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Thematic, Interdisciplinary Curricular Unit Developed For Fourth Grade On 'The Science And Engineering Of Slime

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EXPLORING THE IMPACT OF THEMATIC, INTERDISCIPLINARY

CURRICULUM ON FOURTH GRADE LANGUAGE IMMERSION STUDENTS'

READING ENGAGEMENT AND ACHIEVEMENT

by

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A capstone submitted in partial fulfillment of the requirements for the degree of Master of Arts in Literacy Education.

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CHAPTER ONE

Introduction

For many students today, and arguably always, the traditional model of "sit and get" instruction and compartmentalized learning simply is not working. When educators make learning about "getting the grade" or mastering a learning target for school, those who have an innate predisposition toward compliance, a positive inclination toward school, or unadulterated raw talent emerge successful. Meanwhile, many others are, to put it in the lingo of politics circa 2001, "left behind". Throughout my own experience of teaching fourth grade in a Spanish Immersion elementary school, I have struggled to help students who are disengaged from school or those who claim they are just not good at reading, do not like it, or they have never found more than one book they have enjoyed. Teaching units based on standards ("this week we will cover main idea and supporting details and next week we will move on to cause and effect"), sandwiched between a pre- and post-test seems to be missing a context and purpose. It is a method for instruction that seems to lead to superficial learning. Students can regurgitate back facts or processes, but what have they learned that holds great meaning or is of great importance to them as a person in our world?

It is from this context that I have found myself questioning my traditional approach to the school day and reading instruction. I believe there must be something more than simply teaching reading skills, strategies, and learning targets to be able to guide students toward becoming better readers who read with purpose and deep understanding. One approach to classroom instruction that seeks to ground learners within a greater learning context and orient learning around essential, guiding questions is thematic, interdisciplinary pedagogy. Through my research and project development, I ask the following question: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?* Throughout the remainder of this chapter, I seek to explain my own background and the development of my research interest, the personal teaching experiences that have led me to research and create a thematic, interdisciplinary unit, and the significance I believe thematic teaching holds for students and the community.

Background and Development of the Research Interest

When I began my first teaching experience in a second grade, general education setting, I was introduced to a compartmentalized school day, with each subject having its allotted time and language arts units that were designed around textbook companies' teacher manual guidelines. I often found myself working hard to determine clear learning objectives that align with state standards from the provided textbook weekly lesson plans, while finding it relatively easy to recreate the lessons demonstrated in the teacher's manual. At the same time, I realized that while some students were engaged in their learning with these prescribed lessons, others were unengaged and either compliant or

disruptive. These students did not see any reason behind the learning they were being asked to do.

Some time later, I attended the keynote speaker presentation of Nell Duke at the Hamline University Summer Literacy Institute, whose research and work on project-based learning and informational text greatly piqued my interest. Duke's description of the engagement with which her kindergarten, first, and second grade students interacted with text and real-world problems was what I dreamt for the students in my own classroom (Duke, 2015). It was clear to see: when students learned to use and apply reading and writing strategies in the context of a greater problem they were working to solve, or a question they were trying to answer, they were deeply engaged in their work.

I have seen firsthand the effect that having a real-world purpose has had on my own learning and on the engagement of my students. One of the areas in which I see my fourth grade students engage the most in the learning they do for school is during science class. When students are working together to solve a problem, they will read to understand and learn, work together collaboratively, and seem to hardly recognize the work they are doing as "learning".

A great example of this is when we work on projects using the engineering design process. Some of the learning targets in fourth grade science regard the body's defense systems and diseases that are preventable by vaccinations. Last year, students incorporated these targets and engineering design by working together to design a quarantine box that would allow scientists to study viruses without becoming exposed

themselves. Although this project was designed to incorporate the content-area and engineering learning targets in science, it also led students to ask their own questions and research the methods and tools that biomedical scientists in the real-world use for their jobs. When they knew the purpose for their reading, students did not hesitate to put in the hard work of making sense of what they had read because they knew it would help them better understand the work they had to do to successfully complete their engineering challenge.

Although this unit was somewhat interdisciplinary and thematic through the incorporation of language arts and science, it could easily also have lent itself to incorporate learning targets in math in a meaningful way. The quarantine box project was easily one of my students' favorite units and it was something that they continued to talk and wonder about long after we had switched our learning focus. Uniquely enough, there did not seem to be divisions about who was 'good' at this and who was not, as I have often times observed in my traditional reading or math class. Teaching in this way allowed every student to have access to learning, regardless of their level of reading abilities, as they worked together to answer the same essential question.

Current Teaching Experience

Throughout my teacher preparation program and as a fourth grade teacher, designing learning experiences that are aligned with state and district academic standards has been an emphasis in my instruction. This, in fact, is one of the things that I believe makes my school district unique in comparison with some. Rather than relying on a textbook or teacher's manual to guide instructional goals and timelines, teachers are

encouraged and supported to focus on teaching the district-identified essential learning outcomes, using whatever curricular resources or materials they deem necessary to creatively meet the needs of their individual students.

This also means that teachers, myself included, teach the learning targets as the overall goal of entire units. While this practice is not altogether incorrect or necessarily harmful, I have noticed it can lead to a simplification of the purpose for learning to the simple mastery of an academic learning target, without a connection to real-world or content-area contexts. In my experience, this leaves those students who are otherwise unengaged in the experience of school without a purpose for learning the skills and strategies of good readers. As a result, the "rich get richer and the poor get poorer", as compliant students gain reading experience and abilities while struggling or unengaged readers spend their time in some combination of hiding, acting out, or fake reading, losing confidence in their own abilities to be successful at reading or at school in general. In all cases, however, students may master learning targets, but may not have the deep conceptual understandings and problem-solving skills necessary for success in the world outside of school.

In a language immersion setting, I notice that I have become even more keenly aware of the superficiality of students' content knowledge and reading comprehension as they work simultaneously on understanding academic concepts and learning the academic vocabulary of each new text or unit. With texts selected for a group of students at an appropriate reading level but with random and varying topics, students lack the repetition and multiple exposures to words and concepts in a variety of contexts that leads to deep

and lasting understanding in their second language. Additionally, although they may never ask the question directly, I have felt my students wonder, "What does reading this article or completing this activity really matter, anyway?" I am familiar with those who internally would answer, "It does not matter", and I cannot help but sympathize with their belief. This is why I believe it is essential to our students' reading and overall academic success that we, as teachers, first answer that question ourselves in the design of our instructional units and set students up to see the real-world purpose for their learning.

Significance of the Research Topic

As I considered what research topic would hold great value and possible leverage for accelerating the reading achievement of my students, I began to think about the students for whom the current system of compartmentalized instruction is not working. In essence, English learners and struggling readers come to mind as those who disengage from reading and learning experiences often because of their lack of accessibility, self-efficacy or background knowledge. This leads me to surmise that teaching in a thematic, interdisciplinary way may be able to provide these critical prerequisites of literacy to all students, while rooting learning experiences within a greater essential question and purpose.

Summary

In short, I am convinced that the more 'traditional' model of learning that designates learning by subject areas that occur at distinct times of the day results in some students who succeed within this system and others that do not. Chapter one described my personal journey in teaching that utilized this traditional approach while seeing the

benefits in engagement and content knowledge of incorporating a thematic, interdisciplinary instructional approach. It discussed my current practical findings and teaching context within my school district's framework that emphasizes teaching to the learning target. Finally, it introduced the inspiration and significance behind my research question to benefit all students and, more specifically, English learners and struggling readers.

Chapter two will outline the current research and theories that inform the practice of thematic, interdisciplinary teaching. To begin, it will describe constructivism and more specifically whole language theory and inquiry theory as the theoretical lenses for thematic instruction. Then, it will describe what is currently known in regards to student engagement in learning-- both contributing factors and the impact of engagement on learning-- as well as the connection between thematic teaching and student engagement. It will discuss methods of accelerating language acquisition and reading comprehension, specifically for language learners, through content-area reading. And finally, it will seek to synthesize findings to address the research question: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?*

CHAPTER TWO

Literature Review

Introduction

To begin the conversation about thematic instruction, it is important to describe the theoretical and literature background of this instructional practice. The purpose of this chapter is to synthesize research and literature on the components of thematic, interdisciplinary instruction in order to answer the question: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?*

The first section of this chapter focuses on the definition of thematic instruction, its components and its connection to constructivist theory. The second part of this subtopic will discuss the constructivist lens on teaching and learning. It begins by explaining the concept of learner's construction of meaning, building on Vygotsky's principle of the Zone of Proximal Development and including the concepts of scaffolding and social construction of meaning (Vygotsky, 1978). Thematic instruction lends itself

naturally to the integration of content area objectives under the same overarching goals or essential questions.

The subsequent section focuses primarily on interdisciplinary instruction and content area literacy. It first seeks to describe interdisciplinary instruction as a practice and discuss how interdisciplinary curriculum is designed to "provide students with a high-interest, creative platform to review, reinforce, and integrate learned literacy skills and strategies across the content areas" (Hill, 2014, p. 450). Intermittent with interdisciplinary instruction is the concept of content area literacy. This summary of the literature about content-area literacy will begin with a description of content-area literacy, including a review of the pertaining literature that defines teaching approaches and necessity. The second section of this topic will finish by discussing how thematic and interdisciplinary instruction can be linked with content-area literacy.

Due to the language immersion context of the research question, this third section will address how integrating content area instruction and teaching units thematically can provide an environment that is language rich for students who are learning a second language. In this section, a description of the literature until this point is provided to inform about best practices to use with language learners.. The second part of this section will seek to make a connection between the best practices, as defined by the literature and research, and the practices offered in the thematic, interdisciplinary instructional approach.

In the final section, the review of the literature about engagement is presented, making a distinction between engagement and motivation, and defining and describing

both, as well as their effect on learning. Then, it will present what research has shown are the necessary components of engagement for adolescents and learning. Finally, it will end with a section describing the connection between thematic, interdisciplinary instruction and best practices for engaging learners.

Thematic Instruction Using Constructivist Theory

"When we plan lessons and skills to be taught, a good question to ask is 'So what?'" (Randle, 1997, p. 85). The question, "So what?" is the question that teachers and students must answer everyday while working and learning at school. What good is the teaching or learning that I am doing? Unfortunately, sometimes neither individual knows the answer to that question and to a teacher's dismay, students' lack of answers can cause a lack of motivation, avoidance or rebellion. Thematic instruction is designed to force teachers to consider this question in the development of a curricular unit, giving students and teachers alike a rationale and creating authenticity for the learning taking place (Bergeron & Rudenga, 1996). This section introduces the concept of thematic instruction with a brief definition and description. Subsequently, it provides a background for thematic instruction from the lens of constructivist theory, highlighting schema theory and Vygotsky's social constructivism (Vygotsky, 1978).

The term 'thematic instruction' refers to an instructional approach in which content objectives or standards are taught according to a common theme rather than in a sequential, prescribed order (Bergeron & Rudenga, 1996). Thematic-based curriculum emphasizes the employment of learning experiences that replicate real-world application, integrate multiple disciplines, encourage higher order thinking, and require students to

develop the habits needed to become lifelong learners (Randle, 1997). It is organized

around skills that are connected to concepts and real life problems (Randle, 1997). In

many cases of thematic instruction, the teacher, on occasion with the help of students,

establishes a specific problem to be solved and within the resolution of the problem they

learn the material which surrounds the theme (Cordeiro, 1990). The purpose of thematic

instruction is that students would build mastery of knowledge and understanding within a

meaningful learning context. Additionally, because thematic instruction situates the

learner in a context for learning, learners experience an eagerness to engage in authentic

literacy tasks as they see how the texts they are reading relate to them personally (Tracy,

Menickelli, & Scales, 2016). In this way, as Bergeron, Weemuth, Rhodes, and Rudenga

(1996) explained, thematic instruction engages young learners in meaningful and

functional literacy events.

   Thematic instruction is an instructional methodology that has its roots in the

theory of constructivism. The constructivist view of learning is based on the concept that

individuals actively construct their own knowledge (Tracey & Morrow, 2017). According

to the constructivist theoretical perspective, new learning is integrated into existing

knowledge and understanding which occurs when the individual is actively engaged in

the process of learning (Tracey & Morrow, 2017). As Randle (1997) described, thematic

instruction stresses not only that the child is responsible for his or her own learning but

also that the learning journey is lifelong. In this learning context, the teacher is no longer

the giver of information but rather the "journey-maker" (Cordeiro, 1990, p. 32) who

creates authentic, rich learning experiences for students to engage in as they work to actively construct their own knowledge.

Schema theory closely ties constructivist theory to the practice of thematic instruction. According to schema theory, a child's 'schemata', or their knowledge structures, are individualized, that is, based on their own life experiences, pliant and expandable (Tracey & Morrow, 2017). Additionally, Tracey and Morrow (2017) pointed out that the more elaborate a child's schemata on a certain topic, the easier he or she will be able to learn new information in that area. Within thematic instruction, students schemata in a theme or topic of study is expanded as they learn to apply what they are learning to different subject areas and in real world contexts. In other words, "meaning has been contextualized by the child within a meaningful framework" (Cordeiro, 1990, p. 31). This is one of the reasons Gelheizer, Hallgren-Flynn, Connors, and Scanlon (2014) gave for reading thematically related texts; they point to a limited knowledge base as one of the reasons why students struggle to comprehend text and conclude that organizing books by content or concepts can help students to develop their knowledge base therefore grow as readers.

In relation to this, Vygotsky's social constructivism, another branch of constructivist theory, emphasized the idea that learning comes from individuals interacting with others who are more developed than they are (Gambrell & Morrow, 2015). This relates to his most influential concept, the Zone of Proximal Development, which refers to the ideal level of task difficulty to facilitate learning (Tracey & Morrow, 2017). When students work within their zone of proximal development, that is, work on a

task that is neither too easy for them to complete independently nor too challenging for them to complete with support, they have the highest capacity to construct meaning and build understanding. Students working within their zone of proximal development rely on teacher and peer scaffolding to learn during experiences. In this way, in thematic instruction, teachers provide scaffolding to help students "grow in independence as a learner" (Tracey & Morrow, 2017, p. 168) within their zone of proximal development.

To conclude, it has been determined that thematic instruction makes use of several aspects of constructivist theory in application within educational practice. First, students are provided with an authentic learning context within which to construct meaning that is rooted in real world problem solving and conjoined across disciplines by a common theme. Additionally, learning within thematic units is built off of prior knowledge, and students' schemata about a certain theme or topic is expanded throughout the development of the unit. Finally, learning experiences must be designed so that students work within their zone of proximal development with teacher and peer scaffolding to actively engage in the process of learning.

Interdisciplinary Instruction and Content Area Literacy

In the section that follows, interdisciplinary instruction and content area literacy are defined and described. The utilization of text sets is presented as an approach to effective instruction in content area literacy across disciplines. Additionally, challenges of content area literacy and the reported impact of said practices on student learning are explained. This section concludes by drawing a connection between thematic, interdisciplinary instruction and content-area literacy.

Interdisciplinary instruction is an approach to designing learning experiences which provide students with ways of thinking and learning across content areas in order to promote higher order thinking (Hill, 2014). It naturally builds upon the principles of project-based learning, in which students engage in an extended opportunity to solve a complex problem or challenge that is typically embedded into a real world, authentic context. As Hill (2014) described, within an interdisciplinary, project-based activity students get the opportunity to apply what they have learned to a real life situation all the while illustrating the interdisciplinary nature of literacy. Students see how and why one must integrate knowledge and processes from different subject areas to solve a problem or answer an essential question.

The interdisciplinary approach takes advantage of natural parallels between subject areas to enhance students' learning within and across individual content areas (Halladay & Neumann, 2012). As Halladay and Neumann (2012) explained, teachers can use similar language and highlight similar processes that are at work in different subjects, promoting common language and strategic thinking. It can be expected, therefore, that interdisciplinary, problem-based practices will not only improve literacy engagement and achievement due to said practices building on students' existing knowledge and interests, but they also provide students with foundational experiences necessary to be successful across all areas of curriculum (Hill, 2014).

In conjunction with interdisciplinary instruction is literacy learning embedded into content area study. However, within a traditional classroom setting, students are often assigned to read texts that may or may not reflect their interests and abilities. Even

in classrooms where texts are differentiated for students, language learners and struggling readers may have difficulty engaging with each new text and subsequent vocabulary and literary context (Gelheizer et al., 2014). It has been shown that students who struggle to read begin to doubt their reading ability (Cambria & Guthrie, 2010). "When students encounter a story that is beyond their comprehension, or an information text with vocabulary that is utterly impossible for them, they not only reject the book but turn off from all reading" (Cambria & Guthrie, 2010, p. 24). Additionally, Harmon, Wood, and Stover (2012) concluded that "difficult text, combined with a mismatch between students' experiences and interests, may lead students to resist reading and achieve low comprehension" (p. 53). As a result of this known need to support students reading and thinking about domain-specific, academic language rich text, content area literacy instruction is born.

Fang and Coatoam (2013) described content area literacy as that which is focused on helping students to develop their ability to use reading and writing as tools for learning from content area texts. Students must be taught specific skills and strategies to interact with the often times challenging informational texts presented in content-area learning. In learning these strategies within the the context of the subject matter students see how learning in literacy affects their ability to learn in all subject areas; they discover reading to learn.

Content area literacy is presented by Fang and Coatoam (2013) in a slight contrast to disciplinary literacy, which might be described as developing students abilities to both intake and communicate information in a way belonging to the discipline. Likewise,

Brozo, Moorman, Meyer, and Stewart (2013) made a distinction between the more generic content area literacy and the unique form of reading, writing, speaking, and listening that is required by specific subject matters, which is defined as disciplinary literacy. It can be said, therefore, that content area literacy is a broader approach to supporting students' literacy learning and understanding using reading, writing, and communicating strategies in domains other than Language Arts. Brozo et al. (2013) called for adhering to what they call the "radical center" between the disciplinary and content area literacy rather than religiously, and blindly, following one or the other, impervious to student needs (p. 354). In this 'radical center' teachers are cognizant of their students' learning needs and content area objectives and provide both literacy and discipline-specific strategy instruction to serve all students. For the purpose of this review, content area literacy instruction is referred to as encompassing both those strategies that can be used across content areas as well as those that are specific to a certain field.

The need for content area literacy is described by Moss (2005), who pointed out that by the end of the upper elementary years, non-narrative text makes up 75% of students' reading demands in school. Additionally, Moss (2005) reported a positive correlation between fourth graders who had experiences with informational text in their classrooms and higher average reading proficiencies. Reading and writing in the content areas also serves to reinforce reading and writing in the language arts block, and provides schema or background knowledge for students' future learning experiences.

In subject area reading, teachers must make transparent for students those language and comprehension skills and strategies that often take place invisibly within the mind of an active reader of the discipline. As Uccelli, Galloway, Barr, Meneses, and Dobbs (2015) pointed out, the language of school is often opaque to students although it is intended as an accessible means of instruction. Students must be guided to interact with and understand the language of each discipline, which supports their later success with increasingly challenging texts found in content areas at upper grade levels (Moss, 2005). Additionally, the core academic language skills that Uccelli et al. (2015) described, such as unpacking dense morphosyntactic structures, tracking participants and themes, and skill in argumentative text organization, do not occur in colloquial conversations and therefore must be taught or made apparent to students.

Thematic, interdisciplinary units are able to provide accessibility to challenging texts through reading about a common theme across content areas. An approach that supports students' literacy learning in domain-specific reading and writing about a common theme and across disciplines is the use of thematic text sets. Harmon et al. (2012) defined accessibility as giving students books and making sure that they have the ability to read them. Thematic text sets are presented as one beneficial strategy to make content-area text accessible to students-- to meet the diverse experiences, interests and needs of young readers.

Another benefit to utilizing thematic text sets to support students' content area literacy is provided with a changing definition of what is considered 'text'. As Harmon et al. (2012) described, text sets need not be made up only of traditional print books but may

also include non-traditional formats such as graphic novels, charts, maps, photographs, poetry, timelines, and maps. Through purposefully selecting multimodal texts at the levels and interests of their students, teachers can help ensure readers' ability to read and comprehend texts and therefore, their access to content knowledge and understanding. This leads, then, to their ability to read increasingly more difficult, complex texts. Content background knowledge allows struggling readers to experience more success in reading a challenging text by providing them with contextual support that assists them in identifying and learning unfamiliar words, therefore they gain greater fluency, comprehension, and reading confidence (Gelzheiser et al., 2014).

Reading multiple texts about a topic can give students varied entry points as they work to develop deeper understandings of information and engage in more complex reading and writing tasks (Tracy et al., 2016). Thematically related books deepen students' knowledge base about a subject and serve to develop background knowledge for further reading and studying of that topic. Students develop their knowledge base, as Gelzheiser et al. (2014) put it, and although exposing students to an idea once in a text is unlikely to develop their content understanding, reading a set of texts related to a theme provides the multiple exposures necessary to anchor their understanding. Likewise, as students interact with literacy practices within content areas, they begin to recognize how these practices are able to help them solve problems, learn new information, and create authentic products.

Gelzheiser et al. (2014) went on to explain that as students acquire more knowledge about a subject, they are more likely to understand what they read and are

consequently more engaged in the reading process. This also impacts their reading confidence: as they begin to see themselves as capable through experiences of success in independently reading and discussing texts, their self-efficacy as readers is nurtured to grow (Gelzheiser et al., 2014). Therefore, as students develop background knowledge they will find themselves ready to take on increasingly more complex texts (Gelzheiser et al., 2014).

In summary, content area literacy prepares students for both present and future reading and learning experiences, within and beyond the school setting. Content area literacy instruction lends itself to thematic, interdisciplinary instruction in that teachers must be cognizant to teach the language skills and literacy strategies necessary to engage in discipline-specific cognitive, semiotic, and social practices about a common theme and across subject areas (Fang & Coatoam, 2013). One approach to support learners of varying reading abilities in content area literacy is to provide thematic text sets related to the topic of study. The ensuing section will address how thematic, interdisciplinary instruction relates to practices that support literacy of multilingual students who are English learners.

Best Practices in Literacy for Multilingual Learners

To begin this review of the literature on research-based practices in literacy for multilingual learners, a review of the historical and present learning and political context surrounding multilingual students is articulated and analyzed. Furthermore, a distinction is made in the language used to label students either from a deficit or asset perspective. Subsequently, key findings on multilingual learning are introduced and suggestions as to

instructional approaches that benefit language learners in literacy are presented. Finally, support for language learners within a thematic, interdisciplinary unit is addressed in relation to the research question: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?*

Traditionally, students who enter school classrooms with a first language other than English in the United States have been labeled by a variety of different identifiers. In the past, education in the United States has sought to eradicate children's language and culture when it is other than that of the mainstream language and culture. In these subtractive political and systemic ideologies, immigrant children's native language and culture is purposefully or consequentially erased to be replaced by the language and culture of power (Souto-Manning, 2016). The educational opportunities for students who speak first languages other than English have varied and been affected by an array of legislative decisions that differ from state to state. Although the United States is a country comprised of and founded, in large part, on immigrants with rich cultural and linguistic heritages, since the early 1900's speaking English has and continues to be prioritized in education.

In regards to multilingualism, countries such as the United States regard the English language as intimately tied to nationalism; the mainstream community generally regards anything other than being monolinguistic as abnormal or foreign, belonging to an 'other', and unaligned with the majority of native English speakers (Reyes, 2012). This mentality can be generalized as a deficit mindset as it focuses on what the child or

individual cannot do (namely speak and interact fluently in English) rather than the wealth of knowledge they currently possess. The deficit mentality is presently far-reaching within our academic systems and structures (Reyes, 2012). Students who speak first languages other than English have been viewed as "not being smart, lacking in language, or as speaking a foreign language" (Suoto-Manning, 2016, p. 265). They have been labeled as English as Second Language Learners (assuming that English is their second and not their third or fourth language), English Language Learners, English as Speakers of Other Language Learners, and so on. Each of these labels highlights a student's weakness in regards to a linguistic societal norm rather than focusing on the funds of knowledge provided by being multilingual.

Through studies that have been conducted on multilingual language learners, several key findings have been reiterated. First, phonological awareness and understanding of print in one language supports students' literacy development in another (Manyak, 2007; Reyes, 2012). Additionally, transfer of learning and understanding can operate in both directions between languages, not only from the first to the second (Reyes, 2012). The psycholinguistic literature on language learners indicate that multilingual individuals develop greater cognitive flexibility, are more apt to recognize patterns, and have greater metasemiotic and metalinguistic awareness (Reyes, 2012). In fact, in a study of students in a bilingual French-English immersion cohort in Canada, researchers found that multilingual students who received instruction in both languages eventually outperformed monolingual students on both verbal and nonverbal measures (Reyes, 2012). In addition, it is important to note the finding that children's biliteracy has

not been shown to hinder their literacy learning in English (Reyes, 2012). Therefore it can be concluded that multilingualism should be rightly viewed as cultural and linguistic capital that can be leveraged as resource for learning and a socioeconomic asset.

The literature regarding instruction for students learning a another language continues to be limited but is conclusive in regards to several quality instructional approaches that have been shown to positively impact learning and biliteracy. First is the provision of a learning environment and instruction that is language rich. As Manyak (2007) explained, the purpose of language rich instruction is to accelerate both academic vocabulary and oral language development for English learners. Most notably known since Krashen's work with comprehensible input, it has been accepted that language learners need ample opportunities for making meaning of key academic vocabulary (Krashen, 1982). Uccelli et al. (2015) reported that the primary source of variability in reading comprehension between native and non-native speakers of English across socioeconomic levels is language skill mastery.This includes frequent exposure to vocabulary terms, explicit instruction of targeted vocabulary words, and opportunities for questioning and language engagement with said words (Butler, Urrutia, Buenger, Gonzalez, Hunt, & Eisenhart, 2010). As Allington (2002) concluded in his findings on effective reading instruction, students need enormous amounts of successful reading in material they are able to read to become independent, proficient readers. For multilingual learners, this means opening up the gateway of reading through purposeful vocabulary instruction.

Secondly, language learners need instruction that reflects their sociocultural identities, especially those which are underrepresented in the majority culture. Connecting literacy activities to students' home and community lives has been shown to lead to meaningful engagement in literacy activities (Manyak, 2007). As Ivey and Broaddus (2007) elaborated, multilingual learners must be exposed to a wider range of culturally relevant materials that resonate with their own experiences and are accessible to them in readability. The accumulated body of resources that students have at their disposal which are used to maintain and engage in family life can be used as an entry point for students' literacy learning in school (Ivey & Broaddus, 2007). In contrast, Suoto-Manning (2016) pointed out that children often do not see their own identities and histories represented within the classroom. Through valuing students' and families' cultural identities and funds of knowledge, young children begin to see their families and sociolinguistic communities as skillful and resourceful (Suoto-Manning, 2016).

Multilingual students learning English need explicit modeling of phonics and comprehension instruction. According to Allington (2002), exemplary teachers of students, monolingual and multilingual alike, routinely give explicit instruction in how to apply cognitive reading strategies when reading and also foster transfer of these strategies from structured practice to students' independent use. Due to the nature of learning and becoming literate in another language, language learners must become particularly adept at activating background knowledge, making inferences of meanings of words, and monitoring their own comprehension (Manyak, 2007).

Finally, a thematic, interdisciplinary approach to teaching and learning provides instructional elements that can be used to bridge the learning gap for multilingual students. First, integrating different content areas in relation to a common theme, and with common vocabulary and language, can support learners identified as learning English and language immersion students in acquiring academic language. Through the use of multi-level, multimodal text sets and a language rich, contextualized learning environment, language learners are supported in vocabulary and can engage in reading to learn. As Cummins (2011) highlighted, because academic language is found primarily in text and literacy engagement is correlated to the development of reading comprehension, language learners must be provided with ample opportunities and encouragement to read across a range of genres. Providing students with multiple exposures to vocabulary in a variety of contexts lays the foundation for making meaning comprehensible for language learners (Butler et al., 2010). Additionally, through explicit instruction in content area reading strategies and vocabulary, students develop reading strategies that allow them to be successful in their independent reading (Allington, 2002).

In summary, multilingual students learning English have often been perceived from a deficit perspective rather than through the lens of the cultural and linguistic assets they bring as a resource to learning. Research findings have concluded that language learners need explicit instruction in code and reading comprehension, support in academic vocabulary, and connections to be made between their sociocultural background and their school and literacy experiences. Finally, thematic, interdisciplinary instruction is an approach that provides embedded opportunities for language learners to

make meaning of academic language and concepts in a variety of contexts. The final section will review the current literature on engagement in regards to literacy learning.

Engagement and Reading

According to Cambria and Guthrie (2010),

There are two sides to reading. On one side are the skills which include phonemic awareness, phonics, word recognition, vocabulary, and simple comprehension. On the other side is the will to read. A good reader has both skill and will. (p. 16)

One of the overarching goals an effective reading teacher has for their students is to cultivate 'the will' to read— the enjoyment, dedication and motivation to read a variety of texts for varying purposes. Parsons, Malloy, Parsons, and Burrowbridge (2015) defined engagement in terms of its affective, behavior, and cognitive components: the "interest, enjoyment, and enthusiasm", "effortful participation", and "strategic behavior, persistence, and metacognition" employed for a task (p. 225). These are closely tied to Cambria and Guthrie's (2015) three given motivations in reading: interest, dedication, and confidence. In each definition, learners are described as being invested in their learning and they experience some sense of ownership over it. Although they make decisions that require personal effort, they also experience enjoyment and satisfaction. These are the feelings and behaviors that teachers hope to cultivate through the reading and learning experiences provided to their students at school.

Although, engagement is intimately tied to motivation, the two differ. Afflerbach and Harrison (2017) made the distinction between motivation and engagement: motivation is a mindset which can ultimately lead to students' engagement, or interest,

enjoyment and effortful persistence, in a task. These are central to student achievement and essential for their ongoing literacy development and, subsequently, students' success in school (Afflerbach & Harrison, 2017). Engagement in learning is, therefore, an aspect of instructional design that should be carefully considered and can be leveraged to help foster student achievement.

With some careful consideration of literacy tasks that are typically asked of students, it can be noted that students do not always experience engagement for a variety of reasons. Students, especially language learners, can struggle to read grade-level, content-area texts while concurrently struggling to see the relevancy of reading assigned texts used to practice a reading strategy that they may perceive is only useful to them 'for school'. For struggling readers, the language arts block can be a time of continual confirmation of their deficiency in being able to read and comprehend text at the level that they should. These students lack the confidence needed in order to lend their effortful participation and take part in reading tasks with interest, enjoyment, and enthusiasm (Parsons et al., 2015). On the other hand, it has been observed that with increased student engagement in learning tasks comes an increase in what students learn from them.

Reading within a thematic unit derives authenticity and purpose for reading from the established essential questions and content-area themes. This is the way we hope students will read in the world outside of school and as adults as well-- to solve a problem or learn more about a topic of interest. Thematic literacy units can be organized to teach students that reading is an enjoyable way to learn independently (Gelzheiser et al., 2014). Students are positioned to participate in literacy tasks within thematic units

with interest and thoughtfulness due to the provided, real-world reason for reading. As Tracy et al. (2017) noted, keeping students at the center of instruction was what really mattered. When students see how what they are reading relates to them personally through, the trajectory of becoming lifelong, impassioned learners is set into motion. An intended outcome of language arts programs is that students would read because they enjoy it, because they believe it is important, and because they feel confident that they are *able* to read. Cambria and Guthrie (2010) stated:

> In teaching the theme, we emphasize the broad conceptual topic with individual questions for the week and individual questions for each day. We emphasize how answering today's question relates to the general topic and how answering it relates to yesterday's question. (p. 22)

Therefore, by providing students with a context for the learning and reading tasks they will engage in through thematic instruction, we provide students with a purpose to employ strategic behavior and persistence, even when the task is challenging.

This section described and identified the meaning of engagement and motivation, particularly in relation to reading. The purpose and need for engagement in reading was explored, specifically in relation to reading achievement, and a connection was made between thematic instruction and providing students a relevant purpose for engaging in reading tasks. This second chapter concludes with a summary of the chapter, touching on key points from the literature review, and providing a overview of chapter three.

Summary

In this chapter, the theoretical and literature background of thematic, interdisciplinary instruction has been reviewed and synthesized in order to provide insight to the research question: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?*

First, the definition and components of thematic instruction in relation to constructivist theory were presented. Built upon the work of constructivists such as Vygotsky, it has been shown that thematic instruction lends itself to supporting social construction of meaning through the development of learners' schemata. Subsequently, a summary of pertinent literature on the topic of interdisciplinary instruction and content area literacy was described. The relationship between thematic instruction and the integration of literacy and different subject areas was discussed.

Following the review of the literature regarding interdisciplinary instruction and content area literacy, a review of identified best practices for language learners was addressed. This section highlighted the particular needs ascribed to language learners and, in turn, how teaching units thematically can offer a robust environment that is language rich for students who are learning a second language. In the final section, engagement and motivation were discussed in regards to reading. This included the components of engagement and the connection between thematic instruction and student engagement in reading.

The third chapter of this Capstone project provides a project description and overview of the academic curriculum designed. Additionally, research paradigms and rationale for the curriculum design are introduced and the project setting, audience and timeline for completion and implementation are described.

CHAPTER THREE

Project Description

Introduction

The purpose of this project has been to develop a thematic, interdisciplinary instructional unit for use with fourth grade immersion students. Inquiry for this topic stemmed from the author's professional experience and observations of students' (especially language learners') disengagement and underwhelming academic achievement in language arts within a traditional, elementary classroom setting. The review of pertinent literature and decision making in unit design were informed by the research question: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?* The intended outcomes in the design of this curricular unit were: to place reading and writing tasks within a meaningful context for learning, to integrate academic subject areas so as to increase content-area background knowledge, to support language learners by providing a continuous language rich learning environment, and to cultivate engagement in literacy tasks through 'reading to learn' in content area reading, leading to academic achievement.

The focus of the following chapter is the design and premise for the created four week thematic, interdisciplinary unit intended for implementation with fourth grade language immersion students. The chapter begins with an overview and description of the intended project. This section will assist readers in understanding the design of the instructional unit as well as the elements with which it is composed.

Next, research paradigms and theories that support the project approach and research question are presented. This develops the rationale for the project and serves as a baseline for decision making in its design. It also informs the reader of the perspectives from which this unit was derived and possible biases that impacted the design.

Subsequently, the setting for the project, including participants and demographic features, are described. Here, the reader can orient themselves in the learning context and community in which the unit takes place. Finally, the chapter concludes with an outline of the timeline for completion and implementation of the project.

Project Description

For this project, I created a thematic unit that incorporated district learning targets from language arts, science, and math under a common theme of The Science and Engineering of Slime and the unit essential questions. Additional cross-curricular learning target connections in social studies, health, science and math are suggested as applicable. The goal of the research and design of this curricular unit is that students would engage in literacy tasks both because they are supported to do so through the integration of literacy in the content areas and because they find these literacy tasks meaningful for their own learning in a topic of their interest. Each of the learning events

incorporated into this unit help students to answer the overarching unit essential questions 'How do scientists gather, classify, sequence, and interpret information and data?', 'How should I organize my thoughts and ideas so people understand what I am saying?', 'What techniques or strategies do writers or speakers use to achieve their goals?' and 'What strategies should I use to process what I read or hear?'. Topically, the learning segments prompt students to answer the essential questions: 'How can a slime recipe be designed that improves one property?', 'How can we distinguish between solids, liquids, and gases?', 'How can matter change states?', 'What do others say about making the best slime?', and 'How do animals use slime in nature?'. Each of these are connected to the overarching learning theme of The Science and Engineering of Slime.

The unit is designed in three phases spread out over the course of four weeks. First the introductory, inquiry phase, which introduces students to the concept of the states of matter and strategies for reading nonfiction texts. This is followed by the exploratory phase, in which students begin to wonder about the material state of slime as a substance used by animals in nature and as a homemade goo that created by kids, adults, and toy companies alike. The unit culminates in a phase in which students demonstrate their learning through a hands-on research and engineering design project. This final project indirectly incorporates students' nonfiction reading strategies, research abilities, science and math knowledge, and writing strategies learned throughout the unit, and assesses students understanding of the same.

To begin, students are presented with an introduction to the theme through the use of *What is the world made of?: All about solids, liquids and gases* by Kathleen Weidner

Zoehfeld (2015) as a mentor text. They are asked to question what they already know and would like to know about the unit theme and are introduced to the essential questions. Students are also introduced to the multimodal text set used for this unit (see Appendix A), referred to as the science library, as well as how to select and read a variety of texts. After the initial introduction, students participate in learning events designed to help them develop answers to the essential questions and construct meaning around the central theme. This unit includes reading and writing (as well as math and science targets), direct instruction mini anchor lessons, and inquiry-based, exploratory learning experiences that prompt students to seek answers to the unit essential questions in a way that is meaningful to them. Also, additional standards from social studies, math, and science are listed where relevant lessons that connect on the theme could be taught cross-curricularly.

The design of the learning events throughout this unit took into account elements of student engagement including incorporating student voice and choice in their learning, catering to a variety of learning styles and intelligences, and providing authenticity and relevance by positioning learning tasks within the overarching theme and tying them to the essential questions. Learning tasks were also designed with differentiation in mind. Students at a variety of ability levels can access the material with or without supports such as partner or group work, different levels of reading materials, and choice about how to communicate their thinking.

At the conclusion of the instructional unit, students design and create their final project. For this culminating project, students choose a desired outcome for their engineering design work and conduct research and tests to design their own slime. Then,

they write an informational/expository text on what they have learned and created as a result of their engineering of slime.

Assessments of the learning targets incorporated in this unit occur frequently and throughout the learning events. Evaluation is largely formative, occurring during the learning segments, while the final project assumes the role of a summative, performance-based assessment on their content and literacy learning. Finally, students complete a self-evaluation of their own learning and their individual progress toward learning goals and positive learner behaviors.

In this section, the design and outline of the curricular unit created for this project was discussed. A description of each of the phases of instruction was provided and, additionally, learning tasks and assessment methods were depicted. The following section orients the reader to the basis of research behind the instructional decisions put forth in the design of the curricular unit and provides insight into the perspectives that influenced its composition.

Research Paradigm

The thematic curricular unit created for this project was outlined using Wiggins and McTighe's (2011) backward design template (see Appendix B). Within their template, Wiggins and McTighe separate unit design planning into three distinct phases: identifying desired results, articulating the evidence for learning, and creating the learning plan (Wiggins & McTighe, 2011). This formulaic template creates the backbone for what is known in curriculum development as backward design. The essence of backward design is to begin with the 'end in mind', that is, determine what you want your

students to understand or be able to do at the culmination of the learning segment, and develop learning activities and tasks that stem from that guiding point.

One of the premises for Wiggins and McTighe's (2011) work, and greatest influence on this curricular unit, is the idea that students deserve to know the purpose of their learning, or "why" they are learning what they are learning; thus the articulation of the essential questions and desired results by the unit designer. Additionally in backward design, the emphasis is on students' being able to not only make meaning of what they are learning but to develop transfer of understanding in order to use what they have learned in another context and on their own.

Just as Wiggins and McTighe (2011) highlighted the importance of personal experience in making meaning, Vygotsky's social constructivism, or the theory that people construct their own meaning through their interactions with others, serves as a theoretical ground for the design of this thematic, interdisciplinary unit. Vygotsky believed that students knowledge, ideas, values, and attitudes develop through their interactions with others (as cited in Tracey & Morrow, 2017). This concept informs the way that students are positioned to interact within the classroom learning community throughout the instructional unit that was created. In this curricular unit, students learn both from teachers and from peers, in changing between large group, small group, and partner settings. Additionally, Vygotsky coined the term Zone of Proximal Development in reference to a level of challenge presented for a student in a task that is optimal for their learning (as cited in Tracey & Morrow, 2017). As students are working within their zone of proximal development, they are able to be successful with appropriate support-- a

challenging task is neither too easy nor at a frustrational level of difficulty. Learning

tasks incorporated into the design of this instructional unit are flexible in relation the

level of support provided as needed by individual students in order to position them to

work within their zone of proximal development.

Insight for the lessons template and guidelines on reader's and writer's workshop

from the non-profit organization Children's Literacy Initiative (2017) also helped to

inform the creation of lessons for this unit (see Appendix C). The reader's or writer's

workshop is an instructional methodology in which teachers provide brief, explicit

instruction and modeling of a reading or writing strategy and then 'send students off' to

practice the strategy in their independent reading or writing workshop time. During this

independent work time, teachers confer with students and lead small groups to help guide

students' reading and writing. Reader's or writer's workshop lessons also include a

'sharing' time at the end, in which students are held accountable for their independent use

of the skill or strategy learned by sharing their work with one another or the teacher.

The design of this unit is also informed by Dewey's constructivist theory of

inquiry learning, in which students are encouraged to identify, investigate and solve

problems. Dewey advocated that motivation, emphasized through a problem-based

approach to instruction, was central to optimizing learning (as cited in Tracey & Morrow,

2017). He also advocated for collaboration and cooperation in learning, in connection

with Vygotsky's social constructivism, over competition in education (as cited in Tracey

& Morrow, 2017). The curriculum designed for this project, based on inquiry theory,

was intended to provide intriguing experiences that would pique a learner's curiosity and

stimulate them to investigate and explore their own questions as well as solve problems. The instructional unit culminates with a project-based learning activity in which students demonstrate their learning by solving a problem that was meaningful to them.

This section has explained the research and theoretical frameworks with which this project was been created. The section to follow will describe the setting for the project, as well as the intended audience for which it was created.

Setting and Audience

This thematic, interdisciplinary unit will be implemented in a Spanish Immersion elementary school in a northern suburb of Minneapolis, Minnesota. The school's student population is 59% white, 27% Hispanic, 7% two or more races, 4% Black, 3% Asian, and less than 1% Native American, Hawaiian Native or Pacific Islander. Students coming from low-income families represent 25% of the student population. As the school is a Spanish language Immersion school, many students are learning in their second (or third, fourth, etc.) language in addition to learning colloquial language that is not present in the mainstream culture. All students, including those who speak Spanish at home, are acquiring academic language and literacy abilities in Spanish at school. Although the school has a low population (relative to other schools in the area) of students of color, students of low socioeconomic status, and English learners (ELs), there persists a significant achievement gap between these students and their white, non-EL, middle or upper class peers on state standardized testing.

This curricular unit project is intended for use in a fourth grade Spanish immersion classroom, although resource materials have been provided in English and it

could be adapted for other languages or grade levels. Additionally, it will be shared with fourth grade team colleagues to foster alignment in implementation and instructional approaches across the grade level. It will also benefit other educators within the school district when stored within the shared warehouse of curricular resources. Teachers from any elementary school within the district can easily access the unit design framework and choose to implement it as they see fit.

In this section, the setting and audience for whom this curricular unit project was created were described. Also, pertinent information regarding the demographics of the learning community have been explained. In the section to come, the timeline for instruction within the instructional unit in addition to the timeline for the completion of the capstone project are introduced.

Project Timeline

This instructional unit is intended to be taught over the course of four weeks that will be implemented in the school year to come. Within the first week, initial learning in the project was designed to help students inquire and explore content related to the theme and essential questions. The first week of instruction focuses on helping students to grasp content standards around states of matter and nonfiction reading strategies. Direct instruction throughout the unit focuses on reading comprehension, writing, and content-area literacy and investigation centered on the unit's theme. In the second week of instruction, students are introduced to slime as both a substance used by animals in nature and also something that people have created and modified for their own purposes. In this phase, students would begin to imagine creating their own version of slime in

science class as they develop and test their own solutions. These science lessons would work in congruence with the instructional lesson templates provided for the literacy block.

Following this, the third week focuses primarily on developing students' skills in conducting research to help inform their engineering design final project and work in science class. The last week of lessons is designed to strengthen students' information/expository writing, as they prepare to communicate the results of their engineering design work. Finally, the unit concludes with a project-based assessment in which students demonstrate what they learned throughout the course of the unit. A week of additional, optional lesson plan ideas is provided in the learning plan, to demonstrate how this unit could be extended to include more learning and reading/writing strategy instruction drawing on students' background knowledge under the same theme.

In regards to the guidelines presented by Hamline University, Capstone Projects are submitted following the completion of the GED 8490 Capstone Project cumulative course. The author began the Capstone Project course in the spring term of 2018 and began the creation of the unit on January 31st, 2018. An initial draft of the instructional unit was created and submitted for review in April of 2018 and all final revisions were made by May of 2018.

In this section the timeline for the instructional unit design and project completion was explained. The final section will summarize the chapter and provide a brief overview of the fourth and final chapter of the project.

Assessment

The effectiveness of the designed curriculum is evaluated throughout the implementation of the unit both formally (via collected formative assessments and performance-based projects) and informally (through anecdotal and affective observations). Students demonstrate their understanding and thinking through group discussions in the sharing portion of the lesson, formative check in conferences with the teacher, and in small group reading instruction. They also show their level of mastery with the content and language arts learning objectives through the integration of their understanding in these areas to create their final project at the culmination of the unit. As the focus of the literacy tasks in this unit is reading to learn, students are evaluated on their thinking processes, not merely reading fluency.

One of the intended outcomes of this unit was an increase in students' reading engagement. Students' affect in regard to reading (their level of interest in a text or book discussion, their persistence through challenge, their employment of higher order thinking skills before, during, or after reading) should be observed and evaluated throughout the course of the unit. Students are also asked to evaluate their own willingness to engage before and after reading tasks in order to monitor and regulate their reading engagement.

The research question states: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?* The evaluation of students' reading engagement and achievement has been

described both formally and informally. The final section concludes this chapter with a summary of the chapter and an introduction to the fourth chapter of this Capstone Project.

Summary

In summary, the four week curricular unit presented was designed for fourth grade students in an elementary, suburban, Midwest Spanish Immersion classroom. It integrated language arts, math, and science/social studies learning targets. The design of the unit was based on Wiggins and McTighe's (2011) backward design model, the Children's Literacy Initative's (2017) reader's and writer's workshop, and was grounded in social constructivist and inquiry theory. The unit was designed specifically with language learners in mind, reinforcing key vocabulary and literacy skills throughout content instruction and exploration in the school day. The learning segment culminates with a project-based evaluation in which students demonstrate their learning in relation to the essential questions.

Chapter four reflects on the creation of the project of curriculum writing that meets learning targets across disciplines centered around a common theme. Key learnings from the literature review, rationale for the curricular design, possible limitations, and implications for the curriculum are all explored.

CHAPTER FOUR

Reflection and Conclusion

Introduction

Throughout my years teaching fourth grade in a Spanish immersion elementary school in Minnesota, the element of engagement and its impact on literacy achievement has seemed to me essential but elusive. Additionally, the educational system of compartmentalized instruction as it is traditionally enacted undeniably leaves some students on the margins of achievement. In my experience of teaching literacy units, not isolated to immersion schools, students are oftentimes unengaged when left without a learning context or a real-world purpose for the literacy skills they are asked to acquire and use independently. For some, the perceived need for the literacy skill does not go beyond the four walls of the classroom or beyond the text used for the final quiz. I have noticed this issue is aggravated more so in my language immersion school setting, where students work on comprehending each new text in what is (oftentimes) a language other than their first.

These realities led to my asking the question: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?* Through the review of recent research and literature, I identified key themes in the areas of thematic instruction and constructivist theory, content area literacy, best practices in literacy for multilingual learners, and engagement. From these, I worked to develop a four week thematic, interdisciplinary literacy unit of reader's and writer's workshop lessons that incorporated scaffolding of students' background knowledge around a common theme for study.

This final chapter seeks to examine key findings and implications of both the curriculum model and the literature review. Key learnings are synthesized and described, the literature review is revisited and reflected upon, and implications and limitations of the project are explored. Recommendations for future related research are given and the intended application of the project is discussed.

Key Learnings

Throughout the research process, I learned much about myself as a researcher, teacher and learner. First, I expected to find quite a few more examples than I did of others who have implemented thematic, interdisciplinary units at the elementary or even middle school level. Although this teaching style does not seem to be wildly out of the ordinary, my search only yielded a few results of educators who had implemented and documented using this type of instruction with their students. While this could be for a variety of reasons, I speculate that it could be related to teachers often having a set curriculum scope and sequence, and provided curriculum materials with which they are

required to teach. Because the philosophy of my district is that teachers should use any materials they deem useful to teach the grade-level essential learning outcomes, we are not required to any one prescribed curriculum. Therefore, I feel I have the unique freedom and confidence to create my own units of study that correlate to my students' interests and interdisciplinary learning targets.

Additionally, I have learned an ample amount about the format and design of the reader's or writer's workshop. While I began this undertaking with a working knowledge of the workshop model, it became abundantly clear to me early on that it was the lesson structure I should use to help students learn reading and writing strategies in the context of content area reading and learning. Because the workshop model includes both direct instruction and time for students to put their newly learned skills or knowledge into action, it was a natural choice for supporting students to read and write content area texts.

Finally, the impact of the incorporation of a thematic text set into a unit was an important learning for me. Using thematically-related texts to scaffold background knowledge acquisition and deepen comprehension was a new concept to me but it became a foundation for all the independent work that students will do within the unit. By compiling a thematic text set of varying formats (non-fiction books, articles, videos, fiction books, etc.) students have ample opportunity to interact with different texts around a similar theme throughout the course of the learning segment. This concept is one that I will certainly borrow from for use in future unit designs.

In this section, key learnings from the research and research process were discussed. In the section to follow, I revisit and reflect upon the review of the literature pertaining to my topic of thematic, interdisciplinary instruction.

Revisiting the Literature Review

To begin my investigation, I wanted to develop a deep, theoretical understanding of thematic instruction and its components. I determined that, as Bergeron and Redenga (1996) described, thematic instruction is the approach to teaching that organizes content objectives by theme rather than by skill or objective alone whose purpose is the mastery of skills and knowledge within a meaningful learning context. This is, in large part, based on the theory of constructivism, which states that individuals actively construct their own knowledge (Tracey & Morrow, 2017). This theory plays heavily into the concept of thematic teaching in that students' schemata, or construct of knowledge, on a theme is expanded and developed, providing them with necessary background knowledge for future new learning in that area. This understanding was essential in the development of the curriculum theme, text set, mentor texts, and culminating project.

Content-area literacy emerged as an interwoven and important component of thematic, interdisciplinary instruction. In the research I conducted, it was emphasized that content-area reading and writing is a necessity for present and future reading and learning experiences. Content-area literacy is something that can be easily integrated into a literacy unit that incorporates science, social studies, or health learning goals. Additionally, it became apparent from the literature that multilingual students learning the target language need explicit instruction and modeling of reading comprehension

strategies, support with academic vocabulary, and real connections between the learning and their lives. From each of these areas, supporting students to 'read to understand' content area concepts was a focus of the reader's and writer's workshop lessons created for the thematic, interdisciplinary curricular unit. One of the foundations for the unit developed was the use of a thematic text set that is related to the topic of study. The integration of these related texts into daily workshop practice as well as modeling through mentor texts was intended to support students' academic language and depth of understanding in content area knowledge.

A final area explored was that of engagement and reading. After first defining engagement as effortful participation, persistence, interest and enjoyment in a task, the component of meaningful purpose was determined as a driver of engagement (Parsons et al., 2015). When students see how the texts they are reading relate to them and their interests personally, they undergo the process of becoming lifelong learners who see reading as important to their lives (Tracy et al., 2017). This aspect was not ignored in the curriculum design as I worked to incorporate a unit theme and essential questions that I believed students would not only relate to, but also find interesting and enjoyable.

In summary, important themes that stood out from the literature have been discussed and applied in their context to the curricular unit designed. Implications for utilizing the thematic, curricular unit are next explored.

Implications

The four week thematic unit that was created will be implemented in the final trimester of the 2018 school year. I also plan to share my research and interdisciplinary,

thematic unit design with teachers from my school during a professional learning segment in the upcoming 2018-2019 school year. As planning and unit design tends to stay uniform across grade level teams, the unit plans will be shared with the three other fourth grade teachers on my team for use with their classes. It may be, however, that we need to stagger our implementation of the unit to allow for sharing of texts from the compiled thematic text set across classrooms. Teaching reading in Spanish means that acquiring multiple and varied copies of books in the target language can prove challenging. In order to have a robust library for students' use during independent reading time, we will likely need to share these texts as a grade-level as well as borrow some titles from public libraries. This unit may be taught at any point in the school year, although it may be helpful to consider the intended scope and sequence for teaching the standards for Science and Math. As the cross-curricular lessons greatly overlap to support students' learning on the theme throughout the school day, it will be advantageous to align the implementation of these literacy lessons with the corresponding content area target lessons.

The intended outcomes of the implementation of this unit are threefold. First, that all students, as a result of this unit, would have a more extensive conceptual knowledge of the content area topic studied, that is, the states of matter. Additionally, I anticipate that students who traditionally struggle to read or comprehend in Spanish will experience support in academic language and the expansion of their background knowledge to support comprehension through repeated exposures to words and concepts. By removing some of the unfamiliarity in the concepts they are reading, students have the opportunity

to understand the text at a deeper level and acquire new information. A final anticipated outcome of the implementation of this unit is that students would find themselves engaged in the real-world problem-solving of engineering and reading to understand about a topic of interest to them.

As is apparent, there are many implications for the use and professional collaboration regarding the research and design of this thematic, interdisciplinary unit. In the section to follow, limitations for the designed unit are explored at length.

Limitations

While this curricular unit poses many opportunities for learning, it is not without limitations. This unit, although predictive of anticipated needs, is not responsive and flexible to the real-time learning needs of the diverse students that are in fourth grade classrooms from year to year. It is not expected that this unit would be followed to the letter but rather used as a guide and modified as student needs and interests direct. Furthermore, the cross-curricular connection opportunities of this unit are limited to the days and timespan needed to teach other content area standards. Potential cross-curricular connections with other content-area standards have been listed in the scope and sequence of the learning plan but by no means imply that it will be possible to draw connections to the unit theme in every subject matter, every day.

This section has sought to determine the potential limitations of the project in its implementation. Subsequently, future areas of study and exploration related to the themes researched and the project design are described.

Future Plans

Throughout the creation of this unit, several topics and areas for further study in regards to real-world literacy learning have emerged. For example, I have been involved in learning more about STEM (science, technology, engineering, and math) integration across content-areas in our school district. While I had hoped to incorporate our district vision for STEM instruction in my unit, I have come to realize that students' working to solve a real-world problem is at the center of its design and is not directly present in my thematic, interdisciplinary curriculum. In my creation of future units such as this one, I hope to incorporate students' engineering of a solution to a real-world problem through collaboration with community and content area experts.

In addition to this, student direction of learning through inquiry is a component that I hope to develop in future thematic, cross-curricular units I create. While there is an element of inquiry and student direction of learning in the final project of this curricular unit, I would like to delve deeper into the creation of thematic units in which students have more control over the development and direction of learning experiences and goals. I would recommend that teachers desiring to create a thematic, interdisciplinary unit further research STEM integration and how it can extend learning more organically beyond the walls of the classroom.

I also desire to learn more about how else to best support multilingual learners. At our Spanish immersion school, an achievement gap persists between students identified as English learners (many of whom speak Spanish as a first language) and non-English learners. Although multilingual students who speak Spanish at home should have a

literacy advantage of also learning in their L1, a disproportionate number of these students do not currently meet expectations on state standardized testing. I am interested in learning more about culturally relevant pedagogy and staying up-to-date on research-based practices to help support multilingual students in a way that goes beyond merely being able to communicate with and support them in their home language.

To summarize, future goals and areas of study relating to thematic, interdisciplinary instruction and unit design have been identified and explained. To conclude, I will end with my final thoughts, reflections and hopes in regards to the creation and implementation of the thematic, interdisciplinary curricular unit.

Conclusion

The research I conducted sought to answer the research question: *What is the impact of thematic, interdisciplinary teaching on students' reading engagement and achievement in a language immersion setting?* Many key learnings and findings from both the project creation and literature review have impacted the way I think about and plan for student learning. Through the experience of thematic, interdisciplinary learning, students will be able to construct their own understanding in collaboration with others, comprehend content area texts more deeply, make a connection to their own life and interests, and find themselves engaged in their learning. I look forward to implementing this thematic unit with my students and watching them get excited about reading to learn. This is, in essence, the highest-calling of a literacy teacher: to help their students become lifelong learners who can interact effectively with their real, diverse, and ever-changing communities.

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Wiggins, G. P., & McTighe, J. (2011). *The understanding by design guide to creating high-quality units*. Alexandria, VA: ASCD.

Zoehfeld, K. W. (2015). *What is the world made of?: All about solids, liquids and gases*. New York, NY: Harpercollins Children's B.

Appendix A

Bilingual Science Classroom Library & Read-Aloud Suggestions for

'The Science and Engineering of Slime':

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Barron, C. (2017, May 31). Show and tell? No, for these kids, it's show and sell.

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Bayrock, F. (2006). *States of matter: A question and answer book*. Mankato, MN:

Capstone Press.

Biskup, A., Martin, C., & Schulz, B. (2010). *The solid truth about states of matter with*

Max Axiom, super scientist. London: Raintree.

Boothroyd, J. (2007). *What is a solid?* Minneapolis, MN: Lerner Publications.

Boothroyd, J. (2010). *What is a liquid?* Minneapolis, MN: Lerner.

Boothroyd, J. (2010). *What is a gas?* Minneapolis, MN: Lerner.

Boothroyd, J. (2015). *Many kinds of matter: A look at solids, liquids, and gases*. Minneapolis, MN: Lerner Publications/Lerner Classroom.

Braun, E., & Boyden, R. (2012). *Joe-Joe the wizard brews up solids, liquids, and gases*. North Mankato, MN: Picture Window.

Crash Course Kids. (2015, March 17). *What's matter? - Crash course kids #3.1* [Video file]. Retrieved from https://www.youtube.com/watch?v=ELchwUIlWa8

Diehn, A., & S. (2018). *Matter: Physical science for kids*. White River Junction, VT: Nomad Press.

Greathouse, L. E. (2011). *Los sólidos*. Huntington Beach, CA: Teacher Created Materials.

Hamburg, J., & Burach, R. (2017). *Billy Bloo is stuck in goo*. New York, NY: Scholastic.

Hansen, A., Canetti, Y., & Lew, K. (2012). *Formas de la materia*. Vero Beach, FL: Rourke Pub.

Hansen, A., & Canetti, Y. (2012). *Materia derretida*. Vero Beach, FL: Rourke Pub.

Harmon, K. (2011, May 02). It's a solid... It's a liquid... It's oobleck! Retrieved from https://www.scientificamerican.com/article/oobleck-bring-science-home/

Jagan, A. (2017). *Ultimate slime*. Beverly, MA: Quarry.

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Kline, S. (2006). *Horrible Harry and the green slime*. Abbotsford, B.C.: The Braille
Superstore.

Larson, K. (2017). *Materia cambiante*. Huntington Beach, CA: Teacher Created
Materials.

Maloof, T. (2018). *Tu mundo: Investiguemos las medidas: Volumen y masa (Your World:
Investigating Measurement: Volume and Mass) (Spanish Version)*. Huntington
Beach, CA: Teacher Created Materials.

Maxwell, A., & Cotterill, S. (2018). *Once upon a slime*. New York, NY: Little, Brown
and Company.

McDonald, M., & Reynolds, P. H. (2017). *Stink and the attack of the slime mold*.
Somerville, MA: Candlewick Press.

Mezzanotte, J., Acosta, T., & Gutiérrez, G. (2007). *Cómo cambia el agua*. Milwaukee,
WI: Weekly Reader Early Learning Library.

Mezzanotte, J., Acosta, T., & Gutiérrez, G. (2007). *Líquidos*. Milwaukee, WI: Weekly
Reader Early Learning Library.

Mezzanotte, J., Acosta, T., & Gutiérrez, G. (2007). *Sólidos*. Milwaukee, WI: Weekly
Reader Early Learning Library.

Mezzanotte, J. (2007). *Gases*. Milwaukee, WI: Weekly Reader Early Learning Library.

Ortiz Healy, V. (2017, March 16). Chicago teens cash in on slime-making trend. *Chicago Tribune via Newsela (Ed. Newsela Staff. Version 570).* Retrieved from https://newsela.com/read/slime-making-kids/id/28094

Prager, E. J., & Bersani, S. (2014). *Sea slime: It's eeuwy, gooey and under the sea*. Mt. Pleasant, SC: Sylvan Dell Publishing.

Rice, W. B. (2011). *Los líquidos*. Huntington Beach, CA: Teacher Created Materials.

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Ross, M. E., & Meisel, P. (2007). *What's the matter in Mr. Whiskers room?* Cambridge, MA: Candlewick Press.

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Stille, D. R., & Boyd, S. (2004). *Matter: See it, touch it, taste it, smell it*. Minneapolis, MN: Picture Window Books.

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& Keen - Solid, Liquid, or Gas! WONDER QUEST [Video file]. Retrieved from

https://www.youtube.com/watch?v=v-WZa80ttYw

Appendix B

Understanding By Design Unit Template

Title of Unit		Grade Level	
Curriculum Area		Time Frame	
Developed By			

Identify Desired Results (Stage 1)		
Content Standards		

Understandings	**Essential Questions**	
Overarching Understanding	**Overarching**	**Topical**

Related Misconceptions		

Assessment Evidence (Stage 2)

Performance Task Description

Goal	
Role	
Audience	
Situation	
Product/Performance	

Standards	
Learning Plan (Stage 3)	

Unit framework adapted from:

Wiggins, G. P., & McTighe, J. (2011). *The understanding by design guide to creating*

    high-quality units. Alexandria, VA: ASCD.

Appendix C

Reader's/Writer's Workshop Lesson Plan

Lesson Focus:

Essential Question(s):

Standard(s):

Text:

Lesson Resources:

Mini-Lesson **(5-15 mins)** **Connection:** - contextualizes lesson **Teaching Point** - states strategy to be learned - provides purpose for lesson - tells students what to focus on, learn, or know	
Teach - Model/think aloud the use of the strategy - Activate prior knowledge - Build background knowledge - Guided practice - Explain & give an example - Rereading for deeper meaning	

Active Engagement - Try out strategy learned - Turn and talk - Think, Pair, Share - Plan their work	
Link - Restate strategy demonstrated - Connect the lesson to the work students will do during independent reading/writing	
Independent Reading/Writing **(15-40 mins)** - Individual conferencing - Small group/guided reading lessons - Book clubs - Independent reading	
Sharing **(5-15 mins)** (individual, partner, or group) - Write about reading - Share responses/reflections - Tie to mini-lesson focus	

Lesson template adapted from:

Children's Literacy Initiative (2017). *Reading & writing workshop*.

https://cli.org/resource/reading-writing-workshop/