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## THE LANGUAGE OUTCOMES OF HMONG DUAL-LANGUAGE IMMERSION PROGRAM

Chao Vang  
chaoy2112@gmail.com

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THE LANGUAGE OUTCOMES OF HMONG DUAL-LANGUAGE IMMERSION  
PROGRAM

**A Dissertation**  
**SUBMITTED TO THE FACULTY OF**  
**CONCORDIA UNIVERSITY, ST. PAUL**  
**BY**

**Chao Vang**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS**  
**FOR THE DEGREE OF**  
**DOCTOR OF EDUCATIONAL LEADERSHIP**

**Oluwatoyin Akinde Fakuajo, Ed. D., Committee Chair**

**Sally A. Baas, Ed. D., Committee Member**

**Jerry Robicheau, Ph. D., Committee Member**

**April 29, 2020**

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## **Dedication**

I would like to dedicate this study to my father, Cher Tony Vang Moua and mother, Youa Lisa Her, who value education highly and have always motivated me to further my education. Ua tsuag kuv nam hab kuv txiv, txawm tas kuv yog ib tug ntxhais qhua los meb yeej txhawb kuv txuj kev kawm ib txwm thaum yau lug txug naj nub nwg nuav. I also would like to dedicate this study to my siblings: Chia, Chang, Lue, Pangshoua, Lang, and Huaci for their love and support in my education.

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“How much better to acquire wisdom than gold; to gain understanding is more desirable than silver” (Proverbs 16:16).

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**Chao Vang**

## Abstract

The purpose of this study was to investigate the impact of a K-12 Hmong dual-language immersion program on kindergarten through fifth-grade Hmong students' academic performance in the category of reading Hmong and English. Moreover, the parents of those students were investigated concerning specific factors they used in choosing a dual-language immersion program for their child. Hmong bilingual students have different perspectives about their cultural identities, retaining the Hmong culture, and learning English when the Hmong language was used as the instructional language. It was also imperative to determine the most prevalent factor that parents consider when selecting a program with a Hmong focus language. This study employed quantitative design to investigate a) the Hmong and English reading level for the Hmong dual-language third, fourth, and fifth-graders, b) the students' dominant language, and c) the parents' reasons for enrolling their children in the HDL program. ANOVA and descriptive statistics were used to analyze data collected from the Hmong Reading Assessment, the Minnesota Comprehensive Assessment, the Twelve Bilingual Dominance Scale, and the parent Likert-scaled questionnaire. The results indicated that years of HDL experience can boost dual-language students' MCA reading scores while they maintain Hmong reading proficiency. The Twelve Bilingual Dominance Scale indicated that most of the HDL students identified themselves as balanced Hmong and English learners. Parents' reasons for HDL enrollment was primarily due to language preservation and home life support.

*Keywords:* Bilingual education, dual immersion programs, Hmong dual-language programs, language dominance, academic achievement, enrollment factors

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## CHAPTER 1. INTRODUCTION

Language has been the primary mechanism used by people to communicate with each other as well as a means of bonding people together (Lee, 1999; Smith & Kirby, 2008). Language is one of the aspects from which people form their identities and stay connected with their culture and history. Various cultures have their unique languages to communicate with people within their societies (Pedersen, 2010). The unique language spoken by most of a given society generally dominates over lesser-spoken languages and eventually displaces groups of people (Lee, 1999). The dominant language currently within the United States is English. Nonetheless, according to the Census Bureau (2015), within mainstream society, there are at least 350 languages spoken in the United States. Hmong is one of the ethnic languages spoken in the United States, especially in the Mid-West part of the country (Rumbaut & Massey, 2013).

The Hmong people are a relatively new group of refugees to come to the United States within the past 40 years since 1975 (Kelly, 1986). Hmong living in the United States are people who fled Laos at the end of the Vietnam War due to severe repercussions toward them for having supported Americans during the war (Kelly, 1986; Vue, 2015). When the war ended in 1975, and the Americans pulled out of Laos, the Hmong were persecuted for siding with and aiding the Americans.

To escape death, the Hmong initially sought refuge in Thailand, where they received refugee status and subsequently fled to many countries around the world. Due to the direct involvement with the United States and assisting Americans in the war, many Hmong were able to immigrate and enter the United States in the late 1970s and 1980s (Yang, 2001). However, the contrast between the Hmong rural life in Laos and life in the United States was so great that

many Hmong endured hardships and extensive challenges (Duchon, 1997; Ngo, 2013).

According to Pfeifer et al. (2013), more than 256,000 Hmong people reside in the United States, with the majority concentrated in California, the Twin Cities in Minnesota, and Wisconsin.

The purpose of this study was to investigate the impact of a K-12 Hmong dual-language immersion program on kindergarten through fifth-grade Hmong students' academic performance in the category of reading Hmong and English. The students' academic outcomes were based on third through fifth-grade student data collected. Therefore, the assessments included third through fifth-grade. However, the participants were those who persistently enrolled in the HDL program since kindergarten. Moreover, the parents of those students were investigated concerning specific factors they used in choosing a dual-language immersion program for their child.

In this study, the population of *students* is considered either 1.5 or 2.0 generation Hmong-Americans, while their *parents* are considered either 1.0 generation or what is known as 1.5 generation Hmong-Americans (Xiong, 2011). The 1.5 Hmong generation refers to individuals who are foreign-born and have maintained characteristics from their home country as they assimilated and socialized in the mainstream culture of the United States. The 2.0 Hmong generation group refers to individuals who were born and raised in the United States.

Within this chapter is the background of the study, the purpose of the study, the conceptual framework, the research questions, and the significance of the study. The other section of this study is a comprehensive literature review that provided analysis and synthesis from various studies on dual-language immersion schools. The extensive literature review focused on the history of bilingual education and grounding work on academic achievement, executive functioning, cultural continuity, and self-perception identity.

## Background of the Study

This study focused on an investigation into what Hmong and English language proficiencies were for students within a K-12 Hmong dual-language immersion program in Minnesota. Language is vital for communication as it holds a symbolic function (Evans, 2014; Thomas & McDonagh, 2013). Evans explained that the symbolic function of language has both forms and meanings. The functional forms of language are spoken, written, or signed, while the functional meanings of language are the ideas or concepts associated with those forms.

For instance, in spoken English, the word ‘cat’ is made up of the three distinct sound segments, known as phonemes /k/, /æ/ and /t/. When combined, those segments provide the form /kæt/” (Evans, 2014, para. 5). Pairing the meaning function with this functional form composes knowledge about cats: Cats have four legs, whiskers, a tail, make a particular sound, and so on.

Languages have been developed by encoding and externalizing humans’ thoughts (Evans, 2014; Reboul, 2015). Many Hmong children and young adults lack the symbolic function forms and meanings in the use of their native language due to a lack of proper schooling (Evans). In other words, these Hmong youngsters in the United States are deficient in the spoken and written forms of the Hmong language, which have made it challenging for those students to make meaning of what they hear in English. This language barrier likely resulted in an identity crisis because an individual’s identity is comprised of both external and internal factors; this conflict for Hmong youngsters has affected their learning abilities tremendously (Vang, 2012).

The Metro School District designed the K-12 Hmong dual-language program based on research on dual-language immersion programs where students who learned in a dual-language setting performed at the same level or above their non-dual-language peers (DeNisco, 2015).



This study sought to determine the Hmong dual-language program's effectiveness to ensure students' academic successes while at the same time empowering the students' identities by promoting the Hmong language and culture. The Metro School District conjectured that the Hmong dual-language immersion program could academically aid bilingual students in excelling while maintaining the Hmong cultural and ethnic identities (Saint Paul Public Schools, 2019c). The Metro School District was the first and only district in the United States to offer what is known as a '90:10' model for a Hmong dual-language program.

A 90:10 model is comprised of 90% of instructional time in the target language and 10% in the second language (Acosta, Williams, & Hunt, 2019). A target language is the student's home mother-tongue language, whereas the second language is the mainstream language of a given society, that being English in the United States. DeNisco (2015) explained how the district was following the best practices of dual-language immersion and anticipating that the Hmong dual-language immersion students would perform at the same level or above their monolingual peers. Located in one of the highest Hmong population areas in the nation, the Metro School District also suggested that the Hmong immersion program would boost self-esteem and confidence in their students. The Hmong immersion program would lead to stronger bonds with families and members of their communities (Saint Paul Public Schools, 2019c).

### **Hmong Dual-Language Programs**

Dual-language immersion programs provide general education instruction in two languages within K-12 schools. Some of these programs use the 90:10 format, while others choose the 50:50 model (Vega, 2014; Smith, Miro, Fore & Piferi, 2016). These models vary in the ways students receive instruction in the target language and English. As stated earlier, with the 90:10 model, students received instruction in the target language 90% of the time and in

English the remaining 10%. However, with the 50:50 model, students receive instruction in the target language during the first half of the day and in English the second half of the day (Smith, Miro, Fore & Piferi, 2016).

In 2002, the Hmong immersion program in the Metro School District started with a 90:10 model (Agbam, 2015). In the Metro School District, there are two Hmong dual immersion schools, Park Elementary and Jack Elementary, the nation's first two sites for a K-12 Hmong dual-language program (Agbam). Hmong immersion, Hmong dual-language, and Hmong two-way immersion are terms used interchangeably at the district level and school sites. The Hmong dual-language teachers are elementary-licensed and highly proficient in both Hmong and English (Agbam, 2015). With a 90:10 model, 90% of instruction is performed in the Hmong language, and 10% of the teaching is in English in the lower grade-levels, such as pre-kindergarten to first grade. Then gradually, English is added in the second grade with the intent of a gradual progression to 50% English and 50% Hmong by third grade. By fourth and fifth-grade, the model is still considered a 90:10 model, but the target language of Hmong is 10%, and English is 90%. Therefore, it is really a 10:90 model in fourth and fifth-grade.

Due to performance demands with the Minnesota Comprehensive Assessment (MCA), there was a shift in third-grade with the percentage of the language used for instruction. The target language of Hmong gradually decreasing and English increasing throughout grade-level progression. The percentage of time the program uses the Hmong language versus English in the core subjects is presented in Table 1. Hmong immersion program was established with the goal of students staying in the immersion pathway as they moved on to middle and high-school (Saint Paul Public Schools, 2019b).

Table 1.

*Percentage of Time Students Were Exposed to Hmong and English in the Core Subjects in Hmong Dual-language Immersion Program (i.e., Reading, Writing, Math, Social Studies, Science).*

Grade	Hmong	English
Kindergarten	90%	10%
First Grade	90%	10%
Second Grade	80%	20%
Third-grade	50%	50%
Fourth-grade	20%	80%
Fifth-grade	10%	90%

According to the Metro School District, there are two middle-schools and two high-schools assigned to host the Hmong immersion program students. With the immersion pathway into the high-school level, students can earn Hmong language certificates, or seals, for college credit (Saint Paul Public Schools, 2019b). The seals are levels of awards, which allow bilingual students to earn post-secondary credits toward higher education foreign language requirements. These awards were determined by several states' Departments of Education and are well-known in the bilingual field as the *Seal of Biliteracy*. Twenty-five states, including the District of Columbia, has adopted these seals and certificates (Davin & Heineke, 2017). Bilingual students must display proficiency across four domains, reading, writing, listening, and speaking (Davin & Heineke). This Seal of Biliteracy is a recognition honoring bilingual proficiency.

Research has noted cognitive advantages of learning two languages, particularly learning dual-languages at an early age, and notably in the cognitive area of executive functioning (Bialystok, 2015; Bialystok & Viswanathan, 2009; Carlson & Meltzoff, 2008; Engel de Abreu, Cruz-Santos, Tourinho, Martin, & Bialystok, 2012). A primary purpose and efficacy of improved

executive function is *inhibitory control* related to an individual's ability to pay attention and to control thoughts and behaviors (McClelland, Cameron, Wanless, & Murray, 2007). Thus, an improved executive function system allows for a student's regulation, control, and management of his or her learning, vital for strong academic performance, as well as the development of numerous academic abilities (Cortés, Moyano, & Quílez, 2019).

### **Statement of the Problem and the Need for the Study**

To fully understand the impact of the K-12 Hmong dual-language program, an examination of the Hmong students who participated in the Hmong language program was essential to this study. Studies revealed that bilingual education had enhanced students' self-esteem and confidence in speaking their home language as well as aiding those students in maintaining their cultural identity (Boyer & Tracz, 2014; Padilla, Fan, Xu & Silva, 2013; Parkes, 2008; Palmer, 2007). With these advantages in mind, this study of a K-12 Hmong dual-language program has provided new insights.

Although immersion schools are positioned to help bilingual students maintain their native languages and cultures, boost their ethnic identities, and increase academic achievement, there are many challenges of such practices within the Hmong dual-language program (Collier & Thomas, 2004; Han, 2012). As a teacher within the Hmong dual-language program for several years, this researcher found a lack of resources, such as books written in Hmong and teaching strategies for the Hmong language, as problematic. This presents an inability to fully understand the effectiveness of the program and the academic outcomes for the students.

Another problem is a consistent commitment of Hmong parents keeping their students in the program long enough to see long-term academic results. The reason for this is that some

Hmong parents do not choose the Hmong dual-language immersion programs due to their potential misunderstanding of the structure of the program being that of a 90:10 model. Within this model, 90% of instruction is performed in the Hmong language, and 10% of the teaching is in English. Gradually, more English language instruction is added as student progress through the grade-levels. These parents assumed that both Hmong and English languages were being taught concurrently and equally (such as the 50:50 model); thus, they withdrew their children from the program (Palmer, 2007). The outcome of those student withdrawals has created the problem of not having data on students who progress through the entire program. Once again, this presents the inability to fully understand the effectiveness of the program and the academic outcomes for the students.

There is a need for this study as prior literature revealed several benefits that dual-language programs have on bilingual students' academic successes and maintenance of their cultural identities, further influencing and enhancing those students' relationships with family and community members (Boyer & Tracz, 2014; Fortune, 2020; Padilla, Fan, Xu & Silva, 2013; Withers, 2004). Although there have been multiple bilingual educational studies performed on world languages such as Spanish, French, and Chinese, there was just one research study completed by Pope (2018) accessible to the public on Hmong dual-language programs. Thus, there is a gap in the literature, creating a need for this study. This dearth of information on Hmong dual-language programs has resulted in parents, community members, educators, and administrators having limited knowledge of such programs. In filling this gap in the literature, this study has added to the body of knowledge on Hmong dual-language programs and access to community and educational institutions as a resource regarding Hmong dual-language programs.

## Purpose of the Study

The purpose of this study was to investigate the impact of a K-12 Hmong dual-language immersion program on kindergarten through fifth-grade Hmong students' academic performance in the category of reading Hmong and English. The students' academic outcomes were based on third through fifth-grade student data collected. Therefore, the assessments included third through fifth-grade. However, the participants were those who persistently enrolled in the HDL program since kindergarten. Moreover, the parents of those students were investigated concerning specific factors they used in choosing a dual-language immersion program for their child. As it was essential to contribute to the body of knowledge on bilingual education, this study addressed the gap in the literature regarding Hmong dual-language immersion programs. There have been far more studies performed on dual immersion programs of other languages. In addition, several studies are available on the topics of Hmong literacy, Hmong parent involvement, and academic achievement for Hmong students in high-school and higher education (Ly, 2006, Vang, 2012, Xiong-Lor, 2015). Moreover, many studies were found to focus on the Hmong language and cultural loss, Hmong students' academic achievement in general, Hmong after-school programs, and Hmong parents' engagement with schools (Vang, 2003).

However, only one study was found on Hmong *bilingual* education (Pope, 2018). Pope's study focused on Hmong bilingual education, as it analyzed the reasons why Hmong parents choose bilingual learning for their children (Pope, 2018). The epistemology in previous studies included paradigms such as positivist, interpretivist, and critical approach (Alanis & Rodriguez, 2008; Kivunja & Kuyini, 2017; Wiese 2004; Henderson & Palmer, 2015). Even though Pope's qualitative study centered around interpretive and critical paradigms of Hmong bilingual

education, it did not examine the outcomes of Hmong bilingual programs within the positivist paradigm.

Kivunja and Kuyini (2017) explained that positivist paradigms rely on deductive logic, hypotheses, and mathematical calculations to derive conclusions. Meanwhile, an interpretivist model emphasizes understanding the individual and his or her subjective interpretation of the world. Concurrently, the critical paradigm seeks to explore social, political, and economic issues that lead to social oppression and power structures at a variety of levels (Kivunja & Kuyini).

Since language was the focused thread of this study, standardized reading assessments and a bilingual rating scale were used to measure the students' language abilities and academic achievement. Dunn and Tree (2009), the authors of a quick, gradient bilingual dominance scale, argued that bilinguals often restructured the fluency of their second language while losing the fluency of their first language. Therefore, the bilingual rating was adopted to offer a perspective on the fluency of the Hmong dual-language students. Within this study, in addition to the bilingual rating scale, a reading assessment provided insight into the academic outcomes of those students using the MCA and Hmong Reading Assessment (HRA).

The ability to be fluent in multiple languages requires proper training (Kuhn, Schwanenflugel, & Meisinger, 2010). One of the many reasons for the implementation of a dual-language program within a K-12 school system is to promote bilingualism. Vega (2014) and Pope (2018) agreed that the ability to speak more than one language was one of the main reasons parents chose a dual-language program for their children. Whether the ability to speak multiple languages was for potential socio-economic reasons, cultural purposes, or some other reasons, parents decided for dual-language program enrollment early in their child's schooling career. In this study, it was vital to determine the factors parents used in choosing a dual-language

immersion program, especially a program focusing on the Hmong language, an indigenous language.

Pope (2018) studied why Hmong parents choose Hmong language programs and noted the achievement gap and economic disparity between White and immigrant children. During Pope's exploration of bilingual education in California, the study confirmed that immigrant children and English language learners had often been underserved and have thus underperformed academically. In agreement with Pope, Cha (2016) studied Hmong literacy at the high-school level and attested that Hmong students' low socio-economic status widened the achievement gap between Hmong students and their White counterparts. Many researchers have agreed that language challenges affected academic achievement in various settings (Bialystok, 2018; Carlson & Meltzoff, 2008; Marian, Shook, & Schroeder, 2013; Poulin-Dubois, Blaye, Coutya & Bialystok, 2011). Therefore, further research was needed to investigate the academic outcomes of dual-language immersion program students.

Due to the achievement gap, the Metro School District was working toward providing an equitable education for all students while promoting the learning of Hmong language, culture, and developing the reading and writing skills of the English language for Hmong students. Hmong dual-language programs fostered the development of bilingual and biliterate students. These bilingual and biliterate students were expected to meet the same grade-level content standards as their non-Hmong dual-language peers (SPPS, 2019a). As an implication for equitable education, Pope (2018) suggested that teaching Hmong culture helps affirm identity through the presence of the Hmong language in the curriculum. This type of immersion education aided Hmong students' development of a sense of pride in their heritage and enhanced their communication across generations while participating in the larger society.



## Conceptual Framework of the Study

A dual-language assessment conceptual framework has aided this study in providing a structure in which to investigate Hmong students about their general language and literacy knowledge, skills, and abilities (Guzman-Orth, Lopez, & Tolentino, 2017). Within this conceptual framework, Guzman-Orth et al. state:

Our proposed dual language assessment framework requires that examiners (e.g., teachers) be bilingual (or multilingual) themselves. Even if the examiners share the same home language as their students, they need to be biliterate with regard to the subject areas they are teaching (p. 11).

And while dual-language immersion programs and bilingual education are two distinctive terms, researchers have often used them interchangeably (Bialystok, 2018; Guzman-Orth et al., 2017; Poulin-Dubois et al., 2011). Bilingual education is considered an ‘umbrella’ term overarching other programs such as *transitional bilingual education*, *developmental bilingual education*, *foreign language immersion*, and *two-way bilingual immersion* (Vega, 2014). Two-way immersion is another term used for dual-language immersion programs, which operates under bilingual education (Steele et al., 2017). Bilingual education is an organized and planned program that uses two languages of instruction (Long & Doughty, 2011).

Within bilingual programs, two languages are used for instruction in subject matter content rather than solely language learning. In other words, this instructional setting surpasses typical secondary language learning, as would be carried out in a conventional foreign language class. Bilingual education can be implemented at any grade or age level, ranging from preschool through university levels (Cummins, 2011). While bilingual education is used as a broad term for

many types of dual-language programs, Cummins (2011) stated that the goals of bilingual programs fluctuate across contexts.

In this study, dual-language immersion education refers to a planned program aimed at bilingual development with the intent to develop proficiency in two languages (Murphy, 2014). This is the direction on which the Hmong dual-language immersion program grounded their work. The focus of the program is on content-area instruction in the Hmong language early in the program, and then deliberately adding English during the progression of grade-levels (Rosales, 2018). In this study, primary data were collected to gain an understanding of language learning in the Hmong dual-language program through an assessment process using the MCA reading test, Hmong Reading assessment, and a bilingual scale.

### **Research Questions**

The following questions guided this research:

- Q1.** What is the Hmong and English reading proficiency of third, fourth, and fifth-grade students who participate in the Hmong dual-language program in Minnesota as measured by the Hmong Reading Assessment and Minnesota Comprehensive Assessment?
- Q2.** How do fourth and fifth-grade students who participate in the Hmong dual-language program in Minnesota rate their language usage on the bilingual scale?
- Q3.** What is the most prevalent factor that families consider when selecting a program with a Hmong language focus as measured by a Likert-scaled questionnaire?

## **Rationale for the Methodology**

The introduction of a dual-language program is an innovative approach to pedagogy (Howard, Sugarman, Christian, Lindholm-Leary, & Rogers, 2007). Typically, these pedagogical methods are evaluated for academic achievement as measured by various academic assessment tools (Minnesota Department of Education [MDE], 2019). For the purpose of this study, the MCA and HRA were utilized as sources of data to determine the academic results of the Hmong dual-language students who participated in this research.

Traditionally, the MCA and HRA results have been indicators of whether a student is meeting or not meeting state standards. Historically, data had shown that EL students continued to achieve below the states' benchmarks (De Jong, 2002; Collier & Thomas, 2004). As such, it could be said that there was an achievement gap. The percentage of students who exceeded and met the standard on the MCA was 58% in math and 50% in reading statewide (Minnesota). The statewide demographic data displayed 67% White students, and 7% Asian students (MDE, 2018b).

One of the Hmong dual-language program schools under study in this research has demographic data of 60% Asian students and 3% White students. This particular school (Jack Elementary) has 41% of students who exceeded or met the standard on the MCA reading test (MDE, 2018b). Additionally, MDE exhibited the other Hmong dual-language program school (Park School), which had demographic data indicating that 86% were Asian students, and 1% were White students. Within Park School, students who exceeded or met the standard on the MCA was 32% in reading. With the demographic discrepancy between these two Hmong dual-language programs and statewide MCA scores, there was a clear indication of an achievement gap. This study used the language components of the MCA and HRA to investigate how Hmong

dual-language students performed within the state standards.

To address the research questions and the purpose of the study, the methodology chosen for this study was quantitative and quasi-experimental, using descriptive statistics, a means often used to describe variables (Kaliyadan & Kulkarni, 2019). Descriptive statistics can be used to describe a single variable (univariate analysis) or more than one variable (bivariate/multivariate analysis). Within this study, the independent variables were the ethnicity of the students and the students' status of enrollment in the educational programs. The dependent variables, on the other hand, were the students' languages, Hmong reading scores, and MCA scores.

A quantitative method entails collecting and analyzing numeric data to address the research questions. Data collected from a sample can be utilized at times, to generalize, or even predict, about a certain population of participants. Close-ended questions or Likert-type statements are included in this study's instruments (Babbie, 2016). A quantitative method was selected due to these factors, the number of potential participants, and the statistical nature of the analysis, which tallied the results among the reading variables and the predominant categories from the parent questionnaire (Babbie, 2016; Schirmer, Schirmer, & Lockman, 2008). A quantitative method allowed for statistical examination and was appropriate for this study.

### **Definitions of Terms**

To understand the content of this study, the following terms are clarified. Many of the terms included here are acronyms, abbreviated forms one needs to know because many of the terms are governmental or academic terminology. These terms are defined as follows:

**BEA.** The Bilingual Education Act was a federal act established in 1968 to recognize the needs of students with limited English-speaking abilities. BEA was also known for the following

names: Title VII, Elementary and Secondary Education Act, or ESEA (Goldenberg & Wagner, 2015).

**LESA.** The term Limited English-speaking ability (LESA) refers to students who speak, read, write, and understand inadequate or limited, English. These individuals are entitled to receive remedial language services (Goldenberg & Wagner, 2015).

**ELL.** An English Language Learner is an individual who was learning English as a second or third language (Vega, 2014). These individuals speak other languages such as Hmong, Chinese, French, and Spanish, as their native or home language while learning the English language.

**L1.** This label is used to identify the first language or the native language of the students (Vega, 2014). L1 is also referred to as the home language or mother tongue of a student. Parents are often asked to indicate what the home language(s) of the students are so schools can provide appropriate service for the students. The L1 of the Hmong dual-language students in this research is the Hmong language.

**L2.** This label is used for the second language that bilingual students are learning that is not their native language (Vega, 2014). In other words, the Hmong dual-language students in this study would have an L2 of English because their home language was Hmong.

**Hmong.** An ethnic group of people migrated to the United States from Laos, who lived in the mountains. They were recruited by the American CIA to fight against North Vietnam during the Vietnam War in 1973. Many of the Hmong people resettled in the United States, France, and other countries (K. K. Lee, 2014). Their language is also known as Hmong.

**MCA.** Minnesota Comprehensive Assessment is a Minnesota state test that helps districts

measure student progress toward Minnesota's academic standards and meet a federal legislative requirement (MDE, 2019). The MCA is administered to students in reading in grades 3-8 and 10; mathematics in grades 3-8 and 11; and science in grades 5, 8, and high school. The reading of third to fifth-grade Hmong dual-language students is focused on in this research.

**HRA.** Hmong Reading Assessment is an evaluation tool that measured the reading literacy skills of the students in the Hmong dual-language program (Schoology SPPS, 2018). This tool was translated from the English Developmental Reading Assessment (DRA).

**Dual-language immersion program.** A form of bilingual education in which students are taught literacy and content in two languages (Cummins, 2011; Palmer, 2010). With most dual-language immersion programs in the United States, it is usually English and another language.

**90:10 model.** In the dual-language immersion programs, the partner or target language is used most or all of the instructional day in the primary grades (80-90%) (Vega, 2014; Smith, Miro, Fore & Piferi, 2016). In the Hmong dual-language setting, Hmong is used to instruct lessons 90% of the day, while English is used 10% of the day (SPPS, 2019c). For the two focused schools in this research, the 90:10 model is used in grades kindergarten and first (see Table 1 for the other models in the intermediate grades).

**50:50 model.** The partner or target language and English are used equally throughout the program (Vega, 2014; Smith et al., 2016). This model occurs in third-grade as the partner language decreased to equal the English.

### **Scope of the Research**

There is a growing body of literature on the topic of dual-language programs. This

researcher has examined numerous approaches that previous researchers have employed to understand the topic of dual-language programs and has used this knowledge to delineate this research study with the Hmong dual-language program (Bialystok, 2018; Guzman-Orth et al., 2017; Vega, 2014). In this study, primary data were collected to gain an understanding of language learning in the Hmong dual-language program through the MCA reading test, Hmong Reading assessment, a bilingual scale, and a parent questionnaire.

A questionnaire using the Likert scale was another primary data collection tool that was used to investigate factors of parents choosing the Hmong dual-language program for their children. Dual-language immersion programs can be seen to reside at the interconnection of cultural competency and student academic achievement. Even though this study had a specific focus, it was fundamental to indicate the broader view. The diaspora of the Hmong people has resulted in Hmong youngsters' confusion of language and culture as they were immersed in the mainstream culture of the United States. Therefore, it was essential to re-immense students into learning the Hmong language and culture through specific dual-language programs (Cha, 2016; S. Lee, 2014; Pope, 2018; Vang, 2012). Due to the need to maintain the Hmong language and culture, the Hmong dual-language program was established based on existing research and existing language programs (Lee, 1999; Pope 2018; Vang, 2012). This study explicitly evaluated the language outcomes of the Hmong language program at two schools of the Metro School District.

### **Limitations and Delimitations**

Limitations and delimitations are part of all research studies. Limitations are the influences related to this study that could not be controlled and could influence the results. Confounding variables could pose as limitations. Delimitations refer to the choices made by the

researcher, which determined what would be included in or excluded from this study. The limitations and delimitations of this research are described below (Atieno, 2009; Simon & Goes, 2013).

### **Limitations**

Limitations occur in research when there are restrictions beyond the control of the researcher (Atieno, 2009). The researcher understood that there were several limitations in conducting this study. The recruitment might have posed a challenge if not enough parents and students were willing to participate. Having enough test scores to observe statistical significance in the students' achievement of language proficiency with the literacy perspective was necessary. To lower the potential for these limitations, the researcher asked all the essential questions and worked closely with the district research director to gain all the needed data.

The implementation of a Hmong immersion program at two different sites can lead to possible confounding variables, which might bring in unwanted effects on the other variables. Confounding variables such as the expectations of the administrators from the two sites, how learning contents and language were combined when managing daily schedules, and resourcing allocated funds at the sites can influence the teachers, students, and parents to have different experiences. Thus, collaborations between the researcher, teachers, and parents, as well as the building principals to increase support and obtain as many responses as possible for the questionnaires about the Hmong language was necessary. However, the sample was too small to use random sampling, so generalization of the results was therefore limited.

### **Delimitations**

Delimitations of a study are those characteristics, which result from limitations in the



scope of the study and arise via conscious decisions made during the development of the study plan (Simon & Goes, 2013). Delimitations also result from specific choices made for the study. Delimiting factors in this study include the choice of goals, the research questions, population/sample, setting, and instrumentation. The following were delimitations of this study: the sample was delimited to bilingual third through fifth-graders between the ages of 8 and 11 in an urban school district in a midwestern state in the United States. The students were all bilingual Hmong and English speakers. All students were of Hmong descent, with 90% of the students being generation 2.0 who are born and raise in the United States.

### **Significance of the Study**

For both researchers and practitioners, this research was significant in the following ways: (a) it contributed to the body of knowledge on bilingual education, (b) it addressed some of the gaps in the literature, and (c) it provided evidence of a positive impact on student achievement within a Hmong dual-language immersion program. This study has contributed to the discussion of bilingual education with a focus on Hmong dual-language immersion programs. The beneficiaries of this study include students, parents, community members, educators, and school administrators who will be more informed of available educational opportunities.

Parents and community members need to understand the availability of choices and the factors that inform their decisions to support schools (Pope, 2018). Often, educational opportunities are available, however, due to the lack of knowledge, educators and school administrators misinform the parents, or misinterpret the Hmong parents' experiences with their children enrolled in the language immersion settings. Therefore, it is relevant to be informed about bilingual education opportunities.

Another significance of this research was to appraise the implications of other dual-language programs, which could potentially influence the development and improvement of the Hmong dual-language immersion program. It was critical to understand the impact that dual-language immersion programs have on a student's academic success and supporting cultural continuation and sustaining self-perception identity. As an example, Bialystok (2018) implied that bilingual education increases an individual's executive functioning, a cognitive advantage, which then improves academic achievement. Therefore, the achievement gap and equitable education for all students could be influenced and altered via the use of a dual-language program.

The positive influence on an individual's executive functioning allows bilingual learners to gain multiple perspectives and to attain improved communication skills leading to cultural continuity and self-identity (Bialystok & Viswanathan, 2009). Having cognitive flexibility allows individuals to maintain divided attention, working memory, conceptual transfer, and feedback utilization (Anderson, 2002). Increasingly research has shown that distinct types of bilingual experience can affect a bilingual's developmental trajectory. For example, Crosbie (2014) suggested that bilingual speakers who learn a second language within a bicultural context develop a higher sense of social justice, due to increased and explicit empathy for cultural diversity. Lee and Kim (2011) noted that bilingual individuals performed better on creative thinking tasks than their monolingual peers.

Thus, the outcome of this study has contributed to and has advanced the current body of knowledge and understanding on the topic of bilingualism, particularly of Hmong dual-language programs in K-12 academic settings. This study also addressed some of the gaps in the literature and provided evidence of a positive impact on student achievement within a Hmong dual-language immersion program. The result of this study could inform students, parents, community

members, educators, and school administrators the available educational opportunities and foster their decision making for enrollment and program development.

### **Summary and Organization of the Remainder of the Study**

Chapter One introduced the nature of the study's problem, the purpose of the research, and the significance and scope of the research. It also discussed the definition of dual-language immersion programs within bilingual education and provided definitions of key terms used within this dissertation. Chapter One has situated the basis for this study. At the same time, Chapter Two presents the conceptual framework as well as a comprehensive historical and scholarly perspective through a review of literature on the topic of Hmong dual-language programs for students within K-12 school systems. Chapter Three discusses the quantitative method used for this research, the data collection processes, and data analysis procedures, as well as ethical issues related to participant-related processes. Chapter Four presents the findings of the study. The concluding chapter, Chapter Five, discusses the findings and offers recommendations for future studies and additional research.

## CHAPTER 2: LITERATURE REVIEW

A comprehensive synthesis of current, peer-reviewed material on the topic of dual-language learning within the K-12 educational setting is upcoming in this chapter. This review will encompass discussion of the concepts of bilingual education, dual immersion programs, Hmong dual-language programs, language dominance, academic achievement, and parental enrollment criteria. This quantitative study's purpose was to investigate the impact of a K-12 Hmong dual-language immersion program on kindergarten through fifth-grade Hmong students' academic performance in the category of reading Hmong and English. Likewise, the parents of those students were investigated concerning specific factors they used in choosing a dual-language immersion program for their child. The literature review suggested that there is a nexus between language, culture, academic, and executive functioning, and thus, primary data collection was necessary (Bialystok, 2018; Vega, 2014).

It was vital to contribute to the body of knowledge on Hmong bilingual education due to the gap in the literature regarding Hmong dual-language immersion programs. There have been a variety of studies performed on dual immersion programs of languages other than Hmong (Collier & Thomas, 2004; Parkes, 2008; Palmer, 2007). Several studies are available on the topics of Hmong literacy, Hmong parent involvement, and academic achievement for Hmong students in the upper grades of high-school and higher education (Ly, 2006, Vang, 2012, Xiong-Lor, 2015). However, none of these studies examined or explored the specific topic of Hmong dual-language K-12 students' reading performance in both Hmong and English.

## Introduction to the Chapter

A literature review of peer-reviewed journal articles was performed in primary databases such as EBSCOhost Academic Search Ultimate, EBSCOhost Education Source, Science Direct, Gale General OneFile, ERIC, PsychInfo, and Lexis Nexis Academic. Also used in the literature search were dissertation databases, including ProQuest Dissertations & Theses Global™, Digital Commons, and Cambridge University Library Theses Catalogue using the keywords *bilingual education, dual immersion programs, Hmong dual-language programs, language dominance, academic achievement, and parental enrollment criteria*.

The searches produced limited research on Hmong dual-language learning, but there was a vast amount of research on dual-language learning in general. For example, the term *dual-language* produced a listing of approximately 16,000 academic articles. However, when narrowing the subject terms to include *Hmong language* and *K-12 programs*, sparse literature was offered, and none specifically related to the purpose of this study. The literature was generally associated with academia's perspectives and generalized approaches to studying the topic of dual-language learning.

### Identification of the Gap

To fully understand the impact of the K-12 Hmong dual-language program, an examination of the students who participated in the program was essential to this study. Prior studies revealed that bilingual education has the ability to enhance students' self-esteem and confidence in speaking their home language as well as aiding those students in maintaining their cultural identity (Boyer & Tracz, 2014; Padilla, Fan, Xu & Silva, 2013; Parkes, 2008; Palmer, 2007).

However, the gap in the current literature reveals that existing research has not focused on the effect on students' reading proficiencies in both Hmong and English in the lower grades of K-12 within a Hmong dual-language immersion program. Moreover, another gap existed in relation to the parents of those students and their opinions and criteria concerning their choice of enrolling their child/ren in a dual-language immersion program. This investigation is therefore vital to discover these outcomes and factors as it aims to expand the limited body of research on the topics. Bearing in mind the potential benefits to students, this study of a K-12 Hmong dual-language program has provided new insights.

This research was significant as it contributed to the body of knowledge on bilingual education and addressed the noted gaps in the literature. This study has furthermore provided substantiation and validation of the positive influence on student achievement, which a Hmong dual-language immersion program provides. This study has contributed to the discussion of bilingual education with a focus on Hmong dual-language immersion programs. Educational opportunities are available for children; nonetheless, due to a scarcity of knowledge and information, school administrators and educators may misinterpret Hmong parents' experiences with their children enrolled in a language immersion setting. Therefore, it is relevant for all stakeholders to be informed about bilingual education opportunities.

The chapter is organized by presenting a consideration of the conceptual framework of this study in relation to the research questions and the problem statement. This chapter will, moreover, include a review of the literature examining the constructs of cultural competence, moral judgment competence, and emotional intelligence. Additionally, discussions and synthesis of knowledge will be included in regards to urban community colleges, community college leadership, cultural make-up of urban community colleges, and mid-level leadership and climate.

## Conceptual Framework

Dual-language assessments have been used as the conceptual framework for this study. Within bilingual programs, two languages are used for instruction in subject matter content rather than solely language learning. In other words, this instructional setting surpasses typical secondary language learning, as would be carried out in a conventional foreign language class. Bilingual education can be implemented at any grade or age level, ranging from preschool through university levels (Cummins, 2011). While bilingual education is used as a broad term for many types of dual-language programs, Cummins (2011) stated that the goals of bilingual programs fluctuate across contexts.

In this study, dual-language immersion education refers to a planned program aimed at bilingual development with the intent to develop proficiency in two languages. This is the direction on which the Hmong dual-language immersion program grounded its work. The focus of the program is on content-area instruction in the Hmong language early in the program, and then deliberately adding English during the progression of grade-levels (Rosales, 2018). In this study, primary data were collected to gain an understanding of language learning in the Hmong dual-language program through an assessment process using a variety of assessment tools: the MCA Reading Test, the Hmong Reading Assessment, and the Twelve Bilingual Dominance Scale. However, the dual-language learning models and English assessments among school districts across the United States are vastly different (Guzman-Orth et al., 2017). The following review of the literature examines studies and empirical literature related to the purpose of this study and its conceptual framework.

## **Review of the Literature**

The literature review is presented in several sections: the history of bilingual education, typologies of bilingual programs, acquiring English, academic achievement, executive functioning, cultural continuity, and identity. Relationships between the researched literature and this current study are noted when appropriate. The review closes with a segue into the next chapter, Chapter Three, detailing the methodology of this study.

### **History of Bilingual Education**

Bilingual education and bilingual language policies have a long history in the United States. According to Faltis (1997), bilingual education began when the original 13 colonies gained their independence from England in 1776. As the 13 colonies struggled to become the United States, a new nation, it turned to multilingualism since there were Indigenous language speakers as well as a variety of groups of European immigrants speaking different languages. Several schools were instituted to teach Indigenous children English, with the purpose of attaining fluent bilingualism for the benefit of the country (Ahler, 2008; Fitzgerald, 1993).

Bilingual education was further established within the United States for a variety of reasons, including historical, political, social, and economic contexts since the 1880s. Ovando (2003) examined the timeline of bilingual education's existence as he analyzed the historical development and issues regarding bilingual education. According to Ovando (2003), the U.S. founders visualized a country with a unified history, with traditions, and with a common language; however, European languages were more likely than others to be treated with respect as their speakers were accommodated in schooling and government services.

Ovando (2003) noted that Native Americans, Mexicans, Hawaiians speak indigenous



languages, and Puerto Ricans were discounted and disparaged due to assimilationist and pluralist policies. With assimilation, Indigenous peoples were expected to let go of their language and become fully immersed in the European language of the colonialist country (England, France), values, and traditions (McCarty & Nicholas, 2014). Thus, racism, classism, and religious prejudices were on the rise (Ovando, 2003). As noted by Ngũgĩ (1986):

The choice of language and the use to which it is put are central to a people's definition of itself in relation to its natural and social environment, indeed in relation to the entire universe. Hence language has always been at the heart of the two contending social forces [imperialism and the struggle for liberation from imperialism] ... (p. 109).

Large numbers of immigrant communities aggressively organized and promoted their languages, religions, and cultural practices to defend pluralism during the 19<sup>th</sup> century (Ovando, 2003). This pluralism helped maintain ancestral ways of life while simultaneously allowing for participation in the civic life of the nation. Approximately 18 states passed laws authorizing bilingual education, and thus, bilingual, or non-English-language, the instruction was provided in some form in many public and private schools (Crawford, 1988). Ovando notes that World War I caused a movement of anti-foreign languages; consequently, the United States pushed for monolingualism due to anti-German viewpoints.

Early struggles with bilingual education were evident throughout the 19<sup>th</sup> century but ended following World War I (Faltis, 1997). In the wake of hostile anti-German sentiment, English-only was imposed (Faltis, 1997; Goldenberg & Wagner, 2015). Long after World War II was over, the first official Federal Bilingual Education Act (BEA) was established in 1968 to recognize the needs of students with Limited English-Speaking Ability (LESA) (Faltis, 1997;

Goldenberg & Wagner, 2015; Kim, Hutchison & Winsler, 2015; Stewner-Manzanares, 1988). Many studies had noted that the Bilingual Education Act passed during a period when immigration was growing, and the civil rights movement was intensifying (Faltis, 1997; Goldenberg & Wagner, 2015; Stewner-Manzanares, 1988).

The legislatures of 34 states had dictated English-only instruction in all private and public primary schools from 1923 to the first half of the 20<sup>th</sup> century (Ovando, 2003). During this period, immigrant students were educated using a submersion method, where they would either ‘sink-or-swim’ in the classrooms. Ovando reported that World War II and the launching of the former Soviet Union’s Sputnik, the first artificial Earth satellite, prompted the U.S. Federal Government to initiate policies on foreign languages, mathematics, and science. This decision led to the passage of the National Defense Education Act in 1958. Moreover, the 1964 Civil Rights Act and the 1965 Immigration Act also advocated for bilingual instruction in the United States (Ovando, 2003; Ramsey, Williams, & Vold, 2011). Thus, the Bilingual Education Act, also known as Title VII of the Elementary and Secondary Education Act, became effective in 1968.

However, even after the Bilingual Education Act became law, many immigrant students were still discriminated against in schools. For example, Chinese students were discriminated “on the grounds that they could not achieve academically because they did not understand the instruction of their English-speaking teachers,” which led to the court case of *Lau v. Nichols* (Ovanda, 2003, p. 9). The 1974 Supreme Court case *Lau v. Nichols* dismissed the submersion method of ‘sink-or-swim’ to allow equality of treatment and brought in many remedies to the U.S. school systems. One of the remedies stated that with at least 20 English language learners of the same language within a given school district, bilingual education should be implemented.

Within this remedy, students were taught academic content in their native language. Despite the court's decisions, other issues continued to arise as people either loved or hated the bilingual education programs (May, 2016; Ovanda, 2003). Due to the multiplicity of bilingual education, several types of bilingual education programs arose over time as researchers studied the pros and cons of bilingual education.

With the growth of immigration and varying presidential administrations, the status of a bilingual approach to educating language minority students has risen and fallen over the decades. Stewner-Manzanares (1988) delved into the many changes to the BEA since it was first instituted in 1968. The changes were made to meet the needs of the Limited English Proficient (LEP) student population in the United States. The *Lau v. Nichols* Supreme Court ruling and Equal Educational Opportunity Act altered the BEA to offer equal educational opportunity to all.

In 1978, the BEA was amended to include a broader definition of eligible students. To have more concrete regulations and greater local control of the program curriculum, the BEA was again amended in 1984 for the third time. Because the legislation reflected the belief that school districts needed to provide a variety of alternatives to enable their current LEP students to meet proficiency in English and to be able to achieve academically in mainstream classes, the BEA was reauthorized. Goldenberg and Wagner (2015) and Kim et al. (2015) asserted that the BEA was reauthorized to the No Child Left Behind Act by President George W. Bush in 2001, and then the current Every Student Succeeds Act (ESSA) by President Barack Obama in 2015 (U.S. Department of Education, 2018).

Studies, evaluations, and research reviews have presented different views of bilingual education's effects on student achievement. Researchers disclosed that the BEA provided federal funding for local school districts to incorporate native-language instruction in their classrooms

(Goldenberg & Wagner, 2015; Kim et al., 2015). Many states followed the lead of the Federal Government and instituted bilingual education at some levels within their schools. To better serve the needs of the English Language Learners (ELLs), many models of bilingual education have been implemented including submersion, English as a Second Language (ESL), Sheltered English Instruction, Newcomer Programs, Transitional Bilingual Education (TBE), Developmental Bilingual Education (DBE), Foreign Language Immersion (FLI), and Two-Way Bilingual Immersion (TWBI) (Vega, 2014). These services are discussed in greater detail in the typology of bilingual programs section. Dual-language ELLs are learners who participate in the dual-language immersion programs. English immersion ELLs are learners who participate primarily in an English instructional classroom with some English language supports.

As this section discusses the historical context of language and education policy and practice in the United States, different models and issues that occurred within the United States and its bilingual programs have been noted. The majority of the literature on bilingualism is concentrated on Spanish/English two-way immersion programs, as this is the most commonly-implemented program in the United States (García-Mateus & Palmer, 2017; Kelley & Kohnert, 2012; Ovando, 2003). Studying these programs provided researchers a chance to understand how language policies affect both majority and minority language learners simultaneously.

Although research on non-Spanish-English dual-language programs was difficult to find in the literature, several examples of such programs, such as French and Chinese programs, are included within this literature review (O'Sullivan-Lago & De Abreu, 2008; Padilla, Fan, Xu & Silva, 2013; Tran & Birman, 2017). The literature on non-Spanish dual-language programs triangulated convincingly with the Spanish-English data; even when the language changed, many of the issues remained the same. Indeed, several categories arose repeatedly: strengthening

learners' identities, sociopolitical English dominance, and the need for critical advocacy for bilingual programs (Parkes, 2008; Palmer, 2007).

**Hmong dual-language learners.** The number of children whose home languages are not English has increased in the United States over recent decades, and these children require support for becoming proficient in English while maintaining their first language (Byers-Heinlein & Lew-Williams, 2013; Rumbaut & Massey, 2013). Hmong children were in the midst of this increased number, and they began to lose their first language while not yet becoming proficient in English. Cha (2010), a Hmong author who wrote about the history of the Hmong people, claimed that bilingualism was an ability the Hmong people had adapted to as they migrated from country to county for thousands of years ago as a survival skill. With such capacity, the dominant culture tended to suppress the Hmong culture and language. For example, the word 'TV,' an abbreviation for television, has become a part of the Hmong culture and language because there was no such word in Hmong to express the concept of television. When conferencing with Hmong parents about their child's lack of progress in school, one would hear the parents said, "Kuv tug miv nyuas saib saib TV." This phrase meant, "My child watches TV a lot." Moreover, this phrase reinforced the reason the child made little progress in school due to the amount of time spent watching TV.

A struggle that Hmong people have dealt with in the United States has been balancing their Hmong culture and the dominant American culture. "Hmong-American students are still considered high-risk students as they continued to come from homes where the parents' education levels were low, and household salaries were below the poverty line" (S. Lee, 2014, p. 10). The economic demands of living in the United States required a job, bills to pay, housing, clothes, and food. Consequently, Hmong parents had insufficient time to teach their children the

Hmong culture and assist with English homework as they solely depended on the school systems to educate their children.

Hmong parents sought out bilingual programs such as the Hmong dual immersion program to help cultivate students' ethnic identities and increase academic achievement. According to Szabo and Ward (2015), immigrants who were living in between two cultures/societies experience an identity crisis. Smith (2016) confirmed in her published dissertation that dual-language programs were settings where students were able to use language to promote their cultural strength and academic achievement. On that account, schools were positioned to intentionally aid in the development of dual-language ethnic identities while increasing those students' academic performance.

### **Typologies of Bilingual Programs**

The Bilingual Education Act (BEA) was a U.S. Federal act established in 1968 to recognize the needs of students with limited English-speaking ability. Since then, many types of bilingual education programs have been developed and implemented extensively within the United States (May, 2016). These bilingual programs vary as to how many years of instruction students receive in their first language, and whether there is an effort to maintain the student's first language after he or she becomes fluent in English. In studies by Vega (2014), Ovando (2003), and others, these researchers define and assess various bilingual education programs as articulated below.

In Vega's (2014) study, she defined *submersion* as a model where English language learners (ELLs) are placed in regular mainstream classrooms with minimal instruction in the mechanics of English. Within the *English as a Second Language* (ESL) program, ELLs are

‘pulled out’ from the classroom to receive specific ESL services. *Sheltered English* instruction occurs when ESL and content areas are integrated as taught by an ESL-trained subject area teacher. *Newcomer Programs* support rapid English acquisition for recent U.S. arrivals and non-English-speaking students at the middle and high-school levels.

*Transitional Bilingual Education* is the most common model of bilingual education for ELLs (Roberts, 1995). This model is used when the student is seeking to achieve basic oral English proficiency within a relatively brief period and then can progress to an all-English program within three years. Transitional bilingual programs allow extensive instruction in the student’s native language as well as in English (May, 2016; Solís, 2001). Once a student obtains a certain level of English proficiency, he or she is placed into a monolingual English program. The early-exit transitional bilingual programs mainstream students after two to three years or by the end of the second grade. Late-exit transitional programs mainstream students in fifth or sixth grade (Martinez, 2014; Vega, 2014).

*Developmental Bilingual Education* is an enrichment program wherein ELLs are instructed using both English and the student’s home language. *Foreign Language Immersion* consists of using a second or foreign language as the medium for academic instruction and social interaction with native-English speaking majority group students. *Two-Way Bilingual Immersion* integrates languages with academic instruction for native English-speaking students and non-native English-speaking students “with the goals of high academic achievement, first and second language proficiency, and cross-cultural understanding” (Vega, 2014, p. 2).

Ovando (2003) described structured immersion programs that use the native language with specialized ESL instruction to advance students toward higher levels of English proficiency. *Partial immersion programs* provide ESL instruction with a small amount of time set aside

temporarily for instruction in the native language so that English learning occurs as quickly as possible (Domke, 2010; Ovando, 2003). Ovando (2003) agreed with Vega (2014) that maintenance or developmental bilingual education programs provide extensive instruction in a student's native language as well as in English.

Unlike students in transitional bilingual education, the maintenance or developmental students continue to receive part of their instruction in the native language even after they became proficient in English (Ovando, 2003). Two-way immersion programs offer students a bilingual classroom to learn both their native language and the mainstream language. In two-way programs, language learners became bilingual and biliterate as a means to impact academic achievement (Ovando, 2003; Pérez, 2004).

A dual-language program is a form of bilingual education in which students are taught literacy and content in two languages (Soltero, 2004; Vega, 2014). In a two-way 90:10 model, and developmental bilingual programs, the target language is used most or all of the day in the primary grades ranging from 80-90% of the school day. In the 50:50 model bilingual programs, the target language (Spanish, French, Chinese, and Hmong) and the mainstream language are used equally throughout the school day. Within this current study, this researcher has investigated a two-way bilingual immersion model where both first and second languages are used for academic instruction.

### **Acquiring English**

A majority of bilingual students in the United States speak a language other than English at home (Baker & Wright, 2017). The Hmong students in this study spoke Hmong and English at home, depending on the family's arrival time to the United States and whether there were



grandparents that lived in the home (Ly, 2006). Ly explained that Hmong children of families who arrived directly from refugee camps in Thailand, and those who had grandparents in the home would have spoken more Hmong than those who had second-generation Hmong parents. The second-generation Hmong parents were U.S born and had no grandparents residing with them. Ly (2006) analyzed the work of Xiong's (2005) study and realized that parents who were the least likely to be involved in their children's literacy were those who had limited educational experiences, language barriers, and had been in the United States for the shortest duration of time. These various barriers led to a focus on acquiring English. A dual-language program can assist in closing the gap of English learning if systematic interventions are in place for English acquisition for the Hmong-English language learners at the beginning of their Hmong language learning.

**Generational cohorts.** Rumbaut (2004) has provided a common-sense view of the various generational cohorts of immigrants to the United States. Commonly, the first generation is considered to made up of individuals born outside the United States who emigrated to the United States. The second generation is those born in the United States of immigrant parents; the third generation as those born in the United States to native-born parents and one or more immigrant grandparents; and the fourth generation as natives with native-born parents and grandparents. Rumbaut further details sub-divides among these generational cohorts. The first generation is divided into four individual cohorts based on the age of arrival to their new country:

- those who arrived as adults 18 or older constitute the 1.0 generation;
- those who arrived as adolescents between the secondary-school ages of 13 and 17 are the 1.25 generation;
- those arriving between the primary-school ages of 6 and 12 are the 1.5 generation; and

- those arriving from infancy to age five are the 1.75 generation, closer in their developmental experience to second-generation peers.

Second generation individuals can also be divided into two groups:

- those in the 2.0 generational cohort have two foreign-born parents, and
- those in the 2.5 generation have one foreign-born and one native-born parent.

The third generation is similarly divided into a 3.0 cohort with 3 or 4 foreign-born grandparents, and a 3.5 cohort with just 1 or 2 immigrant grandparents. Finally, those in the fourth generation are the farthest removed from the immigrant experience, with both native parents and no foreign-born grandparents. This description of the generational cohorts aids in describing distinctions among the various Hmong generations as those cohorts will be mentioned throughout this current study. The Hmong generations participating in this study linger within Rumbaut's first and second-generation cohorts, such as generations 1.0, 1.5, and 2.0.

**Native language literacy.** Cummins (1981), Thomas and Collier (2002) were strong advocates for both robust native language literacy skills for learning a second language and attaining high levels of proficiency in dual-languages settings. They conducted longitudinal studies on bilingual education and uncovered that the students' participation in bilingual programs assisted them in learning English more quickly than their peers who were denied ESL services. Cummins, Thomas, and Collier examined the Spanish language and other languages, but not the Hmong language. Although the Hmong language was not included in their studies, the findings of acquiring English faster could hold true for the Hmong language programs as well. In other words, it could be assumed that their findings apply to the Hmong language.

Languages are viewed differently in many ways, yet they all have structures and patterns (Cummins, 2000; Genesee, Geva, Dressler, & Kamil, 2008; Goldenberg, 1996, 2008). Children's

awareness of the letter sounds, and the ability to manipulate the sound units in their native language is a strong predictor of later reading and spelling proficiencies (Burt, Holm, & Dodd, 1999; Genesee et al., 2008; Jongejan, Verhoeven, & Siegel, 2007). According to Jasińska and Petitto (2018), the ability to maneuver letter sounds indicates that a child has retained phonological awareness.

Jasińska and Petitto (2018) studied the age of bilingual exposure and the contribution of phonological and semantic knowledge to successful reading development. They found that phonological awareness was more substantial for the early-exposed bilinguals, and literacy instruction focused on vocabulary building could be more appropriate for later-exposed bilinguals. This study was an indication that bilingual students needed to be explicitly taught phonics such as letter sounds and letter names to understand how to put the letter sounds together to make words in the language they were learning. Once the phonics' skills were mastered in the first language, the process of transferring to a second language was more natural for second-language vocabulary building at a later age (Huo & Wang, 2017; Jasińska & Petitto, 2018).

Kohnert, Kan, and Conboy (2010) likewise examined the links between words and grammar in native Hmong speakers acquiring English as a second language who were three to five years old. These students learned Hmong (L1) from birth and started learning English (L2) through interactions with the mainstream community while attending a bilingual Hmong-English preschool. The findings from Kohnert et al.'s study assured that Hmong children were more proficient in the Hmong language than in English. On the utterance of words, the preschoolers who spoke Hmong as L1 scored a mean of 47 with a standard deviation of 19, while the English preschoolers scored a mean of 29 with a standard deviation of 20. This alignment of similar deviations (19/20) implied these preschoolers' receptive vocabulary development and ensuing

utterance of words for both languages were similar. Therefore, the evidence for a rapid L2 word learning at the age of bilingual exposure concurred with Jasińska and Petitto's (2018) findings. Both Kohnert et al. (2010) and Jasińska and Petitto (2018) noted that the way a bilingual student learns literacy is, beginning at an early age, distinguishing the alphabets and sounds of both languages. As a result, these students are using what they already know to secure proficiency in the second language.

While both previous studies suggested that the age of bilingual exposure was a factor in English learning, Conger (2010) had a different view when he studied the interference that bilingual education could have with English language acquisition. After analyzing the various language programs, Conger concluded that bilingual education had minimal impact on the level of English proficiency of English language learners when compared with other English language learners who did not participate in bilingual education. In other words, bilingual education did not affect English learning. This lack of positive effect of bilingual education raised the question of resources in the bilingual programs. Conger deliberated further if the implementation of the program model contributed to the null result of bilingual education or the lack of resources contributed to this lack of positive effect, or perhaps bilingual education was more effective when children enrolled in the programs during the earlier schooling years.

Lucero (2015) conducted a qualitative case study with a sample of first-grade dual-language teachers using classroom observations, interviews, and relevant documents to investigate how first-grade dual-language teachers drew on various resources to provide instructional support and academic language development among Spanish-English emergent bilingual students. Resources such as having access to online materials, high-quality books, personal resources, and environmental resources are issues in the Hmong language program of

this current study. The Hmong dual-language program is still experiencing these issues after ten years of implementation. Similar to the outcomes of Lucero's study, these factors have continued to fail the support of the Hmong students' academic language development.

Noted within this current study, as well as other dual-language programs explored throughout this literature review, not only is the lack of resources a significant issue, but teacher training and language learning experience can be a problem (Aga Rehamo & Harrell, 2018). Aga Rehamo and Harrell (2018) investigated the bilingual education programs in Liangshan of China using qualitative research with surveys, interviews, and class observations. Subsequently, it was noted that the structure of the bilingual education failed to adapt to changing linguistic landscapes within Liangshan. Aga Rehamo and Harrell linked how the Liangshan's teachers were trained to teach in a bilingual education structure that was not meeting the students' language learning styles. Like the bilingual education programs in Liangshan, many of the Hmong dual-language teachers were not adequately trained to teach the Hmong language in a bilingual education setting with English- dominant Hmong dual-language students.

As children learning in Laos and Thailand, the Hmong bilingual teachers in this current study were more self-motivated in learning a second language within a structured and competitive learning style. Competitive language learning led students to memorize and recite materials for short-term purposes, such as passing an annual exam. Kampe (1997) referred to the Hmong people in Thailand as the hill tribe, who had little or no opportunity to participate in the planning, curriculum development, or instructional processes since the Hmong language was a minority language. With that being said, the Hmong dual-language teachers came with the described language learning experience above, which can hinder their ability to teach these English-dominant Hmong children in the United States. Due to the teachers' language learning

experiences and lack of proper training from the higher educational institutes in the specific language or culture for a particular dual-language program, the language learning expectations of the students can look differently for each individual dual-language program.

As this study refocused on the impact bilingual programs had on the learning of English, Umansky, Valentino, and Reardon (2016) studied the promise of two-language education. They concluded that more than 80% of English language learners (ELLs) became proficient in English by fifth-grade and 90% by seventh-grade. The ELLs in the dual-language programs took slightly longer to become proficient in English. For example, these dual-language ELLs might not show proficiency in first, second, or third-grade, but they made gains in aligning with their English-language peers at a later grade such as fifth or seventh grades. A higher percentage of dual-language ELLs met the English proficiency level by seventh grade than the English-speaking immersion students and transitional ELLs. The trajectories of dual-language ELLs who entered kindergarten indicated the least effective English learning in the early grades; however, dual-language program was the most effective approach. Umansky et al. (2016) concluded their study in that there were benefits of two-language instruction. Two-way language could have “important implications for closing the achievement gap between ELs and non-ELs” (p. 16). The researchers agreed that in combination with the data and evidence of the social, health, and economic benefits, bilingualism findings “make a compelling argument for investment in high-quality two-language instructional programs” (Umansky et al., 2016, p. 16). These benefits were worth the investment in quality dual-language programs.

Investing in a high-quality dual-language immersion program could enhance learners' ability to acquire English proficiency, one of the primary reasons for the establishment of bilingual immersion programs (Dantas-Whitney & Waldschmidt, 2009). Dual-language

immersion programs could also enrich the learners' ability to achieve academic performance. Collier and Thomas (2004) would agree that the quality of dual-language programs can help close the achievement gap. The following section will discuss more of Collier and Thomas's research.

### **Academic Achievement**

There are many existing factors in the area of academic achievement for language learners (Collier & Thomas, 2004). Due to the diverse population of students in classrooms, academic achievement became crucially imperative for second language learners as the achievement gap, fewer teachers of color, and lack of culturally inclusive curriculum have become problems in the school system. School districts had been looking for ways to improve bilingual students' achievement (Stebbins & Comen, 2018; Umansky, Valentino & Reardon, 2016). Collier and Thomas (2004) found in their longitudinal research that English language learners who received some bilingual services tended to have long-term academic success in English. Following is an examination of the literature on dual-language students' performance on standardized tests, their ability for executive functioning and the capacity to learn English as the students progressed in the bilingual education programs.

Just as Collier and Thomas (2004) found that bilingual programs were suitable for all students, Han (2012) agreed that bilingual programs had a positive effect on school achievement for Hispanic, Asian, and non-Hispanic native-born White students. By analyzing the results of standardized reading and math achievement scores of students from kindergarten to fifth-grade, these researchers found that achievement scores of the non-English monolingual students were significantly lower than the non-English bilingual students. The non-English monolingual students were ELLs who did not participate in a bilingual immersion program. In contrast, the

non-English bilingual students were ELLs who participated in a bilingual immersion program. In other words, bilingual education is beneficial for all learners in terms of academic achievement (Collier & Thomas, 2004; Han, 2012).

Similarly, De Jong (2002) examined the effectiveness of bilingual education for native and non-native speakers of the target language, Spanish, and concluded that two-way bilingual education is valid for both native and non-native groups of students. Both groups performed at or above grade-level on the Aprenda Spanish Achievement Test. However, the English-speaking students outperformed the Spanish-speaking students on the Stanford English Achievement Test and the state-mandated test, the Massachusetts Comprehensive Assessment Systems (MCAS). For instance, with data for the MCAS for fourth-graders in the school year 2000, the English-speaking students scored 236 points, whereas the Spanish-speaking students scored 228 points in the language arts section. In the other content areas, the Spanish-speaking students averaged at least 10 points below the English-speaking students (De Jong). These differences confirmed that even though the Spanish-speaking bilingual students did not perform as well as their English-speaking peers on the English assessments, they outperformed other Limited English Proficient (LEP) students. They were just “slightly below grade-level on the Stanford English reading by the end of fifth-grade” (De Jong, 2002, p. 80). These results indicated that bilingualism was beneficial for English-language learners, but there were still academic achievement gaps when compared with English-speaking students in general.

Steele et al. (2017) also found some gaps in bilingual students’ achievement. Steele et al. (2017) investigated the effects of dual-language immersion programs on student achievement as measured by the Oregon Assessment of Knowledge and Skills. They noticed that students in the immersion programs exceeded their non-immersion counterpart peers when both native English



speakers and ELLs were randomly assigned to a language immersion in the Portland Public Schools (PPS) in Portland on a lottery system. “Students randomly assigned to immersion outperform their peers on state accountability tests in reading by about seven months of learning in Grade 5 and nine months of learning in Grade 8” (Steele et al., 2017, p. 302). When questioning the relationship between students’ home language and an immersion partner language, Spanish had a better match to English. For example, the matching similarities of both languages were placed on the letter prints, cognates, and the concept of print. Therefore, the Spanish speaking students did better on the tests than the Vietnamese students who were put in the Spanish immersion classes (Steele et al., 2017).

Furthermore, Kelley and Kohnert’s (2012) research clarified why Spanish-speaking students achieved more than Vietnamese-speaking students. They studied the cognate advantage of typically developing Spanish-speaking English-language learners. They provided evidence that these “students independently use phonological features from their L1 to bootstrap their lexical-semantic comprehension and production in their L2” (p. 202). Cognates are cross-linguistic words that shared forms and meanings in both languages. For example, the word *helicopter* in English was a cognate word for *helicóptero* in Spanish, and they both meant the same thing (Kelly & Kohnert). Kelley and Kohnert investigated the potential for a cognate advantage for processing expressive and receptive vocabulary in the spoken of Spanish-speaking English-language learners.

In other words, the Spanish-speaking students used linguistic connections such as cognates and root words from their native language (L1) to learn the English language (L2). So, if the Vietnamese students were placed in a Spanish dual-language classroom as discussed in the study of Steele et al. (2017), then the Vietnamese students could have learned two vastly

different foreign languages (English and Spanish), which situated them at a disadvantage point. Another disadvantage for the Vietnamese students was that even when they were to enroll in a Vietnamese and English dual-language program, their L1 still had limited linguistic connections with the English language. There are no cognates between the Vietnamese language and English, so one could expect a Vietnamese immersion student to perform differently than a Spanish immersion student. Despite the immersion programs' advantages on the student performance, the Vietnamese students would still be at a more considerable disadvantage when enrolled in an immersion program that was not their native language.

Overall, academic achievement for students in bilingual programs was higher than the students who were in the mono-language programs. As mentioned above with De Joug's (2002) study, students performed above grade-level on the Aprenda Spanish Achievement Test and slightly below grade-level on Massachusetts Comprehensive Assessment Systems. This performance indicated that the Spanish speaking students performed above grade-level in Spanish and approached the average grade-level proficiency in English.

The academic achievement of both native and non-native speakers remained at or above grade-level in bilingual immersion settings. English language learners who received some bilingual services gained long-term academic success in English. Therefore, the closure of the achievement gap was in the work when students enrolled in the bilingual programs. Many of the bilingual education researchers mentioned in previous sections including Duran, Roseth, and Hoffman (2010) agreed that native language instruction enhances ELL's native language and literacy development without significant cost to English development. Duran et al. conducted a longitudinal, experimental-control design to study the enhancement of the native language instruction in ELL's native language and literacy development. Most of the research findings

were particularly promising with regard to evidence-based practices in early childhood education enriching academic achievement.

With the growing population of Spanish-speaking children, Hmong children, and children of many other ethnic groups in the United States, bilingual education has supported the academic achievement of many students in the areas of standardized testing, executive functioning, and English learning. Early bilingual exposure was vital for later academic gains and benefits. Cognitive science studies suggested that because languages share core underlying structures, students who first attained a solid foundation in one language were further equipped to learn a second language (Cummins, 2000; Genesee, Geva, Dressler, & Kamil, 2008; Goldenberg, 1996, 2008). Consequently, ELLs developed English skills more effectively and performed more proficiently on the standardized assessments if they first had the learning opportunity in a bilingual classroom to develop literacy skills in their home language. As dual-language programs improve academic achievement, they could also strengthen executive functioning.

### **Executive Functioning**

Executive function is a “set of processes that are responsible for the conscious control of thought and action” (Poulin-Dubois, Blaye, Coutya, & Bialystok, 2011, p. 568). Various components such as shifting of mental sets, updating information in working memory, and planning ability are part of the processing of the executive function. Therefore, it was essential to understand what researchers have discovered about the relationship between executive functioning and dual-language immersion learning.

Dual-language programming supported the ability to perform on executive function tasks (Barac, Bialystok, Barac, Castro, & Sanchez, 2014; Barber et al., 2020). Ter Kuile, Veldhuis,

Van Veen, and Wicherts (2011) analyzed students' metalinguistic awareness, the ability to reflect on the use of language. An advantage of dual-language learning led to the focus on executive functioning. One of the benefits of dual-language programming was achieving proficiency in multiple languages. Ter Kuile et al. ascertained that bilingual students had an increased ability to understand an unknown language as compared to monolingual students due to the bilingual students' metalinguistic awareness. When taking a foreign language test, the bilingual students scored higher than the monolingual students. Studies confirmed that the brain was making connections with the different languages to form a metalinguistic awareness (Bialystok, 2018; Kovelman et al., 2009; Ter Kuile et al., 2011). Kovelman et al. suggested that "left posterior temporal regions may play a key role in bilinguals' ability to code-switch and used both languages appropriately at the same time" (p. 120). The brainwork of knowing two languages ignited more brain synapses, which allowed information to connect from one neuron to another neuron within the brain, increasing memory and improving learning.

Bialystok (2018) also shared the value of cognitive abilities such as paying attention, organizing, planning, starting tasks by staying focused on them until completion and understanding different points of view while regulating one's emotions through self-monitoring. All of these tasks were part of executive functioning, providing multiple advantages for bilingual learners as studied by Bialystok and other researchers (Barac, Bialystok, Barac, Castro, & Sanchez, 2014; Mezzacappa, 2004; Kaushanskaya, Gross, & Buac, 2014). While studying executive functioning, Mezzacappa (2004) noticed that socioeconomic status had a negligible effect on the results. He observed a group of low socioeconomic status Hispanic 6-year-old children who performed unexpectedly well on an executive function assessment when compared to the children from other medium and low socioeconomic status of various ethnic groups. Even

though Mezzacapa did not collect data on the children's language proficiency, he acknowledged that about 70% of the Hispanic children spoke Spanish at home. This observation inferred that bilingualism, being able to speak and understand two languages, required specific cognitive activities, but did not conclude a relation to a student's socioeconomic status.

In addition, Kaushanskaya, Gross, and Buac (2014) assessed the effects of bilingualism on executive functioning by administered tests that measured the verbal memory and word learning to both monolingual and bilingual preschool students. The verbal working memory and word learning of the bilingualism students were positively affected, as revealed by the test results (Kaushanskaya et al., 2014). One data point that was analyzed in Kaushanskaya et al.'s (2014) study involved the word span to understanding more of the verbal memory task. This data disclosed that the bilingual students scored a mean of .63 when recalling words while the monolingual students scored a mean of .59 when recalling words from the word span test. Both groups of students produced words from targeted lists. Then their scores were analyzed using an Analysis of Variance (ANOVA) to determine the effect of syllable-length of the students' verbal memory. The significance of this data displayed that the bilingual children were able to hear the words in the lists and recall more words than the monolingual children. Kaushanskaya et al. (2014) noted further that non-linguistic tasks such as inhibitory tasks scored higher on the positive effect of bilingualism, as reported in by a large body of literature. Inhibitory task control was the "need to inhibit one language when producing and comprehending linguistic input in the other language" (Kaushanskaya et al., 2014, p. 575). The way inhibitory control operated one's access to the two languages in the same domain as the general cognitive control mechanisms that could perform a task, such as Simon Says. Again, bilingual learning experiences played significant roles in developing cognitive skills.

Carlson and Meltzoff (2008) explored the bilingual experience and executive functioning in young children. They intended to find out why the inhibition/selective attention develops more rapidly in bilingual students. These researchers defined inhibitory control as the conscious control of thought and action. They concluded that both languages remain active during language processing instead of switching on and off as the situation called for it because a bilingual individual was like two monolinguals in one person. Consequently, bilingual students had a “larger productive and receptive vocabulary in one of the languages and their vocabulary in each language taken individually is usually less than that of a monolingual speaker of the same age” (Carlson & Meltzoff, 2008, p. 284). In other words, Hmong bilingual students would obtain more vocabulary than English-only speaking students when adding Hmong and English together with the exception that one of the languages would be higher in vocabulary than the other. However, the English of monolingual students was higher than the English of bilingual students.

Through fliers and oral presentations in various settings, Carlson and Meltzoff (2008) recruited 50 kindergarteners and their parents to participate in their study. The 50 kindergarteners consisted of 12 bilingual students, 21 immersion students, and 17 monolingual students. The bilingual students were exposed to Spanish and English since birth, while the immersion students attended a K-5 language immersion school where they received instruction in multiple subjects in English for half the day and either Spanish or Japanese for the other half. The monolingual students attended a traditional English school with limited exposure to a second language. Both the immersion and monolingual groups had ethnic identities that included White, Asian, Hispanic, and African American with English as their dominant language. Carlson and Meltzoff conducted a battery of fixed order tasks such as Comprehensive Test of Nonverbal Intelligence (CTON), Expressive One-Word Picture Vocabulary Test – Spanish/English Bilingual Edition,

Dimensional Change Card Sort, Simon Says, Delay of Gratification, Kansas Reflection-Impulsivity Scale, Visually Cued Recall, Statue, Gift Delay, and Attention Network Task. Carlson and Meltzoff (2008) examined the students' demographics and saw that the bilingual students were at a disadvantage compared to the immersion and monolingual students due to maternal education, family income, and time parents read to their children.

The data from Carlson and Meltzoff (2008) further demonstrated that the bilingual students performed poorly on the verbal ability, whereas the immersion and monolingual students performed similarly. On the other hand, the bilingual students performed significantly better than both immersion students and monolingual students in the other executive function tasks such as the Visually Cued Recall, Dimensional Change Card Sort, and CTON. The remaining tasks were not as significantly different between the three groups of students. Carlson and Meltzoff (2008) suggested that bilingual students were not equally matched with monolingual students on verbal ability and socioeconomic status. Still, both groups of students achieved the same results when focusing on cognitive operations. Another element worth noting was that the immersion students were English dominant and had just begun the immersion programs as kindergarteners. The duration of bilingual education could impact the students' experience, as measured in the next study.

Nicolay and Poncelet (2015) concurred with Bialystok (2018), Kaushanskaya et al. (2014), and Carlson and Meltzoff (2008) as they conducted studies on French immersion students. The French immersion students demonstrated better performance on executive functioning tasks than monolingual students. However, Nicolay and Poncelet (2013, 2015) raised an additional point on the duration and experience of bilingualism. They found that the children's level of executive function performance was related to their degree of bilingualism

and experience with bilingual education. For instance, the less bilingual experience the students had, the weaker their cognitive abilities were. Therefore, it was crucial to start bilingualism at an earlier age to increase the executive function and other learning to take place such as learning English for many of the bilingual students of color (Bialystok, 2018; Kaushanskaya et al., 2014; Nicolay & Poncelet, 2013, 2015).

Poulin-Dubois, Blaye, Coutya, and Bialystok (2011) also examined the effects of bilingualism on toddlers' executive functioning. These toddlers were two years old, and thus had much less experience in language production. Poulin-Dubois et al. studied whether the advantages of bilinguals' extensive practice measured high in selective attention and cognitive flexibility during language use because both languages were active when one of them was being used. This expected pattern was consistent with other research, such as the studies conducted by Nicolay and Poncelet (2015), Bialystok (2018), Kaushanskaya et al. (2014), and Carlson and Meltzoff (2008). During their investigation, Poulin-Dubois et al. discovered that the results extended the previous research for bilingual advantages in specific executive control abilities of bilingual children. Poulin-Dubois et al. reasoned that those who had less experience in bilingual settings had less controlled language production. With children as young as 24-month-olds, their experience had been primarily in receptive language rather than expressive language (Poulin-Dubois et al., 2011). Due to linguistic competencies, Poulin-Dubois et al. also claimed that older bilingual children outperformed their monolingual counterparts when measured on conflict tasks with inhibitory attention. With older bilingual students, they had more experience with cross-language competition, which benefits more at the cognitive level.

Improved executive functioning is an advantage for having metalinguistic awareness, paying attention, organizing, planning, and starting tasks by staying focused on them until



completion, and self-monitoring when learners engaged in bilingual immersion programs. Aside from achieving executive functioning, bilingualism also secured English learning, especially in second language learners. Many researchers also found additional positive impacts of bilingual education had on cultural continuity.

### **Cultural Continuity**

The previous section outlined how well-structured bilingual education programs and early exposure helped more English language learners advanced in many aspects of academic achievement; they could also support English language learners' and communities' cultural continuity. Cultural continuity was the transferring of values, culture, language, and tradition over time and through generations (O'Sullivan-Lago & De Abreu, 2008). O'Sullivan-Lago and De Abreu noted: "Aristotle's claim that living things have a principle of change and staying unchanged is a natural paradox of human life" (p. 42). In other words, Aristotle believed that humans could change over time and maintained parts of their past practices. O'Sullivan-Lago and De Abreu discussed further the understanding of this contradiction as it pertained to who one was and who one will be. "Life would lose meaning, future planning would make no sense, and because no one could be held accountable for their past actions, society would cease to function" (p. 42). As O'Sullivan-Lago and De Abreu suggested that human beings need to know who they were and who they will be to operate in civilization, education should play a role in teaching the history and cultivating future generations. This belief illustrates a compelling need for cultural continuity. Therefore, cultural continuity is a critical consideration when it comes to bilingual immersion programs.

Before turning to cultural continuity, it is necessary to understand the difference between assimilation and acculturation. Bilingual education supports acculturation as immigrants migrate

to a new home while not demanding assimilation-style cultural death. With acculturation, minority communities tried to “advance the interests and goals of their ethnic in-group, of the society as a whole, or of both their in-group and the society” (Hindriks, Verkuyten, & Coenders, 2017, p. 734). Assimilation is when immigrants and refugees encountered experiences that require them to leave their native culture behind in favor of adopting the “American way of life” according to Tran and Birman (2017). Tran and Birman studied acculturation and assimilation for Somali Bantu Refugee Students. Many times, 'English only' policies and dress codes prohibit expressions and practices that deviate from the White, middle-class standard, which suggest that assimilation is necessary, whereas acculturation allows every culture to change by the accumulation of new cultures.

Tran and Birman (2017) and Hindriks et al. (2017) discussed the four acculturation styles, which referred to the extent of people acculturate to the new culture and enculturate their native culture. The four styles were assimilation, integration, separation, and marginalization. Again, assimilation is when a minority group leaves their culture and language while entirely immersed in the new culture. Integration is when the minority group integrates both the new culture and the native culture as a whole. As separation indicates the minority group wishes to advance and advocate for their native culture more, marginalization occurs when the minority group does very little to promote their native culture and the new culture. Tran and Birman delved deeper into the students' acculturative style and confirmed that it impacted students' identity development, school performance, and adjustment to cultural and mainstream societies. Assimilation and acculturation are quite different, and it is crucial to understand how they operate within the cultural continuity framework.

Subsequently, researchers studied the effects of bilingual education as English language

learners maintained cultural continuity with the acculturation style and discovered the opportunities that were available for the ELLs. One of the goals of bilingual education is to offer ELLs the opportunity to competently learn the academic content language in English without sacrificing their home languages and cultures. For example, ELLs could rapidly learn various content such as science, math, social studies, reading, and writing in English when their native language is utilized to support the learning. This opportunity allows students to learn and maintain their cultural practices and language while attaining a rightful place in American society. Many researchers agreed that it was what bilingual education should do for immigrant students (Colón & Heineke, 2015; Lucero, 2015; Varghese & Park, 2010; Zimmerman, 2000). There were many aspects of cultural continuity, but the remaining of this section included cultural practices such as language, traditions, and culturally responsive pedagogy.

Christopher (1985) studied cultural continuity among second-generation Greek-American students within a Greek community in the United States. This investigation revealed that assimilation agencies of the dominant Anglo-American culture were more influential. At the same time, some Greek cultural patterns, such as the Greek language and church-sponsored schools, were sustained. He compared the students of high socioeconomic status (SES) students to those of low SES and discovered that the higher the family's income, the greater the family's values were. The high SES parents appeared to have greater expectations for their children, such as having them achieving a highly-paid job, becoming highly educated, and living a luxurious lifestyle. However, the low SES parents rated higher importance on self-respect and obedience, which had a lot to do with life struggle and survival. Therefore, self-respect and obedience brought order into their world and dignity as a cultural pattern for cultural continuity.

Christopher (1985) also observed that “cultural continuity and individual values lend

credence to previous research findings such as showing a relationship between subcultural continuity with an ethnic group's ability to maintain viable institutions such as the church, parochial education, and organization" (p. 135). In other words, cultural continuity could be maintained if the support of churches, schools, and organizations existed. The Hmong students in this study are already a part of a school district that supports the Hmong language and culture, so the idea of schools and organizations supporting cultural continuity is available.

Similar to Christopher, Creese (2009) agreed that a school was a place where linguistic, cultural, and literacy knowledge occurred. Creese's study supported the idea that if teachers and students engaged in linguistic practices, they could help draw on a wide range of resources to create meaning and understanding of the second language. Creese noted that the Gujarati schools feared the loss of language and culture of the minority students, so it was up to the teachers and students to protect and nurture the heritages in the schools. The schools were able to give more to the minority students by offering evening and Saturday heritage classes so the students would have a safe place to speak their native language and be who they were. This opportunity allowed students to practice cultural continuity to increase academic success.

Before the discussion on the pre-K-12 school level of students and teachers engaging in bilingual programs to promote cultural continuity, Dantas-Whitney and Waldschmidt (2009) stepped back into the teacher preparation education. They analyzed if teachers were prepared to support cultural continuity in the classrooms. They examined and identified areas for enhancement in their teacher-education program to work toward culturally responsive pedagogy. As Dantas-Whitney and Waldschmidt engaged and reflected with 42 pre-service teachers who choose the credit option and enrolled in additional ESOL (English for Speakers of Other Languages) coursework, they wanted to know how effective the efforts were to provide pre-

service teachers the knowledge and skills to help with English language learners. They also examined for any evidence of critical cultural consciousness the pre-service teachers developed through their participation in the study.

Dantas-Whitney and Waldschmidt (2009) found four categories through their research with the pre-service teachers: “(a) view of teaching as a non-localized activity, (b) view of teaching as a neutral act, (c) superficial acknowledgment of cultural issues, and (d) contradictory attitudes about ESOL/bilingual education” (p. 67). Therefore, they concluded that their teacher preparation program had weaknesses in the overall program design and curriculum. Most of their participants were proficient in Spanish and English, but they had limited cross-cultural experiences. These pre-service teachers learned Spanish as a second language through schooling and travel, so they spoke the language and experienced some aspect of the culture. However, they did not have the full cultural experience of the day to day practice and traditions as a native speaker. Therefore, it was harder for them to engage in culturally responsive teaching. When looking at the Hmong teachers in this research, the Hmong teachers went through a similar teacher preparation program, and they learned English as a second language. However, they had more advantages because they speak Hmong as they live and breathe the Hmong culture on a daily base. These Hmong teachers have the opposite experiences as compared to the pre-service teachers in Dantas-Whitney and Waldschmidt’s study because the Hmong teachers speak Hmong as their first language, and they had factual knowledge of the cultural issues. Therefore, the Hmong teachers in all perspectives should be in a better position to promote bilingualism and biculturalism in their classrooms. They have a more significant advantage of providing a culturally responsive pedagogy.

Puig (2012) recommended that professionals need to have college coursework as a source

of background to support their work with culturally and linguistically diverse children and families. Puig studied how Early Intervention (EI) services integrated the cultural and linguistic resources of families into the program. Puig also examined how EI professionals and families built partnerships with each other to help children receiving home-based EI services because she understood that “Cultural and linguistic alchemy was the practice of building up from families’ strengths” (p. 343). To responsively serve young children and their families, it is critical to integrate their home cultures and languages in the dual-language immersion schools.

Similarly, Quiroz and Dixon (2012) studied mother and child interactions during shared literacy activities in a bilingual environment during the preschool year. They agreed with Puig (2012) that the continuity between home/school languages showed compound support for language transferring to literacy skills across languages. A child who attended a bilingual preschool program had the best vocabulary outcome in both languages as compared to a child who participated in a mainstream program. These students also had the highest literacy skills in Spanish and the second highest in English in Quiroz and Dixon’s study. Quiroz and Dixon suggested that studying different educational programs such as bilingual and dual-language would deepen an understanding of the role of home/school language continuity.

The results of Quiroz and Dixon’s (2012) study indicated a shift in planning for the education of ELLs. They stated: “The linguistic demands in scaffolding literacy tasks indicate that assimilation may not only be ineffective in helping ELLs close the achievement gap but may be contributing to widening that gap, by contributing to early literacy difficulties” (p. 166). When students were pushed to assimilate, the parents in the study had difficulty overcoming the linguistic differences during the homework tasks. The parents’ roles were diminished by trying to help their children with a task that was not achievable because of the English literacy demands

and cognitive difficulty. Further findings from Quiroz and Dixon's study indicated that the quality of language interactions in Spanish facilitates English language and literacy skills.

Reese (2012) examined the potential associations between storytelling practices and children's performance on language and early reading tasks with working and middle-class Mexican families. Similar to Quiroz and Dixon's findings of the home language as a strength, Reese took the idea to another level with storytelling as a cultural resource. Reese documented the frequency of storytelling in the homes with a range of topics of the stories, characteristics, and genres of stories. She also focused on the intergenerational continuity of storytelling practices among her participants.

When adding to the depletion of cultural continuity, Reese (2012) observed that the storytelling that parents experienced as children were less frequent among families today; traditional storytelling seemed to be replaced by storybook reading. However, middle-class parents reported reading to their children at least once a week, while working-class parents reported reading to their children once a month. Reese stated, "Indigenous oral traditions predating the conquest of Latin America by the Spanish include a rich history of poetry, prayers, and discourse through which cultural content was transmitted from generation to generation" (p. 278). The study survey indicated that several types of oral narratives occurred in the homes, especially during family gatherings. Therefore, the telling of traditional stories and legends had not vanished.

Meanwhile, the discourse of storytelling is a family conversation and not a storybook. Oral storytelling is also a Hmong culture tradition and practice. It was a way for history, values, traditions, and any teachings to be passed on from generation to generation (Vang, 2003). Oral traditions are ways of acculturation and could benefit the cultural continuity of the Hmong

students as well. Block (2012) supported the idea of family conversation when he examined the impact of students' relationships with Spanish-speaking adults. He found that children grew closer to Spanish speaking families and communicated more with Spanish speaking community members. 76% of the dual immersion parents respond that the Spanish dual immersion program has affected their children's relationship with family members, and it increased the students' ability to communicate in Spanish (Block, 2012).

In summary, many of the researchers mentioned in this section seemed to agree that bilingual education could provide opportunities for ELLs to maintain cultural continuity. Bilingual education programs allow language, traditions, and culturally responsive pedagogy to take place. Teacher preparation programs could work on making sure the coursework provides the knowledge and skills needed to help English language learners learn through appropriate culturally responsive pedagogies and culturally inclusive curriculum. It was evident in several studies that schools and organizations were the most accessible environments for culturally sensitive teaching. It was in these safe spaces that ELLs could learn to use their native languages and certain cultural practices such as oral traditions and storytelling to boost learning in both native language and English contexts. The language, culturally responsive pedagogy, and specific cultural traditions are ways of acculturation, and they also offer students the opportunity to maintain cultural continuity and self-perception.

## **Identity**

While bilingual education provides access to cultural practices and language to promote cultural continuity, identity is another perspective that can impact English language learners' academic achievement. This section discusses what researchers and scholars have learned about students' identity and schooling, especially the identity of Hmong students in the United States.



Since the Hmong people came to the United States as refugees more than 40 years ago, many Hmong people had been assimilated into the American culture while others acculturated in mainstream society (Xiong-Lor, 2015). Exploration of how the Hmong people identified themselves, and what the U.S. public education system has done to influence their identity was much needed.

García-Mateus and Palmer (2017) claimed that identity matters for school success and argued that language and identity were powerfully interconnected. They cited that identity is a social positioning of self and others in conjunction with language. They explored the identities of students who came from English-speaking and Spanish-speaking homes and whose teacher embraced dynamic bilingualism. Their data revealed that translanguaging offered equitably empowering educational and language learning opportunities for bilingual students.

Translanguaging is the ability to use language to draw upon different linguistic, cognitive, and semiotic resources to make meaning and make sense of different concepts (Wei, 2018). García and Li (2014) stressed the importance for students to progress from strict bilingualism to translanguaging, as the impact of this shift transforms their thought processes into integrated communication systems.

García-Mateus and Palmer (2017) reframed the debate on language separation toward a vision for translanguaging pedagogies in the dual-language classrooms. Translanguaging pedagogies allows students to use more than one language in their learning spaces instead of segregating academic instruction by language and students. In contrast, for the current set up of academic instructional, students were prompted to engage in only one language at a time. In other words, translanguaging pedagogies in the Hmong immersion program could support the development of positive bilingual identities and critical metalinguistic awareness for students

who were English dominant and Hmong dominant in this study. Since these pedagogies support the students' identities and metalinguistic awareness, academic achievement would proliferate.

Researchers, Wright and Tropp (2005), also agreed that bilingual instruction stresses the importance of maintaining students' native languages while reducing discrimination, improving self-esteem, and strengthening cross-group relationships as they examined the impact of bilingual versus English-only instruction. Wright and Tropp defined bilingual instruction as a significant amount of instruction provided in a language other than English. They compared English-speaking students in an English-only instruction class with English-speaking students in a Spanish-instruction class. They found that the English-speaking students who were in the Spanish-instruction class had less bias toward the Spanish students and had better intergroup relationships. This observation supported the enhancement of Spanish students' identity and learning. Based on most of the studies examined thus far, there was a strong interconnectedness of academic achievement, identity, responsive teaching, and programming.

Xiong (2011) examined the effects of language practices of Hmong students and their Hmong families. He stated that first-generation immigrants and their children in the United States encountered the issue of conceptualizing who they were both socially and culturally. Due to the differences in the immigrants' native cultures and Westernized cultures, youth immigrants had difficulty maintaining their ethnic identities and acculturating to the dominant culture. This issue was critical to the youth immigrants' self-esteem, psychological well-being, prosperous adjustment to a new society, and academic progress.

Xiong (2011) also synthesized that the Hmong culture came from a rural, clan-based, preliterate, and traditional way of life added challenges to the forming of identity. The older the Hmong immigrants were, the stronger their viewpoints were in maintaining Hmong values and

traditions as they were in Laos. This mentality confused the younger Hmong generations as they were taught to assimilate into the mainstream culture. In the early days of Hmong refugees' arrival to the United States, the Hmong children were among the Limited English Proficient (LEP) student population in the United States. Their arrival timing coincided with the time when the BEA was amended in 1978 for a more tangible regulation and greater local control of the program curriculum. The BEA was reauthorized because the legislation reflected the belief that school districts needed to provide a variety of alternatives to enable their current LEP students to meet proficiency in English and to be able to achieve academically in mainstream classes (Stewner-Manzanares, 1988). As Hmong students were expected to be proficient in their second language, they had to assimilate into mainstream society. This turning point was when the Hmong people began a cycle of language and identity loss. The Hmong children stopped speaking Hmong because English was everywhere in their lives. They spoke English all day at school, and when they came home, they watched English programming on television while their parents worked full-time.

In this 21<sup>st</sup> century, researchers identified two distinct groups of young Hmong generations currently in the United States: the 1.5 generation, and 2.0 generation (Pfeifer, Sullivan, Yang, & Yang, 2012; Rumbaut, 2004; Xiong, 2011). The identity and language level vary for each group. According to Pfeifer, Sullivan, Yang, and Yang (2012), 7% of the Hmong population was 62 years or older with primarily a large young cohort into early and mid-adulthood based on the 2010 census.

The Hmong population continues to constitute one of the youngest ethnic groups in the United States (Pfeifer et al., 2012). Xiong (2011) distinguished the generations as follows: the two generations of 1.5 and 2.0 made up more than half of the Hmong population. The 1.5

Hmong generation group referred to Hmong young adults who were foreign-born and still maintained characteristics from their home country as they continued to assimilate and socialize in the mainstream culture. The 2.0 Hmong generation group referred to Hmong young adults who were born in the United States. Some of the 2.0 Hmong generation groups saw the need to learn their cultural customs, but often they lived in communities where little Hmong was spoken. It is crucial to understand where the majority of young Hmong placed themselves to gain a better picture of where their children are situated.

Xiong (2011) concluded that the 1.5 Hmong generation and 2.0 Hmong generation identified themselves as “Hmong-America” due to their ethnicity and upbringing. The findings from the study indicated that the majority of the parents believed their children had lost the Hmong language and culture. Therefore, heritage maintenance was essential, and the Hmong parents expressed great interest in Hmong tradition and cultural maintenance and indicated a willingness to learn about their native values. Xiong (2011) focused on the effects of language practices of students within Hmong families, and the data indicated that parents and families were responsible for teaching the Hmong heritage and language to their children to aid in maintaining their cultural identity.

Within the last 40 years, Hmong-Americans remained as one of the ethnic groups who had maintained the lowest levels of educational attainment among Asians (S. Lee, 2014). Despite the circumstances, Lee elaborated that few Hmong students excelled in K-12 and higher education due to total assimilation with the increase of the Hmong-American birth rate in the United States. However, these total assimilated Hmong students did not speak the Hmong language, nor did they practice the Hmong traditions. Xiong’s (2011) findings were inconclusive concerning whether the school was responsible for teaching Hmong students their Hmong

language and culture.

However, Xiong-Lor (2015), who studied current Hmong perceptions of their speaking, reading, and writing ability and cultural values as they related to language and cultural maintenance, found the opposite. She concluded that the Hmong people valued their language and culture very much as they hoped for a formal setting for the teaching of their rich language and culture within American schools. Xiong-Lor's findings revealed that knowing the Hmong language was essential to support the identity of Hmong students and further sustained overall language development in both English and Hmong. The participants in Xiong-Lor's study shared that if one could not understand one's language, one would not know one's culture because language provided access to the culture. Therefore, one could not call oneself Hmong without knowing the language.

Although Xiong-Lor conducted her study with speaking, reading, and writing in the Hmong language, many Hmong people could not read and write in their language. The Hmong people were given a written script of their language in 1953 by Barney, Bertrai, and Smalley (Smalley, Vang, Vang, & Yang, 1990). Barney et al. used the Romanized alphabet sound to create the Hmong alphabet as they worked closely with other Hmong speakers. With more Hmong scholars in the educational field, there was no reason the language should not be taught so that Hmong students could access their identity through schools, programs, and books. Aside from establishing schools to teach the language so Hmong students could maintain their identity, the participants in Xiong-Lor's study (2015) also requested that scholars write down the Hmong history, stories, and cultural practices so that later generations could refer back to them. They felt that if stories were not written down, once the Hmong elders passed on, the younger generations would not have a way of learning the language and culture.

Vang (2012) investigated the experiences of learning Hmong for adult Hmong heritage students as she reflected on and made meaning of the experience of learning Hmong and the Hmong identity. She saw that adult Hmong heritage language students learning the language, and purposefully integrating with the mainstream culture were direct actions to take as a position about oneself, one's identity, and one's people. Despite the challenges, several of her participants chose to continue with the language, accepting the fact that they did not know how to speak Hmong and still needed to learn the language. As these participants integrated their beliefs and practices, they repositioned themselves firmly in their identity as Hmong-Americans.

As a summary for the linkage of bilingual education and identity, the language was the connector between the two. Although the researchers' studies varied on the specific language, they concurred that language played a significant part in an individual's identity. García-Mateus and Palmer (2017) looked at the translanguaging pedagogy as a way to promote languages and construct identities, while Wright and Tropp (2005) encouraged bilingual instructions to increase self-esteem and reduce discrimination of both English and Spanish-speaking students. Xiong (2011) provided thorough information on the different Hmong generations as to how they viewed their identity. Most of the Hmong generations identified themselves as Hmong-American even though some spoke limited Hmong. However, the studies indicated an urgency for teaching Hmong, whether at home or school. Most of the Hmong participants in the myriad studies believed that the Hmong language was the key to their identity.

## **Chapter Two Summary**

This literature review explored multiple perspectives on bilingual education and its impact on second language learners (Collier & Thomas, 2004; Faltis, 1997; García-Mateus & Palmer, 2017; Ovando, 2003; Wright & Tropp, 2005). The perspectives included the history of

bilingual education and the purposes of bilingual education. The diverse types of bilingual programs provided different outcomes that affected academic achievement, executive function, cultural continuity, and individual self-perception. Researchers like Ovando (2003) and Faltis (1997) confirmed that bilingual education promoted language, religion, and cultural practices. However, bilingual education has also impacted the political, social, and economic forces directly and indirectly (Faltis, 1997).

Based on the type of bilingual programs students participated in, educational experiences at an early age boosted students' academic achievement and led to greater English proficiency for second language learners (Collier & Thomas, 2004; De Jong, 2002; Kelley & Kohnert, 2012; Steele et al., 2017). Most bilingual learners performed at or above grade-level. With many Hmong students and students of other ethnic groups in the United States who lacked their home language and performed below grade-level, bilingual education could support the academic achievement in areas such as standardized testing, English learning, and executive functioning.

In order to problem-solve and analyze growth in various learning situations, the inquiry of improved executive functioning within the bilingual education was explored. Improved executive functioning enhanced metalinguistic awareness, paying attention, organizing, planning and starting tasks by staying focused on them until completion, and self-monitoring when learners engaged in bilingual immersion programs (Bialystok, 2018; Kaushanskaya et al., 2014; Ter Kuile et al., 2011). This improvement was beneficial for any learners, especially the Hmong students who were learning English as their first language now but still performed below grade-level on standardized tests.

Hmong immigrants had faced many challenges within K-12 education, especially with low-test scores and high dropout rates from high school (Ly, 2006; Xiong, 2005; Xiong-Lor,

2015). The barriers to Hmong educational achievement were cultural differences, poverty, limited English language skills, and limited experience with formal education. With increased birth rates of Hmong-Americans in the United States, some Hmong students excelled in K-12 and pursued higher education. Nonetheless, “Hmong-American students were still considered high-risk students as they continued to come from homes where the parents’ education levels were low, and household salaries were below the poverty line” (S. Lee, 2014, p. 10). Therefore, as bilingual education helped improve executive functioning, it also helped Hmong students navigate their complex world as they overcame their barriers.

Cultural differences limited English language skills and limited experiences with formal education may be identified as one of the many barriers Hmong students experience in education. However, bilingual instruction focused on the importance of maintaining students’ native languages allowed individuals the ability to navigate their culture. Bilingualism generated social benefits such as reduced discrimination, improved self-esteem, and stronger cross-group relationships (Wright & Tropp, 2005). In other words, bilingual programs supported acculturation and eliminated assimilation. Acculturation allowed students to experience learning and engaged in a learning environment, which fostered their native language and culture while simultaneously participating in the civic life of the mainstream culture. This type of setting helped Hmong students with cultural continuity as they identified and formed their identity.

Identity crisis was another problem many Hmong students faced today. Hmong families barely had conversations across generations due to the limited English of the parents and limited Hmong of the children. If there was any conversation taking place, it was usually the older generation talking among themselves and the young generation talking among themselves. Hmong parents trusted that the school would instruct their children all the things they needed to



know since they had limited formal schooling experience themselves (Vang, 2003). While Hmong students were at school, they were immersed in a curriculum that did not reflect their culture and language, so they were forming an identity that was disapproved by their parents. When Hmong parents pushed for the children to practice Hmong culture traditions and speak the Hmong language, some clashes pushed family members to their corners. First-generation Hmong immigrants and their children in the United States encountered the issue of conceptualizing who they were both socially and culturally as he examined the effects of language practices of Hmong students on Hmong families (Xiong, 2011). Due to the differences in Hmong's native cultures and Westernized cultures, Hmong youth were having difficulty maintaining their ethnic identities and acculturating to the dominant culture.

García-Mateus and Palmer (2017) discovered that an individual's identity matters for academic successes as language and identity are powerfully interconnected. Xiong-Lor (2015) revealed through her study that knowing the Hmong language links with identity. The participants in her research shared that if one does not know one's language, one will not know what one's culture is. Therefore, one could not call oneself Hmong when one spoke another language but not the Hmong language.

This review of the literature confirms the benefit of adding to the body of knowledge and supports this current study's investigation into dual-language learning, notably in the Hmong language. The gap in the current literature exposed that existing research was not focused on the impact of a Hmong dual-language immersion program on K-12 students' reading proficiencies in both Hmong and English. Moreover, another gap existed in relation to the parents of those students and their opinions and criteria concerning their choice of enrolling their child/ren in a dual-language immersion program.

Coming up Chapter Three contains a detailed description of this quantitative study's methodology as it examined the impact of a K-12 Hmong dual-language immersion program on kindergarten through fifth-grade Hmong students' academic performance in the category of reading in both Hmong and English. Chapter Three's methodology description includes the targeted populations and the selected samples, the instruments used, data collection and analysis processes, and the reliability and validity of the study's procedures. Chapter Three is a thorough summation of the research method and design used in this quantitative descriptive study.

## **CHAPTER 3: METHODOLOGY**

### **Introduction**

Within this chapter will be a reiteration of the problem statement and the research questions, and a discussion of the study's methodology and design, as well as a description of the targeted populations and sample selection processes. In addition, the focus of this chapter will be on the instruments used to collect data. The study's data analysis methods, its reliability and validity, and ethical considerations are included as well. The chapter concludes with a summary highlighting the main points and a transitioning into Chapter Four.

### **Restatement of the Problem**

Two issues occurred within the Hmong dual-language program. First, schools are in a position to help bilingual students maintain their native languages and cultures, support students' ethnic identities, and increase academic achievement. However, there are challenges of such practices within the Hmong dual-language program located in Minnesota (Collier & Thomas, 2004; Han, 2012). A lack of resources, such as books written in Hmong and teaching strategies for the Hmong language, is problematic. This presents an inability to fully understand the program's effectiveness and the academic outcomes for the students. The second problem was an inconsistent commitment of Hmong parents keeping their students in the program long enough to see long-term academic results. This, once again, hindered the ability to fully understand the effectiveness of the program and the academic outcomes for the students (Palmer, 2007).

### **Restatement of the Research Questions**

The research questions which guided this study were:

- Q1.** What is the Hmong and English reading proficiency of third, fourth, and fifth-grade students who participate in the Hmong dual-language program in Minnesota as measured by the Hmong Reading Assessment and Minnesota Comprehensive Assessment?
- Q2.** How do fourth and fifth-grade students who participate in the Hmong dual-language program in Minnesota rate their language usage on the bilingual scale?
- Q3.** What is the most prevalent factor that families consider when selecting a program with a Hmong language focus as measured by a Likert-scaled questionnaire?

### **Purpose of the Study**

The purpose of this study was to investigate the impact of a K-12 Hmong dual-language immersion program on kindergarten through fifth-grade Hmong students' academic performance in the category of reading Hmong and English. The students' academic outcomes were based on third through fifth-grade student data collected. Therefore, the assessments include third through fifth-grade. However, the participants were those who persistently enrolled in the HDL program since kindergarten. Moreover, the parents of those students were investigated concerning specific factors they used in choosing a dual-language immersion program for their child.

This study has addressed the gap in the literature regarding Hmong dual-language immersion programs, as it was essential to contribute to the body of knowledge on bilingual education. There have been numerous studies performed on dual immersion programs of other languages (Collier & Thomas, 2004; Parkes, 2008; Palmer, 2007). In addition, several studies are available on the topics of Hmong literacy, Hmong parent involvement, and academic achievement for Hmong students in high-school and higher education (Ly, 2006, Vang, 2012,

Xiong-Lor, 2015). Moreover, many studies were found to focus on the Hmong language and cultural loss, Hmong students' academic achievement in general, Hmong after-school programs, and Hmong parents' engagement with schools (Boyer & Tracz, 2014).

### **Review of Selected Research Literature**

There is a growing body of literature on the topic of dual-language programs. As part of this study, the researcher examined several ways scholars have understood the topic of dual-language programs (Collier & Thomas, 2004; García-Mateus & Palmer, 2017; Bialystok, 2018). Further research has been performed related to outcomes impacting the academic achievement and bilingual ratings, specifically of Hmong dual-language students (De Jong, 2002; Han, 2012; K. K. Lee, 2014; S. Lee, 2014). An investigation into this topic was carried out to confirm the impact dual-language immersion programs have on student academic achievement. Dual-language immersion programs serve as bridges for cultural continuity and academic achievement when students were given access to their mother tongue instruction (Pope, 2018).

Scholars have used various philosophical paradigms to examine bilingual education in a variety of language programs such as the *interpretive* paradigm (Henderson & Palmer, 2015; Wiese 2004), the *critical* paradigm (Alanis & Rodriguez, 2008; Palmer, 2010), and the *positivist* paradigm (Steele et al., 2017; Ter Kuile, Veldhuis, Van Veen, & Wicherts, 2011). While the interpretive and critical paradigms analyze social research data through lenses of a qualitative approach, the positivist paradigm examines data through the lens of a quantitative approach (Heaton, 1998). This researcher used a positivist paradigm to evaluate the impact of a dual-language program on students' academic achievement (Kivunja & Kuyini, 2017).

When making the decision regarding how to study the social context of students, a

number of fundamental philosophical debates arose. These deliberations focused on matters related to *ontology*, denoting beliefs about what is there to know about the world (Ritchie & Lewis, 2014). The main ontological questions, according to Ritchie and Lewis (2005), include: whether or not social reality exists independently of human conceptions and interpretation; whether there is a common-shared-social reality or just multiple context-specific realities; and whether or not social behavior is governed by *laws* that understandable as absolute. Thus, the positivist approach of this study provided statistical evidence on how dual-language immersion participation impacts students' academic achievement. Positivist scholars typically prefer quantitative scientific methods in which the study relies on specific measurable evidence, such as statistics, to convey the true nature of a phenomenon. The ontology of positivism assumes there is an objective reality (Kivunja & Kuyini, 2017).

An epistemological paradigm of positivism using a quantitative approach was relevant to this study because it allowed for a significant opportunity to analyze statistical data (Levers, 2013). Given the opportunity, this researcher examined numerical data using analyses of MCA scores, Hmong Reading Assessment scores, and student and parent questionnaire scores through the lens of positivism. This philosophical approach supported the use of a quantitative research method as the foundation for the researcher's "ability to be precise in the description of the parameters and coefficients in the data" (Taylor & Medina, 2013, p. 31). Once the data were gathered, analyzed, and interpreted, an understanding between the variables were formed (Taylor & Medina, 2013; Kivunja & Kuyini 2017).

Within this ontological perspective, there was a need to understand the nature of reality in the Hmong dual-language programs. The positivist perspective led to seeking unbiased information on how the Hmong immersion programs impact the Hmong dual-language students'

academic performance in the area of language as well as the impact of parents' enrollment decisions. This researcher utilized the epistemological paradigm of positivism to examine the language component of HDL students at two schools within the Metro School District in a Midwestern state. Subsequently, a quantitative method was essential for evaluating academic performance and assessing data on fluency in two languages for the bilingual students in this study. Standardized assessments, as well as student and parent questionnaires, were used to survey the language outcomes from the perspective of the bilingual academic setting, students, and parents who took part in the Hmong dual-language program with language being the common thread across the research questions.

### **Research Method**

This study focused on the Hmong dual-language program in the Metro School District, where a high concentration of the U.S. Hmong population resided (Xiong, Lee & Yang, 2008). Xiong et al. claimed that this Hmong population was one-quarter of the nation's Hmong population equaling 41,800 in 2008. By 2012, the Hmong population had increased to 66,181 for Hmong people residing in Minnesota (Hmong in Minnesota, 2012). The Metro School District served 38,000 students, including Pre-K to 12th grade, according to the school's website page (Saint Paul Public Schools, 2019a), which made the Metro District the second largest district in the state. Of the 38,000 Metro School District students, 31% of the students were Asian (Thao, 2015). Thao (2015) stated that 65% of the 31% Asian students in the Metro District identified as Hmong students. In other words, more than one in five Metro District students had Hmong as a home language (Thao, 2015).

To examine the impact of the Hmong language programs, this researcher chose a quantitative research method. A quantitative method included quantified data and generalized

results about the students and parents of the Hmong language program at two schools within the Metro School District. This method required examining the students' language achievement by using the MCA and Hmong reading assessment. These assessments included reading fluency and reading comprehension. The students' success in meeting the state standards in reading for both assessments determined whether the Hmong dual-language program had a direct impact on their academic success. The data collection procedures involved highly structured questionnaires with minimal changes throughout the study. It utilized advanced analytic techniques to report graphical outcomes, representative of the targeted participants and guided decision and course of action on the Hmong language program in the Metro School District.

A quantitative method demonstrates the strengths of numerical data and statistical analysis (Babbie, 2016; Muijs, 2010). On the other hand, a qualitative design can add further personal insights to a study, but a demand to fill the gap in statistical literature on Hmong dual-language program was essential. This research method allowed for a timely response to the urgency of evaluating the Hmong dual-language program. For example, when examining the Hmong dual-language students' MCA and Hmong reading assessment scores for the first research question, the analysis focused on third, fourth, and fifth-grade levels of achievement with the state's standards. In this fast-moving and statistically-driven society, stakeholders such as school leaders, parents, and community members seek updated and pertinent data to make decisions.

## **Research Design**

To address the research questions and the purpose of the study, the methodology chosen for this study was quantitative, using descriptive statistics, a means often used to describe variables (Kaliyadan & Kulkarni, 2019). Descriptive statistics can be used to describe a single



variable (univariate analysis) or more than one variable (bivariate/multivariate analysis). Within this study, the independent variables were the ethnicity of the students and the students' status of enrollment in the educational programs. The dependent variables, on the other hand, were the students' languages, Hmong reading scores, and MCA scores.

In the case of more than one variable, descriptive statistics aided in summarizing the relationships between variables. Furthermore, this study did not seek to evaluate any hypotheses as the research questions call for statistical evidence of a particular aspect of reality (Tully, 2014). Ontology can aid in explaining the nature of the realities, which the Hmong students have encountered. Thus, via use of this quantitative methodology, knowledge (epistemology) about the language outcomes of the Hmong dual-language immersion program emerged.

True experimental studies require that participants are randomly assigned to one of two groups, a treatment or a control group. A quasi-experimental design is a quantitative method involving the use of intact groups of participants, rather than assigning a certain number of participants, at random to experimental treatments (Babbie, 2016). It was not practicable for this researcher to employ randomization due to the size of the population after considering the inclusionary and exclusionary factors. Quasi-experimental designs do not use random assignment of participants, and are used to evaluate the causal impact of an intervention on a target population (Fraenkel, Wallen, & Hyun, 2015). In this current study, a quasi-experimental design was used to assess the Hmong dual-language program's causal effect on the population.

Descriptive statistics were used in this quasi-experimental study, wherein a particular group of participants was assessed using standardized instruments (Babbie, 2016; Price, 2014). "Descriptive statistics are used to summarize data under study. Some descriptive statistics summarize the distribution of attributes on a single variable; others summarize the associations

between variables. Descriptive statistics summarizing the relationship between variables are called measures of association” (Babbie, 2016, p. 493). Thus, measures of association have been detailed in the results of this study.

### **Demographics Population**

This study’s general population was comprised of all Hmong language K-12 students within the United States, and the target population was approximately 19,735 Hmong language students within the state of Minnesota (MDE, 2018a). The population size was 220 third to fifth-grade Hmong dual-language students from both schools in the Metro School District. The sample included 102 third to fifth-grade Hmong dual-language students from both sites in this study. Purposive sampling was used to select the sample students.

A secondary general population was comprised of all parents of Hmong dual-language K-12 students within the United States. The target population consisted of all parents of dual-language students within the state of Minnesota, which consisted of 300 families for the population size. The sample was 151 parents of students from the Hmong-English dual-language program in the Metro School District. A convenience sampling was used to select the parents.

According to the 2010 U.S. Census, 245,807 Hmong people resided in the United States, while 66,181 of the Hmong people lived in Minnesota (Hmong in Minnesota, 2012). The Metro School District is one of the largest districts in the state of Minnesota, serving 37,000 students, including Pre-K - 12th grade (Saint Paul Public Schools, 2019a).

Approximately 31% of the students were Asian, and 27% were African American. The other population encompassed 21% Caucasian students, 14% Latino students, 1% Indigenous, and 6% multi-racial students. This school district’s student population spoke more than 100

languages and dialects, with approximately 29% of students designated as English Language Learners (Saint Paul Public Schools, 2019a). Another 16% of the students received special education services, and 66% of students were eligible for free or reduced-price lunch. Six of the 31 elementary schools were dual-language immersion schools, encompassing the following languages: Spanish, French, Mandarin, and Hmong (Saint Paul Public Schools, 2019a).

Two public schools in the Metro area hosted the Hmong dual-language program, which they are both Metro district schools. One of the Hmong dual-language schools was Park Hmong Studies School with about 718 students; the other Hmong dual-language school was Jack School with about 409 students. Both schools' populations were comprised of more than 97% students of color. These students of color encompassed mainly Hmong and Karen students. This study included third to fifth-grade HDL students who attend the Hmong dual-language program and parents of HDL students from both sites.

The population of this study included 100 third to fifth-grade students of Hmong descent who took part in the Hmong dual-language program at one of the two HDL schools. These students' collected data were directly linked to research questions one and two. Due to the emphasis on the language outcomes of the Hmong dual-language immersion program, the focused population included the intermediate grades for multiple reasons. Studies have indicated that bilingual academic success occurs later in a student's learning experience (Collier & Thomas, 2004; De Jong, 2002; Han, 2012).

Third, fourth, and fifth-grades were the later grades at the elementary level. These targeted grades took part in state standardized tests, such as the MCA, which provides details on English reading proficiency. These grades also engaged in the Hmong Reading Assessment, which provides evidence of Hmong reading proficiency. Therefore, the third, fourth, and fifth-

grade HDL students were selected to participate in this study due to the available data on language assessments and the bilingual academic achievement. Purposive sampling was used to select the sample, students aged eight to 12 years old, in third, fourth, and fifth-grade due to the knowledge of the population and the specific purpose of the research (Fraenkel, Wallen, & Hyun, 2015).

The other population in this study included all the parents of students enrolled in the Hmong dual-language program in response to research question three. Many of the Hmong parents in this study were considered the 2.0 Hmong generation because they were born in the United States (Xiong, 2011). Of the parents in the study, 20% were also Hmong descents of the 2.0 generation, and 70% were 1.5 Hmong generation because they were born in another country but raised in the United States (Pfeifer, Sullivan, Yang & Yang, 2012). The remaining 10% of the parents were 1.0 Hmong generation since they were born and raised in a country other than the United States (Pfeifer, Sullivan, Yang & Yang). A convenience sampling method was used to select the parents of 1.5 and 2.0 Hmong generations since these generations were the majority of the Hmong parents (Fraenkel, Wallen, & Hyun, 2015).

According to the home language enrollment trend, for the duration of this study, about 18% of the students in the Metro District spoke the Hmong language (Saint Paul Public Schools, 2019a). This Hmong language trend was higher at the Hmong dual-language school level because of the targeted language program. Park School had about 61%, and Jack had about 49% of students who identified Hmong as their home language (Saint Paul Public Schools, 2019a). These two schools were higher in the Hmong language trend because they host a Hmong language program, whereas the district displayed an overall Hmong language trend within the other languages. There was a slight possibility that some HDL students identified their home

language as English.

## **Sample**

The sample included students of the Hmong dual-language programs and their parents from both schools in the Metro District. The following protocols described the recruitment and inclusionary criterion for participants in this study. Purposive sampling was used to select and recruit HDL students because certain knowledge of the population and the specific purpose of the research was identified (Fraenkel, Wallen, & Hyun, 2015). The HDL students had filed enrollment in the district and the Hmong language program for the last three to six years for the possible MCA and Hmong language assessment data. These students immersed in the Hmong dual-language program at various times during their elementary schooling. About 90% of the students started at the 90:10 model, while 10% started at either the 80:20 or 50:50 models.

The plan was to select 100 of the 220 students who attended the Hmong dual-language program at both Metro District schools and enrolled in third, fourth, and fifth-grades. With a total of 220 students in all three grades at both schools, the participation rate was achievable for research question one. According to Fraenkel, Wallen, and Hyun (2015), if a 30% participation rate could be expected, then 100 students out of the 220 students were already more than 30%.

The first inclusion criteria for this study required that participants must have participated in the Hmong dual-language program providing them academic instruction in both Hmong and English. The second inclusion criteria identified special education students because all students in public schools are required to participate in the statewide assessment program (MCA Parent Fact Sheet, 2018). Special education students with an Individualized Education Program (IEP) or 504 plans might be eligible for accommodations for the MCA, especially students with

significant cognitive disabilities.

However, due to being bilingual, HDL students were usually not identified as qualified for special education services due to their language barrier. Compared to 16% in the district, less than 10% of students in the overall population at the two schools were identified as special education students (SPPS, 2019a). These 100 HDL students were included in the Hmong reading assessment and the MCA; therefore, they all qualified to take part in this study.

The data analysis was performed on the whole sample and then separated by grade-level to gain a comprehensive understanding of the outcomes. After consulting with the district's research director (see Appendix H), parental consent for the participating students with research question one was not necessary, because the MCA and Hmong reading assessment results were public data. With caution, the MCA and Hmong reading assessment data would be analyzed without students' names attached. Thus, a number was assigned to each student in place of the students' names on the assessments.

For research question two, the fourth and fifth-grade HDL students from the school year 2019-2020 were selected to complete a bilingual dominance scale to determine their level of language proficiency. Recruitment of 60 fourth and fifth-graders of 125 total students for both grades of the two schools was critical for data analysis. With the 30% participation rate (Fraenkel et al., 2015), if there were uncertainty about meeting the goal of 60 students agreeing to participate in completing the questionnaire in its entirety, the participation rate of about 45 students would have been sufficient for research question two.

As the two groups of the oldest students in this study, the fourth and fifth-graders had the most experience and adequate knowledge of the Hmong dual-language program to allow for

understanding their language abilities. Many studies have alluded that bilingual academic success occurred later in the schooling age (Collier & Thomas, 2004; De Jong, 2002; Han, 2012). Therefore, fourth and fifth-grade students, being within the final two grades at the elementary level, were an appropriate group of students to engage in the self-report Twelve Bilingual Dominance Scale. As these groups of participants addressed the second research question on the Twelve Bilingual Dominance Scale, parents had to provide consent for their child to participate in the research. This researcher wrote a letter explaining the level of their child's involvement in response to the second research question and attached a consent form, which was sent home with students (see Appendix A and B for the specific of the letter and parental consent form for the students).

For research question three, all HDL parents were vital participants for this study because they brought in perspectives that offer insight into the most driving factor(s) families used to elect a Hmong immersion program. All parents of Hmong immersion dual-language program students of grades pre-kindergarten to fifth were invited to participate in the research. However, the recruitment of at least 100 parents needed to be achieved for sufficient data analysis. Due to the availability of the parents, a convenience sampling technique was used for recruitment (Fraenkel, Wallen, & Hyun, 2015). Information about the research was provided in both languages of Hmong and English (see Appendix B for parental consent form for the parents). That way, the parents received accurate information to make an ethical decision to participate in the research. The rationale for this parent sample was to fully assess the reasons why parents choose the Hmong dual-language program. Again, the students' duration and experience of program enrollment mattered when measuring for satisfaction (Collier & Thomas, 2004; De Jong, 2002; Kelley & Kohnert, 2012; Steele et al., 2017).

All of the participants were essential to completing this research and addressing all research questions. The first research question addressed the language outcomes of students' Hmong and English reading proficiency in the bilingual academic setting. For the fourth and fifth-grade HDL students, deciphering their language usage was most appropriate due to their duration of enrollment for the second research question. Because of the enrollment registration, all HDL parents were necessary for the parent questionnaire, which directly linked to the third research question of why parents select Hmong dual-language programs. Parental consent was crucial for this study; however, if for some reason, there was a lack of response, there was a follow-up with additional information about the research and consent form.

### **Instruments**

This study used four different forms of data collection to provide an extensive picture of academic achievement, bilingual rating of HDL students in the Hmong dual-language immersion program, and a questionnaire to identify factors parents used to choose the immersion program. This quantitative research included the MCA, the Hmong Reading Assessment, the bilingual dominance scale, and a parent questionnaire on HDL program selection. This subsequent section describes all the forms of data questionnaires and how the data were analyzed to provide graphical outcomes, representative of the targeted participants, and identified categories among the variables.

#### **Minnesota Comprehensive Assessment.**

The Minnesota Comprehensive Assessments (MCA) are the state tests that measure student progress toward Minnesota's academic standards and also meet Federal and State legislative requirements. Since the tests measure student performance of the Minnesota K-12



Academic Standards, each student receives a score that falls in one of the four achievement levels:

1. Does Not Meet the Standards,
2. Partially Meets the Standards,
3. Meets the Standards, and
4. Exceeds the Standards.

These four achievement levels have different score cuts (MDE, 2019). For example, in the fourth-grade MCA reading, the score cut for Does Not Meet the Standard was a score of 439 and under; Partially Meets the Standards was between 440 and 449; Meets the Standards was between 450 to 465, and Exceeds the Standards was 466 and above. The proficiency level for a fourth-grade reader was 450 points and above. Table 2 illustrated the scores cut for each performance level corresponding to the reading and focusing grades of this study. The MCA measured performances in the English language.

Table 2.

*Reading MCA-III Scale Score Cut.*

Grade	Partially Meets	Meets	Exceeds
3	340	350	374
4	440	450	466
5	540	550	567

### **Hmong Reading Assessment.**

The Hmong Reading Assessment (HRA) was a reading test that measured the level of reading for each student in the Hmong language. It was initially translated from the

Developmental Reading Assessment (DRA), which was a standardized reading test to identify a student's instructional level and independent level in reading (Colorado Department of Education, 2019). The HDL teacher or an ELL teacher administered the HRA to students individually. While a student read a selection or book, the teacher completed a running record of the student's reading at the same time to capture reading proficiency. The running record was a tracking system where the teacher marked the printed words of the book or selection on a separate sheet of paper as the student read for decoding and comprehension proficiency. Then the student completed a retelling of the story to the examiner as the teacher transcribed the student's retelling.

The level of reading difficulty increased as the text grade-level increased. This assessment is administered three times per year: in the fall, winter, and spring (Saint Paul Public Schools, 2019d). However, for the purpose of this research, only the HRA scores' data from the fall and the spring were analyzed. The results from this assessment determined whether students were reading at, above, or below grade-level in the Hmong language. The expected reading level for a first-grade student is level C at the beginning (fall) of the school year and level J at the end (spring) of the school year. Furthermore, level M is the expected reading level for the end of second grade and reading level P for the end of third-grade. Table 3 illustrates the expected levels for each grade as measured by the Hmong Reading Assessment for this study. The DRA reading level system, which was labeled as numbers, was later converted to the Fountas and Pinnell (2016) reading level system as letters.

Table 3.

*Hmong Reading: Grade-level Expectations.*

Grade	Reading Expectations
3	Level P/38
4	Level S/40
5	Level V/50

The other components of the reading assessment included reading skills, such as print concepts and letter knowledge. Within the letter knowledge, students needed to recognize single, double, triple, and quadruple letters. Because the Hmong language was tonal, students were tested on the eight tones as well. These components were fundamentally vital to the students' Hmong reading performance.

### **Twelve Bilingual Dominance Scale**

Dunn and Tree (2009) created a student language questionnaire, called the *Twelve Bilingual Dominance Scale* including questions and the scoring procedure. After careful analysis of the tool, this researcher reached out to the authors for permission to use the questionnaire and adapt it to meet the needs of this study (see Appendix D for approval and Appendix E for the Hmong version of the Bilingual Dominance Scale). Once permission was granted, the researcher made minor revisions to this student language questionnaire.

The original questions were intended to evaluate high school and university students who spoke Spanish and English, and who lived in the United States and Argentina. Therefore, changes were made for the languages pertaining to this study, which were Hmong and English. The environmental setting was also changed from *region* to *culture* (question #12 on the questionnaire) because the region did not apply to this study, whereas culture did, as in American

culture versus Hmong culture.

These minor changes were intentionally made for this research because the questions were relevant and could be understood by fourth and fifth-grade HDL students. The language and environmental setting had to be changed, which was not significant enough to warrant retest of the questionnaire because the authors used exploratory factor analysis (EFA) to explain the way the questions in the scale were related to one another as seen in Appendix D (Dunn & Tree, 2009).

### **Parent Questionnaire**

The parent questionnaire was created after an extensive literature review was completed, and a validity matrix was completed. The validity matrix was completed based on the content and construction of what the most prevalent factors were for families selecting bilingual programs for their children. Categories of why parents chose dual-language programs emerged and are listed as such:

- recommendations by friends and families,
- support for home life,
- cultural continuity,
- preparation for life as a bi-cultural adult, and
- acquisition of English and first-language preservation.

These categories were seen in the literature for both qualitative and quantitative studies through various research designs such as interviews, questionnaires, and surveys (Coy & Litherland, 2000; Craig, 1996; López, 2013; López & Tápanes, 2011; Parkes & Ruth, 2011; Shannon & Milian, 2002; Wesely & Baig, 2012; Whiting & Feinauer, 2011). Thus, the

categories aligned well with the literature. When using the literature reviewed with the content and construction matrix, the questions and statements were generated for each category as part of the parent questionnaire (See Appendix G for the actual items). The parents used a Likert scale to evaluate each statement after the questionnaire was field-tested with 20 parents.

### **Validity and Reliability**

Validity is a matter of degree and depends on the extent of non-random error in the measurement procedure; it depends on the amount of random error (Creswell, 2014). Additionally, evidence of validity of the instruments (MCA, HRA, Twelve Bilingual Dominance Scale, and the parent questionnaire) has been investigated, and the use of the instruments has produced a pattern of validly identifying the sought-after data.

Reliability involves the degree to which an experiment, test, or any measuring procedure yields the same results on repeated trials (Creswell, 2014; Goertzen, 2017). The measurement of any phenomenon, or data, will always encompass a certain amount of chance error. While repeated measurements of the same phenomenon never precisely duplicate each other, they tend to be *consistent* from measurement to measurement (Creswell, 2014; Goertzen, 2017).

### **Validity**

In any scientific research, verification of validity was vital, which addresses the truthfulness of the materials and questionnaires. Validation was accomplished through the data collection and analysis processes, as this researcher's focus remained neutral. During the data analysis, the researcher limited access to the data and the responses of the questionnaires. However, each data point had its validity, as described below.

As for the MCA, the state established the validity and purpose of this assessment to

measure students' yearly progress, while the test questions aligned with Minnesota's content standards. The validity was found at an acceptable level since the MCA met the criterion of the state's regulations. With the guidance of the Federal's Every Student Succeeds Act (ESSA), the state regulations are mandatory requirements that all students and teachers were given guidelines of how well students were learning the concepts in the classroom (Minnesota Department of Education, 2019).

The state increased the validity for the MCA over the years by allowing "the test specifications identify eligible test content and provide item count targets for various item properties such as content strands or sub-strands, standards, domains, item types, and depth of knowledge levels" (Pearson, 2018, p. 132). These specifications were codified into a test blueprint, which offers direction to item writers, psychometricians, content specialists from Minnesota's testing contractor, and MDE. That way, the relevant content was sufficiently included in the assessment as one piece of evidence for the content validity of the test (Pearson, 2018).

For instance, the MCA was the state test that allows districts to measure student progress toward Minnesota's academic standards and also met federal and state legislative requirements. As students took one test in each subject, most students were expected to take the MCA. However, students who received special education services and met eligibility requirements may take an alternate assessment rather than the MCA.

The Hmong Reading Assessment was a district test that assessed student progress three times per year, so teachers could provide small group instruction to meet the students' personalized learning needs. The Hmong Reading Assessment was initially translated from research and English standards-based evaluations such as the DRA. According to Pearson

Publishing, the DRA's content validity related to adequacy with the test content (Kick, 2012).

The content validity was built in during the development process because the DRA incorporated reading domains to review and research good readers with consultants and educators via a theoretical framework and research method (Kick, 2012).

Kick (2012) reviewed Pearson's validity analysis of the DRA further by examining the criterion-related validity, which measured predicted performance on the significant measurement other than the test itself. Pearson broke the criterion down to two components of concurrent and predictive as the DRA's validity correlated to other reading tests (Kick, 2012). As a result, the validity of this Hmong reading test was designed to measure what it claimed to measure, which was the students' Hmong reading performance. Overall, both the MCA and the Hmong reading test had the validity to measure the truthfulness of the students' language proficiency level. Therefore, the validity of the MCA and Hmong reading tests were considered satisfactory tools for the requirement of research question one of this study.

The validity of the Twelve Bilingual Dominance Scale was established by Dunn and Tree (2009). Dunn and Tree obtained information from other bilingual dominance assessments. They did an extensive questionnaire with Spanish/English bilingual speakers from two different regions, such as Argentina and the United States. They used exploratory factor analysis to achieve the Twelve Bilingual Dominance Scale questions and the scoring procedure. Dunn and Tree did further testing, in terms of reaction times from a Spanish/English lexical translation task and filler and elongation rates from a Spanish/English sentence translation task to support the validity of the scale. This researcher made minimal changes to this scaling tool in terms of language from Spanish to Hmong, and region to culture, so the validity of the questionnaire was intact, as Dunn and Tree had established it. When using this tool to collect data for the second

research question of this study, the students' language usage was thus reflected reliably as the scale was intended.

The parent questionnaire that was used to address research question three took the following shape to achieve validity. The content was drawn from the categories that emerged from the literature review to inform the matrix's content validity shown in Appendix F. The categories, as derived from the literature review and illustrated in the matrix, were used to phrase the questions for the parent questionnaire (see Appendix G). The questions were reviewed by the chair and committee members of this research and then shared with two professional educators and the building administrator of the Hmong dual-language immersion program where the study took place. The questions were also reviewed by two parents of previous HDL students for their input. All suggestions were used to further improve the clarity and truthfulness of the questionnaire, in determining the most prevalent factors why families choose the immersion program. This approach to validity was consistent with the work of Fraenkel, Wallen, and Hyun (2015).

## **Reliability**

Carmines and Zeller explain reliability via a simplified example:

The person with the highest blood pressure on a first reading, for example, will tend to be among those with the highest reading on a second examination given the next day. And the same will be true among the entire group of patients whose blood pressure is being recorded: Their readings will not be exactly the same from one measurement to another, but they will tend to be consistent. This tendency toward consistency found in repeated measurements of the same phenomenon is referred to as reliability. The more



consistent the results given by repeated measurements, the higher the reliability of the measuring procedure; conversely the less consistent the results, the lower the reliability (2008, p. 12).

The reliability rating of the materials and questionnaires described above was detailed in this section. The MCA and Hmong reading assessments have been used for many years in the district due to mandates of State and Federal regulations. These assessments come with criteria and benchmarks to ensure the accuracy rate was in place as teachers evaluate and assess their students. The MCA assessments are statewide tests that aid districts in determining student progress toward Minnesota's academic standards. Two or three years after standards were revised and adopted, a new series of MCA assessments were ready for operational administration (Pearson, 2018). MDE field-tested the items from the content review committees as part of the assessment program. Data were compiled regarding student performance, item difficulty, discrimination, and possible bias for reliability (Pearson).

Although the Hmong reading assessment was a district-level assessment, the creator of the DRA established the reliability. Like those involved with the development of DRA, Hmong content coaches, Hmong language and cultural specialists, parent liaisons, and teachers (SPPS, 2019d) were hired to translate the reading test. After numerous translation reviews, teachers implemented the assessments, and revisions were made several times over the years. Some of the changes were made to reflect the identity and subjective experiences of the students (SPPS, 2019d). For example, the names of characters in a book selection or an oral story passage were changed from English names to Hmong names, such as a character named "John" in the story was changed to "Tub." Tub (meaning Son) is a common name for Hmong boys.

The group of Hmong experts who were hired by the district to translate the content of the assessment aligned the translation to the standards of World-Class Instructional Design and Assessment (WIDA) and American Council on the Teaching of Foreign Language (ACTFL). According to the Metro School District, WIDA offered essential tools and information to teachers on research-based practices for serving English learners, while ACTFL provided proficiency guidelines on what students could do with learning a second language in regard to speaking, writing, listening, and reading (ACTFL, 2012). These alignments to various standards, as measured by the district, maintained the consistency of the predictive components of the DRA.

The confirmed reliability of the student Twelve Bilingual Dominance Scale was the main reason for the use of this scale within this study. Dunn and Tree saw the “lack of consistency in how bilingual language dominance is assessed currently impedes cross-experiment comparisons” (2009, p. 273). Therefore, they created a paper-and-pencil dominance scale that was used to quantify the language dominance of bilingual students. The language scale targeted three main criteria evaluating dominance, such as “percent of language use for both languages, age of acquisition and age of comfort for both languages and restructuring of language fluency due to changes in linguistic environment” (Dunn & Tree, 2009, p. 273). This researcher used the language questionnaire scale to quantify language dominance of the sample students when addressing research question two.

The reliability test of the parent questionnaire was performed using the split-half method. This method utilized this framework:

- questions 1 and 3, measuring the category of family and friends,
- questions 2 and 4, measuring the category of supporting home life,

- questions 5 and 7, targeting the category of cultural continuity,
- questions 6 and 8, focusing the preparation for life as a bi-cultural adult,
- questions 9 and 11, focusing on acquiring English, and
- questions 10 and 12, inherently aiming to preserve language.

The questionnaire was sample-tested first with 20 parents. This test group of 20 parents was not included in the study, and they were informed of this prior to their participation. The split-half method is commonly used in educational research for testing the internal consistency of survey questionnaires (Fraenkel, Wallen, & Hyun, 2015). Although a result of 0.75 was considered acceptable for social science research, many social science researchers also considered a reliability rate of 0.70 acceptable (Ponterotto & Ruckdeschel, 2007). This researcher strived for  $\geq 0.70$  rating. The Spearman-Brown approach was used for the reliability test in which a rating for the odd number questions was compared with the even number questions.

All the questionnaires were normed through the process of validity and reliability so they could produce comparable results under consistent and truthful conditions. These assessments were accurate, reproducible, and consistent from one testing session to another. Hence, the reliability of these assessments was deemed dependable for this study.

### **Operational Definition of Variables**

The independent variables were the ethnicity of the students and the students' enrollment of the educational programs. The dependent variables, on the other hand, were the students' languages, Hmong reading scores, and MCA scores. Independent variables could be the possible cause to affect the dependent variables. For the purpose of this study, the student's ethnicity

could affect their levels of confidence in their languages. Another example was the independent variable of the student's educational enrollment in the Hmong dual-language program will affect their Hmong reading scores and MCA scores. Therefore, if Hmong students were in the Hmong dual-language program, the program would have made an impact on their language usage on the bilingual dominance scale, Hmong reading scores, or MCA scores.

### **HRA Proficiency**

This variable was collected from the district of the schools as it measured the Hmong reading proficiency from the Hmong Reading Assessment. The scores range from level 1 to level 24; level 3 was identified as the independent reading level for kindergarten, and level 16 was the independent reading level for first grade, while level 24 was the independent level for second grade. This study targeted the third, fourth, and fifth-grade as the focused participants, and the actual scores ranged from levels 26-36 (See Table 3).

### **MCA Reading**

This variable was collected from the school district as it is used to measure the scores students receive on an annual basis. The results were scaled within each grade-level and ranged from 350 to 567 for reading.

### **Bilingual Dominance**

This variable was collected by this researcher at the school sites with fourth and fifth-grade students. A pencil and paper or an electronic questionnaire were used to gather results of the students' language usage on the bilingual dominance scale.

## **Predominant Factors**

The variable was collected by this researcher at the school sites with the parent of HDL students. A pencil and paper Likert-scaled questionnaire was used to gather data on the reasons why parents selected the Hmong dual-language program.

## **Data Collection Procedures**

After the Metro School District was contacted, and Concordia's Institutional Review Board (IRB) authorized the research, this researcher gathered all the necessary data. With the assistance of the research director at the Metro School District (see Appendix H for letter of support from the district), the MCA scores and the Hmong reading scores were compiled for third, fourth, and fifth-grade students. A packet of the informational letter to the parents about the study and consent forms for the participation of students and parents was sent home. Upon receiving the consent forms, the questionnaires were completed in class for the fourth and fifth-grade students and at home for the parents who had agreed to participate.

## **MCA/Hmong Reading Assessment**

The goal was to include all immersed Hmong dual-language students from third to fifth-grade during the school year 2018-2019 in the data collection for analysis in the fall of 2019. This way, the researcher could access the MCA test scores and Hmong reading scores from the school year of 2018-2019 for analysis during the months of November 2019 to February 2020. These test scores were retrieved from the district's data center with assistance from the research director at the district's office since the assessments were completed during the prior school year. Once the reading scores were obtained, students who did not meet the inclusion criteria of this study were removed from the data analysis.

## **The Twelve Bilingual Dominance Scale**

The data of the student questionnaire were collected with the help of the fourth and fifth-grade teachers at the two HDL schools. Once the consent forms were completed, the researcher proctored the questionnaire with the fourth and fifth-graders who had returned a consent form while the fourth and fifth-grade teachers continued normal activities with the non-participant students. This student questionnaire took about 10 minutes to complete. For the consented absentees, they were pulled out at a different time to complete the questionnaire with the researcher in a separate classroom outside their regular class.

Students with consent to participate chose between the four different options. Option one was the paper-and-pencil English bilingual dominance scale, while option two was the paper-and-pencil Hmong bilingual dominance scale. The third option was the google form online English bilingual dominance scale on the iPad, and the fourth option was the google form online Hmong bilingual dominance scale on the iPad as well. The assorted options offered the participants a variety of choices, which increased their interest and access to the language dominance scale.

## **Parent Questionnaire**

A parent questionnaire was used to collect data on the parent's choice to enroll their child in the Hmong dual-language program. Once the consent form was returned, the researcher sent the questionnaire home for the parents to complete. The questionnaire contained both Hmong and English. If for some reason, parents were not able to read either language, they had the option to complete the questionnaire over the phone. The parent questionnaire took about ten minutes to complete. The plan was to have this questionnaire completed between November

2019 and February of 2020 for analysis.

The scores of all the data were analyzed by using MiniTab 19 to provide some statistics descriptions, such as the standard deviation, means, and sums of scores. The descriptive statistics summarized the data in ways that were useful and meaningful in addressing the research question. For instance, in the MCA test, the descriptive statistic described the average of students meeting the standards in reading in third-grade and how the averages compared to the district and state averages. Another example was the number of students who had met the benchmark for securing the reading proficiency level. In other words, the grade-level that had the most significant number of students reading independently at their proficiency level was identified.

### **Exclusionary Factors**

One of the exclusionary factors in this study was enrollment. Students who had not enrolled in the Hmong language program for the last three to six years were excluded because when examining the data on both languages, their performance could affect the data analysis. Socio-economics status was not a factor. The questionnaires used in this study did not collect information on the socio-economic status of the students and their families. Thus, economic disadvantages were not a factor in this study, and students were not excluded from the research because of their socio-economic status. In other words, all appropriate grade-level students were included in this study regardless of their socio-economic status.

One other exclusionary factor was the cultural difference in the formation of the assessments. For example, Hmong students came from oral tradition, so they performed better with open-ended questions instead of multiple-choice questions like the ones in the MCA (Vang, 2003). Vang (2003) inferred that cultural difference was a potential bias within the MCA

assessment. However, the cultural difference could impact the students' performance, but the purpose of this study was to compare the students' academic achievement with the state standards and grade-level benchmarks, so this cultural difference and bias were excluded.

Due to the lack of MCA data for kindergarten, first, and second grade, the population in this study excluded these primary grades because the reading MCA was for third to eighth and tenth grade only (MCA Parent Fact Sheet, 2018). Kindergarten, first, and second grade were excluded from this study because there were inadequate data available to show the bilingual academic success in these primary grades. In these grade-levels, the structures were set up to provide instructions and assessments, mostly in the Hmong language. Therefore, the Hmong reading performance could be access, but mere information would be found on the English reading performance. As a result, there was insufficient information from these primary grades to support the focus of this study, as it emphasized the language outcomes of the Hmong dual-language immersion program.

### **Data Analysis**

The quantitative data included the third, fourth, and fifth-grade students' MCA scores, Hmong Reading scores, scores from the fourth and fifth-graders' bilingual dominance scale, and scores from the parents' questionnaire. With data from all four-instruments, regression analyses and Analyses of Variance (ANOVA) were used to gain an understanding of the data. Linear regression was used to analyze data between the independent variables (the ethnicity of the students and the students' status of enrollment in the educational programs), and the dependent variables (the students' languages, Hmong reading scores, and MCA scores). The ANOVA analysis was used because it allowed the researcher to compare means across two or more independent variables. Descriptive statistics were also utilized to analyze the data using means,



medians, sums, and standard deviations, when applicable.

This researcher used MiniTab 19 to run the analysis for linear regression. Linear regression displayed a two-dimensional data visualization that used dots to represent the values obtained for two different variables, such as the reading proficiency of the Hmong reading test and the MCA (Smith, 2016). With a straight line, simple linear regression models were used to show the relationship between two variables. The linear regression displayed how the English reading variable was related to the Hmong reading variable by using the following equation:

$$E(y) = (\beta_0 + \beta_1 x) \text{ (Devault, 2019).}$$

Devault (2019) further explained that:

$\beta_0$  was the  $y$  intercept of the regression line while  $\beta_1$  was the slope.

$E(y)$  was the mean or expected value of  $y$  for a given value of  $x$ .

With the regression and ANOVA evaluation, the academic outcomes of the Hmong dual-language program were explored for the HDL students from third to fifth-grade at the elementary school level.

### **Methodological Assumptions, Limitations, and Delimitations**

Methodological assumptions are accepted as true by the researcher as well as peers who may read this study. Limitations are uncontrollable influences and can be described as conditions or influences, that cannot be controlled by the researcher and put certain constraints onto the methodology and potentially the results of the study. Delimitations are choices made by the researcher, which define the methodological boundaries of the study.

## **Assumptions**

The following assumptions underlined the purposes of this study: It was assumed that participants answered the questionnaire truthfully, and the scores of the MCA, Hmong reading assessment, bilingual dominance scale, and the parent questionnaire represented the best effort of the students and parents. Also, it was assumed that the HDL students were already bilingual and operated academically in both English and Hmong.

This researcher recommended that an epistemological paradigm using a quantitative perspective was more relevant for this study because it allowed more significant opportunities to analyze statistical data collection from all the questionnaires. This positivist research opportunity meant that this researcher was able to observe the status of students meeting the benchmarks during the analysis of the MCA and Hmong reading assessment. This opportunity also allowed this researcher to detect factors parents valued to generalize what could be expected concerning English learning, preserving the language, securing cultural continuity, preparing for bi-cultural adults while supporting the home life for the participants of Hmong dual-language program (Taylor & Medina, 2013). With various assumptions, the use of quantitative data was gathered, analyzed, and interpreted for an understanding of the academic achievement, parents' decisions, and students' language function.

While primary research was preferred, gaining ground on the literature review of other dual-language programs provided comprehensive knowledge on the Hmong dual-language programs. Because of the limited literature on the Hmong dual-language programs, this research could affirm the skepticism of many parents, teachers, and educational leaders about the implementations of the Hmong dual-language programs by providing objective statistical data. Therefore, this research could help fill that void by providing ideas, recommendations, and

suggestions for teachers and educational leaders of the Hmong dual-language programs.

### **Limitations**

The researcher understood there were a few limitations in conducting this study. The recruitment could pose a challenge if not enough parents and students were willing to participate. Having enough test scores to observe statistical significance in the students' achievement of language proficiency with the literacy perspective was necessary. To lower the potential for these limitations, the researcher asked all the essential questions and worked closely with the district research director to gain all the needed data. She also collaborated with the teachers, parents, and building principals to increase support and maintain all the responses of the questionnaire about the Hmong language. However, the data pool was too small to use a random sampling technique, so generalization of the result was therefore limited.

### **Delimitations**

The following delimitations were used: the sample was delimited to bilingual third through fifth-graders between the ages of 8 and 11 in an urban school district in a midwestern state in the United States. Also, the students were all bilingual Hmong and English speakers. All students were of Hmong descent, with 90% of the students being generation 2.0 who are born and raise in the United States based on demographic data collected.

### **Ethical Assurances**

The Concordia University of St. Paul's Institutional Review Board approved (see Appendix I) this study before any data transfer and data collection. All identifying information of participants were concealed, in the interest of confidentiality. Participants were assigned a study number, and no reference to the actual school location was made. Surveys, test scores, and other

data where students' names and identifying information appeared, the investigator did not allow anyone else to have access as compliance with the Family Educational Rights and Privacy Act of 1974. Identifiable information (e.g., name or birthdate) were removed from documents and only tracked by participant identification numbers. Efforts were made to limit the disclosure of the data to the people who oversee this dissertation and people who needed to review this information. Digital data were filed with encryption and password protection in a laptop that was locked in a cabinet for up to five years after the research. The data will be deleted after the five year period. Teachers and parents were asked to consent to participate in the study.

### **Risks**

This researcher knew that when conducting research, there would be risks, and she minimized the risks as much as possible. The one potential risk that could cause hardship to the participants in this study included conflicting feelings when completing the student and parent questionnaires. The questionnaires could evoke some conflict or negative emotions about the participants' native language or cultural perspectives in general. Despite the risks, the benefits of this study provided valuable data on students' academic performance and language in a bilingual setting. Therefore, the benefits surpassed the stated risks.

### **Costs**

This study required time for the participants to read the informational letter, the consent forms, and to complete the questionnaires. The fourth and fifth-graders took at least 10 to 15 minutes to complete the Bilingual Dominance Scale, and their parents spent 10 to 15 minutes to complete the Parent Questionnaire with an additional 10 minutes to read the consent package. The other data, such as the MCA and HRA, were already part of the students' schooling

schedule, so there was no additional time needed from students to complete these assessments.

## **Deception**

Deception was avoided through an ethical assurance procedure as described above. To assure that all participants' views were included in the findings without deception, the informational letter about the study and consent forms were translated into the parents' home language. In response to any questions from parents about the study, whether they were asked in Hmong or English, responses were given in the preferred language. For example, if a parent asked questions in Hmong, the researcher made sure the answer was in Hmong.

The parent questionnaire was also translated into the Hmong language for those parents who preferred that language. All translations (Appendix A, B, C, E, and G) were reviewed and revised by the school's parent liaison and cultural specialist. If parents provided comments in Hmong during the completion of the questionnaire, those Hmong comments were included in the discussion section with translation. These comments could bring perspectives that offered insight into the most driving factor(s) families used to elect a Hmong immersion program. Parents received a copy of the results via email or attended an information session at one of the schools, highlighting the results of the findings.

## **Consents**

To gain consent for this study, this researcher wrote a letter explaining an overview of the study together with the risk and benefit factors. The consent forms included the level of involvement for both the students and parents. Both the letter and consent forms were sent home with students (see Appendix A, B, and C) for parents to view and sign prior to data being collected. Appendix A is an overview letter of the research, whereas Appendix B and C include

the parental consent forms. Appendix B was used to gain parent permission to administer the language dominance questionnaire with the students, while Appendix C was for parents to agree to engage in the parent questionnaire. As mentioned above, to avoid any deception or confusion, the letter and consent forms were sent home in both languages, Hmong and English. With the information in both languages, the parents received accurate information to make an informed decision to participate or not in the research questionnaire. Parents also needed to understand that they could withdraw from the study at any time if they so choose to.

### **Benefits**

This researcher anticipated the benefits of this research in numerous ways, such as a deeper understanding of the impact the Hmong dual-language immersion program had on the students' Hmong and English reading proficiency and language usage. It also envisioned identifying the most prevalent factors of why parents chose dual-language programs. Despite the time parents and students spent in completing the questionnaires, the participants in this research benefited by bringing a heightened awareness for themselves, the status of their Hmong language and culture as well as bringing that awareness to other cultures and languages. It also reinforced the decision to continue supporting the Hmong dual-language immersion program at the school, district, and community levels.

The incentive for the fourth and fifth-grade students included a popcorn party for taking part in the research. After the data collection phase, a thank you card was sent home to parents for their participation. On the thank you card was an online link providing access to the results once the investigation was fully completed. If an email address was provided, parents could receive an email sharing the results and findings. By doing that, the Hmong community could be aided in understanding those factors, which were linked to a decline in a native language and

cultural continuity, as well as factors that pointed to second language learning and academic achievement.

This research could also help the Hmong community by providing empirical literature specific to the Hmong dual-language program. A plan to disseminate the findings with the participants once the study was completed was to host an information session at one of the schools, highlighting the results of the study.

### **Chapter Three Summary**

This chapter focused on the study's methodology and explanations of the variables. Students who attended dual-language programs could score higher on standardized testing (Block, 2012; Collier & Thomas, 2004; De Joug, 2000; Han, 2012). The researcher analyzed data related to Hmong bilingual elementary school students who spoke both Hmong and English. The data collection included the MCA scores, the HRA scores, the students' bilingual dominance scores, and the parent questionnaire scores of students who attended the Hmong dual-language program. With the variables used in this study, MiniTab 19 was used to study and compare the significance of each variable. The study attempted to determine the language outcomes while examining the academic achievement and bilingual rating of Hmong dual-language students in the Hmong dual-language immersion program, as well as factors for parents choosing a dual-language immersion program.

## **CHAPTER 4: FINDINGS**

### **Introduction**

Chapter Three outlined the methodology used to measure the reading level of Hmong dual-language third, fourth, and fifth-graders, bilingual rating, and predominant reason for enrollment in the Hmong dual-language (HDL) program. The purpose of this study was to analyze the academic achievement and bilingual rating of HDL students in the HDL immersion program, as well as factors for parents choosing a dual-language immersion program. Subsequently, this quantitative study evaluated the academic performance, the ability to be fluent in two languages for cross-culture understanding, and parent's decision to enroll their child/ren in the HDL program. With the academic performance perspective, standardized assessments such as the Minnesota Comprehensive Assessment and the district's Hmong Reading Assessment were used to examine the students' reading levels. With the bilingual dominance rating, a questionnaire was used to gather information on the students' bilingual dominance. Meanwhile, with the parents' decision for enrollment, a parent questionnaire was utilized to determine the reasons why parents chose to enroll their child/ren in the HDL program. All three areas investigated the language outcomes from the perspective of the bilingual academic setting, students, and parents who took part in the HDL program with the language being the common thread across the research questions.

This chapter presents the results of the research explicitly. It examines each research question in-depth. First, it reports the reading level for each grade-level through the use of descriptive statistics and the regression analysis. Second, it looks at the bilingual dominance results to see where students place themselves for using both Hmong and English by comparing



the means for the total points for each participant and the frequency of percentage for each total points for the overall questionnaire with a normal distribution histogram. And last, this chapter determines the predominant factors for parents choosing a dual-language immersion program. Even though this research did not test the hypotheses, the p-values between variables were examined for the parent questionnaire. The purpose of the p-value was to highlight any significant differences in the relationships between variables. The following are the results for each research question.

## **Results**

The earlier chapters focused on the background and significance of this study, the conceptual framework, the review of literature on the topic of the HDL programs. The purpose of this study was to investigate the impact of a K-12 Hmong dual-language immersion program on kindergarten through fifth-grade Hmong students' academic performance in the category of reading Hmong and English. The students' academic outcomes were based on third through fifth-grade student data collected. Therefore, the assessments included third through fifth-grade. However, the participants were those who persistently enrolled in the HDL program since kindergarten. Moreover, the parents of those students were investigated concerning specific factors they used in choosing a dual-language immersion program for their child. Chapter Four focuses on the data analysis and results as they relate to the research questions.

### **Research Question 1**

What is the Hmong and English reading proficiency of third, fourth, and fifth-grade students who participate in the HDL program in Minnesota as measured by the Hmong Reading Assessment and Minnesota Comprehensive Assessment?

The statistical analysis for research question one is reviewed in this section. The Minnesota Comprehensive Assessment (MCA) and Hmong Reading Assessment (HRA) are states and district-mandated tests. The MCA result was used to determine the participants' English reading level, while the HRA data was used to determine their Hmong reading level. There are predetermined levels for each assessment, and each grade-level has specific expectations. Research question 1 is investigating the reading level of third, fourth, and fifth-grade students.

Based on purposive sampling, 102 HDL students, ages eight to 12 years old, in third, fourth, and fifth-grade were chosen to be included for data collection in response to this research question (Fraenkel, Wallen, & Hyun, 2015). With the exclusionary factor, some students did not meet the research criteria due to less than two years of HDL enrollment. Subsequently, the data analysis of the reading proficiency level for each grade-level was examined. Regression lines were used to highlight the comparison between the two assessments among each of the three grade-levels, as shown in each of the sections below.

For a third-grade student to be at grade-level expectation by the end of the school year, the student must be reading in Hmong at level P with the Fountas and Pinnell leveling system. Level P correlates with level 38 in the Developmental Reading Assessment (DRA) according to the Metro District's criteria (Saint Paul Public School, 2019d). Meanwhile, for the MCA, the state has set a cut-off score between 350 to 373 as meeting third-grade-level expectations. Students who score between 340-350 are partially meeting grade-level expectations, and those whose scores are 374 and higher are exceeding the grade-level expectation. Any student who scored 339 or below did not meet the third-grade-level expectation.

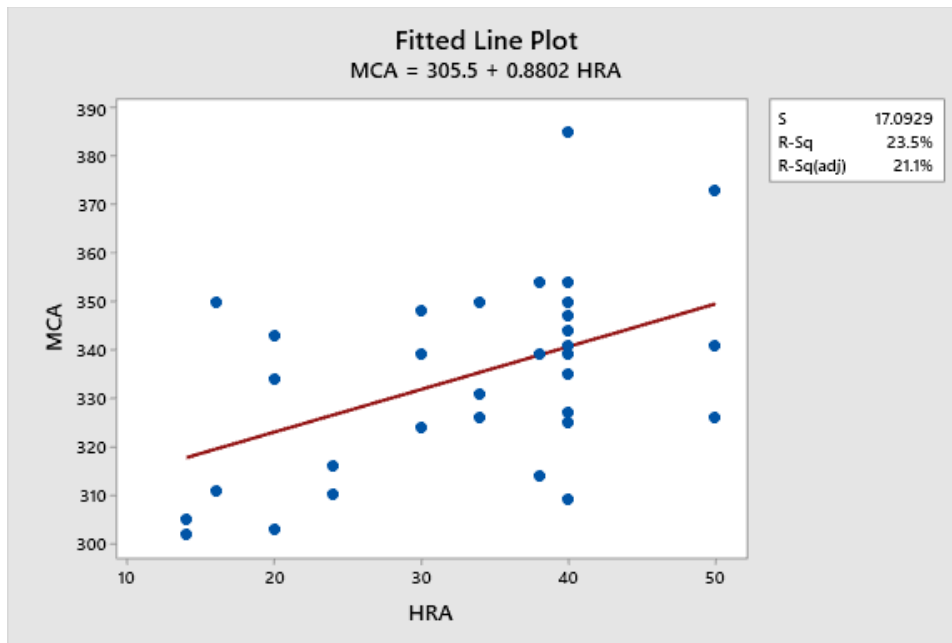
The descriptive statistics in Table 4 display the means and standard deviations for each

assessment. With the mean of 334.59 for the third-grade MCA assessment, this is an indication that the majority of students were not meeting the English reading proficiency expectation. There is a difference of 6 points between the average third-grade performance and the meeting the standard. Also, with an average of 33.06 for the HRA, third-grade students were not meeting the grade-level expectation of 38 for reading in Hmong. However, with 33 as a mean for the HRA, students were reading at the mid-year mark for third-grade expectations.

Table 4.  
*Reading MCA vs. HRA for Third-graders.*

	N	Mean	Std Dev	SE Mean
MCA	34	334.59	19.24	3.30
HRA	34	33.06	10.59	1.82

When looking at the regression analysis, it shows a positive relationship between the MCA and HRA scores. This positive relationship indicates that the HDL students who were reading at a higher level in Hmong were also reading at a slightly higher level in English with an R-square value of 23.5%. On the other hand, some HDL students who read at a lower level based on the HRA also read at a lower level on the MCA, as seen in Figure 1. Meanwhile, some HDL students scored lower in English in the overall grade-level within the MCA but scored higher on the Hmong within the HRA. The dots on the fitted line plot are more spread out, which is an indication that there was a significant difference between the MCA and HRA. The regression suggests that there was a correlation between the HRA and MCA. In this case, the high HRA scores aligned with the high MCA scores, while the low HRA scores aligned with the low MCA scores.



*Figure 1.* A Fitted Line Plot With the Regression Equation for Third-graders.

As part of the inclusionary criteria, third-graders must have been enrolled in the HDL program for at least two years or more. They must have enrolled in the HDL program minimally since the beginning of second grade to be included in this study. They have been engaged in Hmong reading learning since second grade, if not since kindergarten or first grade. These third-grade students were taking the MCA for the first time within their schooling experience.

When examining figures 2 and 3 for more details on each of the reading assessments, more students were meeting grade-level expectations for reading in the HRA level than the MCA level. Fifty percent of the students were reading at grade-level in Hmong with the HRA (figure 2), while 20% of the students were reading at grade-level in English with the MCA (figure 3). The at-grade-level HRA and MCA expectations were exceeds/above and meetings/at, which are represented with the blue bars in both graphs. The blue bar in the MCA of figure 2 was exceptionally low when compared with the HRA of figure 3.

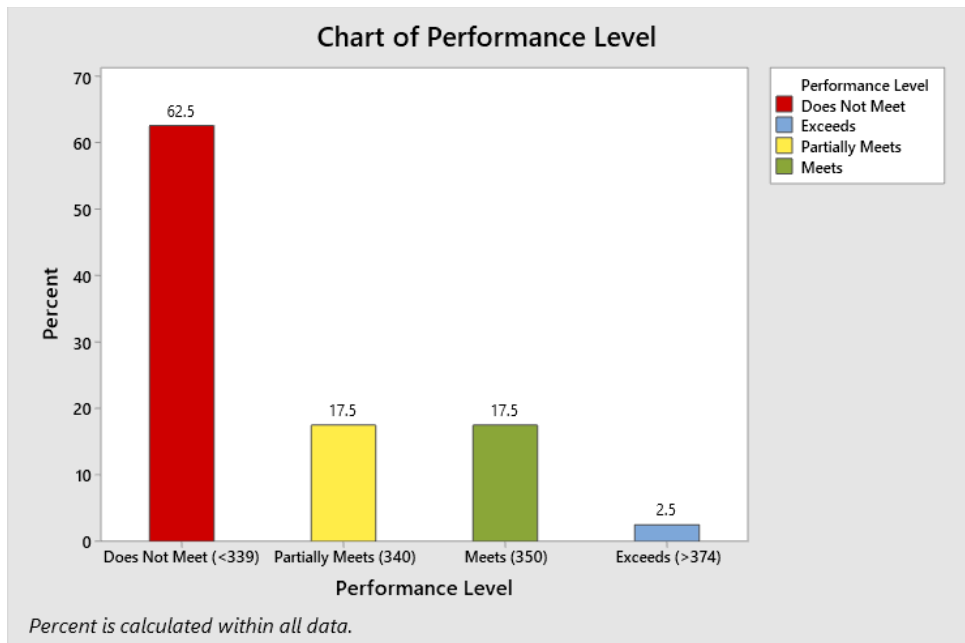


Figure 2. Percentage of MCA Reading Level for HDL Third-graders.

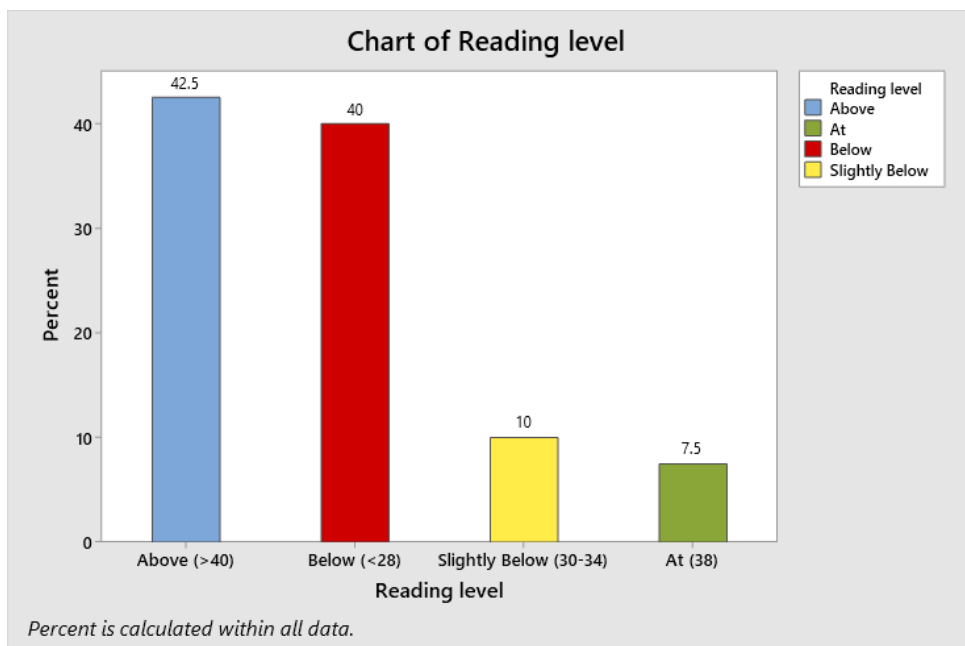


Figure 3. Percentage of HRA Reading Level for HDL Third-graders.

The yellow bar represents the percentage of students who were meeting some expectations of the grade-level for both HRA and MCA. For example, the yellow bar in the HRA

graph, figure 3, indicates that these students read either at the beginning or mid-year of third-grade for that year because they fell in the category of slightly below. These students did not meet the proficient reading level for the end of the year expectation in third-grade yet. The yellow bar, in the MCA graph of figure 2, shows 10% of HDL students partially meeting the English reading expectation. The below grade-level reading for the HRA and the did not meet grade-level reading expectations for the MCA are represented by the red bar in both graphs. More than half of the third-graders did not meet the English grade-level expectation as indicated in figure 2.

About half of the HDL third-grade students who participated in this research were meeting grade-level expectations for reading Hmong as measured by the HRA. Meanwhile, less than one-third of the HDL third-grade students who participated in this research were performing at grade-level standard reading English on the MCA. To meet grade-level expectations for both Hmong and English reading as third-grade students, students must score 350 or more points on the MCA and maintain a Fountas and Pinnell level of P (38) or higher on the HRA. In figure 3, 10% of the third-grade students achieved “slightly below” because they are still performing at the third-grade mid-year expectation. Overall, the regression in third-grade is significantly different.

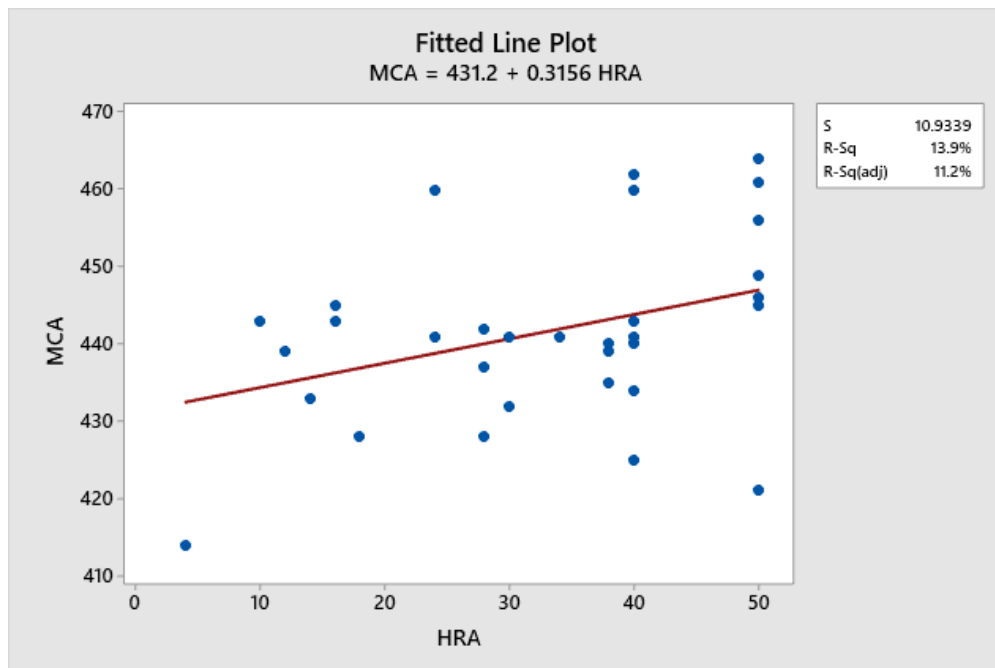
The expectations for fourth-grade HDL students in both HRA and MCA were at a higher level when compared to the expectations of the HDL third-grade students. Students must be reading in Hmong at level S within the Fountas and Pinnell leveling system, which is level 40 in the DRA according to the Metro District’s chart. The state sets MCA cut-off scores between 450 to 465 as meeting fourth-grade-level expectations. Students who scored between 439-449 were

partially meeting, and those who score 466 up were exceeding the grade-level expectation. The descriptive statistics in Table 5 displays the means and standard deviations for each of the reading assessment for fourth-graders. The mean for the MCA indicates that students averaged in the partially meeting the standard for reading in English. At the same time, these HDL fourth-graders were reading in Hmong at the mid-year mark for the HRA, as shown in Table 5.

Table 5.

*Reading MCA vs. HRA for Fourth-graders.*

	N	Mean	Std Dev	SE Mean
MCA	34	441.41	11.60	1.99
HRA	34	32.29	13.72	2.35



*Figure 4.* A Fitted Line Plot With the Regression Equation for Fourth-graders.

Within Figure 4, the regression analysis fitted line plot demonstrates that students continued to make progress toward the grade-level reading standard in the MCA in terms of

reading in English. The regression line shows the variables of HRA and MCA in fourth-grade reading were beginning to pair up into a positive relationship with an R-square value of 13.9%. The reading MCA began to increase slightly because more English instruction was added.

These students took the MCA during this school-year as the second time in their schooling experience. Many students were still performing below the standard for both Hmong and English reading assessments. Despite that, other fourth-grade students thrived in both variables at the higher end of the MCA and HRA in reading. Figure 4 is a visual display of how the dots were moving toward the red line, an indication that English language performance had shifted higher, a match-up with the Hmong reading achievement. In other words, more fourth-grade students were progressing in English than third-grade students.

The e exceeds/above and meetings/at (MCA vs. HRA) represented by the blue and the green bars in the graph or Figures 5 and 6 / those HDL students had maintained their level of reading at the grade-level expectations for the MCA and HRA.

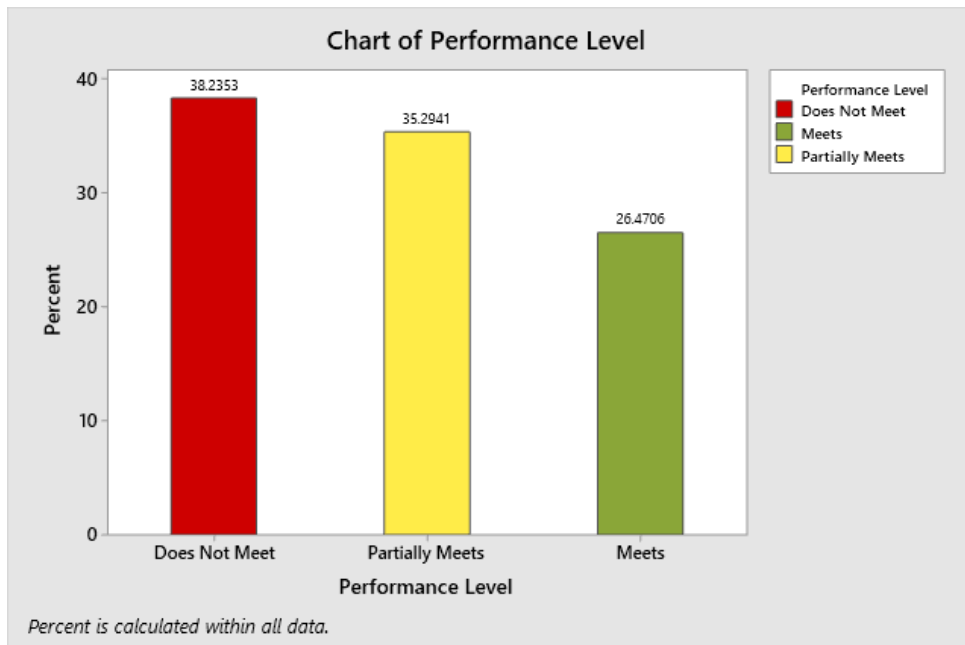


Figure 5. Percentage of MCA Reading Level for HDL Fourth-graders



Figure 5 displays that there were 26% of the HDL students meeting the MCA reading standard for reading in English while there were about 38% meeting the HRA reading expectation for reading in Hmong. One thing to note was the partially meeting students in the MCA. There was a 35% of these partially meeting the standard HDL students who were close to meeting the English reading standard for the fourth-grade.

If adding percentages of the partially meets and meets categories together, there was a high percentage of HDL fourth-grade students moving toward meeting grade-level proficiency in English reading. The total percentage for both categories was equivalent to 61.76%, which was more than half of the students in this grade moving toward meeting fourth-grade-level expectations.

By coincidence, there was another 61.76% of HDL fourth-grade students not proficient in Hmong reading in the fourth-grade HRA, as seen in Figure 6. It almost seemed as if the same 61.76% of HDL fourth-grade students were losing the Hmong reading level to compensate for the English reading level. However, the above 61.76% of students could or could not have been the same groups of students. Some of these students could be in both groups; some could be in one group and not the other. Another thing to keep in mind was that 80% of instructional time was spent on English for this fourth-grade group.

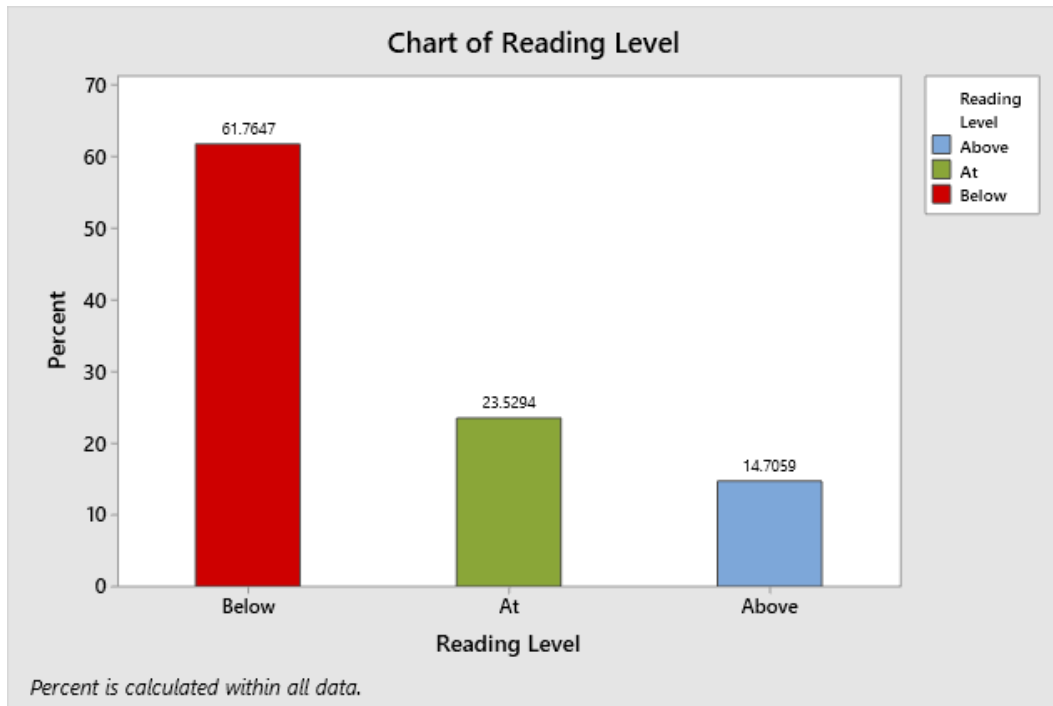


Figure 6. Percentage of HRA Reading Level for HDL Fourth-graders.

The final group of HDL students used to examine reading proficiency levels was the fifth-graders. The expectations for fifth-grade HDL students in both HRA and MCA were at a higher level when compared to the expectation of the HDL fourth-grade students. In fifth-grade, students must be reading in Hmong at level W with the Fountas and Pinnell leveling system, which is level 50 in the DRA according to the Metro District's chart. The state's MCA cut-off scores are between 550 to 566 as meeting fifth-grade-level expectations. Any student who scores between 540-549 is partially meeting, and anyone who scores 567 and above is exceeding the grade-level expectation.

When comparing the descriptive statistics in Table 3 with Table 6, Table 3 displays the means and standard deviations for each of the reading assessment for third-graders. The mean for the third-grade MCA indicated that students average out in meeting the standard for reading in

English. However, the HDL fifth-grade students remained reading in Hmong at the mid-year third-grade-level with the HRA, as shown in Table 6. Since third-grade, the HDL students have stayed in the mid-30s reading level for their average Hmong reading with the HRA.

Table 6.

*Reading MCA vs. HRA for Fifth-graders.*

	N	Mean	Std Dev	SE Mean
MCA	34	550.18	10.34	1.77
HRA	34	34.47	14.06	2.41

The fitted line plot analyzes the regression of the MCA and HRA for fifth-grade HDL students during the school year of 2018-2019, as seen in Figure 7. The regression line displays a moderately positive relationship between the variables of MCA and HRA with an r-square of 2.6% because English reading performance increased. At the same time, the Hmong reading remained at a lower level for many of the HDL fifth-graders. When compared to the fifth-grade HRA scores with the fourth and third-grade HRA scores, the mean was at level 34.47, which revealed no change in the Hmong reading level since fourth was at 32.29, and third-grade was at 33.06. This steady reading level means that either the Hmong reading level did not change since third-grade or the HRA reading dropped for the fifth-grade proficiency level.

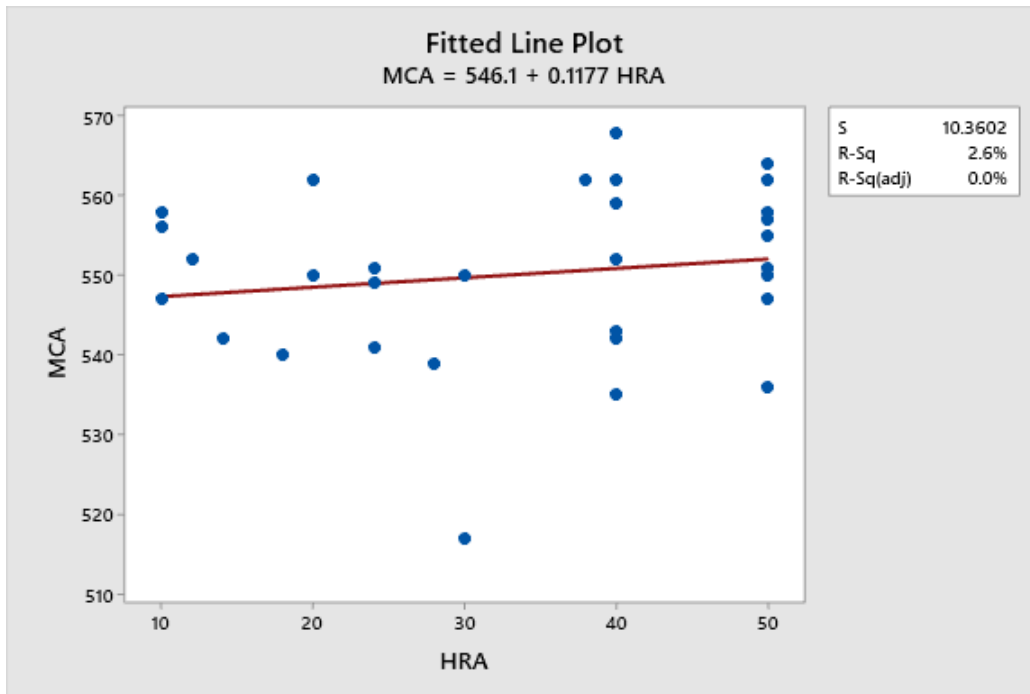


Figure 7. A Fitted Line Plot With the Regression Equation for Fifth-graders.

As more students were moving toward the *Meets* and *Exceeds* in the MCA assessment, Figures 8 and 9 provide visual representations of what those percentages were for the various cut-off scores in fifth-grade. Figure 8 shows that about 61.76% of the HDL fifth-graders were meeting and exceeding the standard in English reading, while 12% did not meet the standard. The Hmong reading with the HRA indicated that 29% of the HDL fifth-grade students performed at grade-level, and 44% were below grade-level.

Overall, English reading proficiency increased while Hmong reading proficiency decreased in the fifth-grade. The partially meeting and slightly below groups were students who have not met some of the fifth-grade expectations in the MCA and HRA. Both the English and Hmong reading for partially meeting and slightly below were at 26.47. This observation is

interesting as students were shifting reading proficiently from Hmong toward English.

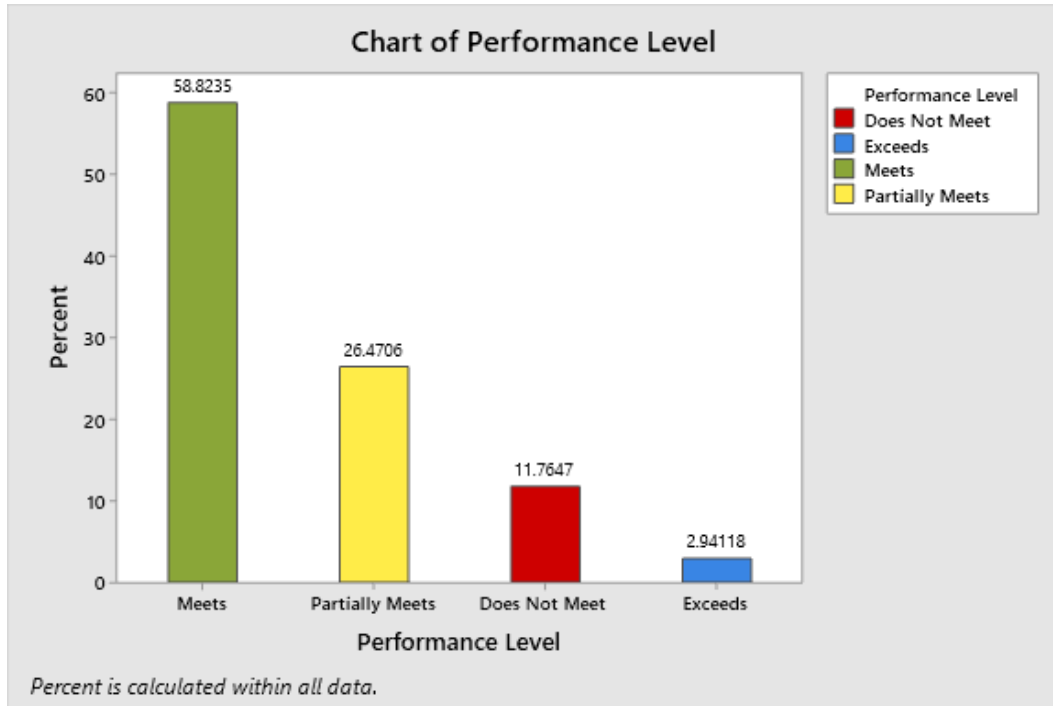


Figure 8. Percentage of MCA Reading Level for HDL Fifth-graders.

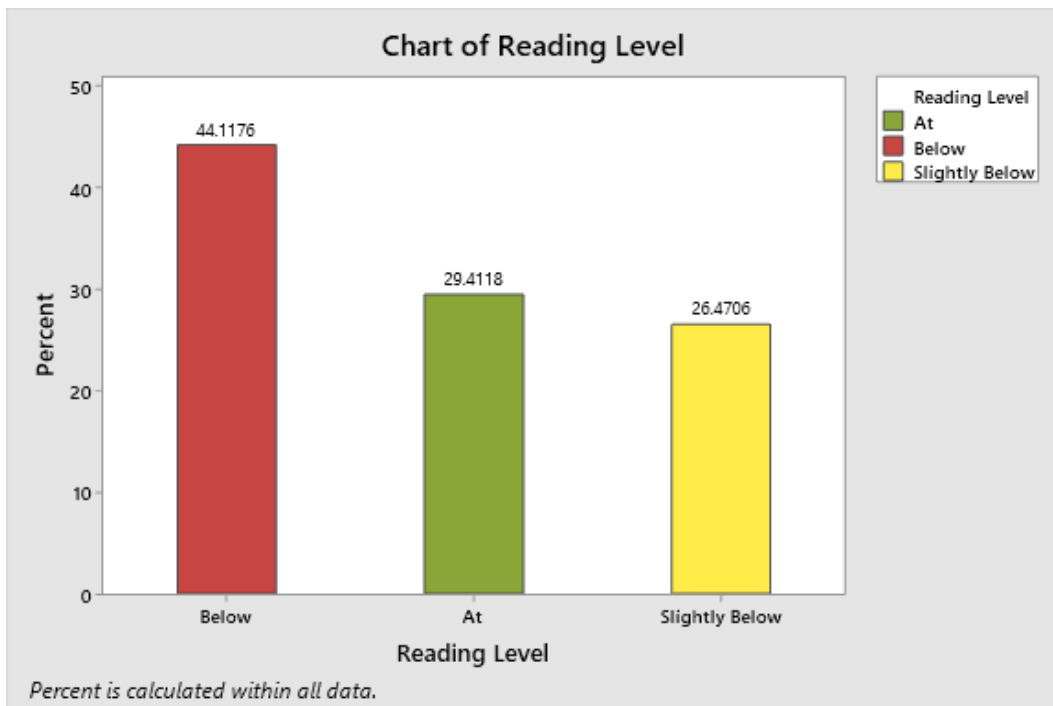


Figure 9. Percentage of HRA Reading Level for HDL Fifth-graders.

In conclusion, the regression lines from the fitted line plot graphs indicated a positive relationship between the MCA and HRA reading proficiency levels. This positive relationship suggested that the years of experience for HDL students can boost their MCA reading proficiency while maintaining their Hmong reading proficiency. The HDL students seem to be more proficient in reading Hmong than English in third-grade than they did in fourth and fifth-grades.

There was a 30.23% difference from the HRA to the MCA in third-grade. In other words, there were 30% more HDL students reading at grade-level for Hmong than at grade-level standards for English in third-grade. However, the turning point began in fourth-grade, where the HDL students started to increase slightly in the English reading while their Hmong proficiency level decreased. The MCA improved in the *meeting* and *exceeding* categories by 6.47% when compared the third-grade with the fourth-grade. In fifth-grade, the HDL students increased their English proficiency level by 32.35% compared to their Hmong proficiency. The percentage of Hmong proficiency decreased in the at grade-level expectations for fifth-graders. Table 7 shows a shift from the HRA to the MCA with the percentage difference between the two assessments in all three grades. Overall, 61% of the HDL fifth-grade students' English reading level was at or above the grade-level expectations. The English proficiency scores of the HDL third to fifth-grade sample population increased as they progressed into the older grades.

Table 7.

*Percentage of Participants Reading at and Above Grade-level for Each Grade.*

Grade	HRA	MCA	Percentage Difference
Third	50.00	20.00	30.00
Fourth	38.24	26.47	11.77
Fifth	29.41	61.76	-32.35

## **Research Question 2**

How do fourth and fifth-grade students who participate in the HDL program in Minnesota rate their language usage on the bilingual scale?

The statistical analysis for research question two was evaluated after all necessary protocols and procedures were followed. Once the consent forms were received, the researcher scheduled a time to go into the classroom or removed the students from the classroom to complete the language questions on the Twelve Bilingual Dominance Scale. This questionnaire was created by Dunn and Tree (2009) for Spanish bilingual college students in the United States and Argentina. Permission was granted by the authors to modify the questionnaire to meet the environment setting and language of this research. As this language questionnaire was created with a scoring system, the data analysis encompassed numerous statistical descriptions between the questions and the total sum of each participant. The total sum point equated to the total score a participant received from the questionnaire as prescribed by Dunn and Tree when calculating the questions for each participant. A histogram was analyzed for normal distribution to present an overall balcony view of the HDL students' perspectives.

Table 8.

Sum of Scores vs. Number of Percentages.

# of Participants	Total Sum Scores	Percent
1	20	1.59
1	22	1.59
2	23	3.17
1	24	1.59
2	25	3.17
1	26	1.59
3	27	4.76
7	28	11.11
2	29	3.17
4	30	6.35
7	31	11.11
4	32	6.35
6	33	9.52
8	34	12.70
2	35	3.17
3	36	4.76
4	37	6.35
1	38	1.59
3	39	4.76
1	42	1.59

This research question includes a total sample of 63 fourth and fifth-grade students who took part in the Twelve Bilingual Dominance Scale. Of the 63 students, 24 were fourth-graders, 38.10% of the total participants. The remaining 61.90% was the fifth-grade students who participated in this questionnaire, a total of 39 fifth-graders.

The most frequent and greatest percentage of the result for a total sum of 34 points for one participant group was 12.70%, as seen in Table 8. This 12.70% included a total of eight participants, the majority of who were fifth-graders, while one participant was a fourth-grader.



When closely examining the eight students, they identified themselves as a balanced bilingual in both languages. They all had more years of experience in Hmong instructional learning than English, and most of them had no foreign accent listed according to question 7 on the student questionnaire. They spoke both Hmong and English at home and did not report that they were losing any fluency in any particular language. For example, while all these students used English to solve math problems, such as multiplying 243 by 5 in their heads, seven of the eight participants agreed that they were living in the mainstream culture.

While the group with greatest percentage of the result for a total sum of 34 points for each participant was 12.70%, there were two groups of 11.11%, which included those with total sum points of 28 and 31. For each group of these total sum points, there were seven participants in each group, which included four fifth-graders and three fourth-graders, to be exact. Unlike the greatest percentage group of 34 points, 11.11% of the participants with a total sum of 28 points reported that they were not comfortable speaking both languages until a later age because they started learning the languages between the age of 6 to 9-years old. Another difference between this group of 28 points and the greatest percentage group of 34 points was the number of the students in this group listed Hmong as their foreign accent, while two of the students listed no accent whatsoever. Like the greatest percentage group of 34 points, the students of 28 points spoke both languages at home and used English to solve math problems. However, these 28 points students all agreed that they were living in the Hmong culture, which was also different from the greatest percentage group.

Meanwhile, the other 11.11% group of the participants with a total sum of 31 points reported that they were comfortable speaking both languages at an earlier age because they started to learn both languages between infancy to five years old. Unlike the greatest percentage

group, almost all of the students in this group of 31 points listed Hmong as their foreign accent except for one who recorded no accent. Like the other 11.11% group of 28 points and the 12.70% group of 34 points, this group of participants spoke both languages at home as well as used English to solve math problems. However, the participants in this group of 31 points all agreed that they were living in the Hmong culture, just like their partner group total sum of 28 points, which was different from the greatest percentage group.

On the other hand, there were two least frequent and lowest percentage of the results, which were 1.59%. These two groups of participants scored the highest and the lowest total sum of 42 and 20 points. There was one student in each of these two groups. One group received a total point of 42, while the other group received a total sum of 20 points. The student with 42 points learned both languages at an earlier age and was comfortable speaking English more than Hmong. Even though both languages were used at home, English was used to solve the math problem in the head. Hmong was listed as the accent, and a language with fluency loss by the age of 9 was recorded for this student of 42 points because the mainstream culture dominates these two students' current life.

In contrast, the student with the lowest total sum score of 20 points demonstrated the opposite view from the student with the highest total sum score of 42 points in most areas. This lowest-scored participant of 20 points did not learn Hmong until the age of 10, while English was acquired at the age of six. For this 20 points participant, both languages were used at home while English was used to solve math problems, but no foreign accent nor a choice of language for the rest of their life was listed. This participant of 20 points also had no language fluency loss and was currently living in the mainstream culture. Therefore, the overall scores presented the greatest percentages as well as the high and low scores for the Twelve Bilingual Dominance

Scale questions with both fourth and fifth-grade together.

Table 9.  
*Sum of Scores for 4<sup>th</sup> Grade vs. Number of Percentages*

# of 4 <sup>th</sup> Grade Participants ( <i>n</i> = 24)	Total Sum Scores	Percent
1	23	4.17
1	25	4.17
1	27	4.17
4	28	16.67
2	29	8.33
1	30	4.17
3	31	12.50
1	32	4.17
2	33	8.33
1	34	4.17
1	35	4.17
2	36	8.33
2	37	8.33
1	38	4.17
1	39	4.17

Table 10.  
*Sum of Scores for 5<sup>th</sup> Grade vs. Number of Percentages*

# of 5 <sup>th</sup> Grade Participants ( <i>n</i> = 39)	Total Sum Scores	Percent
1	20	2.56
1	22	2.56
1	23	2.56
1	24	2.56
1	25	2.56
1	26	2.56
2	27	5.13
3	28	7.69
3	30	7.69
4	31	10.26
3	32	7.69
4	33	10.26
7	34	17.95
1	35	2.56
1	36	2.56
2	37	5.13
2	39	5.13
1	42	2.56

In examining the Twelve Bilingual Dominance Scale questions separately by grade, the two bilingual results for the individual grade aligned and reflected appropriately with the overall results. Tables 9 and 10 display comparable numbers of students with percentage for each summative score by grade-level for the *Twelve Bilingual Dominance Scale* questions. Like the observation with the overall scores in table 8, the high percentages of participants were for total sum scores of 28 and 31 for fourth-grade and 31, 33, and 34 for fifth-grade. The lowest and

highest scores for fourth-grade were 23 and 39, while the lowest and highest scores for fifth-grade were 20 and 42. The scores of 20 and 42 for the fifth-grade confirmed the observation with the overall scores in table 8, articulating the age of Hmong learning and English acquiring. These scores also ranked the value of having a foreign accent and choosing a language for the rest of their life.

This questionnaire signified that the highest score of the total sum revealed the more dominant the students were in the English spectrum, and the lower their scores were in Hmong. When viewing Figure 10, the highest and lowest scores (42 points and 20 points) were at the tail ends of the histogram. Overall, the result of this questionnaire provided a symmetrical bell-shaped curve. With 63 participants, the mean score was 31.44, with a standard deviation of 4.578.

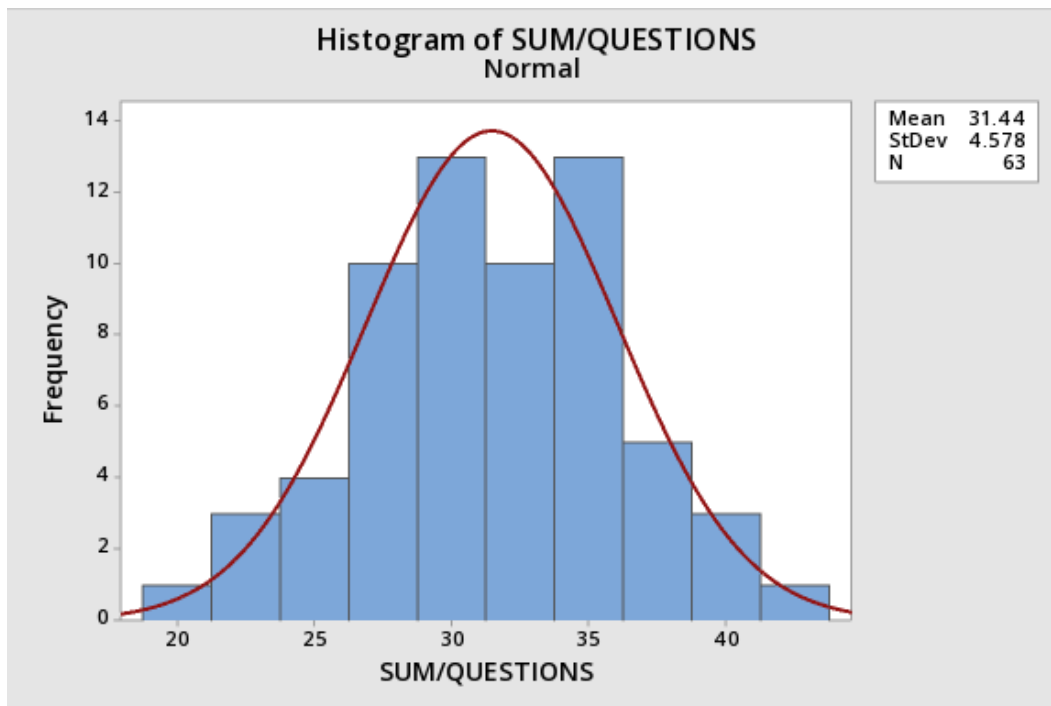


Figure 10. Histogram of a Normal Distribution for Fourth and Fifth-Grade Students' *Twelve Bilingual Dominance Scale* Questionnaire.

The actual participants who were at the top of the curve were the students with a score of 34 points because they learned Hmong at an earlier age and had more years of Hmong schooling than English as indicated in the Twelve Bilingual Dominance Scale questions 1, 2, 9, and 10. These students also experienced no foreign accent or language fluency loss as gathered from questions 7 and 11. These participants identified themselves living in the mainstream culture when answered question 12.

The *Twelve Bilingual Dominance Scale* questionnaire illustrated how the participants self-reported their language status for both Hmong and English (Dunn & Tree, 2009). This language status was illustrated by the highest percentage of participants scoring at the top of the histogram. These participants represented the majority of students who believe that they lived in the mainstream culture even though they spoke both Hmong and English at home. They did not think they were losing any language fluency, had any foreign accent, or had more years of experience with Hmong language instruction.

The histogram exhibits a bilingual balance on the normal curve. Meanwhile, on each end of the histogram, the scores were polarized with the least percentages of the highest and lowest scores (42 points and 20 points). The fact that these scores occurred at the tail ends of the histogram highlighted their extreme variance. The higher-score participant learned both languages at an earlier age and was comfortable speaking English more than Hmong. Although English and Hmong were used at home, Hmong was listed as the accent for this student as well as the language with fluency loss. This student lived in the mainstream culture, where the predominant language is English. At the same time, the lower-scored participant learned the Hmong language at a later age, while English was learned at an earlier age. Both languages were used at home, and the participant lived in the mainstream culture with no foreign accent nor any

language fluency loss.

### **Research Question 3**

What is the most prevalent factor that families consider when selecting a program with a Hmong focus language as measured by a Likert-scaled questionnaire?

The statistical analysis for research question three was addressed using the completed parent Likert scale (see Appendix G). The parent Likert-scaled questionnaire was sent home to 20 families to complete first. The internal reliability depended on these first 20 questionnaires as they were distributed to the field-tested population for this research question. This test group was not included in the study, and they were informed of such prior to their participation. The split-half method is used in educational research for testing the internal consistency of questionnaires (Fraenkel, Wallen & Hyun, 2015). This research aimed for a result of 0.70, which is considered acceptable for many social science research studies (Ponterotto & Ruckdeschel, 2007). With this researcher striving for  $\geq 0.70$  rating, the Spearman-Brown approach was used for this reliability rating in which a rating for the odd number questions was compared with a rating for the even number questions. Ponterotto and Ruckdeschel (2007) attested that social science researchers considered a measured reliability of 0.70 as satisfactory. This 0.70 is a realistic estimate of consistency in measurement when a researcher is trying to attain 70% of the variance in the scores to be a reliable variance. Therefore, with the rating of  $\geq 0.70$  using the Spearman-Brown approach, the results of the 20 samples are listed as follows in the next paragraph.

The internal consistency for the first 20-parent questionnaires determined a Cronbach's Alpha of 0.73 for the 12 questions, which was greater than 0.70. This 0.73 meant that 73% of the variance in the composite scores were reliable variance, while 27% of the variance in the

composite scores were error variance. This Cronbach's Alpha measured the internal consistency reliability relevant to the composite scores of the 12 questions. Meanwhile, the Cronbach's Alpha for the odd questions was 0.78, and the Cronbach's Alpha for the even questions was 0.75. With these results, this Likert-scaled questionnaire was determined to maintain internal consistency and reliability for this research study.

After internal consistency showed reliability, the rest of the parent questionnaire was sent home. Based on the convenience sampling, there were a total of 160 respondents, but only 151 respondents were used in the data analysis because a few numbers of respondents were incomplete questionnaires, and some were duplicate family questionnaires. One respondent represents one family, although they may have multiple students enrolled in the HDL program. This researcher was able to remove the duplicate questionnaires via family lists generated from an online system known as *Campus*. Another way to filter out the duplicates was to use contact information, which included the street address and email listed on the questionnaire.

With prior consent, parents received the Likert-scaled questionnaire via a communication folder to complete at home. Although the questionnaires were initially written with the categories listed on the side, the final questionnaire excluded the categories, and only the 12 questions appeared on the questionnaire. The categories were friend/family, support home life, cultural continuity, preparation for life as a bi-cultural adult, acquire English, and to preserve language.

The decision to remove the categories was to eliminate any bias that parents might perceive from the categories as they completed the questionnaires. The responses were entered onto Minitab 19 for calculations and analysis. The calculation of the average for each question identified the categories most prevalent for parents when choosing the HDL program. The p-value will be featured in this section even though this research was not evaluating any

hypotheses. The p-value allowed this researcher to observe for any statistically significant relationships between the category variables.

The results indicated the most prevalent categories and the least frequent categories for parents who choose the HDL. Three distinctive questions illustrated the main reasons why parents enroll their children in the HDL program. The category with the most rating was the *support home life* category, where the HDL program teaches the children how to read in Hmong. The second most prevalent answer was the category of *preserve language*, where parents want their HDL students to communicate in Hmong confidently. The third most frequent response was with the other question in the category of *support home life*, which the HDL program teaches the HDL students how to write in Hmong. From the Likert scale of 1-5, 1 being *strongly disagreed* and 5 being *strongly agreed*, while 3 was *neutral*. The top three most prevalent categorized questions mentioned had a score of 4.72 or above. The two questions on the *support home life* category scored an average of 4.75 and 4.72, while the question for the *preserve language* category rated at 4.74. All three questions averaged toward the strongly agree rating.

On the other hand, the category with the lowest rating was the *Friend and Family* category, which asked if parents were referred to the HDL program by families and friends. This category's questions rated at 2.84 and 3.02, which averaged a scale of 3.75 in the neutral zone. The other category with an average score in the neutral zone was the *Acquire English* category. This category focused on the HDL program teaching the children how to read and write in English. The rating scores for the questions in the category of the *Acquire English* category were 3.74 and 3.77. Meanwhile, the scores for the last two questions in the category of *preparation for life as a bi-cultural adult* were 4.46 and 4.60. These two scores averaged out to be 4.53 for the *preparation for life as a bi-cultural adult*, indicating that parents



agreed the HDL program prepares their child/ren for life as bi-cultural adults by engaging in a social setting with members in the Hmong community and the mainstream community.

Table 11.

*Average Rating for Each Category to Determine the Most Prevalent Reason for Parents to Choose the HDL Program.*

Category	Odd Questions	Even Questions	Sum	Category Average Points
Friend/family	2.84 3.02		5.86	2.93
Support home life		4.75 4.72	9.47	4.74
Cultural Continuity	4.50 4.30		8.80	4.40
Preparation for life as a bi-cultural adult		4.60 4.46	9.06	4.53
Acquire English	3.77 3.74		7.51	3.76
To preserve Language		4.74 4.70	9.44	4.72

After looking at the individual question ratings from highest to lowest, there was an observation of which categories appeared as the most prevalent criteria for parents when choosing the HDL program. When the scores of the two questions under the same category were combined to calculate for an average point, this average point became the point for each category. These combined average points, as seen in Table 11, were used to address research question three directly. When analyzing each category, *support home life* had an average point of 4.74, and *preserve language* had an average point of 4.72; these two categories had the two

highest averages. Although *cultural continuity* and *preparation for life as a bi-cultural adult* were not as high as the categories of *support home life* and *preserve language*, they were the next highly-rated criteria groups.

The cultural continuity and preparation for life as bi-cultural adult categories were closely related to the two highest categories. Therefore, parents rated these two categories at 4.56 and 4.53, which positioned between agree and strongly agree on the Likert scale of 1-5. The lowest average was 2.93 for friend and family referrals as a neutral category.

Table 12.

*P-values for Combined Questions and Categories.*

Combined Questions: Category Sample 1	Combined questions: Category Sample 2	P-value
Friend/family	Support home life	0.954
Friend/family	Cultural continuity	0.017
Friend/family	Preparation for life as a bi-cultural adult	0.003
Friend/family	Acquire English	0.000
Friend/family	To preserve language	0.042
Support home life	Cultural continuity	0.005
Support home life	Preparation for life as a bi-cultural adult	0.000
Support home life	Acquire English	0.019
Support home life	To preserve language	0.000
Cultural continuity	Preparation for life as a bi-cultural adult	0.002
Cultural continuity	Acquire English	0.062
Cultural continuity	To preserve language	0.039
Preparation for life as a bi-cultural adult	Acquire English	0.000
Preparation for life as a bi-cultural adult	To preserve language	0.000
Acquire English	To preserve language	0.000

Another data point to review is the percentage of participants responding to each question. The percentage reflects the prevalent category for parents as they choose the HDL program for their child/ren because the program supports home life. *Support home life* had the highest percentages of 78% for question 2, and 77% for question 4 with a rating of 5 in the strongly agree. With this category, all respondents rated the questions as a 3, 4, or 5 on the Likert scale. No participants rated the *support home life* category with 1 or 2. In other words, no parents disagreed with the HDL program teaching students reading and writing in Hmong. Seventy-seven percent or more of the participants strongly agreed their children need to learn how to read and write in Hmong.

*To Preserve language* also had a high percentage of responses of 76% and 75%. This category was the second identified prevalent criteria parents used when choosing the HDL program for their child/ren with a Likert rating of 5 for strongly agree. Like the *support home life*, almost all the parents stayed on the scale of 3, 4, and 5. Only one parent rated support home life at the scale level of 2. Thus, parents strongly agreed that preserving the Hmong language was vital so their child/ren could communicate in Hmong.

Table 12 presents the p-values among the categorical variables. The p-value offered a lens into the significant relationship between the combined sample variables. The p-value in this analysis was  $>.05$ , indicating no significant difference between variables. Appendix G indicated that there were 12 questions in the parent questionnaire, but due to the split-half for odd and even questions, the two category-like questions were combined to analyze for the p-value. The combined category questions were analyzed as category sample variables. For example, questions 1 and 3 were both about the “friend/family” category, and questions 2 and 4 were about the “support home life” category. After the combination category-like questions, the

categories were turned into category samples (variables) for the p-value analysis, as seen in Table 12.

When cross-examining between the category samples, almost all of the category samples had no significant difference in the p-value, but two of the categories were significantly different. The category samples which were statistically and significantly different from the remaining categories had a p-value of 0.954 (friend/family vs. support home life), which was more than 0.05. This p-value was generated from two questions, numbers 1 and 3, of the *friend/family* category sample versus two other questions, numbers 2 and 4, of the category sample for *support home life*. This p-value was explained by the average rating reported with the specifics of the friend/family category receiving the least average score, while the support home life category received the highest score. The other category samples with a significant difference and a p-value of 0.062 were among cultural continuity and acquisition of English. The remaining category samples had p-values of 0.042 or less. Both category samples' (0.954 and 0.062) statistically significant differences justified that referrals to the HDL program by friends and family as well as learning English were not substantial factors in terms of choosing the HDL program for their children.

In conclusion, language was the central criterion for parents as they decided to enroll their child/ren in the HDL program. With the two highest-scored categories (support home life and to preserve language), parents allowed their children to learn how to speak, read, and write in the Hmong language. Other category samples, such as cultural continuity and preparing for bi-cultural adult life, were also prominent, but learning the Hmong language was most prevalent. Another observation was that the acquire English category was not one of the main reasons why parents choose the HDL program, but learning the Hmong language was the primary factor for

selecting the HDL program.

### **Chapter Four Summary**

In summary, the Hmong and English reading proficiency for third, fourth, and fifth-grade students who participated in the HDL program in Minnesota as measured by the Hmong Reading Assessment and Minnesota Comprehensive Assessment appeared to shift from third to fifth-grade. The fitted line plot graphs indicated a positive relationship regression between the MCA and HRA reading proficiency levels. This positive relationship observed that the years of experience for HDL students could boost their MCA reading proficiency while maintaining their Hmong reading proficiency. The HDL students were more proficient in reading Hmong than English in third-grade while increasing their English reading proficiency level and decreasing the Hmong proficiency level as they progressed through the grades.

The percentage of Hmong language reading proficiency decreased at grade-level expectations for fifth-graders, while English language reading proficiency increased. There was a shift in the reading levels from the HRA to the MCA in all three grades due to the percentage difference between these two assessments. Overall, the HDL students' English reading level increased by more than half of the sample who were Hmong bilingual students meeting or exceeding the grade-level expectations as they progressed into the higher grades. The HDL students' Hmong reading level decreased by more than half of the sample who were Hmong bilingual students scoring at or above the grade-level expectations as they progressed into the higher grades. The Hmong reading proficiency decreased in meeting expectations at grade-level, but the HDL students maintained their Hmong reading proficiency at a third-grade or a higher level of expectation.

The fourth and fifth-grade students who participated in the HDL program in Minnesota rated their language usage on the bilingual scale as bilingual learners with the numbers of language exposure years in both Hmong and English. The *Twelve Bilingual Dominance Scale* questions illustrated how the participants evaluated their language status for both Hmong and English (Dunn & Tree, 2009). There was a significant percentage of participants scoring at the top of the normal distribution graph. These participants represented the majority of students who reported that they were living in mainstream culture even though they spoke both Hmong and English at home. They did not think they were losing any language fluency, or had any foreign accent, and had more years of experience with Hmong instructions.

Meanwhile, the HDL student who scored high points on the questionnaire stated that both languages were used at home; the Hmong language was listed as the accent as well as the language for fluency loss because these students lived in the mainstream culture where the predominant language is English. The HDL students with lower score points learned the Hmong language at a later age while English was acquired earlier in their academic careers. Both languages were used at home with no foreign accent or language fluency loss, and the participants lived within the mainstream culture where English was the dominant language.

The most prevalent factor families considered when selecting a program with a Hmong focus language, as measured by a Likert-scaled parent questionnaire, was the opportunity to learn how to read and write in the Hmong language. The parent questionnaire, which included six categories, but identified the following categories, *to preserve language* and *support home life*, as the most highly-scaled categories for parents as they choose the HDL program for their children. *Cultural continuity* and *preparing for life as a bi-cultural adult* were also highly-scaled as the second highest rated sample. Overall, parents selected the HDL program for their students

because it offered an opportunity to learn to speak the Hmong language confidently and granted the fundamental opportunity to read and write in Hmong.

Thus, these categories, *to preserve language, support home life, cultural continuity*, and *preparing for life as a bi-cultural adult*, were highly rated for opportunities to learn how to speak, read, and write in Hmong. Choosing the HDL program due to a family or friend referrals was deemed neutral for parents on the Likert-scale, with a high p-value of 0.954, meant that this category did not play a significant role in their enrollment decision. Therefore, language was the principal factor for parents as they enrolled their children in the HDL program.

## **CHAPTER 5: DISCUSSION AND RECOMMENDATIONS**

### **Introduction**

This chapter includes five parts as it discusses findings and makes recommendations for future research. The first part of the chapter provides a summary of the study's statistical findings. A discussion of the data analysis will be included in the second part of this chapter, and the third part discusses the positional bias of the research. The fourth part looks at the implication of this study of the HDL program, while the fifth part offers recommendations for further study.

### **Summary of Findings**

This quantitative study was conducted to investigate the effect a Hmong dual-language immersion program had on Hmong students' academic outcomes. The parents of those students were also investigated within this study concerning specific factors they used in choosing a dual-language immersion program for their child/ren. While addressing a gap in the literature, this study's findings have provided an improved understanding of the Hmong dual-language program and the experiences of both students and their parents.

### **HRA and MCA**

This study examined academic reading achievement and bilingual ratings of HDL students in the Hmong dual-language program, as well as factors for parents choosing a dual-language immersion program. The Hmong Reading Assessment (HRA) levels were gathered from the school district's campus system while the Minnesota Comprehensive Assessment (MCA) scores were downloaded from Viewpoint Solution by teachers and building coaches.



Collecting the data from the teachers and building coaches was the best way to access this data rather than to have a person from the district's research office who was not as familiar with the assessment data. These data were HRA and MCA reading-level scores of third, fourth, and fifth-grade students from the school year 2018-2019 at Park and Jack Elementary schools.

The results from the research revealed that there were shifts between the HDL students' reading levels in Hmong using HRA data and students' reading levels in English using the MCA data as students progressed from third to fifth-grade. In third-grade, the HDL students were reading more proficiently in the Hmong language than in English. This observation meant that more third-grade students scored at grade-level in Hmong than they did at meeting the English standard. Fourth-grade students were fewer in meeting the grade-level expectation in the Hmong reading via the HRA by 11.76%. Within the fourth-grade student data, there was a slight increase in the number of students who met the standard of English reading via the MCA by 6.47% when compared to the percentage of the third-grade students. In fifth-grade, the shift in the students' reading outcomes for both languages was significantly noticeable.

The fifth-grade students increased their proficiency via the MCA reading scores while they decreased in the HRA reading scores. There was an increase of 35.29% in the MCA reading and a decrease of 8.83% in the HRA reading when comparing the fifth-grade students to the students of fourth-grade. The overall observation was that a majority group of HDL students continued to maintain their Hmong reading proficiency at a third-grade-level with the HRA, while there was an increase of students who were meeting the grade-level standard within the MCA as they move up from third to fifth-grade.

## The Twelve Bilingual Dominance Scale

The Twelve Bilingual Dominance Scale questionnaire generated by Dunn and Tree (2009) was used to examine the fourth and fifth-grade students' language usage who enrolled in the HDL program. Data were collected from 63 respondents whose ages ranged from 10 to 12 years old as fourth and fifth-graders at both schools. Students with consent to participate were presented four options for taking the assessment:

- the #1 choice was to use a paper and pencil using the English bilingual dominance scale (n =14),
- the #2 option was to use a paper and pencil using the Hmong bilingual dominance scale (n =2),
- the #3 choice was to use a google form online using the English bilingual dominance scale on the iPad (n =38), and
- the #4 option was to use a google form online using the Hmong bilingual dominance scale on the iPad (n = 9).

The Twelve Bilingual Dominance Scale questionnaire surveyed 63 students with 24 students in fourth-grade, or 38.10% of the total participants, and 39 fifth-graders who represented the remaining 61.90% of participants taking this questionnaire. The greatest percentage of the result for a total sum of 34 points for each participant was 12.70% of the participants, as indicated in table 13. This 12.70% were participants who self-reported as balanced bilinguals in both languages, had more years of experience in the Hmong instructional learning than in English, and with the majority stating they had no foreign accent. These students spoke both Hmong and English at home and did not feel as though they had any fluency loss in either language, even though they live in the mainstream culture. English was used to solve math problems, such as multiplying 243 by 5 for this 12.70 % of the participants.

Table 13.

*Summary Question Observations With High to Low Percentage of Participants Based on Most Occurred Responses.*

Questions	12.70% (sum=34)	11.11% (sum=31)	11.11% (sum=28)	01.59% (sum=42)	01.59% (sum=20)
Age of Hmong Instruction	0-5	0-5	6-9	0-5	10-15
Age of English Instruction	6-9	0-5	6-9	0-5	6-9
Language at Home	both	both	both	both	both
Solve Math Problems	English	English	English	English	English
Comfortable Speaking	English	English	English	English	English
Foreign Accent	none	none	Hmong	Hmong	none
Life-Long Language	Hmong	Hmong	Hmong	Hmong	none
Language Fluency Loss	none	Hmong	Hmong	Hmong	none
Current Culture	mainstream	Hmong	Hmong	mainstream	mainstream

When looking at the overall summary in Table 13, there is a balance between the two groups of participants, who were equally 11.11% (sum of 31, 28). One of the groups with an 11.11% scored a total sum of 31 points; this group felt comfortable speaking both languages at an early age since they have learned the languages at an early age. Unlike the 12.70% group, the majority of the participants in this total sum group of 31 listed Hmong as their foreign accent and stated they were living in the Hmong culture. This group of participants spoke both languages at home as well as used English to solve math problems, just like the second 11.11% group with a total sum of 28.

Other observations were the highest and lowest scores equaling the total sums of 42 and 20. Both these scores equal a percentage of 1.59 each. The one student with 42 points learned both languages at an early age and was comfortable speaking English more than Hmong. Even though both languages were used at home, English was used to solve math problems in students'

heads. Hmong was listed for both the accent and language fluency loss in this case as this student was living in the dominant mainstream culture at the time of the study.

When distinguished from the score of 42, the lowest-score participant (20 points) did not learn the Hmong language until a later age while English was acquired at the age of six. For the singular 20-points participant, both languages were used at home while English was used to resolve math problems, but no foreign accent or a choice of life-long language was chosen. This participant with 20 points also had no language fluency loss and was currently living in the mainstream culture.

### **Parent Questionnaire**

A questionnaire was used to examine parents' criteria as they make decisions to enroll their child/ren in the HDL program. These parents were of the 1.5 and 2.0 Hmong generations, comprising the majority of parents with children who participated in the HDL program. The survey examined the responses from each family at both schools. A Likert-scale questionnaire included primary data that surveyed factors of parents choosing the HDL program.

The parent questionnaire indicated the categories of preserve language and support home life were the prevalent factors for parents to choose the HDL program for their children. Although cultural continuity and preparation for life as a bi-cultural adult rated second, parents still rated these two categories at 4.50 on a scale of 1 to 5, with five being strongly agreed. Therefore, the underlying factors for parents to choose the HDL program for their children were the following categories, *support home life*, *preserve language*, and *preparation for life as a bi-cultural adult*, which illustrated that the HDL program teaches students to speak, read, and write in the Hmong language.

The lowest parental rating was the category ‘friend and family,’ which had an average of 2.94, below the scale of 3. Scoring below 3 meant that parents were neutral or did not consider that category as a factor regarding their consideration for choosing a Hmong dual-language program. Not only was the friend/ family category rating the lowest, but friend/family also gained the highest p-value when compared with the support home life category. Due to these observations of the low rating score and high p-value, the friend and family category would be considered an outlier when working with the content validity matrix used to develop the parent instrument to address the third research question. As mentioned above, the friend/family category was not a strong reason for parents as they decide to select the HDL program for their children. The p-value of 0.954 for the friend and family category indicated a statistically significant difference when compared with the other categories and was considered an outlier.

### **Discussion**

This researcher discusses and interprets the results of the four instruments, the HRA and MCA students’ reading scores, the Twelve Bilingual Dominance Scale, and the parent questionnaire. The HDL students’ English reading level increased while the Hmong reading level decreased from third to fifth-grade. The bilingual model could have impacted this shift within the reading proficiency between the two languages. Both HDL schools are using a 90:10 model in which instructional allocation time is intentionally shuffled to scaffold language learning. Due to this type of immersion model, HDL students began having stronger Hmong reading proficiencies, but as they progressed throughout the elementary school years, their English reading levels increased, and more students met or exceeded the standard of the MCA.

This English reading level increase confirms much of the research done on Spanish and French languages for bilingual students in terms of acquiring English (Marian, Shook, &

Schroeder, 2013; Murphy, 2014; Vega, 2014). The MCA is a standardized assessment required by the state of Minnesota as an academic achievement assessment tool. If HDL students are making progress in English reading levels as they move up through the grade-levels, then the students are academically achieving according to the Federal and State's Common Core Standards (Poulin-Dubois, Blaye, Coutya & Bialystok, 2011; Collier & Thomas, 2004; Han, 2012). If these HDL students are making consistent and constructive academic gains, then the achievement gap should narrow if the opportunity for immersion programs are made available.

The Twelve Bilingual Dominance Scale results attested that the language used by the HDL students were divided between English and Hmong. The students who started to learn the Hmong language at an earlier age tended to feel comfortable speaking English with a Hmong accent. These students believed they had a Hmong language fluency loss and wished to retain the Hmong language by using the Hmong language for the rest of their lives while living in the Hmong cultural setting. Other students who were also comfortable speaking English, identified themselves living in the mainstream culture with no language fluency loss but also chose to retain the Hmong language as the language they would use for the rest of their lives.

There was a percentage of approximately 73 of the overall participants who claimed they had language fluency loss and 66.67% who would choose Hmong as their life-long language. Many of the dominant English students reported learning Hmong at an early age, between infancy and age five, and learning English at a later age, between the ages of six to nine. Both percentages for the Hmong language fluency loss and the retention of the Hmong language were high, which inferred that many of the participants were losing their Hmong language proficiency. However, they wished to retain their Hmong language ability. For participants to determine the value and importance of a language, this mentality can closely relate to an individual's cultural

identity. Language is a vehicle for cultural identity (Smith, 2016; Tran & Birman, 2017; Vega, 2014).

About 86% of the overall sample showed that students were using English to solve math problems. Math was taught in the Hmong language up to first grade, but from there on, it was taught in English. This practice is related to the structural model of the immersion program utilized in this current study.

The structure of the bilingual program or immersion model can also impact the frequency of language usage. Most of the students, regardless of their years of language experience and comfort level, all valued the Hmong language because they were either losing the fluency of the Hmong language and/or choosing to retain the Hmong language. Although there were no consistent patterns found in isolation for each participant or each question when calculating the scores for the Twelve Bilingual Dominance Scale, the normal histogram distribution illustrated a balance of Hmong and English language usage on a symmetrical normal curve.

Gaining the parents' perspectives on enrollment is vital to maintaining and continuing the HDL program. These perspectives are also critical because the parents' decision to enroll their children allows the opportunity for the Hmong dual program to exist. The parent questionnaire results identified that language preservation and home life support were valued as the factors for parents to enroll their children in the HDL program. It is interesting to note that acquiring English was not a high priority factor for parents' enrollment decisions. This observation indicated that learning English was essential but not as critical as preserving the Hmong language, supporting home life and preparing for life as a bi-cultural adult, which includes speaking, reading and writing in the Hmong language.

Most of the parents in this study were from the 1.5 and 2.0 Hmong generation, so they have personally undergone the process of acquiring English through mainstream schooling programs as bilingual learners. Therefore, they understand what a regular educational program would offer their children. These parents knew that their children would receive English instruction for the rest of their lives, so they decided to give their child/ren the opportunity to immerse in the Hmong language instruction at an early age.

Knowing their home language could support the home life with Hmong reading and writing, but most importantly, it is the individual's cultural identity that led these current parents to choose the HDL program for their children. If these HDL students speak, read, and write in Hmong, they can converse with grandparents and learn about their history through the strong oral traditions of the Hmong people (Block, 2012; Reese, 2012; Vang, 2003). With the ability to read, young people can comprehend what has been written and published about their culture and language from a historical perspective. The modalities of speaking, reading, and writing are pathways to cultural identity. Once cultural identity is realized, perhaps these HDL students might continue to write Hmong stories for future generations and reinforce the power of identity to encourage self-esteem.

The other observation is how the cultural continuity and preparation for life as a bi-cultural adult were distinguished amongst the top priority factors for parents as they enrolled their child/ren in the Hmong language program. Having the ability to carry on the Hmong culture while continuing to function well in the mainstream culture requires the use of executive functioning (Bialystok, 2018; Dantas-Whitney & Waldschmidt, 2009; Ter Kuile et al., 2011). Executive functioning includes the process of decision-making within each particular setting in which one is situated, such as discerning the diverse ways to greet people within different



cultural contexts. The ability to code-switch language because of the environmental setting is another area where individuals can use an individual's executive functioning, which can be improved when partaking in a bilingual program (Bialystok, 2018; Kaushanskaya et al., 2014; Ter Kuile et al., 2011).

Language is the thread in all the research questions of this current study. Language influences Hmong and English proficiency reading levels as it impacts the students' ownership of language loss and language retained. It also motivates parents' enrollment decisions because the Hmong culture and language are at the intersection of academic achievement, bi-cultural life, and preserving their indigenous culture.

### **Implications**

Both the students and parents greatly value the HDL program in the Metro School District area of Minnesota. The Hmong students who had the opportunity to study content in their first language while acquiring English have shown improvement in their academic achievement. The students who took part in the HDL program value being bilingual. They might initially use English to ignite conversations but can easily code-switch when speaking to peers and other adults. However, when speaking to elders, these Hmong students can dialogue in the Hmong language.

The parents chose the HDL program for their children because learning Hmong will provide their children with the ability to converse in Hmong with the elders and gain a better understanding of their cultural identity. This implication also allowed students to function in a bi-cultural setting. Many parents in this current study were not fluent in the Hmong language, so they chose the Hmong bilingual program for their children due to their lack of cultural practices

and identity. Both the HDL parents and students see the value in the Hmong language and culture.

### **Research Bias and Positionality**

As a Hmong dual-language teacher, this researcher may have had a certain amount of bias due to her work history within the program being studied. Moreover, this researcher has experienced the varied perspectives of both the students and the parents who were the participants of this study. In order to conduct a valid study, it was necessary to suspend prior knowledge and preconceptions as the study proceeded (Chan, Fung, & Chien, 2013).

### **The HDL Teachers**

Being Hmong, living in the Hmong community, and teaching Hmong children, this current researcher is one of the HDL teachers from the two research settings. The HDL teachers are familiar with topics related to Hmong history, culture, and language. They understand their perceptions of the Hmong's cultural heritage, background, and existing problems could influence the research. As these HDL teachers are Hmong decedents, most of them, if not all, are of the 1.5 Hmong generation. The 1.5 Hmong generation are those that were born in Laos or Thailand but arrived and were raised in the United States at an early age (Rumbaut, 2004).

These teachers may have secured a teaching license as an elementary teacher, but none of them receive formal training in the Hmong language during the teacher preparation programs. However, these teachers are all bilingual in Hmong and English. Being an HDL teacher comes with lots of demanding work because of the lack of resources, but the teachers are willing to go the extra mile of staying late at school and using the family time to translate teaching materials

or create posters to scaffold their lessons. Even with challenges, they are committed to teaching in this bilingual setting within the public-school system.

Despite the hard work, these Hmong teachers have helped maintain the HDL program for almost two decades in the hope of preserving the Hmong culture and language, bridging the generational gap, and closing the academic gap for Hmong students. Although these convictions for the Hmong language program are deeply rooted, these compelling expectations will not distort the data of this research because the respondents reported their responses quantitatively and not qualitatively.

### **The Researcher**

As a Hmong language program researcher, this researcher hopes that her research design, ontological, and epistemological perspectives will speak to the significance of this current study. With a quantitative design, she used a formal, objective, and systematic process in which numerical data were used to obtain information about bilingual education. This design is a structured way of collecting and analyzing data obtained from different sources such as the MCA scores and student questionnaire that involved the use of computational, statistical, and mathematical tools to derive results for this study (Fraenkel, Wallen, & Hyun, 2015). The validity and reliability of the research study depended on the instruments, the participants, and the procedures used to collect and analyze the data. This systematic collecting and analyzing the data was needed to be in place to create comprehensible results, as the numerical and statistical data will inform all the interested parties of this study.

With the ontological perspective, the researcher understands the nature of reality in the HDL program. This reality is based on a post-positivist view, which is somewhat objective. With the epistemological perspective, she believes that it is possible to examine the Hmong students'

academic areas, the students' language usage, and the parents' decisions to enroll their children in the HDL program. This study has a post-positivist orientation so that all aspects can be measured and quantified.

### **Recommendations**

There are several recommendations worth mentioning, as the impact of academic performance and students' language usage are being supported within a Hmong bilingual setting. This research focused on an immersion program that begins with the 90:10 dual-language model beginning in pre-K, kindergarten, and first grade, then gradually progresses to a 10:90 dual-language model in fourth and fifth-grade. The first number (90) represents the percentage of instructional time students receive in the target language, which is Hmong within the program under study (see Table 1 for more specifics) and the second number represents the percentage of instructional in English (Acosta, Williams, & Hunt, 2019). A recommendation would consist of a model that modifies the percentage of the target language's instruction for fourth and fifth-grade students. For example, in fourth-grade, the percentage allocated to each language should be 50:50, and not 10:90. Currently, with the 10:90 model, fourth and fifth-grade students are receiving instructional lessons 10% of the day in Hmong and 90% in English. This 10:90 model is heavily focused on learning in English due to district and state English-mandated assessments; therefore, students are encouraged to speak, read, and write less Hmong in the classroom. With any language, students will begin to lose the habit and knowledge of the non-English language when it is not used. A bilingual individual should be able to code-switch in a conversation at any point in time or setting. This study makes the following recommendations:

## **Future Educational Programs**

School districts with large Hmong populations should offer students Hmong bilingual classes so that those students can transfer their learned language knowledge between both their native language and English. Structured Hmong bilingual programs should be designed with pathways from elementary schools up to, and including high schools. Such programs should not cease once students exit fifth-grade, the end of primary school. The Metro school district advertises their Hmong bilingual program with pathways to middle and high-schools, but it becomes complicated due to a lack of middle and high-school curricula in specific content areas and in how to provide courses that meet standardized graduation requirements. More work, such as the development of Hmong content area curricula and the provision of Hmong academic-related resources, needs to be done at the middle and high-school levels for a true Hmong bilingual pathway to be implemented from kindergarten through grade 12.

Another programming perspective for a pre-K-5 Hmong dual-language program that operates under different administrators with other mainstream programs at two different school sites is the level of professional development, classroom supports, and resources. District leaders and school board members are in unique positions to consider a more innovative HDL programming model. The opportunity for only one Hmong dual-language program school should be considered versus having two HDL programs at two different sites led by different administrators with parallel regular education programs.

Alternatively, Hmong language courses can be offered as foreign language classes in high schools in areas with large Hmong populations. Many Hmong children cannot read or write in their native language. Students should be able to earn Hmong advanced language certificates and credentials for college credit, since these awards are already recognized by many state

departments of education, such as the Seal of Biliteracy. The Seal of Biliteracy is a certification for language proficiency earning students advanced college semester credits.

Offering Hmong classes within colleges and universities for both Hmong and non-Hmong speakers who are interested in becoming Hmong and English bilinguals should be made a priority. Many students might want to become effective Hmong and English bilinguals if they see that Hmong classes are available to them. These Hmong classes could be Hmong language college courses for students who want to fulfill language credits or for any student who wants to be bilingual in Hmong and English.

However, on the other hand, colleges and universities should also host Hmong language and cultural programs for elementary, middle, and high-school students. Not only would these Hmong languages and cultural programs offer non-post-secondary students opportunities to immerse pre-college students in the Hmong culture and language, but would possibly offer many low SES students opportunities within higher education.

Many of the current HDL students who participated in this research reside in the Metro School District area of the Midwest have an additional opportunity to take part in the Concordia University's Hmong Culture and Language Program (HCLP). This additional opportunity could provide the current HDL students a safe place to continue learning and practicing the Hmong language and culture. HCLP could have contributed to the status of the HDL students' bilingualism and academic achievement by providing a year-round HCLP and a two-week summer camp. Recommendations for colleges and universities surrounded by a high Hmong population should host such Hmong culture and language programs to increase opportunities and support the existing Hmong dual-language immersion programs.

The last educational recommendation is for colleges and universities to extend their teacher licensure programs to include the Hmong biliteracy teacher. Hmong bilingual credential teaching programs for the elementary and secondary school should be offered in preparing future bilingual teachers, so qualified teachers can aid Hmong students to succeed in college academically. Bilingual teaching licensure for the Hmong language should be developed so more teachers can be out in the field ready to teach the Hmong language. With collaboration between the school districts, colleges, and universities as well as at the state and federal levels, a well-rounded society of Hmong bilingualism can be on the rise.

### **Future Research**

This researcher recommends for future research to consider comparing the academic performance of HDL program students with Hmong mainstream students. This type of inquiry would allow the Hmong community to fully understand the effectiveness of participation in the different models and programs of Hmong bilingual learning. In a few years, the students in this current research will become high school students and move on to be college students. It is recommended to revisit this research to compare findings and to track the students through college. A longitudinal study could be performed on how participating in the HDL program might have impacted the participants' adult lives and the influence that Hmong bilingual schooling opportunities have had on Hmong individuals living in both the mainstream society and other cultural settings.

A qualitative approach should also be considered for future research on Hmong dual-language programs. Qualitative research would provide perspectives that this research did not offer, which would include personal historical narratives, first-hand accounts, and subjective experiences, all essential when using a qualitative research design (Colón & Heineke, 2015;

Heaton, 1998; Tran & Birman, 2017). This recommended future research of a qualitative study will also allow data collection methods to involve both unstructured and semi-structured techniques such as individual interviews, group discussions (focus groups), and behavioral observations.

Another suggestion for future research is to explore the various models of HDL programs in other states with alternative reading assessments if the MCA is not available for that state. The models among school districts in California, Wisconsin, and Minnesota are vastly different (Guzman-Orth et al., 2017). Some schools teach the Hmong alphabet names with sounds, while others teach just the sounds due to the constraint of the models (Pope, 2018). As a result of these different models of implementing Hmong dual-language programs and state mandates, a variety of reading assessments are used to measure students' reading outcomes. As these assessments vary from state to state, future research should include the assessment appropriate for each state. For example, instead of the MCA, Hmong dual-language programs in California and Wisconsin use standardized assessments mandated for their states. These state-mandated assessments can be used to determine the reading levels of HDL students who reside in other states with possible different English language assessments (Guzman-Orth et al., 2017).

In addition, it is vital to examine which model will best fit the needs of the Hmong bilingual students when maintaining the targeted language as a first language and/or the second language. Specific models allow students to use translanguaging, which offers students the opportunity to use whichever language they choose at any point in time in any setting. Some schools feel that it is best for students to continue studying the native language, such as Hmong, for an extended period and then convert their learning to the second language, such as English. Other schools teach the targeted language as a foreign language within their bilingual programs.



Another recommendation for future research would be to focus on only one school with students and parents experiencing the HDL program using a phenomenological approach. The fundamental aim of this type of qualitative approach is to arrive at a description of the nature of a particular phenomenon (Creswell, 2014). This future study can focus on the commonality of lived experiences within a particular group. There are many possible studies one can conduct to generate more information about Metro School District's Hmong immersion program since there is a lack of literature in the public domain within the area of its Hmong bilingual schooling.

### **Chapter Five Summary**

This chapter was comprised of several sections discussing the study's findings and recommendations for future research. Chapter Five reiterated an overview of the study including a summary of the quantitative statistical findings. A discussion of the data analysis used within this study and the ensuing implications were also included.

This researcher has undertaken an investigation into the impact of a Hmong dual-language immersion program involving kindergarten through fifth-grade Hmong students' academic outcomes. The parents of those students were also investigated within this study concerning specific factors they used in choosing a dual-language immersion program for their child/ren. Filling a gap in the literature on these topics has improved support and provided critical information for the dual-language Hmong students and their parents as well as the wider community in which they live.

The results of this study will encourage the school leaders to continue implementing the Hmong dual-language program while motivating stakeholders to enact some of the recommendations of this study. Together with the participants' dual-cultural awareness, the community of Hmong individuals can create improved dual-language student outcomes, such as

closing the academic achievement gap, which currently exists between minority and dominant student populations (Cha, 2016; Stebbins & Comen, 2018; Umansky et al., 2016).

Administrators, teachers, parents, and all members of the community can act as role models for bilingual students, using their resourcefulness and influence to benefit the Hmong student population.

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## APPENDIX A: Research Informational Letter

Dear Participant,

Thank you for agreeing to participate in the study, entitled: The language outcomes of the Hmong dual-language immersion programs.

My name is Chao Vang, and I am a student in the Doctor of Education program at Concordia University, St. Paul.

The purpose of this study is to investigate how the Hmong dual-language immersion program has impacted the Hmong bilingual students' language learning while focusing on the academic achievement, bilingual rating of Hmong dual-language students in the Hmong dual-language immersion program, and factors for parents choosing a dual-language immersion program.

The data from this research will insight on the impact the Hmong dual-language immersion programs have helped strengthen your child's language usage to gain academic achievement and cultural identity. This research will benefit society in understanding those factors that link to native language learning and cultural continuity, as well as factors that seem to point to second language learning and academic achievement. It will also reinforce the decision to continue and support the Hmong dual-language immersion programs at the school district and community levels.

Upon concluding this study, you will receive a link via email or thank you card to view the results of the research, if you so choose. Participants' names are anonymous. Hence, the consent form on the next page asks you to list your email address if you would like to receive the link.

You may withdraw from the study at any time before the projection of the final results of the study. If you have any questions now or in the future, please use the contact information provided: (612)810-7251 and vangc49@csp.edu.

If you have any questions not answered by me, you may contact the Dissertation Chair, Dr. Oluwatoyin Akinde Fakuajo, at 763.291.6284 or akindefakuajo@csp.edu.

Signature of the Graduate Student (researcher):

Date:

## Hmong Research Informational Letter

Nyob Zoo Tsoom Niam Txiv,

Ua tsaug rau koj lub sij hawm thiab qhov uas tso npe tuaj koom txoj kev tshawb fawb txog: Kev Paub Ob Hom Lus Yuav Pab Tau Ntau Yam Tshwm Thaum Zwm Rau Cov Chav Qhia Ob Hom Lus

Kuv lub npe yog Tshaus Vaaj. Kuv yog ib tus ntxhais kawm nyob qib siab ntawm qhov Education Doctor Program pem Concordia University, St. Paul.

Lub hom phiaj ntawm txoj kev tshawb fawb no yog yuav los nrhiav thiab kawm seb cov kev kawm ob hom lus no puas pab tau cov tub ntxhais txoj kev kawm nce tau theem. Txoj kev paub lus Hmoob thiab lus Meskas no ne puas nyob tib theem sib txig. Thiab niam txiv txoj kev xaiv cov chav qhia ob hom lus yog li cas tiag.

Qhov kev tshawb fawb no yuav pab txhawb kev nkag siab txog koj tus me nyuam txoj kev kawm tau ntawv mus tau deb thiab pab koj tus me nyuam kom muaj kev thoob tsib to nrog ntawm nws tus kheej los ntawm txoj kev qhia ob hom lus. Txoj kev tshawb fawb no yuav txhab ntxiv kom pej xeem paub tias kev kawm hom lus thib ib yuav pab me nyuam kawm tau hom lus thib ob yooj yim thiab sai nrog rau txoj kev uas paub coj Hmoob tej kev coj noj coj ua lawm yav pem suab. Tsis tas li xwb, nws yuav txhawb lub tswv yim uas npaj kom muaj cov kev qhia ob hom lus no tauj ntxiv mus los nram hauv paus tsev kawm ntawv loj thiab tej zej zos.

Thaum qhov kev tshawb fawb no tiav lawm, koj yuav tau txais ib qhov email lossis ib daim ntawv ua tsaug thiab qhia seb koj yuav mus saib cov lus teb ntawm qhov kev tshawb fawb no qhov twg. Thov tso email thiab chaw nyob ntawm daim ntawv sau npe nyob nplooj ob es kuv mam xa ntawv tuaj qhia koj paub thaum qhov kev tshawb fawb tiav lawm.

Yog koj xav rho npe tawm hauv qhov kev tshawb fawb no ua ntej nws tiav los tsis ua cas. Koj muaj cai rho npe tawm los tau. Yog koj muaj lus nug, thov hu rau kuv ntawm tus xov tooj (612)810-7251 los yog sau ntawv tuaj rau kuv ntawm: [vangc49@csp.edu](mailto:vangc49@csp.edu).

Yog muaj qee yam lus kuv teb tsis tau, koj hu tau rau tus saib xyuas kuv txoj kev tshawb fawb uas yog Dr. Oluqatoyin Akinde Fakuajo ntawm 763.291.6284 los sis email nws [akindefakuajo@csp.edu](mailto:akindefakuajo@csp.edu).

Ua Tsaug,

Hnub Tim:

## APPENDIX B: Consent Form (For Student)

Title of Dissertation: The language outcomes of the Hmong dual-language immersion programs

Name of Researcher: Chao Vang

Please initial on the lines

1. \_\_\_\_\_ By initialing the line and appending my signature, I affirm that I have read and that I understand the information provided to me about the referenced study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. \_\_\_\_\_ I understand that my child's participation is voluntary and that I am free to withdraw at any time without giving any reason.

3. \_\_\_\_\_ I understand that my child will complete a Bilingual Dominance Scale to rate his/her language usage, and the information would be used for the study, but identifying information will not be published or shared as part of the research.

4. \_\_\_\_\_ I give permission for my child to take part in the above study.

5. \_\_\_\_\_ If you would like to receive the results of the study after it is completed, please note your email address here:

Student's Name:

Student's Grade:

Parent's Signature:

Date:

Address:

Email:

## Hmong CONSENT FORM (For Student)

Qhov Kev Tshawb Fawb No Yog: Kev Paub Ob Hom Lus Yuav Pab Tau Ntau Yam Tshwm  
Thaum Zwm Rau Cov Chav Qhia Ob Hom Lus

Tus Neeg Tshawb Fawb: Tshaus Vaaj

Thov sau npe rau ntawm cov kab

1. \_\_\_\_\_ Kuv npe npe qhia hais tias kuv twb nyeem thiab nkag siab txog qhov kev tshawb fawb no. Kuv twb nkag siab thiab nug kom kuv paub meej txog qhov kev tshawb fawb no lawm.
2. \_\_\_\_\_ Kuv nkag siab hais tias kuv rho kuv tus me nyuam lub npe tawm thaum twg los tau ntawm qhov tshawb fawb no. Kuv tsis tas yuav qhia hais tias yog vim li cas thiaj rho npe tawm.
3. \_\_\_\_\_ Kuv paub hais tias kuv tus me nyuam yuav teb ib daim ntawv ntsuas txog nws kev hais lus. Nws cov lus teb yuav muab siv los sau nthuav tawm rau lwm tus paub, tiam sis yuav tiv thaiv thiab tsis pub qhia tus me nyuam lub npe, hnuv yug, qib, los sis tej yam uas yuav ua rau lwm tus paub tias tus me nyuam yog leej twg.
4. \_\_\_\_\_ Kuv tso cai rau kuv tus me nyuam koom qhov kev tshawb fawb no.
5. \_\_\_\_\_ Yog koj xav paub thiab txais ntawv qhia hais tias qhov kev tshawb fawb no tiav lawm, thov tso email thiab chaw nyob nram qab no es Tshaus Vaaj mam xa ntawv tuaj qhia koj paub.

Me Nyuam Lub Npe:

Me Nyuam Qib Kawm:

Niam Txiv Sau Npe:

Hnuv Tim:

Chaw Nyob:

Email:

### APPENDIX C: Consent Form (For Parents)

Title of Dissertation: The language outcomes of the Hmong dual-language immersion programs

Name of Researcher: Chao Vang

Please initial on the lines

1. \_\_\_\_\_ By initialing the line and appending my signature, I affirm that I have read and that I understand the information provided to me about the referenced study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. \_\_\_\_\_ I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

3. \_\_\_\_\_ I understand that I will complete a Parent Questionnaire and the information would be used for the study.

4. \_\_\_\_\_ I agree to take part in the above study.

5. \_\_\_\_\_ If you would like to receive the results of the study after it is completed, please note your email address here:

Student's Name:

Student's Grade:

Parent's Signature:

Date:

Address:

Email:

## Hmong CONSENT FORM (For Parents)

Lub Npe Qhov Kev Tshawb Fawb No Yog: Kev Paub Ob Hom Lus Yuav Pab Tau Ntau Yam  
Tshwm Thaum Zwm Rau Cov Chav Qhia Ob Hom Lus

Tus Neeg Tshawb Fawb: Tshaus Vaaj

Thov sau npe rau ntawm cov kab

1. \_\_\_\_\_ Kuv sau npe qhia hais tias kuv twb nyeem thiab nkag siab txog qhov kev tshawb fawb no. Kuv twb nkag siab thiab nug kom kuv paub meej txog qhov kev tshawb fawb no lawm.
2. \_\_\_\_\_ Kuv nkag siab hais tias kuv rho kuv lub npe tawm thaum twg los tau ntawm qhov tshawb fawb no. Kuv tsis tas yuav qhia hais tias yog vim li cas thiaj rho npe tawm.
3. \_\_\_\_\_ Kuv paub hais tias kuv yuav teb ib daim ntawv nug txog kuv txoj kev xaiv cov kev kawm ob hom lus rau kuv tus me nyuam. Kuv cov lus teb yuav muab siv los sau nthuav tawm rau lwm tus paub, tiam sis yuav tiv thaiv thiab tsis pub qhia kuv lub npe, hnuv yug, lossis tej yam uas yuav ua rau lwm tus paub tias kuv yog leej twg.
4. \_\_\_\_\_ Kuv txaus siab koom qhov kev tshawb fawb no.
5. \_\_\_\_\_ Yog koj xav paub thiab txais ntawv qhia hais tias qhov kev tshawb fawb no tiav lawm, thov tso email thiab chaw nyob nram qab no es Tshaus Vaaj mam xa ntawv tuaj qhia koj paub.

Me Nyuam Lub Npe:

Me Nyuam Qib Kawm:

Niam Txiv Sau Npe:

Hnuv Tim:

Chaw Nyob:

Email:

## APPENDIX D: Permission to use the Twelve Bilingual Dominance Scale

### Questions and Scoring procedure

Chao Vang <vangc49@csp.edu>

Mon, Jul 29,  
8:54 PM

to foxtree, aldunn

Dear Professor Jean E. Fox Tree and Alexandra L. Dunn,  
My name is Chao Vang. I am working on my dissertation at Concordia University of St. Paul, Minnesota. My goal is to evaluate the impact that the Hmong dual-language program has on Hmong dual-language students in terms of language usage. I am interested in your Twelve Bilingual Dominance Scale questions and the scoring procedure from your research article: A quick, gradient Bilingual Dominance Scale (2009). I am writing to request your permission to use the scale questions in my dissertation study on the Hmong dual-language program. I am also wondering if the scale questions can be modified to fit the language of my research, which is Hmong, a tribal language of Southeast Asia.

Please let me know the possibility of using your tool to assist my research. Thank you for your help!

Sincerely,  
Chao Vang

Jean E. Fox Tree

Tue, Jul 30,  
11:10 AM

to me, aldunn

Dear Chao Vang,

Yes, the scale was meant to be used by anyone for any language. You can find the scale and scoring procedure at the end of the paper.

Thanks,

Jean E. Fox Tree

Chao Vang <vangc49@csp.edu>

Tue, Jul 30,  
1:52 PM

to Jean, aldunn

Thank you for your reply. I am assuming that your email is a confirmation of permission to use that scale. Can I also assume that I have the authorization to modified the questions? If I do change it, what do you seek will alter the results since I will use this scale with fourth and fifth-grade Hmong dual-language students? Thank you for your permission and suggestions.



Jean E. Fox Tree

Tue, Jul 30,  
2:02 PM

to me

You would need to think about how you would have to adapt it. You can see how others have used the scale at Google scholar. It looks like there are 150 citations to it now. Maybe someone else has dealt with similar issues?

Jeannie

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**APPENDIX E: The Twelve Bilingual Dominance Scale and Scoring Procedure**

**Dunn and Tree (2009) for Hmong dual-language students. (English Version)**

Questions 1 and 2: At what age did you first learn Hmong \_\_\_\_\_ English \_\_\_\_\_?

Scoring: 0–5 yrs = +5, 6–9 yrs = +3, 10–15 yrs = +1, 16 and up = +0

Questions 3 and 4: At what age did you feel comfortable speaking this language? (If you still do not feel comfortable, please write “not yet.”)

Hmong \_\_\_\_\_ English \_\_\_\_\_

Scoring: 0–5 yrs = +5, 6–9 yrs = +3, 10–15 yrs = +1, 16 and up = +0, “not yet” = +0

Question 5: Which language do you predominately use at home?

Hmong \_\_\_\_\_ English \_\_\_\_\_ Both \_\_\_\_\_ Scoring: if one language used at home, +5 for that language; if both used at home, +3 for each language

Question 6: When doing math in your head (such as multiplying  $243 \times 5$ ), which language do you calculate the numbers in? \_\_\_\_\_

Scoring: +3 for language used for math; +0 if both

Question 7: If you have a foreign accent, which language(s) is it in? \_\_\_\_\_

Scoring: if one language is listed, add +5 to the opposite language of the one listed; if both languages are listed, add +3 to both languages; if no language is listed, add nothing

Question 8: If you had to choose which language to use for the rest of your life, which language would it be? \_\_\_\_\_

Scoring: +2 for language chosen for retention

Questions 9 and 10: How many years of schooling did you have in:

Hmong \_\_\_\_\_ English \_\_\_\_\_ Scoring: 1–3 yrs = +1, 4–7 yrs = +2

Question 11: Do you feel that you have lost any fluency in a particular language? \_\_\_\_\_

If yes, which one? \_\_\_\_\_ At what age? \_\_\_\_\_

Scoring: –3 in language with fluency loss; –0 if neither language has lost fluency

Modify Question 12: Which culture do you currently live in?

Scoring: +4 for predominant language of mainstream culture of residence

Dunn, A. L., & Tree, J. E. F. (2009). A quick, gradient bilingual dominance scale. *Bilingualism: Language and Cognition*, 12(3), 273-289.

**Kawm Ob Qhov Lus Nug thiab Ntsuas Kev Hais Ob Hom Lus Tsim Los Ntawm Dunn and Tree (2009) Rau Cov Tub Ntxhais Kawm Ob Hom Lus. (Hmong Version)**

Lo lus nug 1 thiab 2: Koj muaj pes tsawg xyoo thaum koj pib hais lus

Hmoob \_\_\_\_\_ Askiv \_\_\_\_\_ ?

Muab qhab nee: 0–5 xyoo ces +5, 6–9 xyoo ces +3, 10–15 xyoo ces +1, 16 xyoo rov saud ces +0

Lo lus nug 3 thiab 4: Thaum koj muaj pes tsawg xyoo koj mam li xav tias koj hais tau cov lus nov npliag lias (Yog koj tseem xav hais tias koj hais tsis tau cov lus npliag lias no ces sau “tsis tau.”)

Hmoob \_\_\_\_\_ Askiv \_\_\_\_\_

Muab qhab nee: 0–5 xyoo ces +5, 6–9 xyoo ces +3, 10–15 xyoo ces +1, xyoo rov saud ces +0, “tsis tau” ces +0

Lo lus nug 5: Hom lus twg koj siv heev tshaj tom tsev?

Hmoob \_\_\_\_\_ Askiv \_\_\_\_\_ Ob Hom \_\_\_\_\_

Muab qhab nee: yog siv ib hom lus tom tsev xwb, +5 rau hom lus ntawd; Yog siv ob hom lus tom tsev, +3 rau lus Askiv thiab +3 rau lus Hmoob.

Lo lus nug 6: Thaum ua leb hauv hlwb (xws li 243 x 5), koj siv hom lus twg lo pab koj daws qhov leb no? \_\_\_\_\_

Muab qhab nee: +3 rau ib hom lus; +0 yog siv ob hom lus

Lo lus nug 7: Yog thaum koj hais lus, lub suab (accent) twg yog qhov uas tib neeg yuav hnov tawm ntau tshaj? \_\_\_\_\_

Muab qhab nee: Yog siv ib hom lus xwb, +5 rau hom lus uas nws tsis siv; Yog siv ob hom lus, +3 rau ob hom lus; Yog tsis hais dab tsi li ces +0.

Lo lus nug 8: Yog koj yuav tsum tau xaiv ib hom lus los hais kom tas koj sim neej no, yuav yog hom lus twg? \_\_\_\_\_

Muab qhab nee: +2 rau lus hmoob.

Lo lus nug 9 thiab 10: Koj twb kawm cov lus nov hauv tsev kawm ntawv tau pes tsawg xyoo lawm:

Hmoob \_\_\_\_\_ Askiv \_\_\_\_\_

Muab qhab nee: 1-3 xyoo ces +1, 4-7 xyoo ces +2

Lo lus nug 11: Koj xav tias puas muaj ib hom lus (Hmoob los sis Askiv) uas koj twb hais tsis tshuam tau zoo heev lawm? \_\_\_muaj \_\_\_tsis muaj

Yog muaj no, yog hom twg? \_\_\_\_\_ yog thaum koj muaj pes tsawg xyoo? \_\_\_\_\_

Muab qhab nee: -3 yog hais tsis tau ib hom lus zoo lawm; -0 yog tseem hais tau ob hom lus zoo.

Lo lus nug 12: Tam sim nov koj ua lub neej raws li Hmoob los Asmesliskas? \_\_\_\_\_

Muab qhab nee: +4 rau ua lub neej li Asmesliskas

Dunn, A. L., & Tree, J. E. F. (2009). A quick, gradient bilingual dominance scale. *Bilingualism: Language and Cognition*, 12(3), 273-289.

**APPENDIX F: Content/Construct validity matrix for the parent questionnaire**

Authors based on literature review	Recommendations by friends and or families (Questions 1,3)	To support home life (Questions 2, 4)	Cultural continuity (Questions 5,7)	Preparation for life as a bi-cultural adult (Questions 6,8)	Acquire English (Questions 7,9)	To preserve language (Questions 10,12)
1. Smith (2016)		X	X	X	X	X
2. Pope (2018)		X	X	X	X	X
3. Craig (1996)		X	X	X	X	X
4. López, L., & Tápanes, V. (2011).	X	X	X	X	X	X
5. López, M. (2013).	X	X	X	X	X	X
6. Wesely, P., & Baig, F. (2012)				X	X	X
7. Block, N. (2012).	X	X		X	X	X
8. Shannon, S., & Milian, M. (2002)		X	X	X	X	X
9. Whiting, E., & Feinauer, E. (2011)	X	X	X	X	X	X
10. Parkes, J. (2008).	X	X	X	X	X	X
11. Parkes, J., & Ruth, T. (2011).	X	X	X	X	X	X

12. Coy, S., & Litherland , L. (2000).		X	X		X	X
Number of Times Category Occurred	5	11	10	11	12	12

## APPENDIX G: The Parent Questionnaire (English Version)

Likert scale 5=Strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree

Number	Questions – phrase question using the term	5	4	3	2	1
1 Friend/family	I choose the Hmong dual-language program because my friend referred me.					
2 Support home life	I choose the Hmong dual-language program because it teaches my child how to read in Hmong.					
3 Friend/family	I choose the Hmong dual-language program because my family referred me.					
4 Support home life	I choose the Hmong dual-language program because it teaches my child how to write in Hmong.					
5 Cultural continuity	I choose the Hmong dual-language program because it fosters cultural continuity by teaching my child cultural traditions and practices such as new year celebration and daily manners.					
6 Preparation for life as a bi-cultural adult	I choose the Hmong dual-language program because it prepares my child for life as a bi-cultural adult by engaging in a social setting with members in the Hmong community.					
7 Cultural continuity	I choose the Hmong dual-language program because it fosters cultural continuity by teaching my child how to sing traditional songs.					
8 Preparation for life as a bi-cultural adult	I choose the Hmong dual-language program because it prepares my child for life as a bi-cultural adult by engaging in a social setting with members in the mainstream community.					
9 Acquire English	I choose the Hmong dual-language program because it teaches my child how to read in English.					
10 To preserve language	I choose the Hmong dual-language program because I want my child to communicate in Hmong confidently.					
11 Acquire English	I choose the Hmong dual-language program because it teaches my child how to write in English.					
12 To preserve language	I choose the Hmong dual-language program because I want my child to communicate in Hmong with Hmong elders.					

### The Parent Questionnaire (Hmong Version)

Khij raws Li Nov: 5=Muaj Tseeb Tshaj, 4=Muaj tseeb, 3=Nyob Nruab Nrab, 2=Tsis Muaj Tseeb, 1=Tsis Muaj Tseeb Kiag Li

Cov Leb	Cov lus nug	5	4	3	2	1
1 Phooj Ywg/Tsev Neeg	Kuv xaiv cov chav qhia ob hom lus vim hais tias kuv tus phooj ywg qhia rau kuv.					
2 Pab Txhawb Lub Neej Tom Tsev	Kuv xaiv cov chav qhia ob hom lus vim hais tias cov chav no qhia kuv tus me nyuam nyeem ntawv Hmoob.					
3 Phooj Ywg/Tsev Neeg	Kuv xaiv cov chav qhia ob hom lus vim hais tias kuv tsev neeg qhia rau kuv.					
4 Pab Txhawb Lub Neej Tom Tsev	Kuv xaiv cov chav qhia ob hom lus vim hais tias cov chav no qhia kuv tus me nyuam sau ntawv Hmoob.					
5 Txhawb Hmoob Txoj Kev Ua Neej	Kuv xaiv cov chav qhia ob hom lus vim hais tias nws txhawb tus me nyuam kom nws paub qee yam txog Hmoob lub neej xws li kev ua noj ua haus, kev noj peb caug los sis kev tis npe.					
6 Npaj Lub Neej Yav Pem Suab Kom Paub Ua Neej Nyob Ntawm Ob Haiv Neej	Kuv xaiv cov chav qhia ob hom lus vim hais tias nws npaj kuv tus me nyuam lub neej yav pem suab kom paub ua lub neej zoo li tus tib neeg Hmoob.					
7 T Txhawb Hmoob Txoj Kev Ua Neej	Kuv xaiv cov chav qhia ob hom lus vim hais tias nws txhawb tus me nyuam kom nws paub qee yam txog Hmoob lub neej xws li kev hais kwv txhiaj.					
8 Npaj Lub Neej Yav Pem Suab Kom Paub Ua Neej Nyob Ntawm Ob Haiv Neej	Kuv xaiv cov chav qhia ob hom lus vim hais tias nws npaj kuv tus me nyuam lub neej yav pem suab kom paub ua lub neej zoo li tus tib neeg Asmesliskas.					
9 Kawm Tau Lus Askiv	Kuv xaiv cov chav qhia ob hom lus vim hais tias nws pab kuv tus me nyuam nyeem ntawv Askiv					
10 Pab Khaws Cov Lus Hmoob Kom Tsis Txhob Nploj Mus	Kuv xaiv cov chav qhia ob hom lus vim hais tias kuv xav kom kuv tus me nyuam muaj peev xwm hais lus Hmoob.					
11 Kawm Tau Lus Askiv	Kuv xaiv cov chav qhia ob hom lus vim hais tias nws pab kuv tus me nyuam sau ntawv Askiv.					
12 Pab Khaws Cov Lus Hmoob Kom Tsis Txhob Nploj Mus	Kuv xaiv cov chav qhia ob hom lus vim hais tias kuv xav kom kuv tus me nyuam muaj peev xwm hais lus Hmoob nrog cov laus.					



## APPENDIX H: Approval Letter From the District



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*Office of Accountability  
Research, Evaluation and Assessment*

360 Colborne Street  
Saint Paul, MN 55102-3299

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Telephone: (651) 744-2846 • Fax: (651) 221-1495 • Website: [rea.spps.org](http://rea.spps.org)

November 6, 2019

Chao Vang

RE: Project for you graduate studies

Dear Ms. Vang,

I am pleased to inform you that your project proposal is approved. Please forgive the delay in my communication.

If you have any questions or concerns, please contact Maria Wollensak at 651-744-1814. I wish you all the best in your research.

Sincerely,

Stacey Gray-Akyea, Ph.D.  
Director  
Research, Evaluation and Assessment

## APPENDIX I: Institutional Review Board Approval



TO: vangc49@csp.edu  
CC: Humans Subjects Review Committee File

The IRB Human Subjects Committee reviewed the referenced study under the expedited procedures according to federal guidelines 45 CFR Part 46.110 (b) (Research Category 7): RESEARCH ON INDIVIDUAL OR GROUP CHARACTERISTICS OR BEHAVIOR (INCLUDING, BUT NOT LIMITED TO, RESEARCH ON PERCEPTION, COGNITION, MOTIVATION, IDENTITY, LANGUAGE, COMMUNICATION, CULTURAL BELIEFS OR PRACTICES, AND SOCIAL BEHAVIOR) OR RESEARCH EMPLOYING SURVEY, INTERVIEW, ORAL HISTORY, FOCUS GROUP, PROGRAM EVALUATION, HUMAN FACTORS EVALUATION, OR QUALITY ASSURANCE METHODOLOGIES.

**Study Number:** 2019\_105  
**Principal Investigator:** Chao Vang  
**Title:** The Language Outcomes of Hmong Dual Language Immersion Program

Classification:    \_\_\_ Exempt     X  Expedited    \_\_\_ Full Review

Approved  X

Approved with modifications: \_\_\_ [See attached]

Declined \_\_\_ [See attached]

Upon receipt of this letter, you may begin your research. Please remember that any changes in your protocol need to be approved through the IRB Committee. When projects are terminated or completed, the IRB Committee should be informed in order to comply with Department of Health and Human Services (HHS) Regulations, Title 45 Code of Federal Regulations Part 46 (45 CFR 46). If you have questions, please call the IRB Chair at (651) 641-8723.

  
\_\_\_\_\_  
*Signature, Chair Human Subjects Review Committee*

December 17, 2019  
\_\_\_\_\_  
*Date*