

**The Impact of Language Status, Gender, and Ecological Factors on  
Academic Success of Hispanic Children in Grades 3-5**

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SIGNATURE PAGE

The Dissertation Committee for Drexel University

certifies that this is the approved version of the following dissertation:

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Academic Success of Hispanic Children in Grades 3-5**



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Dr. Dominic F. Gullo, Chair

### **Dedications**

This work is dedicated to my wife, Tracy.

To my daughters, Katlyn and Emily.

To my mom, without whom it would never have been.

### **Acknowledgements**

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## Abstract

### The Impact of Language Status, Gender, and Ecological Factors on Academic Success of Hispanic Children in Grades 3-5

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The ability to read is an essential component of the educational process and is strongly correlated with academic success. The literature reveals that, in general, Hispanic elementary school students in third through fifth grade consistently perform below their school-age peers in the academic arena, and that once below, remain below throughout their schooling. The purpose of the present study was to more clearly identify the ecological factors that are closely associated with the academic success of Hispanic third through fifth grade elementary school students who are identified as English Language Learners (ELL). Two research questions guided this study: 1.) Are there differences between third to fifth grade Hispanic boys and girls who are identified as ELL on reading and math achievement as measured by the Smarter Balanced Assessments, and 2.) Are there differences in achievement as measured by the Smarter Balanced reading and math assessment among ecological variables (Neighborhood, School, Friends, Family, Parent Education Involvement, Health and Well-Being, Social Behavior at Home and School, and School Performance) for third to fifth grade boys and girls identified as ELL? The sample consisted of 65 Hispanic third through fifth grade students who were identified as English Language Learners. They were assessed using the Elementary Student Success Profile (ESSP); this tool resulted in triangulated data from three different surveys (from parents, the children, and their teachers). The ESSP was

then used to identify the factors associated with academic achievement in reading and math, as measured by the Smarter Balanced Assessment. Statistical analysis yielded non-significant findings for both questions. However, when additional analysis was completed, significant associations were found between school environment and reading scores, friends and math scores, and health and well-being with both reading and math scores. There was no difference by gender.



## CHAPTER 1: INTRODUCTION

### Introduction

Students learn the fundamentals of reading and mathematics during their primary school years. The ability to read is an essential component of the educational process and is strongly correlated with academic success (Callaghan & Madelaine, 2012) as well as with later success in life (Lipka & Siegel, 2012). Research has shown that learning to read is highly associated with parents' literacy levels (Ladd, Martin-Chang, & Levesque, 2011; Lee & Bowen, 2006), early exposure and ongoing access to books and the written word (Callaghan & Madelaine, 2012), gender (National Center for Educational Statistics, 2011), early learning experiences (Callaghan & Madelaine, 2012; Wilson & Lonigan, 2010), and socioeconomic status (Kieffer, 2012; Lesaux, 2012; Ruggiano, 2008). Many of these obstacles are exacerbated when a child's first language is one other than the dominant language of instruction (Lesaux, 2012). Snow, Burns, and Griffin (1998) reported:

Non-English speaking students tend to come from low socioeconomic backgrounds and to attend schools with disproportionately high numbers of children in poverty, both of which are known risk factors. Hispanic students in the United States, who constitute the largest group of limited-English-proficient students by far, are particularly at risk for reading difficulties (p. 28).

Mathematics proficiency is also a problem for children for whom English is not their first language (Polat, Zarecky-Hodge, & Schreiber, 2016). Thus, Hispanic children are at

particular academic risk since they experience an inordinate number of external factors that are associated with academic failure.

Problematic in this body of research is that studies generally examine only one factor in isolation (Kieffer, 2012; Lesaux, 2012; Lipka & Siegel, 2012; Zadeh, Farnia, & Geva, 2012) which tells nothing of the degree to which each factor affects the child's academic achievement. Consequently, school administrators have little guidance in prioritizing interventions. However, through the application of a comprehensive tool based on an ecological framework that considers the simultaneous impact of multiple factors, the opportunity to identify those factors most significant in influencing Hispanic elementary students' success in reading and math becomes possible.

### **Statement of the Problem**

The literature reveals that, in general, Hispanic elementary school students in third through fifth grade consistently perform below their school-age peers in the academic arena, and that once below, remain below throughout their schooling (Galindo, 2010). Hispanic children often experience an inordinate number of ecological factors that negatively affect reading and math achievement. One significant negative effect of reading deficiency in early schooling is a significant decrease in graduation rates (Cataldi & KewalRamani, 2009). Hispanics currently make up the highest percentage of school dropouts (Stark & Noel, 2015), a trend that has continued since 1972.

Additionally, the poverty rate among Hispanic families in the U.S. has increased. These conditions are consistent with current conditions in Delaware where the Hispanic

population increased 51% from 2003-2010 (Ennis, Rios-Vargas, & Albert, 2011).

Particularly problematic for Delaware is that the state's rate of Hispanic population increase far exceeds the national average Hispanic growth rate of 30%. Consequently, Delaware has implemented various programs to support Hispanic English Language Learner (ELL) students, including modified curricula, specialized schools, separate classrooms, and pull-out programs (Lowery, Owens, Wilson, Jackson, & Cruce, 2009).

While instruments exist to measure risk factors that impact on school success, as experienced by Hispanic ELL students, these factors have not been combined in previous tools as proposed in this study. The instruments usually fail to explore other variables that may have an impact on the student's ability to be successful in reading and math. In addition, previous studies have mostly accessed information from the students themselves. Input is rarely collected from significant others in the child's environment, such as teachers and parents. Therefore the results of these studies have limited application.

This situation leaves school districts struggling to figure out 'what works' with regards to supporting literacy among Hispanic ELL students. Current information available specifically to support schools and school districts in their attempt to educate Hispanic ELL students is limited. There is an overwhelming need for meaningful information that can be used to support academic success for these students. This study will provide estimates of the effects of multiple factors in the presence of each other on reading and math scores, as measured by the Smarter Balanced Assessment.

### **Purpose of the Study**

The purpose of the present study was to more clearly identify the ecological factors that are closely associated with the academic success of Hispanic third through fifth grade elementary school students who are identified as ELL.

### **Research Questions**

The research questions that guide this study are as follows:

1. Are there differences between third to fifth grade Hispanic boys and girls who are identified as ELL on reading and math achievement as measured by the Smarter Balanced Assessments?
2. Are there differences in achievement as measured by the Smarter Balanced reading and math assessment among ecological variables (Neighborhood, School, Friends, Family, Parent Education Involvement, Health and Well-Being, Social Behavior at Home and School, and School Performance) for third to fifth grade students identified as ELL?

### **Definition of Terms:**

#### **English Language Learners**

Between 1980 and 2009, the percentage of children between the ages of five and seventeen who spoke a language other than English at home rose from 10% to 21% (Aud



et al., 2011). Many of these children are limited in their ability to comprehend and communicate in English and are referred to as English Language Learners (ELLs).

English Language Learners have been described by using a variety of acronyms over the years, such as Limited English Proficient (LEP) and Language Minority Student (LMS). Most recently in the US Department of Education's Blueprint for Reform (2010), English Language Learners were simply identified as ELs (English Learners). The US Department of Education defines ELLs as "a national-origin-minority student who is limited-English-proficient" (DOE, 2012, glossary). In Delaware, students who are identified at the time of registration in school as having a first language other than English are administered the ACCESS test (Assessing Comprehension and Communication in English State-to-State for English Language Learners); student performance below a specified score on the ACCESS test is used to identify their ELL status (World-Class Instructional Design and Assessment, 2011). For the purpose of this study the acronym ELL will be used to represent non-English-dominant students and the terms ELL, LEP, EL, and LMS will be used interchangeably.

**Hispanic:** The term Hispanic refers to multiple Spanish-speaking ethnic groups, the largest being individuals from Mexico and those from Central and South America, Puerto Rico, and Cuba (Perez & Luquis, 2008). The term Latino is often used synonymously with Hispanic, although there are regional differences and preferences in the use of this term. Sixty-six percent of all Hispanics in the United States are of Mexican heritage (U.S. Census Bureau, 2010). Therefore, for the purpose of this study, Hispanic

will be defined as children who are of first or second generation Mexican descent. The ELL students in this study are identified as Hispanic.

**Ecological Factors:** Ecology is a branch of science that explores the relationships between organisms and their environments. Within the educational environment, this translates into relationships between children and external factors in their environment that impact on their probability of success in school. These include those factors that directly interact with the child, such as significant others in the child's life, and the immediate environment in which the child exists, such as the home, school, and neighborhood.

**Academic Success:** Academic success is associated with successful completion of high school. Grades and standardized testing are often used to measure academic success, especially in grades 1-12. "The strongest predictors of later achievement are school-entry math, reading, and attention skills" (Duncan et al., 2007, p. 1428)

In 2010, the Smarter Balanced Assessment Consortium was awarded funds from the U.S. Department of Education to develop a valid, reliable, and fair system to assess summative reading and math and to replace the Delaware Comprehensive Assessment System used until that time. This resulted in Smarter Testing that was first administered during the 2014-2015 school year. Smarter is designed to align with the Common Core State Standards. "The overarching goal of Smarter Balanced is to ensure that all students leave high school prepared for postsecondary success in college or a career through increased student learning and improved teaching (Smarter Balanced Assessment

Consortium, 2011). The Smarter assessment is administered to all students, including English language learners and students with disabilities. For the purpose of this study, academic success will be measured by the single reading and math Smarter Balanced scores.

### **Theoretical Framework**

The theoretical framework that will guide this study is the Bioecological Model developed by Bronfenbrenner (1977/1989) and Bronfenbrenner and Morris (1998). Bronfenbrenner's model defines a person's environment as including four distinct systems. These systems are defined relative to the proximity to the individual. Each of these systems is embedded within the next system; therefore, what occurs in one system may directly or indirectly affect another system and thus has an influence on the person.

According to Bronfenbrenner (1989), the nested layers of the environment that surround the child include the microsystem, mesosystem, exosystem, and macrosystem. The microsystem is within the mesosystem, the mesosystem is within the exosystem, and the exosystem is within the macrosystem. For the child, the ecological environment is a system of contexts, each of which affects a child's development. Development is influenced by the intra-relationships and inter-relationships among contexts.

The microsystem is the innermost layer closest to the child. It contains the people in the settings with whom the child has direct face-to-face contact; these include the parents, siblings, peers, teachers, and other adults who have close contact with or a direct impact on the child.

The second system is the mesosystem. The mesosystem includes the settings from which the people in the microsystem exist. These include the child's home, school and neighborhood. Reciprocal relationships exist between the people in the microsystems and the mesosystem.

Bronfenbrenner (1977) conceptualized the third system within the ecological model as the exosystem. The exosystem is defined as "an extension of the mesosystem embracing other specific social structures, both formal and informal, that do not themselves contain the developing person but impinge upon or encompass the immediate settings in which that person is found, and thereby influence, delimit, or even determine what goes on there" (p. 515). The exosystem then may include the relations between the school and the community, health and welfare services, local government, and transportation systems.

The fourth system identified by Bronfenbrenner (1977) is the macrosystem. Within the nested Ecological Model, the macrosystem is the most distant from the center, yet its overarching paradigm determines the way in which the micro-, meso-, and exosystems manifest themselves. Macrosystems are the "institutional patterns" that exist which serve to shape the way in which the other systems exist (Bronfenbrenner, 1977). For example, the overall defined structure of the U.S. educational system creates the general reality that one classroom will have strong similarities to another classroom and one school will have strong similarities to another school.

Bronfenbrenner and Morris (1998) expanded on Bronfenbrenner's Systems Theory by changing the name from the Ecological Model to the Bioecological Model and by clarifying the interaction between the person and the environment and introducing the

concept of time, which he named the chronosystem. Time refers to the ongoing experiences a person has during their lifetime and the effects those experiences have on how the person interacts within the other systems. Therefore the relative importance of each ecological factor and its impact on the person may vary from year to year.

Bronfenbrenner (1977) stated that past studies of human development had been limited by the narrow scope of their research and that a broader lens of the ecological model was needed to better understand human development. It is through this broader lens that many researchers today interested in studying education and factors that impact educational success continue to employ the ecological model (Bowen, 2011; Chung, Mulvey, & Steinberg, 2011). As stated by Bowen, “from an ecological perspective on development, fully understanding why a student exhibits high or low school performance requires understanding his or her experiences in the social environment” (2011, p. 477).

Bronfenbrenner states that “an ecological approach invites consideration of the joint impact of two or more settings or their elements. This is the requirement, whenever possible, of analyzing interactions between settings” (1977, p. 523). Numerous authors have used this model to measure the variety of factors impacting on motivation and engagement (Elliott & Tudge, 2012; Leonard, 2011). Cicchetti and Lynch (1993) used an ecological model to explain child maltreatment and violence against children in an attempt to “help prevention and intervention efforts to target areas of need” (p. 114). Elliott and Tudge supported the use of Bronfenbrenner’s model by stating that too often “context is treated as a single construct, rather than being considered as an interwoven range of contexts (teacher style, classroom, peer group, family, social class, ethnic

identify, culture, etc.) and little empirical attention has been paid to the mechanisms whereby individuals interact with the varied contexts of which they are a part” (p. 162).

Van Lier’ sociocultural theory (2004) supports the premise of Bronfenbrenner’s ecological model. His work focuses on the importance of ecological factors in the process of cognition. He stresses that not all of cognition and learning can be explained in terms of cognitive processes. Van Lier explored the relationship of environmental properties and the active learner. “Ecological educators see language learning as relationships among learners and between learners and the environment. This does not deny cognitive processes, but it connects those cognitive processes with social processes” (p. 258).

### **Significance of the Study**

Academic success is crucial for success in life. The ability to read and comprehend is an essential component of what is measured as academic success, as are basic math skills. Schools and teachers are evaluated on the performance of the students on annual standardized tests. States and school districts provide a significant amount of fiscal and personnel resources to schools also on the basis of the results on these tests.

For many Hispanic elementary school students the path to academic success can be fraught with obstacles. Their success is even more compromised if English is not their primary language. At present, programs are available for English Language Learners to assist them in learning to speak and read English. However, other factors in addition to the availability of an ELL program may be equally significant in aiding children to improve their reading and math abilities. In Delaware, a statewide poll asking why

Hispanic youth dropped out of school identified a lack of support in schools, language barriers, and laziness as the reasons for not remaining in school (Ruggiano, 2008).

Given the emphasis placed on the need for educational reforms aimed directly at supporting Hispanic students and the fundamental connection between a child's ecological environment and success in school, this study will use a variety of parametric analyses to evaluate associations between ecological factors and Hispanic ELL students' performance on state measures of reading and math. The information collected from this study will help educational practitioners to become more proactive in creating and implementing appropriate interventions for Hispanic elementary students. These planned changes can improve school practice and facilitate more efficient use of resources. The overall goal of the proposed research study is to increase academic success and decrease the high school dropout rate. This study is significant in that it will add to the dearth of literature devoted to understanding the potential impediments impacting Hispanic elementary students' academic success.

## CHAPTER 2: REVIEW OF THE LITERATURE

### Introduction

Reading and math are essential skills that are correlated with success in life (Lipka & Siegel, 2012). Reading is affected by age, cognitive ability, gender, and one's comfort with the English language. However, other factors may also have a significant impact on one's ability to learn to read. Reading is also a component skill used to support success in mastering mathematical concepts. The ability to read and comprehend what is read is even more challenging for those of Hispanic backgrounds, especially if English is not the primary language.

The interrelationships among children's social environment, their physical well-being, and their school environment have been shown to impact student academic achievement. Especially important are the characteristics of the neighborhoods in which the students reside, the school they attend, the friends with whom they interact, the support from their family, the education level and school involvement of their parents, the health and well-being of the child, their social behavior at home and school, and their school performance. To better understand the various dimensions that can impact student achievement, it is helpful to use an ecological model. The ecological model of Bronfenbrenner (1989) posits that children develop within interrelated systems. According to this model, the influence of one system cannot be evaluated without considering the influence of the other systems. This chapter will review the literature related to the prevalence of Hispanic families with school-age children nationally and in



Delaware, many of whom have difficulty with the English language. The literature on English Language Learners will be explored as will the ecological variables that impact on academic success.

There is a significant increase in minority populations in the United States. Many of them struggle to demonstrate proficiency in reading. The purpose of the review of the literature is to explore the multiple variables that may have an impact on a child's academic success.

### **Hispanics in the United States**

While this study focuses on children of Mexican descent, the U.S. Census Bureau (2010) considers an Hispanic or Latino a person of Cuban, Mexican, Puerto Rican, South or Central American descent or another Spanish culture or origin regardless of race. The terms Hispanic and Latino can be used interchangeably. It is important to understand the demographic changes occurring in this population in order to better contextualize the significance of focusing this study on this population.

In the 2000 census 12.5% of the US population identified themselves as Hispanic (U.S. Census Bureau, 2004). The 2010 census data demonstrated that the percent of the population who were of Hispanic or Latino origin increased to 16% (Ennis et al., 2011). Therefore, "Between 2000 and 2010 the Hispanic population grew by 43%, which was four times the growth in the total population at 10%" (Ennis et al., p. 2). Of the 44.3 million Hispanics in the U.S., 66% are of Mexican heritage (U.S. Census Bureau, 2010).

“U.S.-born children of Latino immigrants are the fastest-growing school-age population entering preschools and kindergartens” (Lesaux, 2012, p.75). However, Hispanics are the most undereducated ethnic group in the United States; only 45% of those over age 25 have completed high school, compared to 90% for non-Hispanic whites. Slightly more than 7% of Hispanics have a college education (Pew Hispanic Center, 2009; Zoucha & Zamarripa, 2013).

The National Center for Education Statistics (NCES) is the primary federal entity that collects and analyzes data related to education in the United States. According to NCES, from 1990 to 2013 the high school dropout rate in the U.S. dropped from 12% to 7% (Kena et al., 2015). During that same time, the rate for Hispanics decreased from 32% to 12%. Despite these significant decreases, the percent of Hispanic youth dropping out of school is higher than for any other cultural group (Kena et al., 2015; Stark & Noel, 2015). Other reports place the dropout rate among Hispanic youth to be 17% (Pew Hispanic Center, 2009), which is still three times higher than for white youth. The high school dropout rate varies with whether the youth is a first generation (33%), second generation (9%) or third or higher generation (12%) of being in America (Pew Hispanic Center). While most youth who decide not to attend college cite financial reasons for this decision, at least half cite their poor English skills as the reason (Pew Hispanic Center).

According to the NCES report on school crime and safety (Dinkes, Kemp, & Baum, 2009) among students ages 12 to 18, 26% of Hispanic students reported that there were gangs at their schools, 29% of Hispanic students reported that they could access drugs on school property, and 35% of Hispanic students reported being targets of hate-related words and seeing hate-related graffiti at school.

Another indicator of the challenges faced by Hispanics in the United States is the finding in the 2010 census that “the poverty rate increased for Hispanics to 26.6% in 2010 from 25.3% in 2009, and the number of Hispanics in poverty increased to 13.2 million from 12.4 million” (US Census Bureau, 2010, p. 17). This equates to approximately one in three Hispanic children who will grow up in poverty (Lesaux, 2012). As the Hispanic population continues to rise and as more Hispanics in the United States seem unable to achieve a safe and financially stable life, some of the onus for early identification of students at risk and subsequent interventions must begin in the elementary schools.

While most Hispanic school-age youth who were born in the U.S. can speak English, 47% of those who are foreign born cannot (Pew Hispanic Center, 2009). Of all Hispanic youth in the U.S. who are between ages 16 and 25, 36% use English as their dominant language, 41% are bilingual, and 23% predominantly speak Spanish. The United States government recognized the need to improve national programs for ELLs. In their 2010 document titled *A Blueprint for Reform* (U.S. Department of Education, 2010), an entire section is dedicated to supporting the needs of English learners through improved English learner education. Specifically, the Blueprint for Reform addresses the use of federal funds to support high-quality language programs and professional development for teachers of ELLs. However no programs or professional development recommendations are made in the Blueprint document.

## Hispanics in Delaware

Delaware's Hispanic population increased from 4.8% in 2002 to 8.2% in 2010 (Simon, 2013; U.S. Census Bureau, 2010). This figure is a 96.4% increase over the 2000 census. Overall in Delaware there was a 14.6% increase in total population. Compared to the overall population change in Delaware from 2000 to 2010, the Hispanic population in Delaware grew at almost seven times the rate of the overall population growth. Delaware had the tenth highest percentage increase of Hispanics for the United States.

In 2009 the Annie Casey Foundation (2009) issued a summary brief on the state of Hispanic children and families in Delaware. In 2007, 10% of the Hispanic children in Delaware were between the ages of six and nine and 9% of the Hispanic children were between the ages of 10 and 14. Overall 10% of Delaware's child population is made up of Hispanic children. Of the ELL students in the state, 78% identified Spanish as their first language.

In order to identify and address the needs of Hispanic Delawareans, Governor Ruth Ann Minner in 2008 established the Governor's Consortium on Hispanic Affairs (the Consortium). Consortium members were appointed from various public and private organizations. The *Report to the Governor's Consortium on Hispanic Affairs: Delaware Hispanic Needs Assessment* (DHNA; Ruggiano, 2008) is currently considered the seminal work on the state of Hispanics in Delaware. The DHNA used a phased design and captured both qualitative and quantitative data. Once the study was completed, the findings were re-analyzed by the Center for Community Research and Service at the University of Delaware (Ruggiano, 2008).

The findings on education from the DHNA indicate significant disparities between the Hispanic community and their non-Hispanic peers in their educational achievement. Hispanic parents of elementary age children report an inability to support school success for their child as a result of the parents' limited English. The primary factors that contribute to the low scores that Hispanic students receive on state tests are a partial or complete lack of parental involvement combined with low socioeconomic status and limited English proficiency. The DNHA authors report that "Although the achievement gap varies across grade levels and testing years, Hispanic students continuously score lower than white students in Delaware" (Ruggiano, 2008, p. 27). As a result of the financial hardships that Hispanic families face, there is a high rate of high school dropout. The statewide study included questions related to the reasons why Hispanic youth are dropping out of school. The study found that 25% identified a lack of support in schools, 8% identified language barriers, and 7% identified laziness as the reasons for not remaining in school (Ruggiano, 2008). Unfortunately, there has been no update on the state of Hispanic students in Delaware since that time.

The findings from the DHNA demographic information showed that the majority of employed Hispanics were in low-wage jobs earning less than \$30,000 per year. Fifty-three percent of this Hispanic sample indicated that they did not earn enough money to support their families. Thirty-nine percent of the Hispanic sample did not graduate from high school and an additional 33% had reached the educational level of high school (Ruggiano, 2008).

Within the sample, 41% identified themselves as undocumented immigrants. The vast majority of the Hispanics in Delaware (47.3%) identified Mexico as their country of

origin (Ruggiano, 2008). In 2013 (Simon, 2013), the Hispanic population in Delaware identified themselves as primarily Mexican (41.4%) and Puerto Rican (30.8%).

### **English Language Learners in Delaware**

In the 2010 U.S. Census Bureau report, 56% of those of Hispanic origin indicated that Spanish was the primary language spoken in the home. In the 2013 report (Simon, 2013), of the estimated 65,000 Hispanic/Latino residents ages 5 and above, 28% indicated they do not speak English well or at all. Delaware Hispanics are more likely to be unemployed and to live in poverty as compared to the overall state averages.

According to the 2012-2013 detailed enrollment report for the State of Delaware (2014), 14% of the enrolled students in Delaware are identified as Hispanic/Latino. Six percent of the state's 131,514 students are identified as English Language Learners (N=7949). ELL students reside throughout the state's three counties with the majority of the ELL students residing in the northernmost county, New Castle. New Castle County accounted for 64% of the ELL population in the state. A national study demonstrated that only 6% of fourth graders who were also English-Language Learners were able to read at or above proficiency levels (NCES, 2011). In the participating school for this study, there were 319 students of the 612 enrolled in grades K-5 who were identified as Hispanic Latino (52.1%). Of these, 213 were English Language Learners (66.7% of Hispanic students; 34.8% of the student body).

The Annual Report of Delaware's English Language Learners, Staff, and Programs (Delaware Department of Education, 2014) identified seven different types of

instruction that are currently being employed within the Delaware schools to support ELL students. The instructional type used most often is ELL pull-out. ELL pull-out refers to the removal of ELLs from class during the school day for brief blocks of time. Pull-out instruction takes place either individually or within a small group and may be specifically focused on learning the English language and/or consist of content-based instruction. ELL pull-out accounts for 40.0% of the instructional services provided to ELL students. The next most common instructional type was ELL push-in which accounted for servicing 8.6% of the ELL students. Push-in is an instructional support strategy where support is provided in the regular classroom during instruction. Other types of instruction identified in the report were Sheltered English (11.8%), Bilingual Developmental (2.1%), Transitional Instruction (7.1%), Two-Way Bilingual/Dual Language (4.2%), and Regular Classroom Instruction (19.7%).

While Lipka and Siegel (2012) acknowledged that there are multiple dimensions involved in reading comprehension, their study on the reading comprehension skills of ELL seventh graders only focused on the components of word reading, word reading fluency, phonological awareness, working memory, and morphological and syntactic awareness. They suggest that future research examine the impact of specific language backgrounds and reading comprehension in the ELL population. Han (2012) examined the role bilingualism plays in the academic development of children during their early school years, and found that “school-level factors explained about one third of the reductions in the differences in children’s academic performance” (p. 300). Han also found that child and family characteristics accounted for one third of the lower reading

scores in children who primarily spoke Spanish compared to 14% for English-dominant bilingual Latino children.

Hispanic ELL scores in mathematics tend to mirror those in reading. On the 4th grade NAEP only 26% of Hispanic students were at or above proficient as compared to 51% of white students and the average mathematics score for Hispanic 4th grade students was 18 points lower than white students (National Assessment of Education Progress [NAEP], 2016). In Delaware the performance gap for Hispanic students was 15 points lower than white students (NAEP, 2016). Similarly, Polat, Zarecky-Hodge, and Schreiber (2016) examined ELL mathematics performance and found that not only were ELL scores an average of 20 points lower than their non-ELL peers but that the growth trajectory of non-ELL students were more than two times that of ELL students. Several studies have begun to look at the impact of language status on mathematics performance tests (Abedi & Lord, 2001; Martiniello, 2008; Wright & Li, 2008). All of the identified studies concluded that ELL students are more likely to have linguistic challenges which impede their ability to be successful and learning and being assessed for mathematics proficiency.

## **Variables Associated with Academic Success**

### Teacher Quality

There is little in the literature on effective teacher characteristics and ELL students (Master, Loeb, Whitney, & Wyckoff, 2012). In Lezotte's *Correlates of Effective Schools* (1991, 2001) he promotes 7 common core principles. The seventh correlate



describes students' opportunity to learn and student time on task and identifies the success or failure of this correlate on the quality of the teacher. Despite the lack of ELL teacher characteristic- specific studies, there has been substantial research supporting effective teachers and student achievement (Feng & Sass, 2011; Hanushek & Rivkin, 2006; Master, Loeb, Whitney, & Wyckoff, 2012).

Hanushek & Rivkin (2006) conducted a review of the research to examine teacher characteristics and student achievement. The authors reviewed teacher experience and education, salary, achievement tests, and certification. Hanushek & Rivkin did find that as teachers move through their first years of teaching, they do become better teachers. They also found that teacher salaries do not necessarily equate to higher student achievement but they did find that districts who offer higher salaries tended to have more qualified applicants.

Most states require outcome tests for students. These tests are primarily content based. However, because the tests vary from state to state and even within individual districts, Hanushek & Rivkin (2006) believed that their findings could not be generalized. Hanushek & Rivkin point out that most states require teachers to meet certain certification requirements prior to or soon after their hiring. Many states also offer alternative routes to certification for people who did not graduate with an education degree and wish to pursue a teaching degree through on-the-job certification. Hanushek & Rivkin found small positive effects in achievement of students taught by certified teachers and concluded "A good teacher is generally good for all students" (p. 19).

### Cognitive Development

It is acknowledged that cognitive development increases with age, up to approximately age 15 (Beard, 1969). Children who are 7-12 years of age are in Piaget's stage of concrete operational thinking (Miller, 2004; Piaget, 1936). During this stage, children can build ideas one at a time and categorize and classify objects. They are beginning to think logically, they understand cause and effect, concepts of time and numbers and the concepts of conservation of matter and reversibility.

### Gender

One of the many variables that can impact a child's academic success is gender. This variable has already undergone research to explore its impact on academic success. Thus it becomes important to include this ecological factor in the current study. In general, the literature has established that girls outperform boys on literacy assessments. According to the National Assessment of Educational Progress (NAEP), since 1992 girls in both 4th and 8th grade have outscored boys in reading. This trend has remained consistent through the 2015 test (NCES, 2016).

In a study of more than 5700 students in Minnesota born between 1976 and 1982 who did not have ADHD, boys were found to be two times (2.0) more likely than girls to meet the criteria for a reading disability (Yoshimasu et al., 2010). This trend was greater in boys with ADHD. Yoshimasu et al. concluded that "boys are more at risk for RD (reading disability) than girls" (p. 788). Robinson and Lubienski (2011), in their study exploring gender achievement gaps, found that teachers tended to rate girls as "more knowledgeable" than boys and believed that boys required more remedial opportunities. In their conclusion, Robinson and Lubienski stated "Despite these patterns, it would be

remiss to suggest that schools alone are the cause of achievement differences between the genders—that is, given the limitations of an observational study such as this, we cannot be certain that schools are not trying their hardest to remediate gender differences but that non-school forces act to exacerbate differences” (p. 298). The current study seeks to identify which "non-school forces", in this study identified as ecological factors, impact student achievement.

### Health and Physical Wellness

The health of students has a significant impact on a child’s ability to learn. Students cannot be ‘ready to learn’ if their basic needs have not been met. These include sleep, nutrition and having the right clothes to wear that are appropriate for the weather and the child’s size. Optimal health, where children are free of physical and mental health problems, as well as optimal vision and hearing and an absence of pain, including dental pain, are essential to set the stage for success in school (Cornell & Selekman, 2013).

In a synthesis of the data related to the accessibility, quality, and utilization of health care in the United States, Mead et al. (2008) found that when compared to other groups Hispanics are approximately 2½ times more likely to report having no doctor. Additionally, Mead et al. found that of all racial/ethnic groups, Hispanics are least likely to use a private doctor and most likely to use a community health center as their regular place of care.

### **Non-Academic Variables Associated with Academic Success**

A growing body of theoretical and empirical work collectively suggests that academic success is impacted by the individual, the environment surrounding the

individual, and the interplay between the individual and the surrounding environment (Bronfenbrenner, 1977). These ecological factors incorporate a wide variety of potential variables that can affect the academic success of the child.

A child's environment consists of a variety of factors found to impact academic success. Within their environment there exists the people with whom the child interacts, the school that the child attends, and the neighborhood in which the child resides. These correspond to the ecological model described by Bronfenbrenner (1977/1989), which includes the microsystem, the mesosystem, the exosystem, and the macrosystem.

#### Microsystem

The microsystem includes all of those individuals with whom the child interacts. These include the parents and siblings, peers, teachers, relatives and other adults in regular contact with the child. Most importantly, the microsystem includes the child him/herself, specifically, their own beliefs about their ability to be successful in school. Major components within the Microsystem include self-efficacy, family and peers.

#### *Self-Efficacy*

Self-efficacy and more specifically, a person's self-efficacy beliefs, are generally supported in the literature as helping to determine the choices people make, the effort they put forth, and the persistence and perseverance they display when obstacles arise (Usher & Pajares, 2008). In 1977 Albert Bandura theorized that a person's level and strength of self-efficacy were directly influenced by the outcomes of previous experiences and the expected results of future experiences. Bandura presents several sources of information through which a person's self-efficacy beliefs could be informed: performance accomplishments, vicarious experiences, verbal persuasions, and emotional

arousal. Bandura also stated that a person's self-efficacy beliefs could be affected through mastery experiences. That implies that the successful completion of a task or challenge generally serves to strengthen one's beliefs that they would have similar success should they engage in similar tasks or challenges. Similarly, although not as impactful as mastery experiences, vicarious experiences or the witnessing of others' success at a task or challenge can also influence a person's self-efficacy beliefs that they too could be successful at the task or challenge.

Bandura suggests that the third way of impacting on a person's self-efficacy beliefs is through verbal persuasions. He asserts that supportive and encouraging comments that can be directly correlated to the successful completion of a task or challenge can form a person's self-efficacy beliefs. Finally, Bandura's fourth way to inform a person's self-efficacy beliefs is through one's own personal responses and reactions to a task or challenge. Bandura identifies this fourth method of informing a person's self-efficacy beliefs as emotional arousal. The way a person feels prior to and during a task or challenge may impact the way that a person feels about similar tasks or challenges in the future. "Stressful and taxing situations generally elicit emotional arousal that, depending on the circumstances, might have informative value concerning personal competency" (Bandura, 1977, p. 198). Bandura also posits that an experience that may yield a successful result may not necessarily create high levels of self-efficacy, as many contextual factors may influence the way in which a person interprets a success.

These potentially influential contextual factors include social, situational, and or temporal circumstances (Bandura, 1977). Bandura states that, "to alter efficacy-based futility requires development of competencies and expectations of personal effectiveness.

By contrast, to change outcome-based futility necessitates changes in prevailing environmental contingencies that restore the instrumental value of the competencies that people already possess" (p. 205). Bandura's perspectives on the ways in which a person's self-efficacy beliefs can be formed are still considered valid today (Usher & Pajares, 2008).

In a review of the research on sources of self-efficacy in school, Usher & Pajares (2008) presented several studies that supported the original concept proposed by Bandura. Usher & Pajares state that discovering the influences on a person's self-efficacy beliefs puts one in a better position to alter them. They recommend an ecological approach as the most inclusive way to investigate the sources of self-efficacy. This promotes recognition of the large number of factors that influence a person's self-efficacy beliefs rather than just a few isolated factors. An approach that explores a multitude of influential factors offers the opportunity to more closely refine academic practices and policies that are designed to support and nurture student's positive self-efficacy. Usher & Pajares state that, "creating a safe psychological niche involves a better understanding of how minority students attend to the sources underlying their academic confidence. Such investigations are part of a culturally attentive approach to understanding these sources of students' self-efficacy beliefs, the fruits of which will help culturally relevant pedagogical practices characterized by teachers or sensitive to their student's growth and development, as well as to their needs, beliefs, interests, learning preferences, and abilities of the students in their care" (2008, p. 788).

### *Family*

While much study has been done to support the impact of parental involvement and student achievement, there is a dearth of research specifically focusing on ELL. Gardner (1985) is one of the few scholars whose work supports the positive effect parents have on their children's second language learning. Most of the more recent work has only focused on increasing non-English speaking parental involvement in the schools and the barriers that may exist.

In a qualitative study of Hispanic women, Chang and Liou (2009) used semi-structured interviews to gain insight into Latino parents' parenting practices. They wanted to use the findings to help develop a family support program. They believed that designing an intervention program targeted to support the family would be more effective when the families' cultural values were used as a basis for the decision-making process. Chang and Liou used frequency analysis to identify common themes presented by the women. In their findings, the Hispanic mother is identified as the primary nurturer in the family. Hispanic mothers provide the primary physical and emotional care for their children. Hispanic women identified the fathers as being primarily responsible for the financial well-being of the family and, at times, the discipline of the children. The findings also showed that Hispanic families value communication within their households. The Hispanic women did believe that life in a Hispanic home is stricter than life in a Caucasian home for the children. Corporal punishment was an acceptable method of discipline in the Hispanic home. It was however noted that it was the father's role to administer the corporal punishment. Although there were only 16 Hispanic women who participated in this study, the similarity of their answers make the findings relevant. In the

current study, the collection of meaningful data may help to support school wide interventions that will assist in increasing student achievement. Relative to the Chang and Liou (2009) study and the current study, understanding the underlying cultural values of the group for which the interventions are being designed should only aid in making those interventions more effective. As Chang and Liou (2009) state, "these programs should be culturally matched and well-planned to achieve maximum results" (p. 3).

### *Peers*

Peer groups can impact on the academic achievement of students (Fuller & Coll, 2010; Krüger, Köhler, Pfaff, & Zschach, 2011). This has been shown to be true not only for the peer group to which the student identifies, but also between peer groups. Krüger and colleagues (2011) reanalyzed data from a study that was based on the analysis of group discussions and qualitative interviews of fourth and fifth grade students. They found that students who were high-performing but who associated with a low performing peer group would purposefully perform below their ability while high-performing students who associated with a high-performing peer group would perform more to their ability. Krüger et al. also found that students would try to identify themselves based on the cultural and/or socioeconomic status of the peer group regardless of the individual's cultural or socioeconomic status. Fuller and Coll (2010) found that second-generation Hispanic children often begin to see school performance decline as they conform to peer norms. They identify the concept of the acculturation process, which is primarily experienced through the interaction of peers, as having a direct effect on school achievement. Fuller and Coll also point to ecological theory as a means to identify the impact of multiple contexts on child development. Slavin and Lake (2007) synthesized



effective practices in mathematics and found that collaborative learning increases student learning. They summarize the research on cooperative learning that reports that cooperative learning increases student learning if it provides students with a common goal achievable only if all group members do well.

### Mesosystem

The mesosystem includes the environmental structures where the people in the microsystem exist. These include the child's home, school, and neighborhood and the interaction among the participants within these settings.

#### *Schools*

A significant factor that can exist within a child's neighborhood is the child's school. The school, and more specifically the academic climate of the school that a child attends, can have a direct impact on student satisfaction, motivation, and achievement (Elliott & Tudge, 2012; Verkuyten & Thijs, 2002).

#### *Parent-School Involvement*

Parental involvement in a child's education is considered to be a key predictor of student achievement, especially during the elementary school years (Ladd et al., 2011). The education literature is in general agreement that high levels of parental involvement support higher student achievement while low levels of parental involvement have been linked with lower student achievement. Smith, Stern, and Shatrova (2008) found that Hispanic parents were identified as having limited involvement in their children's schools. Smith and colleagues cite Bauch (1992) in providing a listing of potential challenges faced by Hispanic parents. These challenges may include the inability to

communicate with school personnel, an emotional lack of trust with school authorities, confusion and/or misunderstanding of school processes, and the parents' own limited education. A family's socioeconomic status (SES) as well as their own background can also influence parental involvement. Smith et al. encapsulate the need for gathering relevant data to support parental involvement in their statement that, "if Hispanic students are to succeed in the public schools, and if public-school educators expect Hispanic parents to increase their involvement as defined by the public school, obstacles deterring this involvement must be identified and solutions must be found to overcome them" (2008, p. 9).

El Nokali, Bachman, and Votruba-Drzal (2010) investigated parental involvement and children's academic and social development in elementary school. Parent involvement refers to the particular behavior exercised by parents targeted at supporting students' academic endeavors by regularly communicating with students and teachers and participating in school activities. They completed a multi-method study of 1133 students. The study also included data collected from these children's primary caregivers and their teachers. Certain groups were eliminated from the study. One of those groups was identified as "mothers who would have significant problems conversing in English" (p. 5). Measures included the use of the parent-teacher involvement questionnaire, the Child Behavior Checklist, the social skills rating system, and the Woodcock-Johnson Psycho-Educational Battery-Revised. Additionally the investigators collected child demographic information as well as classroom characteristics in attempts to control potential intervening variables. In addition to child demographic data, the investigators collected income data from the participating families and calculated income-to-needs ratios. El

Nokali et al. found that where there was higher parental involvement, as reported by mothers and teachers, children demonstrated better social skills and had fewer behavior problems. In conclusion, El Nokali, Bachman, and Votruba-Drzal, state "the present findings suggest that parents continue to wield considerable influence on children's development as children progress through school" (p. 14).

#### *Behavior at School*

In a review of the data comparing the academic disparity between whites and minorities and discipline data, Gregory, Skiba, and Noguera (2010) found that although the body of literature for Hispanics is smaller than that of African Americans, it still points to a disproportionate amount of discipline for Hispanic students as compared to their white schoolmates. Gregory and his colleagues showed that the data on discipline identify exclusion from the classroom as the most used disciplinary strategy in schools. Gregory et al. cite research supporting the correlation between school suspensions and student dropouts. Students who have been excluded from school may also become disheartened in the schooling process and subsequently become less academically motivated or possibly drop out. Gregory and his colleagues argue that missed instructional time when students are excluded from classroom time, could worsen the cycle of academic failure for children who are already at risk. It can be inferred from the article that the use of an ecological model to examine a student's behavior in school and his or her academic achievement is helpful; the authors state, "the multiple and interacting variables that appear to contribute to racial and ethnic disparities in discipline demand a more comprehensive and nuanced approach" (Gregory et al., 2010, p. 65). Gregory et al. believe that if there is to be any meaningful effort put forth to narrow the

achievement gap, additional research into the area of a child's behavior in school must be included.

In one of the largest studies to compare suspension rates with student achievement, Arcia (2006) followed approximately 49,000 students for three years. Students were tracked through grades six, seven, and eight. The student population in the study was 58% Hispanic, 29% black, 10% white, and 3% other. Almost 75% of the students were eligible for free or reduced lunch. For the purposes of comparison, a matched sample of approximately 43,000 students was also tracked over the three-year period. Analysis showed significant differences in achievement scores between the groups for all three years. Post hoc Tukey's Honest Significant Difference test also confirmed that the groups were significantly different from each other. Gains for students having suspensions over the course of the three years averaged 176 points whereas students without suspensions gained an average of 198 points. According to Arcia, there was a clear connection between suspensions and achievement; students with a greater number of suspensions had a lower level of achievement while students with no suspensions had a higher level of achievement. While the breakdown of Hispanic students is provided in the demographics, they are not identified anywhere in the reported data.

Arcia also refers to the greater ecology of student achievement when she states, "in interpreting these findings, the reader should bear in mind that student behavior is a determinant of both achievement and suspensions. Students who follow instruction, focus on their academic work, and observe rules are likely to do well academically and are not likely to be suspended" (2006, p. 368). Arcia acknowledges that there are a multitude of

influences in addition to suspensions that can impact student achievement. Thus gathering data on student behavior becomes relevant when attempting to compile a complete picture of a student or student group so as to be able to implement effective intervention strategies.

#### *Attendance*

Gottfried (2009) evaluated the relationship between student attendance and achievement in urban elementary and middle schools. Examining testing and attendance data from all elementary and middle schools in the Philadelphia school district from the 1994/95 school year through the 2000/01 school year, eighty-six thousand students from kindergarten through eighth grade were tracked over time. Gottfried used GPA as his measure for student achievement but acknowledged that there were ecological factors that influenced a student's academic achievement as measured by GPA. He identified gender, race, socioeconomic status, English language learner status, and the student's family environment as potentially having an impact on a student's GPA. Using a baseline model equation, Gottfried found that "the consistently positive and significant estimates within all three outcomes implemented in this supplemental analysis have suggested that the relationship derived between attendance and achievement can be generalizable to multiple indicators of academic success. Furthermore, because the statistical significance of the coefficients on days present is pervasive in all models and across multiple measures of achievement, the results imply that the attendance is a robust predictor of student achievement" (2009, p. 26).

### *Neighborhoods*

Chung, Mulvey, and Steinberg (2011) stated “neighborhood characteristics, such as the presence of employed role models, are thought to determine youths’ beliefs about the opportunities available to them, and these beliefs can shape achievement-oriented outcomes such as grades and educational attainment” (p. 3). Hispanic adolescents who spent more time in their community, where employment options were limited and crime was high, reported averaging lower grades (Chung et al., 2011).

### Exosystem and Macrosystem

The exosystem includes entities such as the school board, local government, the parents’ workplace, mass media, and local industry. While each of these overarching environmental factors ultimately impacts on the child, their effect is indirect and not as measurable as those of the microsystem and the mesosystems. This is also true of the macrosystem, that includes the dominant beliefs and ideologies of the society in which the child exists (Leonard, 2011).

## **Measuring Academic Success of Students in Delaware**

### Results for Hispanic Students

The review of The Delaware Hispanic Needs Assessment (DHNA) data (Ruggiano, 2008) identified several barriers to education for Hispanics in Delaware and in particular Hispanic school-age children. The first barrier noted was the language barrier. The DHNA showed a clear correlation between the academic success of English-speaking Hispanics and those Hispanics with limited English proficiency. The second educational barrier was the correlation between poverty and school success. Of the

Hispanic Delawareans surveyed, 54.2% live in households with an overall income of less than \$20,000 per year. The barrier of poverty was also linked to the high dropout rate of Hispanic students. The third barrier consisted of two parts. The first was identified as a lack of school support in the school setting and the second being the cultural discrimination that is perceived as happening also within the school setting. The final barrier, and one that is most directly related to the success of elementary school-age children, was the limited parental involvement of Hispanic parents. Of the Hispanic families surveyed, more than half of the families (54.8%) reported that they were limited in their ability to speak English and had difficulty communicating with their child's school (Ruggiano, 2008).

The review of the literature has demonstrated that multiple factors are associated with academic success for elementary-age children and the Hispanic population appears to be particularly at risk for academic failure. While numerous reasons have been identified as to why this might be so, no studies have looked to explicitly identify the most significant factors. Therefore programs developed to address these problems lack direction. This study aims to identify those factors most likely to impact on academic success in Hispanic children in grades 3-5.

### **Summary of the Review of the Literature**

This review of the literature supports the identified problem that multiple factors contribute to a child's academic success. Children who experience the most difficulty are those whose first language is not English. In Delaware, the majority of students who do not have English as their primary language are of Hispanic descent, mostly from Mexico.

It is not known which factors are most important in achieving success in reading and mathematics for these English Language Learners, thus making it more difficult to identify and prioritize appropriate interventions.



## CHAPTER 3: METHODOLOGY

### Introduction

Reading and math have been correlated with academic success. It is thought that multiple factors affect one's ability to read, including age and cognitive ability, gender, and ability to speak and comprehend English (Callaghan & Madelaine, 2012; National Center for Educational Statistics, 2011). It is possible that other ecological factors also may have a significant impact on one's ability to read. These factors are likely to have a differing impact among Hispanic students based on culture but the literature on the academic success of Hispanic elementary students in the third through fifth grade and the factors that impact on that success is limited. It is the purpose of this study to more clearly identify the ecological factors that are more closely associated with Hispanic students' academic success.

The major research goals for this study are to examine the impact of gender, grade and other ecological factors on the reading and math abilities of third through fifth grade children of Hispanic origin who are identified as English Language Learners (ELL). The research questions guiding this study are:

1. Are there differences between third to fifth grade Hispanic boys and girls who are identified as ELL on reading and math achievement as measured by the Smarter Balanced Assessments?
2. Are there differences in achievement as measured by the Smarter Balanced reading and math assessment among ecological variables (Neighborhood, School,

Friends, Family, Parent Education Involvement, Health and Well-Being, Social Behavior at Home and School, and School Performance) for third to fifth grade students identified as ELL?

### **Research Methodology**

This quantitative correlational study analyzed data from two school assessment instruments to address the research questions of this study. The Elementary School Success Profile (ESSP; Bowen, Bowen, & Woolley, 2004) was administered to the students, their parents, and their teachers to measure the ecological factors that are present in a child's environment, including the child's home, social, school, and neighborhood environments as well as parental and teacher support. These ecological findings were then correlated with the student's Smarter Balanced reading and math scores, which were used as the dependent variables. The ecological data were collected within 2 months after the reading and math data were measured. The data came from one elementary school. The study was approved by the Institutional Review Board of Drexel University and by the Superintendent of the participating school district.

### **Sample**

The participants in this study were ELL elementary students from one school in a small South Atlantic state in grades 3 through 5 who have been identified as Hispanic by their parent/guardian at the time of school registration. It also included each child's parent or guardian and their primary teacher. These students were identified by the state's

computerized database known as Eschool Plus. All public school students in the state of study are entered into Eschool Plus at the time of their school registration. Grade 3 was selected as a starting point because of their ability to fill out the self-report survey; the school ends with grade 5. The identified school was selected because of its large number of Hispanic ELL students. Of the 628 students in the school, 30.9% were identified as ELL.

All students identified as both Hispanic and ELL in grades 3 through 5 at a public elementary school were invited to participate. In this school, there are approximately 27 eligible students in grade 3, 35 eligible students in grade 4, and 28 eligible students in grade 5. These 90 students make up 30% of the school's ELL population in grades 3-5.

The parent sample was accessed by a letter in both English and Spanish requesting their participation (Appendix A). Letters were sent home with the child. Arrangements for a translator were made for any parent who had questions, although no requests were made. The teachers were requested to participate for those students whose parents provided consent (Appendix B).

The sample consisted of 65 students (72.2%). Boys made up 49% of the sample and 51% of the sample were girls. There were 20 third-grade students (30%), 30 fourth-grade students (46%), and 15 fifth-grade students (25%). Students ranged from 8 to 11 years old. Ninety-seven percent of the students were identified as Hispanic/Latino, while 2% identified themselves as Native American and 2% identified themselves as white. There were 58 parent/guardian participants. Parents completed a single survey per child. The parents/guardians who responded for the children consisted of the following: mother/stepmother (50; 86%), father/stepfather (7; 12%), and one did not indicate their role.

There were 3 teachers who participated in the study, all of whom indicated they were English Language Learner classroom teachers for the students involved in the study. There was one third-grade teacher, one fourth-grade teacher, and one fifth-grade teacher. Each teacher completed one survey for each of their students. The three teachers completed a total of 58 surveys.

### **Instrumentation: Elementary School Success Profile**

The Elementary School Success Profile (ESSP; Bowen, Bowen, & Woolley, 2004) is a tool designed to capture information about the ecological factors that have been shown to impact student achievement (Appendix C). The ecological approach of the Elementary School Success Profile (ESSP) is an extension of Bronfenbrenner's (1977) conceptualization of the reciprocal interactions between a person and their environment which has been described in detail in the previous chapter. Bronfenbrenner defines a person's environment as being inclusive of four distinct systems. These systems are defined relative to the proximity to the individual. Each of these systems is embedded within the next system; therefore, what occurs in one system may directly or indirectly affect another system and thus has an influence on the person.

The tool collects data from three sources: students, parents, and teachers. The ESSP also collects data within two ecological constructs: 1) Social Environment and 2) Well-Being and Performance. Within the ecological constructs, the ESSP assesses eight domains (Social Environment: Neighborhood, School, Friends, Family, and Parent Education Involvement; Well-Being and Performance: Health and Well-Being, Social

Behavior at Home and School, and School Performance) and within them, 28 factors (See Appendix C). The data are then combined and scored to help identify students who may be at risk and provide useful information to be applied when designing interventions to support struggling students. It is through the application of the ecological model, in the form of the ESSP, that a comprehensive understanding of the various dimensions that impact student achievement can be studied.

The Elementary School Success Profile was developed in 2003 at the University of North Carolina at Chapel Hill, funded through a grant from the National Institute on Drug Abuse. The Elementary School Success Profile (ESSP) evolved from the school success profile (SSP) first developed by Bowen & Rickman in 1995.

The ESSP (Bowen, 2006) is a multiple-scale instrument designed to measure ecological variables that have been shown to impact developmental outcomes of children. The ESSP is designed to be used with students in grades three through five and collects data from parents/guardians (ESSP-F), teachers (ESSP-T), and students (ESSP-C) to identify potential factors that impact student success. A single student report consists of all three components.

#### *The ESSP for children (ESSP-C)*

The ESSP for children (ESSP-C; Bowen, 2011) is a self-report tool that assesses a child's perception of his/her social environment and their own well-being. Items for the ESSP-C were derived from the established dimensions on the School Success Profile (SSP). The ESSP-C consists of 80 items designed to assess student perceptions across five domains: Neighborhood, School, Friends, Family, and Health & Well-Being. Within

the five domains there are 12 factors. Within the Neighborhood domain is the factor Neighbors Who Care. This dimension consists of four questions used to identify the child's perception about the level of caring and concern shown by adults in the neighborhood. Under the School domain there are three factors used to assess student perceptions about Teachers Who Care, Fun Place to Learn, and Fun Place to be with Other Children.

A total of 12 items within these factors assess student perceptions about going to school, feeling as though their teachers care about them, and whether or not the child perceives that he/she has friends to talk with in school. To more closely examine a child's immediate group of friends, the domain of Friends is broken into three factors. The first factor Friends Who Care consists of five questions about the child's perceptions as to the amount of support that he/she receives from his/her friends. The second factor Accepted by Other Children asks five questions designed to assess how a child feels about the way he/she is treated by his/her friends. The last factor within the domain of Friends has eight questions that focus on the perceived behavior of a child's social group, such as Friends Have Good Behavior. Family Who Care is the assessed factor under the domain of Family. This factor consists of six questions used to identify a child's perception regarding the level of emotional support that he/she receives from his/her family. The final domain, Health & Well-Being, consists of four factors: Good Physical Health, Positive Feelings About Self, Good Adjustment, and Knows Where to Get Support. The four factors ask a total of 20 questions designed to assess a child's view of his/her health, levels of self-efficacy, his/her feelings of being alone, and the perception of support.

Bowen (2011) performed a confirmatory factor analysis (CFA) on the ESSP-C and focused on the quality of the internal structure. The findings of Bowen's CFA of the ESSP-C suggest that scale reliability compares favorably to other child reporting scales of social environment. Alpha coefficients ranged from .66 for Neighborhood to .88 for Friends with an average of .77 (Bowen, 2006).

The ESSP-C was also put through extensive cognitive testing to support its validity. Cognitive testing processes occurred over three rounds where children were asked by interviewers to restate the questions on the ESSP-C in their own words. Throughout this process researchers were better able to adjust the phrasing of specific questions so as to make the intent of the question clearly understood by the students. "Because children's social, emotional, linguistic, and cognitive skills differ significantly from those of the adults who designed questionnaires, cognitive testing is an especially critical step in the development of child self-report instruments" (Woolley, 2004, as cited by Bowen, 2008).

Psychometric properties are those aspects of a measure that say how valid and reliable the measure is and how accurate it is at measuring what it claims to measure. A variety of different quantitative scale development techniques were used to examine the psychometric characteristics of the ESSP. Bowen (2006) used principal component analysis, internal reliability tests, standard error of measurement (SEM), percentage of error (PE) calculations, bi-variate correlations and T tests for validity tests, and correlations for test retest analysis. The range of factor loadings ranged from .59 (good) to .82 (excellent). In summarizing the findings, Bowen (2006) states "the results of the factor analysis and tests of reliability and validity indicates that, overall, the child self-

report component of the ESSP has sound psychometric qualities, especially given the targeted age range for this instrument” (Bowen, 2006, p. 59).

The ESSP-C is administered through the use of a computer. The online questionnaire is presented to children through the use of large print, graphics, and animations. Only one item is presented on the screen at a time. The ESSP-C is designed to be administered in Spanish as well as English. On average, children take approximately 20 minutes to complete the survey. The number of students taking the survey at once is only limited by the number of computers that are available at any one time. The audio portion of the ESSP-C allows for questions to be read aloud to students, thus eliminating reading ability as an intervening variable (School Success Profile, 2012).

#### *The ESSP for Teachers (ESSP-T)*

The ESSP for Teachers (ESSP-T) collects data from eight factors within three domains (Parent Education Involvement, Social Behavior at Home and School, and School Performance). Webber, Rizo, and Bowen (2011) performed a confirmatory factor analysis of the ESSP for Teachers. Factors were adapted from the Teacher Observation of Classroom Adaptation-Revised (TOCA-R) and one factor was based on a scale from the Student Success Profile, a similar assessment to the ESSP but used with older students. The scales used from the TOCA-R are labeled Interacts Peacefully, Is Sociable with Other Children, Uses Good Social Skills, and Tries to Be a Good Learner. The remaining scale, adapted from the SSP, is called Parent Involvement at School.

There are 24 questions designed to identify teachers’ perceptions of students’ social and learning behavior as well as students’ parental involvement in school. Of the



24 questions, three questions focus on a teacher's perception of how often a child plays with others and appears to be accepted by others. Three questions focus on a student's use of good social skills as evidenced by the child's perceived ability to manage their behavior. Four of the questions on the ESSP-T assess the aggressiveness of the child and eight questions focus on the teacher's perception of the student as a good learner. The ESSP-T identifies a teacher's perception of a student's ability to stay on task, complete assignments, and work to potential as measures of being a good learner.

The remaining six questions assess the relative involvement of a child's parent/caregiver from the teachers' perspective. This set of questions focuses on attendance at parent-teacher conferences, participation in school functions, and engages the school staff about their student. The ESSP-T is designed to take approximately 5 to 7 minutes for each student. Internal reliability for the ESSP-T was assessed using Chronbach's  $\alpha$  coefficients. Results ranged from very good to excellent in each of the five scales (.88 to .98). The ESSP-T underwent CFA validation using three samples. Evidence suggests that the ESSP-T demonstrates good model fit.

Teachers are provided a set of instructions to guide them through the process of accessing the online teacher survey. Surveys are accessed for individual students by entering in serial numbers that have been associated with student names. The survey is also password-protected and requires a teacher ID number. Although the survey is designed to take a minimal amount of time, it does allow for the option of completing a survey over multiple sittings. If additional help is required, a contact number and an e-mail is provided.

*The ESSP for Families (ESSP-F)*

The Elementary School Success Profile for Families (ESSP-F) is the parent/caregiver component of the ESSP. Like the ESSP-C and ESSP-T, the ESSP-F can be completed through the use of an online survey and is available in English or Spanish. The online survey has an audio option as well. In addition, a paper version of the survey is available.

Wegmann, Thompson, and Bowen (2011) completed a confirmatory factor analysis of home environment and home social behavior data from the ESSP-F. ESSP-F is the longest of the three surveys and consists of 15 factors and 31 total questions. The factors are: 1) Neighbors Who Care, 2) A Good Place to Live, 3) Neighborhood Safety, 4) Teens Have Positive Behavior, 5) Teachers Who Care, 6) Family Who Care 7) Warmth and Encouragement , 8) Positive Parenting, 9) Positive Sibling Relationships, 10) Involvement at School, 11) Involvement at Home, 12) Home Learning Activities, 13) Is Sociable with Other Children, 14) Uses Good Social Skills, and 15) Interacts Peacefully. Six items under the Home Educational Environment assess the amount of engagement that a caregiver has with the child in regards to what he/she is doing in school.

Within Home Learning Activities are questions designed to assess the frequency that the caregiver manages the child's time relative to academic activities. Sociable with Other Children uses six questions to assess a caregiver's perceptions of the way in which their child interacts with other children and nine items within the factor of Uses Good Social Skills assesses the caregiver's perceptions that their child is able to reasonably control themselves in different situations.

Four items assess the child's ability to Interact Peacefully with others in regards to the child's perceived level of aggression towards other children. Warmth and Encouragement uses five items to assess a caregiver's level of encouragement and affection for the child. Under Family Who Care, six items assess the broader interaction of family members and the child, whereas Sibling Relationships uses three items to explore the relationships between the child and other children in the home.

The final factor of Positive Parenting uses seven items to assess the manner in which praise, punishment, and privileges are utilized with the child. Wegmann et al. (2011) noted some challenges in regards to collecting caregiver data as compared to teacher and student data. The researchers commented on the relative accessibility of computers and the potential for greater comfort in using computers for teachers and students compared to caregivers. In addition they posit that "low-performing schools are less likely to have strong, trusting relationships with caregivers that can facilitate data collection" (p. 4). Thus, for the data collected from 1,251 students, only 692 caregiver surveys were collected. It is important to note that only 7% of the caregivers who completed the survey indicated they were Latino. The ESSP-F, similar to the teacher and student survey, was found to have a very good to excellent reliability based on Cronbach's alpha with the exception of one factor, Home Learning activities, indicating adequate reliability.

### **Analysis of ESSP results**

Summary reports, inclusive of all three surveys, are developed by the company Flying Bridge Technologies; results are represented in both graphical and tabular forms.

Reports can be generated for individual students (the individual profile) or for groups of students (the group profile). Results can also be communicated through a risk report. The Risk Report identifies students who are considered at-risk in any of the ecological factors measured. Using the data collected from the parents, teachers, and students across these factors is critical in selecting and implementing appropriate interventions. For this study, the data were reported in a group profile.

### **Instrumentation: Smarter Balanced Assessment**

Delaware's Office of Assessment, within the Delaware Department of Education, manages the Delaware System of Student Assessment (DeSSA). DeSSA manages all of the statewide administered assessments. The Smarter Balanced Assessment (Smarter) is one of the statewide assessments managed by the Office of Assessment. Smarter is a summative assessment given to all students in grades 3 through 10 and administered during the last 12 weeks of the school year. Smarter consists of a computer-adaptive test and performance tasks that are taken on a computer. The performance tasks are not computer adaptive. Smarter is said to provide measures of students' progress toward, and attainment of the knowledge and skills required to be college- and career-ready. Smarter was piloted in 2012-2013 and was field tested in 2013-2014. No independent empirical evidence of technical adequacy is available to establish external validity and reliability of Smarter (Rabinowitz, Sato, & Berkes, 2011). There are still no published psychometrics on this test. Students are tested in reading and mathematics.

The purposes of the Smarter Balanced summative assessments are to provide

valid, reliable, and fair information concerning:

1. Students' reading/literacy and mathematics achievement with respect to those Common Core State Standards measured by the reading/literacy and mathematics summative assessments.
2. Whether students prior to grade 11 have demonstrated sufficient academic proficiency in reading/literacy and mathematics to be on track for achieving college readiness.
3. Whether grade 11 students have sufficient academic proficiency in reading/literacy and mathematics to be ready to take credit-bearing college courses.
4. Students' annual progress toward college and career readiness in reading/literacy and mathematics.
5. How instruction can be improved at the classroom, school, district, and state levels.
6. Students' reading/literacy and mathematics proficiencies for federal accountability purposes and potentially for state and local accountability systems.
7. Students' achievement in reading/literacy and mathematics that is equitable for all students and subgroups of students. (Smarter Balanced Assessment Consortium, 2016, TR-50).

## Procedures

Following IRB approval, letters of permission were sent to all parents of children in grades 3 through 5 who identified their child as being of Hispanic origin and who were in the ELL program; these letters were in both English and Spanish (Appendix A). Permission to participate was for both themselves and their child. Once the children were identified, their teachers were asked to participate by their principal (Appendix B). Students were then asked to sign an assent form (Appendix C).

The ESSP for the students was administered as a group in a computer lab. The lab was prepared with the ESSP student questionnaire already open on the computer and the child ID number entered on the screen. Students were seated at the computer that matches their ID number. The teacher led the students through the instruction screens to be sure that students understood the process for entering their responses. The teachers were able to provide instructions in both English and Spanish. On average the student survey takes approximately 20 min. to complete. Students who required the questions to be read in Spanish had the availability of headphones. As individual students completed the survey, they were permitted to read quietly at their seats until everyone was finished.

The ESSP for parents was available online. Instructions for taking the parent survey were sent home with the students who had signed permission forms. For parents who did not have a computer or access to the Internet, the school hosted a parent night where computers were made accessible to complete the survey. Parents also had the option of completing a paper version of the survey. Both versions of the survey are available in English and Spanish. The online version also has an audio component. The survey consists of 130 questions and takes about 30 min. to complete.

Teachers completed the ESSP for teachers for those students for whom signed consents were received. The ESSP for teachers was completed online and takes approximately 10 minutes to complete for each student.

### **Data Analysis**

The data collected from this study included demographic data from the parents, students' reading and math scores on the Smarter Balanced test, and the results of the ESSP from the child, parent, and teacher. Descriptive statistical methods were used to characterize the distributional characteristics of the variables of interest. These included means, standard deviations, ranges and skewness for the continuous dependent and independent variables. Frequencies were computed to describe nominal measures. The planned statistical procedures to address the two research questions were multiple analysis of variance (MANOVA) for research question one [Are there differences between third to fifth grade Hispanic boys and girls who are identified as ELL on reading and math achievement as measured by the Smarter Balanced Assessments?] and multiple analysis of covariance (MANCOVA) for research question 2 [Are there differences in achievement as measured by the Smarter Balanced reading and math assessment among ecological variables for third to fifth grade boys and girls identified as ELL?].

To meet the assumptions required for the use of the MANOVA or MANCOVA, the two dependent variables (reading and math Smarter Balanced scores) must not be non-or highly correlated. To assess the level of correlation, a Pearson's correlation was performed. Additionally, the MANOVA/MANCOVA requires the dependent measures

to be normal or near normal; the distributional characteristics of the dependent measures (reading and math scores) were evaluated using skewness which was obtained in the univariate analysis of the dependent variable.

To address the first research question of this study, a MANOVA was used with the child's reading and math Smarter scores as dependent variables and the independent variables of gender (two levels) and grade level (three levels). To address the second research question of this study, MANCOVA was used with the child's reading and math Smarter scores as dependent variables and independent measures that include the child's gender, grade level, and eight ecological domains that include subscale measures for Neighborhood, School, Friends, Family, Parent Education Involvement, Health and Well-Being, Social Behavior at Home and School, and School Performance as identified in the Elementary School Success Profile (See Appendix D).

To address Research Question 2 (Are there differences in achievement as measured by the Smarter Balanced reading and math assessment among ecological variables for third to fifth grade boys and girls identified as ELL?), a MANCOVA was used to evaluate the correlation between the Smarter Balance Assessment math and reading scores as dependent variables and the ecological variables (Neighborhood, School, Friends, Family, Parent Education Involvement, Health and Well-Being, Social Behavior at Home and School, and School Performance). The results of the MANCOVA were nonsignificant ( $p < 0.05$ ).

The number of independent variables included in MANCOVA is greater than the number commonly recommended (Tabachnick & Fidell, 2013). The effect of the small sample size may result in a type II error based on the study being underpowered. Rather



than simply accepting the null results, an exploratory series of bivariate ANCOVAs were completed to obtain pilot estimates for future studies. These were completed for each of the dependent variables (reading and math) and independent variables of grade (three levels) and gender (two levels) and the eight environmental variables.

## CHAPTER 4: RESULTS

### Introduction

The purpose of the present study was to more clearly identify the ecological factors that are closely associated with the academic success of Hispanic third through fifth grade elementary school students who are identified as English Language Learners (ELL). The major research goal for this study was to examine the impact of gender, grade and ecological factors on the reading and math abilities of this population. The research questions guiding this study were:

1. Are there differences between third to fifth grade Hispanic boys and girls who are identified as ELL on reading and math achievement as measured by the Smarter Balanced Assessments?
2. Are there differences in achievement as measured by the Smarter Balanced reading and math assessment among ecological variables (Neighborhood, School, Friends, Family, Parent Education Involvement, Health and Well-Being, Social Behavior at Home and School, and School Performance) for third to fifth grade boys and girls identified as ELL?

Within this chapter, the sample will be described and descriptive statistics will be provided for the independent and dependent variables. In addition, MANOVA and MANCOVA results will be presented to address the two research questions. Exploratory bivariate analysis will be provided to guide future studies

## Descriptive Statistics

The sample of 71 students is described by grade and gender in Table 4.1. The dependent variables for this study were the math and reading scores of the Smarter Balance test. The descriptive statistics for the dependent variables for this study are in Table 4.2. The results of the ESSP for students are described in Table 4.3.

**Table 4.1. Sample by Grade and Gender**

		<u>Sex</u>		
		F	M	Total
		(n = 34)	(n = 37)	(n = 71)
		n (%)	n (%)	
Grade 3.0	N	11	15	26
	% within grade	42.3	57.7	100.0
	% of total	15.5	21.1	36.6
Grade 4.0	N	15	10	25
	% within grade	60.0	40.0	100.0
	% of total	21.1	14.1	35.2
Grade 5.0	N	8	12	20
	% within grade	40.0	60.0	100.0
	% of total	11.3	16.9	28.2
Total	% if total	47.9	52.1	100.0

**Table 4.2. Descriptive Statistics for Dependent Variables**

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Skewness Statistic	Std.
<u>Error</u>								
Reading	70	304.0	2228.0	2532.0	2376.48	61.43	.311	.297
Math	71	334.0	2214.0	2548.0	2393.02	60.06	.007	.285

**Table 4.3. Descriptive Statistics for Independent Variables**

Skewness	Error	N	Range	Minimum	Maximum	Mean	Std.		
							Deviation	Statistic	Std.
Neighborhood	.297	65	46.00	54.00	100.00	77.72	9.35		-.149
School	.287	70	50.00	50.00	100.00	86.22	11.99		-1.173
Friends	.297	65	60.67	39.33	100.00	85.20	14.59		-1.185
Social Behavior Home & School	.309	60	35.33	62.67	98.00	81.94	8.49		-.517
Parent Education Involvement	.309	60	47.67	40.00	87.67	68.62	11.24		-.368
Health & Wellbeing	.297	65	60.00	40.00	100.00	81.24	11.69		-1.002
Family	.287	70	46.00	54.00	100.00	85.47	10.57		-.661
School Performance	.314	58	91.75	8.25	100.00	83.41	22.09		-1.774

### Research Question 1

Math and reading capacities were measured in boys and girls in grades three, four and five for whom English is their second language. The distributional characteristics of the math and reading scores met the assumptions required for a MANOVA with skewness below 1.0 (as noted in Table 4.2 in the univariate statistics for the dependent measures). The results of the MANOVA were nonsignificant ( $p < 0.05$ ) for the factors evaluated. Additionally, the assumption of correlation between the dependent measures with a Persons correlation ( $Rho = 0.535$ ,  $P < 0.001$ ) and the equal variance were also satisfied. (Box M = 15.8,  $P = 0.49$ ). The MANCOVA analysis confirmed there was no significant multivariate effects for sex ( $\lambda = 0.068$ ,  $F(2, 70) = 2.37$ ,  $P = 0.1$ ) or grade (Pillia's trace = 0.88,  $F(4, 70) = 1.52$ ,  $P = 0.20$ ).

**In summary for Question 1**, the results indicated there in no significant relationship between grade, sex and the child's reading or math scores.

## **Results Question 2**

Math and reading capacities were measured in boys and girls in grades three, four and five for whom English is their second language along with eight ecological variables that included neighborhood, school, friends, family, parent educational involvement, health and wellbeing, social behavior home and school, and school performance. The distributional characteristics of the math and reading scores met the assumptions required for a MANCOVA. The results of the MANCOVA were nonsignificant ( $p < 0.05$ ). Additionally, the assumption for the Pierson's correlation ( $Rho = 0.535$ ,  $P < 0.001$ ) and the equal variance were also satisfied ( $Box M = 18.39$ ,  $P = 0.371$ ). The MANCOVA analysis confirmed there was no significant multivariate effects for any of the independent variables in the model (see Table 4.4).

**In summary for Question 2**, the results did not find any significance ( $P < 0.05$ ), but the study was underpowered and these negative findings should be viewed with caution as there is a significant risk of a type II error. Rather than accept the null result for the study, a series of bivariate analysis of covariance were completed for each dependent variable (reading and math scores) and the environmental variables to provide estimates for future studies. Several of the bivariate analyses indicated significant correlation between the dependent variables and the selected covariates as seen in Table 4.5.

**Table 4.4 MANCOVA for Reading and Math by Sex, Grade and Environmental Factors**

Effect		Value	F	Hypothesis df	N	P
Intercept	Pillai's Trace	0.925	234.406	2.000	50	0.000
Neighborhood	Pillai's Trace	0.017	0.325	2.000	50	0.724
School	Pillai's Trace	0.054	1.088	2.000	50	0.347
Friends	Pillai's Trace	0.033	0.641	2.000	50	0.532
Social behavior at home and school	Pillai's Trace	0.048	0.95	2.000	50	0.396
Parent educational involvement	Pillai's Trace	0.026	0.513	2.000	50	0.603
Health and wellbeing	Pillai's Trace	0.036	0.713	2.000	50	0.496
Family	Pillai's Trace	0.015	0.297	2.000	50	0.745
School performance	Pillai's Trace	0.101	2.142	2.000		0.131
Sex	Wilks' Lambda	0.876	2.699	2.000		0.080
Grade	Pillai's Trace	0.018	0.181	4.000		0.947

**Table 4.5 Results of bivariate ANCOVAs for Environmental Variables**

Reading	F	P
Neighborhood	0.110	0.741
School	3.983	0.050
Friends	1.959	0.167
Behavioral	0.779	0.381
Parental involvement	0.790	0.378
Health and wellbeing	4.791	0.032
Family	0.458	0.501
School Performance	0.002	0.965

  

Math	F	P
Neighborhood	0.298	0.587
School	1.476	0.229
Friends	4.682	0.034
Behavioral	0.092	0.763
Parental involvement	5.244	0.026
Health and wellbeing	8.225	0.006
Family	0.182	0.671
School Performance	2.072	0.156

highlighted cells indicate  $p < 0.05$

Two environmental factors were significantly correlated with reading scores in the bivariate analyses. The health and wellbeing category was significantly correlated with reading ( $F = 4.792$ , D.F. = 1,  $N = 64$ ,  $P = 0.032$ ). School environment was also significantly correlated with reading ( $F = 3.98$ , D.F. = 1,  $N = 68$ ,  $P = 0.05$ ). Three environmental factors were correlated with math scores: Friends ( $F = 4.68$ , D.F. = 1,  $N = 65$ ,  $P = 0.034$ ); Health and wellbeing ( $F = 8.23$ , D.F. = 1,  $N = 65$ ,  $P = 0.00$ ); and Parental involvement ( $F = 5.24$ , D.F. = 1,  $N = 59$ ,  $P = 0.026$ ). The exploratory analyses suggest at least two potential modifiable variables (school environment and health and wellbeing) are significantly correlated with reading and or math performance.

## CHAPTER 5: DISCUSSION AND RECOMMENDATIONS

### Discussion

The purpose of this study was to more clearly identify the ecological factors that are closely associated with the academic success of Hispanic third through fifth grade elementary school students who are identified as English Language Learners. There were two central research questions guiding this study.

1. Are there differences between third to fifth grade Hispanic boys and girls who are identified as ELL on reading and math achievement as measured by the Smarter Balanced Assessments?
2. Are there differences in achievement as measured by the Smarter Balanced reading and math assessment among ecological variables (Neighborhood, School, Friends, Family, Parent Education Involvement, Health and Well-Being, Social Behavior at Home and School, and School Performance) for third to fifth grade boys and girls identified as ELL?

### Question One

The MANOVA analysis for question one confirmed there were no significant multivariate effects for sex ( $P = 0.1$ ) or grade ( $P = 0.20$ ), indicating there was no significant relationship between grade, sex and the child's reading or math achievement as measured by the Smarter Balanced scores. While this study showed no significance, most studies, including the National Assessment of Educational Progress (NAEP), show that females outperform males in reading during the elementary age years (National Center for Educational Statistics, 2016). In 2015, the average NAEP reading score for 4<sup>th</sup>



graders in the U.S. was 223 (range 0-500); 4<sup>th</sup> grade males averaged 119 and females averaged 226. The average national NAEP score among 4<sup>th</sup> graders who identified as Hispanic was 208. Hispanic students account for 24.9% of the student population.

In Delaware, the average NAEP reading score for 4<sup>th</sup> graders was 224, while those who identified as Hispanic averaged 210 (National Center for Educational Statistics, 2016). According to NAEP in 2015, 39% of females in the U.S. were proficient in reading compared to 33% of males; among Hispanic 4<sup>th</sup> graders, only 21% were proficient in reading. In Delaware 37% of 4<sup>th</sup> graders were deemed to be proficient in reading; however, only 22% of Hispanic students were proficient (National Center for Educational Statistics, 2016). Gender differences were not noted in the report.

When English Language Learners were evaluated, their average 2015 reading score was 189, compared to the non-ELL score of 226 (National Center for Educational Statistics, 2016). This group was not broken down to ethnicity or gender but in 2015, ELL made up 9.3% of the 4<sup>th</sup> grade student population in the U.S. (National Center for Educational Statistics, 2016). These data support that Hispanic 4<sup>th</sup> graders consistently perform lower than their non-Hispanic peers, and those who are English Language Learners perform even lower. Robinson and Lubienski (2011) stated “it would be remiss to suggest that schools alone are the cause of achievement differences between the genders” (p. 298).

The non-significant findings may indicate that the fundamental needs of ELL elementary-age students outweigh the US findings that gender matters. This hypothesis would need to be addressed in future research.

## Question Two

Many studies have explored the impact of individual factors on student success with variable findings. Hanushek and Rivkin (2006) identified factors of teacher characteristics and student success with no specific correlations; Slavin and Lake (2007) looked at the impact of collaborative learning. Fuller and Coll (2010) and Krüger, Köhler, Pfaff, and Zschach (2011) examined the impact of peers and peer groups and identified this impact on school success. Ladd et al. (2011) and Lee and Bowen (2006) examined the impact of parent literacy and parent involvement and their children's success. Other individualized foci as associated with student achievement included attendance (Gottfried, 2009), exposure to books (Callaghan and Madelaine, 2012) and socioeconomic status (Kieffer, 2012). The vast majority of these studies have recommended that future research take into account the broader range and combination of ecological factors that may impact success.

The current study looked for relationships between eight ecological domains with reading and/or math success of 3<sup>rd</sup>-5<sup>th</sup> grade Hispanic ELL students. This approach was in line with the theoretical model of Bronfenbrenner and the work of Bowen. The results from the MANCOVA for question two did not find any significance ( $P < 0.05$ ). These results do not support the literature noted above that indicates that the eight ecological factors (Neighborhood, School, Friends, Social Behavior at Home & School, Family, Parent Education Involvement, Health & Well Being, and School Performance) do impact student achievement. While the results in question two did not find any significance ( $P < 0.05$ ), it should be noted that the study was underpowered; therefore

these negative findings should be viewed with caution as there is a significant risk of a type II error.

Bronfenbrenner's model is generally accepted for society in general, it is possible that the systems may interact differently for ELL students and their families. Since Bowen's tool was based on the work of Bronfenbrenner, it may be that the results are skewed toward the general population and less likely to reflect the nuances among the ELL population.

Rather than accept the null result for the study, a series of bivariate analyses of covariance were completed for each dependent variable (reading and math scores) and the environmental variables to provide estimates for future studies. Of the eight factors, three returned provocative findings: School and Reading, Friends and Math, and Health and Well-Being and both Reading and Math.

### *Impact of Ecological Factors*

#### *School and Reading*

A positive relationship existed between School Environment and Reading ( $p = .05$ ). This finding aligned with the findings of Elliott & Tudge (2012) and Verkuyten and Thijs (2002); these authors found that the school, and more specifically the academic climate of the school that a child attends, can have a direct impact on student satisfaction, motivation, and achievement. This finding also supports the theoretical framework used for this study developed by Bronfenbrenner who suggests that academic success is impacted by the individual, the environment surrounding the individual, and the interplay between the individual and the surrounding environment (Bronfenbrenner, 1977). This

finding also supported the work of Han (2012) who found that “school-level factors” (p. 300) could be used to explain the differences in children’s academic performance. Usher & Pajares agreed, stating that, “creating a safe psychological niche involves a better understanding of how minority students attend to the sources underlying their academic confidence. Such investigations are part of a culturally attentive approach to understanding these sources of students’ self-efficacy beliefs, the fruits of which will help culturally relevant pedagogical practices characterized by teachers or sensitive to their student’s growth and development, as well as to their needs, beliefs, interests, learning preferences, and abilities of the students in their care” (2008, p. 788).

### ***Friends and Math***

The mean school score for Friends and Math explained 4.68% of the variance ( $p = .034$ ). “The strongest predictors of later achievement are school-entry math, reading, and attention skills” (Duncan et al., 2007, p. 1428). Bradshaw et al.’s (2009) findings support the findings in this study. Bradshaw et al. found that social learning improved student learning in mathematics. This finding also supports the research on cooperative learning that demonstrates that cooperative learning increases student learning (Slavin & Lake, 2007). Cooperative learning was found to enhance student achievement when it supports children teaching each other in a setting in which peers know that their own success depends on the learning of their friends (Webb & Palincsar, 1996).

### ***Health and Well-Being and Reading and Math***

A positive relationship between Health and Well-Being existed for both reading ( $p = .032$ ) and math ( $p = .006$ ). Both findings support Bronfenbrenner’s (1977) conceptualization of the third system within the ecological model, the exosystem. The

exosystem is defined as “an extension of the mesosystem embracing other specific social structures, both formal and informal, that do not themselves contain the developing person but impinge upon or encompass the immediate settings in which that person is found, and thereby influence, delimit, or even determine what goes on there” (p. 515).

The exosystem then may include the relations between the school and health.

The findings also support the writings of Cornell & Selekman (2013) who stated that the health of students has a significant impact on a child’s ability to learn. A study by Pennington and Delaney (2008) found that when a school nurse was in the school, 95% of students seen for health concerns returned to class and the learning environment compared to only 82% when a non-nurse handled children with health concerns. Students cannot be ‘ready to learn’ if their basic needs have not been met. These include sleep, nutrition and having the right clothes to wear that are appropriate for the weather and the child’s size. Optimal health, where children are free of physical and mental health problems, as well as optimal vision and hearing and an absence of pain, including dental pain, are essential to set the stage for success in school.

### **Limitations**

This study was limited by the use of only one school; therefore the findings cannot be generalized to other settings. Additionally, this study used only students in grades 3-5 who were both Hispanic and identified as ELL. It focused almost exclusively on students of Mexican descent; it is possible that operationalizing this study with Spanish-speaking ELL students from other countries may have different results. It is also possible that the findings were influenced by the specific location of the school within a

South-Atlantic state and that ESSP results from other areas around the country would yield different results.

An additional limitation was the small sample size, which increases the risk of a type II error. As such, those research questions that were rejected should be considered with caution. Contemporary literature in education is replete with findings identifying the importance of a child's family and their success in school. The fact that no significance was found in this study may, in fact be a limitations of the tool. The literacy level of parents was not assessed, and therefore may be another factor that may have influenced the results of the study.

Another limitation and potential threat to the internal validity of the study arises from the use of all available data in each factor to derive the mean scores. While this method was the lesser of two evils, either use all available data or suffer a large loss of subject data to list-wise deletion that may impact the validity of the findings.

The final limitation may be in the use of the Smarter Balanced assessment as an accurate measure of reading and math achievement. There is currently no study supporting the reliability and validity of the Smarter Balanced assessment as an accurate measure of achievement. Unlike the NAEP assessment that is administered nationally to a random selection in 4<sup>th</sup> and 8<sup>th</sup> grade, the Smarter Balanced Assessment is used in only 14 states but is administered to all students in grades 3-8. It is possible that the use of a different achievement measure as the dependent variable would have yielded a different outcome.

## **Implications for Practice**

The MANOVA analysis for question one and the MANCOVA for question two both resulted in a nonsignificant finding. In light of the findings in question 1, it may be that the results indicate that gender-neutral interventions may be effective in supporting reading and math acquisition for the ELL student population.

It was the researcher's goal to identify ecological factors that might impact on reading and math achievement for these students in order to better direct school financial and personnel resources. As a result of the non-significant findings in question 2, a series of bivariate analyses of covariance were completed for each dependent variable (reading and math scores) and the environmental variables. Of the eight factors, three returned provocative findings: School and Reading, Friends and Math, and Health and Well-Being and Reading and Math. It is from these bivariate analyses of covariance that possible implications for practice may be derived. Implications for practice will be addressed in the order of the findings.

### ***School and Reading***

There have been many studies acknowledging the importance of the environment and reading achievement. The acknowledgment that students in this study also found this to be important confirms the importance of creating a social and emotional environment that supports the advancement of student reading success. The ESSP asked students to respond to three main areas regarding the school environment. The current study identified that students did better in reading when they believed that their teachers cared about them, that the school was perceived as a fun place to learn, and that the school was

considered a fun place to be with other children. Professional development on empathy training may help to support student-teacher relationships, thus enhancing reading.

### ***Friends and Math***

The ESSP results found that students who performed better in math also believed that they had friends who cared about them, that they were accepted by other children, and that their friend had good behavior. Professional development in the areas of cooperative learning, small group lesson planning, and peer relation development may enhance math scores.

### ***Health and Well-Being and Reading and Math***

The most significant findings in this study indicated that both reading and math were positively affected by the student's perception of his/her own well-being. It is from these findings that district administration can implement interventions that can support improved achievement in the areas of reading and math. These findings align with the literature regarding success in school and good health. Optimal health, where children are free of physical and mental health problems, as well as optimal vision and hearing and an absence of pain, including dental pain, are essential to set the stage for success in school (Cornell & Selekmán, 2013).

Mead et al. (2008) found that when compared to other groups Hispanics are approximately 2½ times more likely to report having no doctor and most likely to use a community health center as their regular place of care. It may be, given the findings, that elementary wellness centers would better support early academic success. Access to



wellness support, such as a full-time school nurse who focuses on the health of Hispanic ELL students may also help to overcome negative feelings of wellness and to support improved achievement.

### **Recommendations for Future Study**

The implications for practice cited above provide rich ideas for future study of the ecological factors that can impact on student achievement in reading and math. Developing controlled intervention studies would provide more credence to interventions possible by the schools. Additional recommendations would be to expand the study to include more than just children of Mexican descent. It would also be interesting to compare Hispanic ELL students with Hispanic students who do not qualify for ELL assistance. There may also be value in redesigning the tool to yield more specific actionable result that can then allow for effective interventions.

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## APPENDICES

### APPENDIX A

#### Consent Letter to Parents

### **Drexel University: Consent to Take Part In a Research Study**

Dear Parent,

You and your child are being invited to participate in a study that will examine the impact of factors that influence the academic success of Hispanic children in grades 3-5 who are English Language Learners. You are invited to participate because your child is in the ELL program. All Hispanic ELL children in your school are being invited to participate. We expect about 100 people will be in this research study, which is the entire population of the Hispanic ELL students in 3<sup>rd</sup> through 5<sup>th</sup> grade in this school.

The purpose of this study is to more clearly identify the factors that are closely associated with the academic success of Hispanic third through fifth grade elementary school students who are identified as ELL. It is believed that multiple factors contribute to a child's academic success. Because children whose first language is not English have more difficulty, it is important to determine which factors are most important in helping them be successful in school. The decision to participate is up to you.

The questionnaire poses no risk to you or your child. You can choose not to take part or can agree now and later change your mind. Whatever you decide, it will not be held against you. We expect that this research study will take 2 months, but your participation will take no more than 30 minutes just one time. There is no cost to you for participating in this study.

If you agree to take part in this study, you will be asked to fill out a questionnaire one time; it is called the ESSP for Families. The questionnaire is available in either English or Spanish and is available in the enclosed paper format or on any computer with an internet connection. You may complete this form either in your child's school or at home. Your child will complete a similar form in school, called the ESSP for Children. You will be asked questions about your family, your neighborhood, and your child's behavior at home.

The researcher is Mr. Aaron Selekman, a doctoral candidate in the School of Education at Drexel University. The questionnaire will be seen only by the researcher and will not be shared with the school. Results will be presented as group data with no way to identify any one child. We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits include future children in ELL classes having programs of study or services more specific to their needs.

If you have questions about the enclosed questionnaire or about answering the questions on a school computer, you can contact Mr. Selekman at 302-981-4932 or

aaron.selekman@redclay.k12.de.us. Feel free to ask all the questions you want before you decide. This research has been reviewed and approved by an Institutional Review Board. You may talk to them at (215) 255-7857 or email HRPP@drexel.edu for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the researcher.
- You want to talk to someone besides the researcher.
- You have questions about your rights as a research subject.
- You want to get information or provide input about this research.

We cannot promise complete secrecy. Organizations that may inspect and copy your information include the IRB and other representatives of this organization.

Your signature documents your permission to take part in this research.

Signature of parent \_\_\_\_\_ Date \_\_\_\_\_

Printed name of parent \_\_\_\_\_

Signature of person obtaining consent \_\_\_\_\_ Date \_\_\_\_\_

Printed name of person obtaining consent \_\_\_\_\_

Form Date \_\_\_\_\_

## APPENDIX B

### Consent Letter to Teachers

#### **Drexel University: Consent to Take Part In a Research Study**

Dear Educator,

You are being asked to take part in a research study. The study examines the impact of factors that influence the academic success of Hispanic children in grades 3-5 who are English Language Learners. The purpose of the research study is to more clearly identify the factors that are closely associated with the academic success of Hispanic third through fifth grade elementary school students who are identified as ELL.

This research study is expected to take 2 months, but your participation will take no more than 30 minutes per student just one time. If you agree to take part in this study, you will be asked to fill out one questionnaire per student you teach; it is called the ESSP for Teachers. The questionnaire is available on any computer with an internet connection. The questionnaire poses no risk to you.

We cannot promise any immediate benefits to you or others from your taking part in this research. However, possible benefits include future children in ELL classes having programs of study or services more specific to their needs. The questionnaire will be seen only by the researcher and will not be shared with the school. Results will be presented as group data with no way to identify any one child.

The decision to participate is up to you. You can choose not to take part or can agree now and later change your mind. Whatever you decide, it will not be held against you. If you have questions, concerns, or complaints, or think the research has hurt you, you can talk to the research team at 302-981-4932 or [aaron.michael.selekman@drexel.edu](mailto:aaron.michael.selekman@drexel.edu). This research has been reviewed and approved by an Institutional Review Board. You may talk to them at (215) 255-7857 or [HRPP@drexel.edu](mailto:HRPP@drexel.edu) for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team
- You cannot reach the research team
- You want to talk to someone besides the research team
- You have questions about your rights as a research subject
- You want to get information or provide input about this research

\_\_\_\_\_  
Signature of teacher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed name of teacher

\_\_\_\_\_  
Signature of person obtaining consent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed name of person obtaining consent

Form Date

**APPENDIX C**

## Assent Form to Students

**ASSENT FORM**

Drexel University

**ASSENT FORM FOR CHILDREN/MINORS IN A RESEACH STUDY**

We are doing a study to learn about ELL students' success in school. If you agree to be in our study, you will answer some questions on the computer. You can ask questions about this study at any time. If you decide not to finish, you can ask us to stop.

The questions are only about what you think. There is no right or wrong answers because this is not a test.

If you sign this paper, it means that you have read this and that you want to be in the study. If you don't want to be in the study, don't sign this paper. Being in the study is up to you, and no one will be upset if you don't sign this paper or if you change your mind later.

Child's Assent: I have been told about the study and know why it is being done and what to do. I also know that I do not have to do it if I do not want to. If I have questions, I can ask my teacher. I can stop at any time.

My parents/guardians know that I am being asked to be in this study.

---

Child's Signature

---

Date

## APPENDIX D

Elementary School Success Profile: Constructs, Domains, and Factors for the Child,  
Teacher, and Family Questionnaire

Constructs	Domains	Factors	Elementary School Success Profile		
			Children ESSP-C	Teacher s ESSP-T	Families ESSP-F
Social Environment	Neighborhood	Neighbors Who Care	X		X
		A Good Place to Live			X
		Neighborhood Safety			X
		Teens Have Positive Behaviors			X
	School	Teachers Who Care	X		X
		A Fun Place to Learn	X		
		A Fun Place to be with Other Children	X		
	Friends	Friends Who Care	X		
		Accepted By Other Children	X		
		Friends Have Good Behavior	X		
	Family	Family Who Care	X		X
		Warmth and Encouragement			X
		Patient Parenting			X
		Positive Sibling Relationships			X
	Parent Education Involvement	Involvement at School		X	X
Home Educational Environment				X	
Home Learning Activities				X	
Well-Being and Performance	Health and Well-Being	Good Physical Health	X		
		Positive Feelings About Self	X		
		Good Adjustment	X		
		Knows Where to Get Support	X		
	Social Behavior at Home and School	Is a Good Playmate		X	X
		Uses Self Control		X	X
		Interacts Peacefully		X	X
	School Performance	Working At or Above Grade Level: Reading			X
		Working At or Above Grade Level: Math			X
		Good Attendance			X
Tries To Be a Good Learner				X	

## VITA

### AARON M. SELEKMAN

2540 Raven Rd, Wilmington, DE 19810 | (302) 334-3015 | Aselekman@aol.com

#### **EDUCATION**

<b>Ph. D. candidate</b>	Current
Drexel University, Philadelphia, PA	
<b>M.Ed. in Education</b>	2000
Wilmington University, New Castle, DE	
<b>B.A. in English</b>	1992
California University of Pennsylvania, California, PA	

#### **LICENSES & CREDENTIALS**

Continuing License

Standard Certificate: School Leader I

Standard Certificate: Principal / Assistant Principal

Standard Certificate: Elementary Teacher 1-8

Standard Certificate: Teacher of Elementary Grades K-6

Standard Certificate: Teacher of Middle Level English Language Arts Grades 6-8

Standard Certificate: Teacher of Middle Level Social Studies Grades 6-8

#### **PROFESSIONAL EXPERIENCE**

<b>Principal</b>	2016-Current
Newark High School (Christina School District, Delaware)	
<b>Principal</b>	2012-2016
Henry B. du Pont Middle School (Red Clay Consolidated School District, Delaware)	
<b>Principal</b>	2006-2012
Anna P. Mote Elementary School (Red Clay Consolidated School District, Delaware)	
<b>Assistant Principal</b>	2004-2006
May B. Leasure Elementary School (Christina School District, Delaware)	
<b>1<sup>st</sup> Grade Teacher</b>	2000-2004
Thurgood Marshall Elementary School (Christina School District, Delaware)	
<b>3<sup>rd</sup> Grade Teacher</b>	1999-2000
Highlands Elementary School (Christina School District, Delaware)	