (CUP), a basis for language development in the L1 and the L2. This basis of metalinguistic knowledge works in tandem with the L1 and L2. It is important to understand that even when an ELL has acquired enough fluency in the target language they still are in the process of catching up to their peers' academic fluency. It is important to see this as normal language development and not a learning disability.

Purpose

To begin with, it is important to note that although ELLs are viewed as a needy group of students due to historically low-test scores, when in fact as noted by Lazar et al. (2012), ELLs come equipped with a plethora of knowledge that can be used as tools in the classroom. Content area teachers need training in the best practices and strategies that support the ELLs in their classrooms. Translanguaging is a strategy that all teachers can use in their lessons to reach ELLs in content area classrooms with or without ESOL teacher support.

Duarte (2016) sees translanguaging as an active method in which, multilinguals facilitate complicated social and cognitive undertakings by way of the tactical employment of their many semiotic assets. Translanguaging uses different languages together to support learners to become proficient in the intricacies of a single language. According to Vaish (2018), Translanguaging is an umbrella term that consists of “code switching, translation, bilingual recasting, and language brokering. One language supports the development of the other” (Gort & Sembiante, 2015, p 7). Translanguaging is an effective and valuable strategy for teachers of ELLs. Likewise, Seltzer and de los Ríos (2018) suggests that adopting a translanguaging pedagogy combats linguistic challenges ELLs may face in the classroom that relate to how languages are learned, socio-cultural impacts on ELLs and complexity of assessment and evaluation of ELLs.

For the purpose of this capstone project, I will write and present a professional development on how to use translanguaging strategies to create and adapt the existing science curriculum to be more culturally responsive. In addition, the audience for this PD is general education teachers working with ELLs in middle school science classrooms in my building. The PD will introduce teachers to translanguaging, the benefits of integrating translanguaging into their lessons and classroom environment, as well as specific strategies they can use immediately. The PD will disseminate current research in translanguaging in order for teachers to understand the rationale of translanguaging as a valuable strategy, and provide the opportunity to apply the strategies directly into their classroom environment, unit, and lesson plans. This PD could take place in my classroom starting in the summer and continuing the first three months of school. The PD will consist of four 2-hour sessions. In each two-hour session, one hour will be used to understand a planned strategy or technique and the second hour; teachers will collaborate in grade level bands to apply learned strategies.

Conclusion

In conclusion, due to the increase of ELLs in schools, all teachers need to have access to effective, research based strategies to be able to meet the needs of this growing population of students. As viewed by Zacarian et al. (2017), teachers need to shift their mindset to look beyond what their ELLs may be lacking to find what strengths the students already possess. To do this as teachers, we must see the strengths that exist within our ELL students and respect, value, and acknowledge the significance of their strengths. Furthermore, teachers will need to help each student become aware of his or her assets and construct instruction that increases community ties by drawing from students' strengths.

This Capstone will have four chapters. In chapter 2, I will review and evaluate the current research on Translanguaging as a strategy for ELLs. Next, Chapter 3 will be a PD in translanguaging designed for middle school science teachers of grades 6 through 8. Then, Chapter 4 will discuss the implications for student learning and teaching, recommendations and final thoughts. In addition, I will also include Appendix A: which will contain all materials for the PD.

Chapter 2: Literature Review

Theories Relevant to the Problem

Definition

Translanguaging is a term coined by Welsh educator, Cen Williams. Lewis et al. (2012) noted that translanguaging refers to the various ways multilinguals use language. Translanguaging is a way language learners' use one language to reinforce the other as a means to expand their understanding and augment their aptitude in both languages. Language learners internalize unfamiliar concepts they hear, allocate their individual understanding to the idea while synchronously employing the new concept in their other language. Gort and Sembiante (2015) clarified that "Translanguage includes code switching, translation, bilingual recasting, and language brokering. One language supports the development of the other" (p 7). Moreover, Lewis et al. (2012) added that translanguaging is more than the naturally occurring code switching because it is planned and systematic.

Principles and Tenants

Translanguaging is a research based pedagogical practice with value in the application within any classroom with ELLs (Ascenzi-Moreno, 2018; Garza et al., 2017; Garcia et al., 2017; Infante & Licon, 2018; Lewis et al., 2012). The research of Lewis et al. (2012) endorsed translanguaging as a valuable pedagogic theory that supports a cognitive process of language interchange with significant educative tenets. They acknowledge that academic language is challenging for ELLs. However, they recognize that it is central for growth in understanding scientific ideas. Likewise, Garza et al. (2017) noted that the degree of opportunities in which ELLs are given to interact with academic language is parallel to their level of understanding. In the same line, Ascenzi-Moreno (2018) underscored how translanguaging highlights the ELLs' internal perspective, which they select, features from their unique and singular linguistic gamut.

Translanguaging makes the use of one language to fortify the other in effect to increase understanding while cultivating both languages. The research of Lewis et al. (2012) found that ELLs receive new information and relegate their personal connection to the information while assigning meaning in their other language(s).

Moreover, Garcia et al. (2017) advocate for all teachers of ELLs to adopt a translanguaging pedagogy to ensure congruence between their lives inside and outside of school. Garcia et al. found that making space in content area classrooms for ELL's multilingual and bilingual repertoires allow them to engage fully in the content, develop deeper understanding of the material while developing their social and academic linguistic practices. As a final point, Ascenzi-Moreno (2018) discussed the value in adopting translanguaging into pedagogy to support ELLs' language and content learning. Ascenzi-Moreno affirmed that the practice of translanguaging uses several cognitive processing skills in listening and reading, the adaptation of information, selecting from the brain storage for communication in discourse and writing. Ascenzi-Moreno concluded that translanguaging surpasses language borders by encouraging students to make meaning of written texts utilizing the full span of their social and language resources.

From a sociocultural perspective, Canagarajah (2011) finds that translanguaging is an effective and facilitative technique for language learning and that the concept of translanguaging has highlighted the essential role that ELLs' linguistic and social resources have in their learning. Likewise, Lin, (2018) connected that a child becomes socialized through the social cultural community in which they are born. They learn how to feel, act, think along with speaking and relate. As a final point, according to Ascenzi-Moreno (2018), a translanguaging lens provides

teachers with a novel way to understand students' language practices as dynamic and as socially constructed.

Summaries of Research

To begin with, Pacheco and Miller (2015) researched pedagogies that engage ELLs' first languages in the literacy classroom. Their research showed how translanguaging strategies that use ELLs' first language enables academic success in English. The authors observed three elementary teachers who had ELLs with a variety of first languages in their classrooms. The teachers from this study did not speak the students L1; however, they successfully incorporated the L1s of the ELLs into their instruction in creative and inventive ways. Samples from this study showed the value in a translanguaging pedagogy to support language learning and cultural inclusion.

Garza et al. (2018) compared middle school science teachers' pedagogy. The focus of this study was to show how a pedagogy could influence ELLs' science and language achievement. The results from this study showed how the treatment group of teachers, teachers who applied translanguaging strategies developed during in-service training, had more positive results than the control group of teachers, the teachers who did not receive formal training. The treatment group of teachers delivered activities that supported written and oral interaction among the students combined with the rich use of cognitive language throughout inquiry based science instruction. Garza et al.'s findings uphold the significance of the effective use of language in the science content classes successfully facilitates the development of ELLs' understanding in both science and language.

Next, Sayer (2012) studied how bilingual teachers in Texas used the home language of their ELL students (TexMex) to arbitrate academic understanding and L2 acquisition. Sayer observed

the language practices of a transitional bilingual second-grade classroom. The data gathered and analyzed from this study suggested that the subjects (teachers and students) moved fluidly between Spanish, English, and the academic objective target vocabulary. Sayer's findings showed that translanguaging through the ELL student's bilingual repertoire allowed the participants to engage with the social meanings within the academic content to develop a deeper understanding of the content.

Lin's (2018) analyzed translanguaging practices in middle school content-based classrooms as a strategy for ELLs to construct content meaning. The researcher analyzed past classroom observations from their previous studies and applied more recently developed translanguaging theories. Lin analyzed lesson excerpts from a socio-cultural translanguaging lens. Lin found that allowing ELLs space for spontaneous translanguaging facilitated ELLs in the construction of content meaning and the expansion of their linguistic repertoires.

In addition, Vaish's (2018) research focused on the implementation of a translanguaging strategies with second graders in three bilingual school in Singapore. The teachers from this study used ranslanguaging to teach ELLs reading skills in English. Vaish observed an efficient and thoughtful use of the ELL's L1 to teach English vocabulary, grammar, and comprehension. Vaish analyzed 14 hours of film to look at teachers' pedagogical strategies as well as the individual responses of the ELLs. The study revealed the value of translanguaging to construct ELL's metalinguistic awareness of the distinctions in syntactical structures, spelling, punctuation, and meaning.

Duarte (2016) studied video-recorded interactions of 59 tenth grade ELL students in content area classes across four schools. Durante used a translanguaging sociocultural lens to analyze how the students in the study scaffold each other during group discursive interactions. The

outcomes of the study highlighted “exploratory talk” as a multifunction translanguaging tool for cognitive engagement, development of content understanding, and academic language development in a casual low-pressure learning space.

Next, Mazak and Herbas-Donoso (2014) studied the translanguaging practices of a science professor in a bilingual college. They observed 11 classes, analyzed the professor's presentations, assigned readings, as well as the students' assessments. Their observation datum captured a multitude of translanguaging strategies woven into the professor's instruction.

Karlsson et al. (2018) studied the use of translanguaging, from a sociocultural lens, in a multilingual primary science classroom. Their study comprised of three years of monthly science lesson observations. The analysis of their data focused on the ELLs' practical use of their linguistic repertoire as a means to understand and contextualize the science content. Karlsson et al. evaluated how students navigated between their L1 and L2 within the discourse of the group work to construct content understanding. The results demonstrated how the use of translanguaging in a science classroom created a resource for ELLs within the discourse of the scientific content, which aided in their capacity to create a context of the science content and connect it to prior knowledge.

What's more, Lara-Alecio et al. (2012) examined the outcomes of a translanguaging intervention curriculum used with ELLs by comparing the science and English reading standards-based assessment results of two groups of students. One group of students received an intervention that involved on-going teacher professional development, science lessons integrated with reading and writing, direct and explicit vocabulary instruction, and inquiry-based learning. The results Lara-Alecio et al. yielded from the study favored the group that received the intervention. This group performed higher than the group who did not receive the intervention in

all district-wide science and reading tests as well as on standardized oral reading fluency assessments.

Canagarajah (2011) analyzed the use and effectiveness of an ELLs' translanguaging strategies applied in her essay writing. The study tracked the development of the student's proficiency in English through the analysis of her writing samples. Through this study, Canagarajah shows how the classroom culture, teacher and peer feedback assisted in developing her writing, critical thinking, and expanded her metacognitive awareness.

Lastly, the study by Pontier and Gort (2016) collected observational data of the instruction practices of a dual language bilingual co-teaching team. The researchers studied how the co-teachers cohesively used their bilingualism in tandem with translanguaging strategies toward shared instructional objectives over the span of an academic year. The systematic and consistent planning and cohesive use of their bilingualism within co-teaching models supported ELL's language development and content understanding.

Translanguaging as a Solution for Language Learning

Translanguaging and Metalinguistic Awareness

Translanguaging is a natural language practice used in the communication of multilinguals. Cenoz (2017) sees this holistic view of multilingualism as a part of an evolving paradigm. ELLs naturally weave between their native language and English while making meaning of their environment. ELLs cleverly access certain parts of their linguistic repertoire depending on the situation. A common finding in studies of translanguaging was a metalinguistic awareness (Ascenzi-Moreno, 2018; Cenoz, 2017; Hadavi & Ghashang, 2015; Karlsson et al., 2018; Vaish, 2018). Vaish (2018) saw translanguaging trigger metalinguistic awareness through interactions rich in translanguaging resulted in more nuanced prose produced by students and revealed that translanguaging resulted in self-regulation during the planning, drafting, and production in

writing. Hadavi and Ghashang (2015) stated that the doctrines of Universal Grammar are inherent to the mind; they do not have to be taught or learned because the learner automatically applies these principles to any new language.

Translanguaging facilitates an ELL's use of their knowledge package, allowing them easier access to acquiring English while strengthening their content understanding. Duarte (2016) analyzed interactions among ELLs that involved exploratory talk and translanguaging. Duarte's analysis established that ELLs employ their multiple linguistic resources to approach cognitively demanding tasks. The ELLs from this study used translanguaging to paraphrase the task and negotiate to build on each other's ideas in order to achieve a better understanding of their expectations. Vaish (2018) noted that ELLs use their multiple linguistic resources to approach cognitively demanding tasks.

Translanguaging through Discourse

Additionally, Canagarajah (2011) found that translanguaging has been valued and frequently used during learning that involves collaboration, it is valuable in many aspects of learning, including, comprehension during individual reading. As well, Vaish's (2019) research established translanguaging helps close the gaps in reading and writing. Celic and Seltzer (2011) claim that translanguaging increases metalinguistic awareness specific to print, phonology, and meaning. When languages are put alongside each other, students develop an awareness of features of each language.

Through observing translanguaging strategies, Lin (2018) saw the function in which language played in a content-based classroom was not as much about supplying ELLs with targeted language and grammar to process and repeat as it is for imparting resources for ELLs to co-construct meaning and understanding of the world by means of dynamic activities. In a translanguaging-based classroom, Lewis et al., (2012) believes it is tougher for ELL students to

respond to questions verbally or in their writing about a topic without their full understanding of the topic. For the reason that when an ELL student reads about a topic and discusses it in one language followed by writing about it in another language, they exhibit their comprehension of the subject matter.

Likewise, the participants from Martin-Beltrán's (2014) study used all of their linguistic means as a unified repertoire during corporative work. The ELLs from this study also used translanguaging practices as a way to traverse amid their comprehensive linguistic competences when they were tentative in what mode to articulate themselves in one language alone. While ELLs circumnavigate amidst two or more languages they create an understanding of new ideas they hear. In this way, translanguaging is an immediate and natural process, enabling ELLs to increase their understanding while expanding their abilities in their L1 and L2. This method as Lewis et al. (2012) found, has important educational outcomes because the process of translanguaging "requires a deeper understanding than just translating as it moves from finding parallel words to processing and relaying meaning and understanding" (p. 644).

Lin (2018) elucidates ELLs have a wider linguistic range that they can draw from than monolinguals. The research of Karlsson et al. (2018) implies translanguaging strategies promote the instructional language to move between scientific and everyday discourse by the way of the students' L1 and the language of instruction. In addition, Karlsson et al. observed an ELL use her first language in response to another learner's linguistic preference to facilitate a deeper understanding of the content to assist the meaning-making process and better develop English.

The study by Martin-Beltrán (2014) showed evidence of student learning in the way that ELLs adopted written or verbal English. ELLs were observed negotiating with their peers through translanguaging. Martin-Beltrán noticed that the translanguaging practices differ

amongst the speakers and context. For instance, in some cases, the speaker fluidly traversed amid their two languages to make logic of meaning and form in their prose. In other examples from Martin-Beltrán's research, the speakers may have articulated a phrase using only one language; however, their peers either replied using another language, or indicated an understanding of one language by replying in the other. Sayer's (2012) research found that translanguaging strategies help teachers understand that ELLs' discourse as a part of their process to make sense of their learning.

Ascenzi-Moreno (2018) found when a student reads in English and thinks about what they are reading in their first language, the student takes part in the reading process by recalling past experiences, already learned skills and abilities by means of their complete linguistic and social repertoire. ELL students' usage of translanguaging practices opened course-plotting spaces for them to contemplate various perspectives and augment conceptual and linguistic understanding. For example, Martin-Beltrán (2014) observations found that ELLs drew upon translanguaging as a tool to contemplate, assess, and affirm their choice of formulation.

Lastly, Mazak and Herbas-Donoso (2014) observed a professor in a bilingual science college class used translanguaging discourse in his student's L1 (Spanish) to build upon his students' content knowledge and academic language in their L2 (English). The professor embedded translanguaging techniques into his lessons by presenting the content in English using a power point presentation and used Spanish as a tool for discussing, analyzing and reflecting on the presentation.

Translanguaging as a Solution for Socio-Cultural/Socio-Emotional Issues

Classroom culture has an impact on learning. Wood et al. (2018) interviewed many teachers who felt their schools welcome ELLs and incorporated cultural diversity in the school

environment. However, many teachers do not want ELL students in their classrooms giving reason to their lack of professional development or in-service training for working with ELLs. The implications from Sayer's (2012) found that a translanguaging approach is a valuable strategy to use in content area classrooms to increase language acquisition and content understanding while building a bridge between students identifies. Moreover, Ascenzi-Moreno (2017) found that because translanguaging classrooms are inclusive, language rich and interactive, they foster collaboration, participation, and creativity in students by allowing them to use all of their linguistic assets. Cenoz (2017) is certain that a translanguaging pedagogy targets the development of language, academic, communicative and metalinguistic awareness. Likewise, Sayer (2012) sees translanguaging as more comprehensive than an instructional approach. Sayer sees that the way language is used in these classrooms, during the discursive practices of teachers and students, ignites active engagement for both academic and nonacademic purposes.

Translanguaging as a Medium for Socialization

Furthermore, Lin (2018) asserts that language is a resource for participation. The participants from Martin-Beltrán's (2014) study used all of their linguistic means as a unified repertoire during corporative work. Ells from this study also used translanguaging practices to facilitate meaning making by way of their expansive linguistic competencies when they were ambivalent in what way to articulate themselves. In the same light, Sayer's (2012) study showed that translanguaging not only supported the ELL's acquisition of scientific vocabulary but also served as a medium of socialization, allowing students to view themselves as capable individuals in a collaborative setting within the science classroom. Celic and Seltzer (2012) noted that translanguaging forms a pedagogical methodology in which the complete extent of ELLs' cultural and linguistic assets are invited and valued in their education.

Translanguaging to Bridge Cultures

Lewis et al. (2012) believe that educators who utilize a translanguaging approach in a classroom with ELLs encourage students to develop a deeper understanding of content, improvements in English, facilitates a home-school connection, and integrates fluent speakers with ELLs. Sayer's (2012) study shown how effective use of translanguaging allows for teaching standard forms of English using vernacular, using vernacular to facilitate understanding of academic language, infuses cultural pride, awareness and value.

There are many benefits for teachers of ELLs on behalf of adopting translanguaging into their pedagogy. As stated in Ascenzi-Moreno's (2017) article, translanguaging brings attention to the pedagogical value of encouraging students to use their complete linguistic range to interact with classmates and traverse the high demands of learning content in a new language. Hence, Lewis et al. (2012) maintain that translanguaging is an important facilitator of home-school links and co-operation. Likewise, Ascenzi-Moreno (2017) noted "When students' home languages are both valued and used productively in school, students have opportunities to access content, engage in critical thinking, and receive the vital message that their language practices and lived worlds are essential to their academic and social development in schools" (p.283).

It is important to create a culturally inclusive classroom for diverse learners. Hanna (2017) claims that a way teachers can to empower ELLs is to take pride in their cultures. Teachers can integrate cultural aspects into their classroom environment and culture by tagging classroom objects in other languages and encouraging parents to embolden cultural affirmation at home. Cultural inclusive classroom environments embrace a sense of diversity while creating a feeling of community. Another strategy Canagarajah (2011) found effective is pairing ELLs with a monolingual learning partner. This practice inspires partnership, reciprocal respect, and solidarity. Duarte (2016) found that a translanguaging classroom has the ability to balance the

power-relations amid languages in the classroom. This balance protects and promotes minority languages, which promotes confidence, motivation and empowers the language learning which increases cognitive engagement in content learning.

Translanguaging as a Solution to Improve Assessment Results

ELL students are often misdiagnosed with having special needs due to a lack of understanding of language acquisition and proper testing techniques, Figueroa et al. (2013) explained that ELLs are not tested based on their cumulative knowledge using both languages, but based on their knowledge in only one language. Flores and Rosa (2015) found that when ELLs are struggling more than most, a teacher unfamiliar with language acquisition might not properly identify what is causing the difficulty. Pandya (2012) noted that is important to understand that even when an ELL has acquired enough fluency in the target language they still are in the process of catching up to their peers' academic fluency. It is important to see this as normal language development and not a learning disability.

According to data collected by National Center for Education Statistics (2019), ELLs underperformed their native English-speaking peers in science achievement scores. Next Generation Science Standards (2013) state that science education needs to be within reach to all students for our country to remain technologically literate to compete in a global marketplace. Ascenzi-Moreno (2018) claimed that when a teacher only allows students to think and participate in one language, it reduces their ability to comprehend, connect to, and express understanding.

Translanguaging and Academic Language Proficiency

ELLs take proficiency tests that measure how well students use conversational English. However, Flores and Rosa (2015) stated ELL's knowledge of academic English is most essential to their success in school. ELLs are often considered proficient based on their conversational

English when they lack the language skills they need to think critically about what they read and experience. This issue causes ELLs the difficult challenge to catch up to their peers. According to Cummins (1984), a student's academic skills in their first and second language are interdependent. He explains that students will become fluent native speakers in one to two years (BICS) but it takes five to seven years of immersion for the student to have native speaker academic fluency (CALP). Additionally, a student needs to develop a common underlying proficiency (CUP), a base for language development in the L1 and the L2. This base of metalinguistic knowledge works in tandem with the L1 and L2.

Translanguaging Pedagogy and Science Achievement

All teachers need to understand how an ELL's proficiency develops. The study by Lara-Alecio et al. (2012) analyzed the pedagogical practices of teachers in a science and language intervention classroom focused on ELLs improved achievement in science and language. Alecio et al. found that pedagogical practices that improve ELL's science achievement provided strategic guidance alongside language rich student centered activities. Ascenzi-Moreno et al. (2015) argued that theoretically founded professional development has the ability to transform ideological and structural language policy that a conducive to improved learning for ELLs. Garza et al. (2017) found that the effective use of language in the science classroom improves ELLs' science and language achievement. Seltzer and de los Ríos (2018) believe that the use of translanguaging strategies in instruction, particularly at the secondary level where students are held to ever more rigorous educational expectations, is without doubt, imperative to move beyond the "sink or swim" methodologies.

Translanguage strategies invite ELLs to share their diverse language practices and analyze the dominant language ideologies that portray those practices as deficient. Teachers must actively

engage in fully seeing students for who they are and what they believe from their perspectives. The research by Infante and Licona (2018) underscored fostering learner scientific discursive practices through a translanguaging approach that considers flexible language practices and linguistic responsiveness with multilingual learners in science classrooms.

Last of all, the intervention group of teachers from Garza et al.'s (2017) study created learning activities that promoted verbal and written interaction among the students and dense cognitive language use during inquiry based instruction and found the importance of effectively using language in the science classroom to improve ELLs' science and language achievement. Daniel and Pacheco (2016) described how ELLs actively use their home language as a strategy to construct understanding of the content. Canagarajah (2011) believes that reassuring students to speak and write in their first language offers prospects of clarifying misconceptions, making connections to their background knowledge and displaying their comprehension.

Empirical Findings that Directed the Present Culminating Project

Translanguaging Practices that Create Space for Discourse

Creating a natural language space for students through collaborative and cooperative learning is an effective translanguaging strategy. Martin-Beltrán (2014) observed students using translanguaging practices as a way to meet halfway between their diverse linguistic expertise when they were unsure how to express their meaning fully in one language alone. In this way, ELLs use their multiple linguistic resources to approach cognitively demanding tasks. Vaish (2018) observed students' translanguaging to paraphrase a task and build on each other's ideas by negotiating, agreeing and disagreeing. Next, Sayer's (2012) observational data illustrated how translanguaging allowed students from his study to display their inner knowledge to facilitate peer understanding of academic content. Lewis et al. (2012) claimed that translanguaging benefits the integration of fluent speakers with early learners. A strategy observed in Ascenzi-

Moreno's (2018) study was allowing ELLs to listen to a read aloud in English, but participate in a turn-and-talk about the story in their home language.

Lara-Alecio et al.'s (2012) research identified effective translanguaging teaching and learning practices in the science classroom. It is effective to introduce vocabulary and concepts in a way that allows for exploration and construction of new knowledge. Translanguaging classrooms build a routine use of collaborative learning groups. Students are encouraged to use their linguistic repertoire in their science notebooks. Lastly, the academic language that is modeled by the teacher and used by the students alongside the ELLs' native language(s) supports learning outcomes and facilitates language learning.

Translanguaging Practices Associated with L1 Supporting Acquisition of L2

An example from Pacheco and Miller's (2015) research showed how translanguaging strategies that use ELLs' first language enables academic success in English. One teacher from this study used different newspapers written in the first languages spoken by the ELLs in the classroom to teach text features. This strategy used the students' first languages to build conceptual understanding of text features. Another teacher from their study used the ELLs' first language to demonstrate his or her comprehension of an English text. Additionally, within this lesson, she thoughtfully paired students at different levels of L1 and L2 proficiencies. The students worked in pairs to support each other in co-constructing a bilingual book. The last teacher from this study had her students create bilingual E-books about their family and culture. This activity helped develop a metalinguistic awareness as well as valuing the students' cultures. These examples demonstrate the value of a translanguaging pedagogy to support language learning and cultural inclusion.

Another effective strategy from Infante and Licona's (2018) study was a bilingual science teacher's flexible and deliberate use of Spanish and English to promote her learners' accessibility

to the science curriculum. She offered learners with different language proficiency levels opportunities to generate lines of reasoning that link the evidence to the claim. Ms. Romero achieved this by modeling her process. She asked herself open-ended questions in English, modeled her thinking process in Spanish and her written product was co-constructed with her students in English. This strategy demonstrated the production of her scientific claim while meeting language needs her students. She mediated her ELLs' ability to extend the use of everyday language to the academic terms needed to be successful in their science classroom.

Translanguaging Practices Associated with Socio-Cultural/Socio-Emotional Support

There are great social emotional ramifications for adopting translanguaging strategies. Blad (2018) found that ELLs are often marginalized from conventional American adolescence communities. Social division during adolescent years has been found to decrease self-esteem, sense of belonging, and ethnic pride. Rowe (2018) believes that teachers can use translanguaging strategies to value the languages and cultures of their students by holding discussions about different languages and cultures, reading diverse and bilingual or multilingual children's literature, and involving families and communities in the classroom.

Furthermore, Ascenzi-Moreno's (2018) study found value the importance of opening up opportunities for translanguaging in the classroom sends an important message to ELLs that their multilingual practices and their experiences are essential to their development as meaning makers. Rowe (2018) adds that a multilingual audience creates an inclusive and accepting classroom environment. Teachers can include family and community members, students and teachers from other classrooms, school staff members and administration.

Translanguaging Practices Associated with Developing Pedagogy

Hadavi and Ghashang (2015) described our understanding of first language grammar is

in the context that we see grammar in any other language we learn. All other languages we learn funnel through our understanding of our first language. Similarly, Martin-Beltrán (2014) findings revealed how students often drew upon translanguaging practices to engage in sophisticated literacy work and grapple with linguistic problems. These examples, according to Ascenzi-Moreno (2017), prove that when teachers consider the resources that their ELLs bring to school, it has the potential to unravel the manner in which the teachers view them and better attune their instruction to address their students' needs.

To sum up, Lewis et al. (2012) stressed that using the importance of the use of two languages for teaching and learning inside the same lesson. ELLs read, write, learn, and communicate; they draw on diverse linguistic features and resources from a distinct linguistic catalogue. Karlsson et al. (2018) recognized how language learners' first and second languages appear interwoven. According to Lewis et al. (2012), it is important to note that translanguaging is a deliberate methodology that is planned, developmental and strategic. Rowe (2018) suggested that even teachers who do not have prior could support their ELLs experiences of writing by phonetically using letters of the English alphabet to form words in their stronger language.

Evaluation

Pedagogical Practices

Lara-Alecio et al. (2012) asserted that pedagogical practices contribute to positive student learning outcomes of science and language achievement. When these practices are implemented, they could close the achievement gaps in science classrooms. These practices consist of inquiry-based learning that permit students verbal communication, direct and explicit instruction of academic vocabulary, the use of science notebooks to allow students' opportunities write using academic language with supports of their native language. In addition, Rowe (2018) found that many ELLs have experiences of translating for their family within the community. Hence, ELLs

should be encouraged to use their translation skills as a resource within the classroom

Cultural Considerations

Moreover, there needs to be cultural considerations in an ELL's classroom. Hermann (2015) ascertained that certain skills might manifest in diverse ways in different cultures, particularly in terms of how people appropriately respond to them, and the gestures and body language related with the skills. Rowe (2018) found that when ELLs participate in authentic activities that comprised of communicating with bilingual speakers or audiences in their first languages, they are likely to use their translanguaging skills as they generally would in their daily lives. In every classroom, it is imperative to build a community and teach tolerance. Blad (2018) advocates that translanguaging is vital in any classroom but within today's political climate and with regard to ELL's feelings as well as the understanding of the general population, it has become extremely necessary.

Limitations

Unfortunately, Ascenzi-Moreno (2017) found that even with the growing research affirming that translanguaging pedagogy supports ELLs educationally and on a social basis, there are cautions that its value across contexts may not be certain. There are limitations within an ELL's dual language competence. Lewis et al. (2012) argued that translanguaging is more appropriate for ELLs who have a reasonably good grasp of both languages, and may not be valuable in a classroom when children are in the early stages of learning and development of English. In addition, Canagarajah (2011) claimed that even though translanguaging is naturally occurring for ELLs and certain aspects occur with minimal pedagogical effort from teachers. It is important to remember that without teacher awareness and strategic planning, the multilingual practices of the students will be shrouded in grammatical errors due to transference.

Taking a Translanguaging Stance

As a final point, to serve the academic and social needs of ELLs, teachers must possess not only the pedagogical skills that will make their instruction meaningful to second language learners, but also the personal clarity to understand their roles as nurturers, mediators of culture and advocates for low-performing student populations. Olivos et al. (2006) assert that teachers need to be versed in the fundamentals of second language acquisition; including strategies that will make instruction meaningful as well have an understanding of the use of the native language for the development of literacy skills and cognition in language-minority students. The findings from research by Ascenzi-Moreno et al. (2015) established that an unsupportive school community has the ability to mute the positive effects of translanguaging practices. School leaders have the lofty task of creating and implementing language education policies. However, Ascenzi-Moreno et al. noted that translanguaging pedagogies have positive influence on the ideologies of school leaders. The translanguaging scope provides educators with a growth mindset and replaces the traditional view that ELLs are language deficient with a view that values their first languages as a critical linguistic resource.

Conclusion

The research evaluated in this chapter provides evidence of the power that a translanguaging pedagogy brings to a classroom with ELL students. With thoughtful and careful planning, content area teachers can develop lessons, activities, and a classroom space for ELLs to utilize the full spectrum of their linguistic knowledge. Cultivating a translanguaging approach will allow ELLs to engage in complex texts, demonstrate their understanding in their writing, use academic language in discourse and become more proficient in the English language. Chapter 3 of this capstone provides middle school science teachers with the tools for integrating a translanguaging approach into their pedagogy.

Chapter 3: Professional Development

Introduction

Rationale

The increase of ELLs has highlighted the shortage of teachers with language acquisition pedagogy that work with ELLs. My experience working with teachers with little or no experience working with ELLs has led me to identify the problem I will be addressing. In this Professional Development, *Translanguaging for Middle School Science Teachers*, I will be addressing the overarching questions: How can general education teachers implement translanguaging in science curriculum to support ELLs?

Overview

This PD will have four sessions and meet in my classroom, monthly on Thursdays. The sessions are 2 hours. The first hour, we will discuss teachers' experiences working with ELLs in relation to the outcome of the session, strategies they have used, discuss translanguaging research and strategies, and decide what strategies are relevant to their classrooms. During the second hour, teachers will work with science teachers from their grade level to apply the strategies to their classroom environment and/or upcoming lessons or units.

The objective for Session I is for teachers to understand what translanguaging is and how to apply it to a science classrooms' learning environment. Next, the objective for Session II is for teachers to understand how translanguaging strategies assist ELLs when reading complex texts and to apply the strategies to science lessons. Then, the objective for Session III is for teachers to understand how translanguaging strategies help ELLs demonstrate their understanding in their scientific writing and apply the strategies to science lessons. Lastly, the objective for Session IV is for teachers to understand how collaborative learning translanguaging strategies help ELLs develop academic and social language and apply them to science lessons. The goal of this PD is

for middle school science teachers to have an understanding of how developing a translanguaging approach benefits the ELLs in their classrooms. As well as having applied the strategies directly to the science curriculum, and their classroom space.

Session I

Ice Breaker

This PD will open with an icebreaker. “Good morning. I know we are all middle school science teachers here and I know that you will come up with some good responses. Imagine you are on a road trip out west. All of a sudden, in the middle of nowhere, your car catches on fire in the middle of a desert highway. You only have enough time to grab a few things and jump out before the car explodes. You do not have a lot of time to think. What are the three most important things you will need if you were stranded in the middle of the desert? I will give you 30 seconds to think about it and write on your sticky notes. Ok, now share your items with the teacher(s) at your table. Together decide what three things you agree are the most important. I will give you 90 seconds to discuss and then each group/pair will share out.”

Agenda

Each teacher will have an agenda for Session I (see Appendix, Figure 1). The outcome of today’s PD is for teachers to understand what translanguaging is and how to apply it to a science classrooms’ learning environment. There are three learning goals for Session I. The first goal is for teachers to develop an understanding of what translanguaging is and why it is important to use in content-based classrooms with ELLs. The second goal is for teachers to understand how translanguaging builds a culturally inclusive classroom. The third, and final goal, is for teachers to apply translanguaging strategies to their classroom environment. I have materials for them to use to create items to take to their classrooms.

Learning Goal 1

To meet the first learning goal, from 9:40-9:55, I will gather what the participants know about translanguaging. Each teacher will discuss with a partner, what they believe translanguaging means and write their ideas on the first section of the note catcher (see Appendix, Figure #2). Then, they will share out their ideas to the full group. Next, I will define the term translanguaging, citing work by Canagarajah (2011) and Lewis et al. (2012). Next, from 9:55-10:10, we will watch a video with Professor Ofelia García who is an expert in the field of translanguaging. In the video, Professor Garcia gives an in depth explanation of translanguaging (Garcia, 2015). As teachers begin to understand translanguaging through the principles and theory from the research and video, they will record three concepts they learn in the second section of the note catcher (see Appendix, Figure 2).

Learning Goal 2

Next, to meet Session I's second learning goal, from 10:10 -10:30, I will present research based translanguaging strategies for building a culturally and linguistically inclusive classroom. I have cited Celic and Seltzer's (2011) linguistically inclusive strategies and Hanna's (2017) article, for culturally inclusive strategies. After the presentation of strategies, teachers will have the opportunity to discuss which strategies can be applied to their classroom environment with the science teachers in their grade level. After they discuss the strategies, they will write down ideas for building a culturally and linguistically inclusive learning environment that would work in their classroom in the last section of the note catcher (see Appendix, Figure 2). We will share out at 10:25.

Learning Goal 3

Finally, to meet the last learning goal of session I, from 10:30-11:25, teachers will collaborate with other teachers from their grade level and apply the strategies to create artifacts that they will

bring to use in their classrooms. I have provided chart paper, index cards, sentence strips, and markers. They will have their laptops to use if they need to translate, look of students' information or find inspiration. The last ten minutes they will share and we will go over the next steps to prepare for Session II.

Conclusion

To end with, I will take five minutes to go over expectations to prepare for Session II. Foremost, an important aspect of teacher pedagogy is reflection. I will provide composition notebooks for each teacher to take and use as their reflection journal. In their reflection journal, I recommend that they include what translanguaging strategies they applied. As well as, what worked well, how the students responded, how the strategies facilitated learning, what did not work well and if they would add anything or do something different. We will begin each session with teachers sharing their reflections.

Session II

Agenda

At the beginning of session II, each teacher will have an agenda (see Appendix, Figure 3). The outcome for Session II is for teachers to understand how translanguaging strategies assist ELLs' when reading complex texts and apply the strategies to their upcoming science lessons or units. There are two learning goals for Session II. The first goal is teachers will develop an understanding of how to engage ELLs in complex science texts using translanguaging strategies. The second goal is teachers will apply translanguaging strategies to an upcoming lesson or unit. We will begin the session with teachers sharing their reflections from 9:30-9:35. We will discuss the translanguaging strategies they used to set up their classrooms and build routines. They will share what worked well, how the students responded, how the strategies facilitated learning, what did not work well and would what they would add.

Learning Goal 1

First, from 9:30-9:35, teachers will think about and share the past strategies they have used in their classrooms to engage ELLs in complex science texts. They will write strategies they have used in the first section of the note catcher (see Appendix, Figure 4). Next, they will discuss their strategies with a partner. Then, teachers will share out effective strategies.

Thereafter, I will present what the research says about translanguaging for engaging ELLs in science texts from 9:45-10:10. I have included research findings from Chapter 2 of this capstone project. I will present the finding of Lewis et al. (2012) and Ascenzi-Moreno (2018) explaining how translanguaging is an effective strategy to engage ELLs in complex texts. After the research, from 10:10-10:20, I will show a video clip from SupportEd, LLC. (2019). The clip explains how translanguaging is a practical strategy for supporting ELL's engagement and participation in traversing complex texts. As teachers review the research and watch the video, they will record three concepts they learn in the second section of the note catcher (see Appendix, Figure 4). Lastly, from 10:20-10:25, teachers will discuss elements from the research and videos that they can fit into lessons or units they have planned with science teachers from their grade level and record viable strategies in the last section of their note catcher (see Appendix, Figure 4). Before we continue to the second learning goal, there will be a five-minute break.

Learning Goal 2

To meet the second goal, teachers will work with other teachers from their grade level to apply translanguaging strategies to an upcoming lesson or unit from 10:30-11:20. The last 10 minutes, from 11:20-11:30, teachers will share out the plan they created or modified using translanguaging strategies to engage ELLs with complex science texts. They will have their laptops with access to the online curriculum and their documents.

Conclusion

For the next session, I will ask teachers to be prepared to share out what worked well or did not work well with their lesson or unit. In addition, they will be asked to come to the next month's session with a lesson or unit in mind to develop using translanguaging strategies for science writing.

Session III***Agenda***

Each teacher will receive an agenda (see Appendix, Figure 5). The outcome of this session is for teachers to understand how translanguaging strategies help ELLs demonstrate their understanding in their scientific writing and apply the strategies to science lessons. There are two learning goals for this session. The first goal is that teachers will develop an understanding of how to engage ELLs in scientific writing using translanguaging strategies. The second goal is they will apply translanguaging strategies to an upcoming lesson or unit.

Session III will start with teachers sharing their reflections from 9:30-9:35. Teachers will share the translanguaging strategies they used to engage ELLs in complex science texts. They will reflect on that worked well, how the students responded, how the strategies facilitated learning, what did not work well and what they would add.

Learning Goal 1

The first learning goal is that teachers develop an understanding of how to engage ELLs in scientific writing using translanguaging strategies. From 9:35-9:45, teachers will discuss the strategies they have used in the past to help ELLs demonstrate their understanding in scientific writing. In the first section of the note catcher, they will write down their strategies (see Appendix, Figure 6). Then, with a partner, they will discuss strategies they have used. Lastly, teachers will share their strategies with the full group.

Next, from 9:45-10:00, we will look at what the research says about helping ELLs demonstrate their understanding in writing. While they are engaging in the presentation, they will record three concepts they learn from the research and video in the second section of the note catcher (see Appendix, Figure 6). I have chosen to share the findings of the research by Canagarajah (2011), Lara-Alecio et al. (2012), Lewis et al. (2012), and Vaish (2018). This research illuminates the positive outcomes from using translanguaging with ELLs in writing.

Then, from 10:00-10:15, we will watch the video by Tolentino Teaching (2020). In this video, Tolentino Teaching provides a short explanation on why teachers should take a translanguaging stance. Succeeding this, we will look at what Celic and Seltzer (2011) recommend for science teachers to implement to help ELLs demonstrate their understanding in their scientific writing. We will also look at Rowe's (2018) ideas about what science teachers can do to encourage their ELLs' use of translanguaging in scientific writing. Lastly, from 10:15-10:25, teachers in the same grade level will discuss the translanguaging strategies they can apply to an upcoming lesson or unit, write their ideas in the last section of the note catcher, and share out to the group (see Appendix, Figure 6).

Learning Goal 2

The second leaning goal for this session is for teachers to apply translanguaging strategies to an upcoming lesson or unit. From 10:30-11:20, teachers will work with other science teachers from their grade level to brainstorm lessons or units in which to apply learned strategies. They will work collaboratively to develop a lesson using these strategies or integrate the strategies into an already developed lesson. The last 10 minutes, from 11:20-11:30, they will have time to share their lesson with the full group.

Conclusion

Lastly, to get ready for the next session teachers are asked to come back prepared to share their reflections of how the strategies they implemented helped ELLs demonstrate their understanding in their scientific writing. To finish, they will be reminded to keep a lesson or unit in mind to develop using collaborative learning translanguaging strategies with a focus on developing their ELLs academic and social language.

Session IV***Agenda***

Each teacher will receive an agenda, and a note catcher (see Appendix, Figure 7, Figure 8). The outcome of this session is that teachers understand how collaborative learning translanguaging strategies help ELLs develop academic and social language and apply them to a science lesson. There are two learning goals for this session. The first learning goal is that teachers will develop an understanding of how collaborative learning assists ELLs in acquiring content understanding while developing social and academic language in English. The second learning goal is that teachers will apply collaborative learning translanguaging strategies to an upcoming lesson or unit.

The session will begin with teachers sharing out their reflections from the strategies they used to help ELLs demonstrate their understanding in their scientific writing. They will reflect on the elements of the lesson that worked well, how ELL students responded, how the strategies facilitated learning, what did not work well and if they would add anything.

Learning Goal 1

The first learning goal is that teachers will develop an understanding of how collaborative learning assists ELLs in acquiring content understanding while developing social and academic language in English. From 9:35-9:45, teachers will discuss strategies they have used in the past.

They will record strategies in the first section of the note catcher then discuss their strategy with a partner (see Appendix, Figure 7). Lastly, teachers will share out their strategies with the full group.

Next, from 9:45-10:00, we will look at what the research says about how collaborative learning translanguageing strategies help ELLs develop their academic and social language. While they engage with the research and video, they will, record three concepts they learn in the second section of the note catcher (see Appendix, Figure 7). I will share the findings of studies that support collaborative and cooperative activities to promote ELLs' understanding of scientific concepts by Garza et al. (2017), Karlsson et al. (2018), Martin-Beltrán (2014), and Lara-Alecio et al. (2012). Then, from 10:00-10:15, we will watch the video by Tolentino Teaching (2020). In this video, Tolentino Teaching talks about two important roles teachers have in a translanguageing classroom. Finally, we will look at by what means Celic and Seltzer (2011) recommend how science teachers go about implementing translanguageing collaborative groups or partners in order to help ELLs develop academic and social language. Lastly, from 10:15-10:25, with teachers in their grade level, they will discuss the translanguageing strategies that they can apply to an upcoming lesson or unit, write their ideas in the last section of the note catcher, and share out to the group (see Appendix, Figure 7).

Learning Goal 2

The second leaning goal for this session is for teachers to apply translanguageing strategies to an upcoming lesson or unit. From 10:30-11:15, teachers will work collaboratively with other science teachers from their grade level to develop a lesson using these strategies or integrate the strategies into an already developed lesson. The last 15 minutes, from 11:15-11:30, they will have time to share out their lessons ideas and fill out a survey about the PD (see Appendix, Figure 9).

Conclusion

I will end the PD by encouraging teachers to continue to use translanguaging strategies with ELLs and reflect on their pedagogy. I will create a shared Google drive folder for teachers to have access to the research cited in the presentation, sample lesson plans that integrate translanguaging strategies, a digital copy of Celic & Seltzer's (2011) guide, and provide a lesson-sharing folder where they can upload lessons for other teachers to modify for their use.

Chapter 4: Conclusion

Introduction

The increase of multilingual ELL students in districts across the country has highlighted the need for all teachers to be equipped with strategies to teach this linguistically diverse population of learners. All teachers are teachers of ELLs; therefore, all teachers have an obligation to become versed in effective strategies that engage these learners in academic content. When content area teachers lack language acquisition strategies, it affects ELLs/Bilinguals ability to gain content knowledge, develop academic language and feel successful. Teachers who feel unequipped to teach ELLs may look at this population of students as a burden. Due to a lack of understanding, teachers who do not know how to engage ELLs, neglect their needs.

These issues inspired the purpose and focus of this capstone project. There is a need for teacher training that develops the pedagogy of content teachers who lack an understanding of language acquisition strategies to teach the ELLs in their classroom. The PD in chapter 3 addresses the overarching question by the dissemination of current translanguaging research and strategies. Translanguaging enables ELLs to learn English while learning new content material.

Conclusions

Translanguaging has the ability to minimize the learning gap that ELLs experience as they are acquiring English. This strategy allows ELLs to access their full language spectrum to grapple with academic challenging concepts. Classrooms with a translanguaging space enable ELLs to transform from the English deficit into scholarly contenders within the academic setting. When teachers take a translanguaging stance, they see the full potential of their ELLs. As well, translanguaging fosters metalinguistic awareness in ELLs. This awareness may not be confided

to the ability to understand and contextualize the structure of language. Nurturing the metalinguistic attributes of ELLs may contribute to a deeper understanding of academic content.

ELL students reap many benefits when a teacher has a translanguaging stance. Research noted in Chapter 2 of this capstone found that translanguaging helps develop ELLs' L1 and L2. Moreover, translanguaging has been found to leverage ELLs' meaning making facilities of content material. Lastly, research findings show that translanguaging allows a student to use their complete linguistic repertoire to express their understanding of content material.

Implications for Student Learning

Translanguaging Facilitates Language Development

Much of the research reviewed in this capstone demonstrates that translanguaging is a tool for English language development. As Rowe (2018) explains, translanguaging supports the development of the weaker language. In this way, an ELL's L1 is the foundation at which they form understanding of their L2. As their metalinguistic awareness develops, they form a contextual understanding of the target language. Moreover, translanguaging uses the stronger language to develop the weaker language ergo contributes towards a balanced development of both languages.

Translanguaging Facilitates Content Understanding

Translanguaging assists in a more complete understanding of academic content by using their full linguistic resources. According to Lewis et al. (2012), translanguaging deliberately utilizes the natural phenomenon that exists within every language learner by switching the language mode of input and output in order to facilitate a complete understanding of new learning.

Translanguaging permits ELL students to use their complete linguistic compendium. They can grapple with understanding new learning within the span of their full experience, knowledge, and

language aptitude. Research by Karlsson et al. (2018) found that ELLs often expressed scientific content vocabulary and concepts in their L2, while expressing clarifying, descriptive words or phrases that relay meaning in their L1.

Translanguaging Facilitates ELLs' Ability to Demonstrate their Understanding of Content

Translanguaging facilitates ELLs to demonstrate their understanding of content. An ability for an ELL to demonstrate their understanding can be limited by their proficiency in English.

However, the inability they may have to express their comprehension in English is not always representative of their lack in the construction of knowledge. The focal point of Karlsson et al.'s (2018) research noted students using both their L1 and L2 to express their understanding of scientific content. Karlsson et al. acknowledged that in this way, these students used their linguistic repertoire to relate their real-world experiences with an abstract scientific idea.

Language is a social tool, and a translanguaging classroom leverages social contexts as a way to bridge ELL student's experiences to the content in order to develop a deeper understanding to the content.

Implications for Teaching

Translanguaging has many implications for teaching ELLs. An example in research by Duarte (2016) showed the use of translanguaging in the classroom builds on the ELL's conceptual understanding of abstract ideas provides a teacher with linguistic competences of their students and creates a culturally inclusive community. In a bilingual classroom, this response is somewhat of a natural approach to teaching ELLs. However, ENL and monolingual teachers can create space in their classrooms to tap into their ELL student's language competencies to leverage their understandings of the concepts they are teaching. A student with limited English may shut down completely if the task appears too difficult to endure. However, when a teacher empowers them by letting them tap into their full span of language, they will likely endure the task. In this

example, the student feels competent to try their best and the teacher has an artifact of a student's linguistic levels and content understanding.

Next, the research by Karlsson et al. (2019) shown the implications of creating translanguaging science classrooms that value the experiences and linguistic resources of ELL students. A teacher, who sees the language of their linguistically diverse students as a valuable resource for learning, has a significant effect on their achievement. A language rich environment that creates space for ELLs to negotiate with their learning has the ability to create higher order thinkers. When teachers encourage ELLs to use all of their linguistic resources, their ability to construct understanding is limitless.

Above all, research by Ascenzi-Moreno (2017) drives in the importance of translanguaging needing to be meaningfully and intentional. Although, translanguaging is a natural occurrence in multilingual people and occurs effortlessly, as you would expect within a bilingual classroom, there is a profound importance for the teacher to be meaningful in their practice. There is a time for spontaneous translanguaging but it is important to plan for it in meaningful ways. For example, grouping ELLs in heterogeneous collaborative groups according to proficiency levels, assigning learning partners with complementary language strengths or scaffolding writing in a way that builds their L2 academic language while allowing their L1 to scaffold their understanding.

Recommendations

There is not a significant amount of research available on the influences that a translanguaging approach has in regards to the achievement of ELLs in mainstream content classes. Most of the research has been conducted in dual language programs in elementary classrooms. There needs to be more attention on the value that adopting a translanguaging

approach has on ELLs' achievement in secondary content courses. Additionally, most of the studies have involved teachers who speak the L1 of the ELLs in their classrooms.

Translanguaging is a strategy that all teachers can use, even if they are monolingual. I recommend that schools with ELLs adopt a translanguaging stance with ongoing teacher training. I also recommend that these schools track the growth of their ELLs on academic achievement tests. Furthermore, I encourage researchers to step outside the comfort zone of bilingual and dual language classrooms where translanguaging naturally occurs and focus future translanguaging research in mainstream content area classes with monolingual teachers of ELL students.

Final Thoughts

In order for ELLs to acquire knowledge in content areas, content area teachers need to present the material in a comprehensible way. Translanguaging is a strategy that teachers can integrate into their pedagogy and classroom environment to reach ELL students in content area classrooms with or without ESOL teacher support.

Lastly, in linguistically diverse classrooms, teachers have the chance to see themselves as part of a community of emerging language learners. Teachers have an opportunity to learn about the culture, traditions, values and experiences of their students. They have the opportunity to learn and use various languages. A translanguaging approach allows teachers the invaluable prospect to expand their worldview.

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Appendix

Figure 1

Agenda for Session I of the Capstone PD

TRANSLANGUAGING FOR THE MIDDLE SCHOOL SCIENCE TEACHER SESSION I AGENDA

Date: August 2020

Time: 9:30am-11:30am

Outcome

You will understand what translanguaging is and how to apply it to your science classrooms' learning environment.

Learning Goals

You will:

1. Develop an understanding of what translanguaging is and why it is important to use in content-based classrooms with English language learners.
2. Understand how translanguaging builds a culturally inclusive classroom.
3. Apply translanguaging strategies to your classroom environment.

Agenda Items

Icebreaker

If you were stranded in the middle of the desert what three items would need and why? (9:30-9:40)

Learning Goal 1:

- ❖ Defining translanguaging (9:40-9:50)
- ❖ Video: (9:50-10:00)

Learning Goal 2:

- ❖ Strategies for building a cultural inclusive classroom (10:00-10:30)

Learning Goal 3:

- ❖ Working with your grade level teams to apply strategies to build a culturally inclusive classroom (10:30-11:20)
- ❖ Sharing out ideas (11:20-11:30)

Next Steps:

- ❖ Reflection is a vital in developing teacher pedagogy. Be prepared to share out what strategies you used to set up a culturally inclusive learning environment, what worked well or did not work well.
- ❖ We will dive into the curriculum during next month's session. Please come with a lesson or unit in mind to develop using translanguaging strategies for reading complex texts.

Figure 2

Note Catcher for Session I of the Capstone PD

Translanguaging for Science Teachers PD

Note Catcher for Session I

What is translanguaging?
Three concepts I learned from the research and video
<ul style="list-style-type: none"> • • •
How I can use translanguaging strategies in my science classroom’s environment

Figure 3*Agenda for Session II of the Capstone PD*

**TRANSLANGUAGING FOR THE
MIDDLE SCHOOL SCIENCE TEACHER
SESSION II AGENDA**

Date: September 2020**Time:** 3:30pm-5:30pm**Outcome**

You will understand translanguaging strategies that assist ELLs when reading complex texts and apply them to your science lessons.

Learning Goals

You will:

1. Develop an understanding of how to engage ELLs in complex science texts using translanguaging strategies.
2. Apply translanguaging strategies to an upcoming lesson or unit.

Agenda Items**Reflections:**

- ❖ What translanguaging strategies did you use to set up your classroom? What worked well or did not work well? (9:30-9:35)

Learning Goal 1:

- ❖ Discuss strategies you have used in the past to engage ELLs in complex texts (9:35-9:45)
- ❖ What the research says about engaging ELLs in science texts (9:45-10:10)
- ❖ Video: (10:10-10:20)
- ❖ Discussion of elements from the research and videos that can fit into an upcoming lesson or unit. (10:20-10:25)

***** 5 minute break*****

Learning Goal 2:

- ❖ Working with your grade level teams to apply strategies to an upcoming lesson or unit (10:30-11:20)
- ❖ Sharing out plans (11:20-11:30)

Next Steps:

- ❖ Be prepared to share out what worked well or did not work well in your lesson or unit.
- ❖ Please come to next month's session with a lesson or unit in mind to develop using translanguaging strategies for science writing.

Figure 4

Note catcher for Session II of the Capstone PD

Translanguaging for Science Teachers PD

NOTE CATCHER FOR SESSION II

What strategies have I used to engage ELLs in complex science text?
Three concepts I learned from the research and video
<ul style="list-style-type: none">•••
What translanguaging strategies can I use in an upcoming science lesson or unit

Figure 5*Agenda for Session III of the Capstone PD*

**TRANSLANGUAGING FOR THE
MIDDLE SCHOOL SCIENCE TEACHER
SESSION III: AGENDA**

Date: October 2020**Time:** 3:30pm-5:30pm**Outcome**

You will understand how translanguaging strategies help ELLs demonstrate their understanding in their scientific writing and apply the strategies to your science lessons.

Learning Goals

You will:

1. Develop an understanding how to engage ELLs in scientific writing using translanguaging strategies.
2. Apply translanguaging strategies to an upcoming lesson or unit

Agenda Items

- ❖ **Reflections:** What worked well or did not work well from your lesson or unit developed using translanguaging strategies when reading complex texts? (9:30-9:35)

Learning Goal 1:

- ❖ Discuss strategies you have used in the past to engage ELLs in scientific writing. (9:35-9:45)
- ❖ What the research says about engaging ELLs in writing. (9:45-10:00)
- ❖ Video: (10:00-10:15)
- ❖ Discussion of elements from the research and videos that can fit into your classrooms' learning environment. (10:15-10:25)

***** **5 minute break*******

Learning Goal 2:

- ❖ Working with your grade level teams to apply strategies to an upcoming lesson or unit (10:30-11:20)
- ❖ Sharing out plans. (11:20-11:30)

Next Steps:

- ❖ Be prepared to share out what worked well or did not work well in your lesson or unit.
- ❖ Please come to next month's session with a lesson or unit in mind to develop using translanguaging strategies for science writing.

Figure 7*Agenda for Session IV of the Capstone PD*

**TRANSLANGUAGING FOR THE
MIDDLE SCHOOL SCIENCE TEACHER
SESSION IV AGENDA**

Date: November 2020**Time:** 9:30am-11:30am**Outcome**

You will understand how collaborative learning translanguaging strategies help ELLs develop academic and social language and how to apply them to your science lessons.

Learning Goals

You will:

1. Develop an understanding of how collaborative learning assists ELLs in acquiring content understanding while developing social and academic language in English.
2. Apply collaborative learning translanguaging strategies to an upcoming lesson or unit.

Agenda Items

- ❖ **Reflections:** What worked well or did not work well in your lesson or unit developed last session? (9:30-9:35)

Learning Goal 1:

- ❖ Discuss strategies you have used in the past to engage ELLs in scientific discourse. (9:35-9:45)
- ❖ What the research says about engaging ELLs in scientific discourse. (9:45-10:10)
- ❖ Video: (10:10-10:20)
- ❖ Discussion of elements from the research and videos that can fit into your classrooms' learning environment. (10:20-10:25)

***** **5 minute break*******

Learning Goal 2:

- ❖ Working with your grade level teams to apply strategies to an upcoming lesson or unit (10:30-11:15)
- ❖ Sharing out plans. (11:15-11:25)

Survey: Fill out Translanguaging PD Survey (11:25-11:30)**Next Steps:** Continue to use these strategies with ELLs and reflect on your pedagogy

Figure 8

Note Catcher for Session IV of the Capstone PD

Translanguaging for Science Teachers PD

NOTE CATCHER FOR SESSION IV

What strategies have I used to help ELLs develop academic and social language?
Three concepts I learned from the research and video
<ul style="list-style-type: none">• • •
What translanguaging strategies can I use in an upcoming science lesson or unit

Figure 9

Survey for the End of the Last Session of the Capstone PD

Name: _____ **Email:** _____

Professional Development
Translanguaging for Middle School Science Teachers
Survey

As a result of this professional development experience, I will use my new knowledge and skills in the following ways:
The strategies used by the presenter were appropriate in helping me attain the goal(s) and/or outcomes of this professional development experience in the following ways:
This professional development could be improved in the following ways:
To continue learning about this topic, I need the following:

VoiceThread Link:

<https://voicethread.com/myvoice/thread/14953172/93446722/85514787>